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**SOSYAL BİLİMLER ENSTİTÜSÜ**  
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**TEZLİ YÜKSEK LİSANS PROGRAMI**

**THE EFFECT OF OIL PRICE ON ECONOMIC GROWTH OF IRAQ**  
**FOR TIME PERIOD (1995 – 2017)**

**Hawar Rafaat Star STAR**

**YÜKSEK LİSANS TEZİ**

**Tez Danışmanı Dr. Öğr. Üyesi Semih Serkant AKTUĞ**

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## SOSYAL BİLİMLER ENSTİTÜSÜ MÜDÜRLÜĞÜ'NE

Siirt Üniversitesi Lisansüstü Eğitim-Öğretim ve Sınav Yönetmeliğine göre hazırlamış olduğum “Irak'ta 1995-2017 Döneminde Petrol Fiyatlarının Ekonomik Büyümeye Etkisi” adlı tezin tamamen kendi çalışmam olduğunu ve her alıntıya kaynak gösterdiğimi taahhüt eder, tezimin kâğıt ve elektronik kopyalarının Siirt Üniversitesi Sosyal Bilimler Enstitüsü arşivlerinde aşağıda belirttiğim koşullarda saklanmasına izin verdiğimi onaylarım.

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**ÖZET****YÜKSEK LİSANS TEZİ****İRAK'TA 1995-2017 DÖNEMİNDE PETROL FİYATLARININ EKONOMİK BÜYÜMEYE ETKİSİ****Hawar Rafaat Star STAR****2018, Sayfa 66****Danışman: Dr. Öğr. Üyesi Semih Serkant AKTUĞ****Jüri Üyesi: Prof. Dr. Arzdar KİRACI****Jüri Üyesi: Dr. Öğr. Üyesi Sıdıka AKDENİZ****Jüri üyesi: Dr. Öğr. Üyesi Semih Serkant AKTUĞ**

İrak petrol fiyatının etkisini incelemek için iyi bir örnek olay kabul edilebilir. Çünkü Irak, ham petrolün ihracatına büyük bağımlılık göstermektedir. Irak, önde gelen petrol ihraç eden ülkelerden biridir. Genel olarak ülkenin milli geliri ham petrollere bağlıdır. Irak'taki petrol gelirleri, Irak hükümetinin bütçesinin yüzde 90'ını kapsamaktadır. Artan ham petrol fiyatı Irak'taki ekonomik büyümeyi etkileyebilmektedir. Diğer taraftan, milli gelir elde etmek için yeni bir strateji olarak petrol gelirleri yerine başka bir kaynak kullanmak da çok önemlidir.

Bu çalışmanın temel amacı Irak'ta petrol fiyatının ve petrol üretim değerinin ekonomik büyüme üzerindeki etkilerini incelemektir. Verilerin tahmini için yıllık büyüme oranı, bileşik büyüme oranı ve korelasyon katsayısı kullanılabilir. Veriler, 1995-2017 yılları arasını kapsayan yıllık verilerdir.

Sonuç olarak, ekonomik büyüme ekonomik dönüşümün en önemli kaynaklarından biridir. Çünkü toplumun üretken kapasiteyi ve optimal yatırımı artırma yeteneğini yansıtır ve aynı zamanda sürdürülebilirlik gereksinimi, şoklar karşısında çeşitlendirilmiş bir ekonomiyi içerir, dinamik olarak teknolojiyi ve beşeri sermayeyi benimsemektedir. Para, diğer rakiplere göre rekabet avantajı kazanabilir.

İstikrarlı ekonomi politikaları ve ekonomik kalkınma ile, petrol fiyatı ile GSYİH, petrol üretim değeri ve GSYİH arasında istatistiksel olarak anlamlı bir pozitif ilişki vardır.

**Anahtar Kelimeler:** Economic, Oil Price, Economic Growth, Oil Demand, Oil Supply.



**ABSTRACT**  
**MASTERS THESIS**  
**THE EFFECT OF OIL PRICE ON ECONOMIC GROWTH OF IRAQ FOR**  
**TIME PERIOD (1995 – 2017)**  
**Hawar Rafaat Star STAR**

**2018, 66 Pages**

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Iraq represents a good case study to examine the effect of oil price, because most of its earning dependence on exporting crude oil. Iraq is one of the major oil exporting countries. Generally, the national income depends on crude oil. Oil revenue in Iraq covers 90 percent of Iraqi government's budget and also Iraqi economy could be effect by would economic during economic problems. Thus, increasing oil crude oil price can effect on economic growth in Iraq. So it is crucial to use other resource instead of oil revenue as a new strategy to gain national revenue.

The main objective of this study is to examine the effects of oil price and oil production value on economic growth. Annual growth rate, compound growth rate and correlation coefficient can be used to estimate of the data. The data is annual data which were converting a period of 21 years from 1995-2017.

As a result, Economic growth is one of the most important sources of economic transformation because it reflects the community's ability to increase productive capacity and optimal investment and also sustainability requirement includes a diversified economy on the face of shocks, dynamically adopts technology and head accumulation human money, competitively can gain relative advantages compared to the other. Thus, it operates within stable, stable economic policies and economic development and there were positively statistically significance between oil price and GDP, oil production value and GDP.

**Keywords:** Economic, Oil Price, Economic Growth, Oil Demand, Oil Supply.

## DEDICATION AND ACKNOWLEDGMENT

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**ACRONYMS AND SYMBOLISTS**

<b><u>Acronyms</u></b>	<b><u>Explanation</u></b>
<b>OPEC</b>	: Organization of the Petroleum Exporting Countries
<b>DME</b>	: Dubai Mercantile Exchange
<b>US</b>	: United States
<b>D/B</b>	: Dollar / Barrel
<b>WTI</b>	: West Texas Intermediate
<b>IEA</b>	: International Energy Agency
<b>HDI</b>	: Human Development Index
<b>GDP</b>	: Gross Domestic Production
<b>OP</b>	: Oil Price
<b>EX</b>	: Exchange Rate

<b><u>Symbol</u></b>	<b><u>Explanation</u></b>
<b>D</b>	: The annual growth rate of per capita income
<b>S</b>	: Is the net saving rate
<b>P</b>	: Is the capital productivity
<b>R</b>	: Is the annual population growth rate

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## **CHAPTER ONE**

### **1.1. INTRODUCTION**

The increasing of the crude oil price recently was seriously taken in consider. However oil was seen as a secondary source, it became a crucial resource in the societies later. During 1970s and 1980s, the Arab countries faced a bad instability in economic growth, but in the mid of 1970s, increasing the oil products and rising of its price helped the oil country producers. Later, most of the Arab countries encountered the falling of oil price and economic growth including Iraq. Iraq has been considered as one of those countries that has instable relations with economic growth and economic development. Despite of these, it had a good enough economic growth in the past decades (Hathaway, 2011).

The beginning of discovering of oil in the United States was by an American officer called Aduin Drake. He dug the first oil well in 1859. That was a turning point in searching for oil and oil market and competitions appeared. The market was quickly changed to monopoly market. An American company owned by an American person called Rockefeller monopolized the market at that time. That monopolization increased and caused the division of some companies thus led to predefine oil price and taking over oil sites. Later a contract called AKNACRI was signed. It included these basics, predefining oil price and dividing oil sites and loading and unloading oil barrels.

In the end of the World War II and after collapsing of European economy, these companies took over some wide oily area in the Middle East. There were some helpful reasons to make this easy for them including the closeness of the area to Europe and oil drilling. Seven monopoly companies were founded; five of the American and the other two were British and Dutch. They were called the seven sisters and they monopolized the oil market and predefined the price of oil as they wanted. (Kilian, 2007).

The importance of this research is revealing the influence of crude oil price on economic growth and collecting data was used to analyze that influence. Iraq in general is the place of practical part of the research.

In addition, this research consists of four chapters. In the first chapter, introduction, the significance of the problem and methods were explained. In the second

chapter, the main variable like crude oil price by oil concept and types of oil price and oil market has been mentioned .In the third chapter, depended variable like economic growth by economic growth concept and the elements of economic growth its factors. The fourth chapter is analyzing the data and some results and recommendations about the influence of crude oil price on economic growth have been shown.

## **1.2. RESEARCH OBJECTIVES**

The main objective of this study is to examine the effects of crude oil price on economic growth. Specific objectives of the research are:

1. To understand the impact factors of crude oil price on economic growth in Iraq
2. To identify the relationship between crude oil price and economic growth in Iraq
3. To understand the effect of change oil price on economic growth in Iraq.

## **1.3. SIGNIFICANCE OF THE STUDY**

The recent shock of oil price in the world is brought a controversial debate among policy makers and academics. As a result, it is affected on global production, and economic growth. Iraq represents a good case study to examine the effect of oil price, because most of its earning dependence on exporting crude oil. So, the significant of the research is to contributing theoretical sides and focusing on oil prices and economic growth so as to understand the important of oil price and the impact any change in oil price on exporting oil countries such as Iraq. Thus, the findings of this research are beneficial to the government, economic policy makers, the private sector and academics.

## **1.4. STATEMENT OF THE PROBLEM**

Iraq is one of the major oil exporting countries. Generally, the national income depends on crude oil. Oil revenue in Iraq covers 90 percent of Iraqi government's budget. As a result, Iraqi economy could be effect by would economic during economic problems> Thus, increasing oil crude oil price can effect on economic growth in Iraq. So it is crucial to use other resource instead of oil revenue as a new strategy to gain national revenue.

Previous economic researchers do not address this problem in their study, therefore, the researcher have chosen this topic in order to find out the relationship between crude oil price and economic growth.

## **1.5. RESEARCH QUESTIONS**

The main purpose of the research is to examine the effect of crude oil price on economic growth in Iraq. And the research is intended to answer these specific questions:

1. What is the effect of crude oil price on economic growth in Kirkuk?
2. What is oil price and economic growth?
3. What is the magnitude and direction of crude oil price on economic growth?

## **1.6. RESEARCH METHODOLOGY**

### **1.6.1. Material and Method**

The main aim of this study is to examine the effects of crude oil price, oil production value on economic growth in Iraq. The data is annual data which were converging a period of 21 years from 1995-2017. The observation were 21 which might be sufficient enough to apply correlation coefficient and also annual growth rate used order to determine the increasing or decreasing the year comparing to previous year and compound growth rate used to determine the rate of increasing or decreasing of the period of time and also relative used to determine the rate of increasing or decreasing the year comparing to the base year.

### **1.6.2. Study Design**

The relationship between oil price, oil production value and economic growth are analyzed in the design of present study in Iraq. Moreover, the design analytical study can be established in this study as it followed to establish the relationships between components and the study variables. The design was more relevant as it qualified one type of data (secondary data) were provided data and information from the annual data during 1995-2017.



## **1.7. RESEARCH HYPOTHESIS**

- Hypothesis (H0): There is no correlation between oil price and gross domestic production
- Hypothesis (H1): There is correlation between oil price and gross domestic production.
- Hypothesis (H0): There is no correlation between oil production value and gross domestic production.
- Hypothesis (H1): There is correlation between oil production value and gross domestic production.

## **1.8. LITERATURE REVIEW**

Al-Salman, Ghali and Al-Shammari (2008), realized changes of oil prices have an influence on the real GDP on all G7 economies. However, there is a long-term neutrality of the oil impact in some countries while the oil influence is important of the rest of the G7 economies. Also they show that various governmental policies have helped to reduce the impact of oil prices in the business area.

Lee and Chiu (2011) tried to examine the effect from oil price and oil consumption changes on nuclear energy expansion due to international crude oil price hikes and oil supply reduction. The research examined six highly industrialized countries, Canada, France, Germany, Japan, UK and USA, and covered the period from 1965 to 2008. In all the other five countries oil price increased affect the nuclear energy growth.

Rodriguez and Sanchez (2004) focused on the G7 countries in their study, Norway and the Euro-area. The showed rising oil price generally have a great effect on GDP development than that of oil price fall with the latter being statistically in considerable in all countries ap. In exporting countries such Norway, product growth replies positively to an increase in the oil price changing and in Britain the product growth is unexpectedly negatively influenced due to sharper real exchange rate appreciation.

(Kilian, 2007), in most countries exogenous oil supply disruptions cause at least a temporary deny in real wages, and lowering of the local currency against the dollar and an increase in short- term interest rates. Despite qualitative similarities, there is strong statistical guide that the restraint to exogenous oil supply disruptions varies across G7 countries.

The purpose of Cologni and Manera (2008) study was to measure the direct effect of oil prices on macroeconomic points and verifying the central banks of the G7 have responded to exogenous oil price shocks. The result shows with regard to the response of monetary policy, the central banks of most of the countries reacted to the oil price shock by growing interest rates and decreasing real money balances. in the end, an important part of the influences of the oil prices shock in 1990 resulted in directly from the response of monetary policy.

In another paper, Cologni and Manera (2009), examined the link between the provision in the oil market and a business cycle for G7 countries. The paper sealed that models with exogenous oil variables mostly outperform the corresponding univariate specification which excludes oil from the analysis. Oil shocks influences face to be asymmetric and rely on the grade of whether or not the price rising are simple corrections of past reductions. Moreover the role of oil shocks in recessions has lowered over time and improvements in energy capacity and the policy by monetary authorities are the once that determined the impacts of oil shocks. Vice versa the economies of the G7 countries can not affect oil market conditions.

Lardic and Mignon (2008), examine the impact of oil prices in several European countries using data from 1970 to 2003. In fact, rising oil prices lead to retard total economic activity by more than dropping oil prices stimulated.

(Kilian, 2009), are analyzing the relation between oil prices and external balances, especially the effects of oil demand and oil supply shocks on external balances of oil exporting and oil importing countries through the period from 1975 to 2006. More specifically the main results are:

According to (Yoon, 2004) the exogenous oil price growth have influences on the GDP of the G7, although oil prices shocks have not been an essential determinant of

common recessions in the G7 except two major OPEC oil price shocks in 1973-74 and in 1979-80.

In addition, Korhonen and Ledyeva (2010) among their study tried to know the degree to which oil price shocks influence growth in different countries through the medium of foreign trade. The analysis proves that oil price increases have a pure and positive effect on the oil exporters GDP growth although this positive direct influence is moderate by a negative albeit small indirect effect.

Wang and Lia (2010), analyzed the co-integrating relation between global economic action and crude oil real prices. The paper proved that oil prices are impact significantly by fluctuations in the Kilian economic index through long-run balance situation and short-run influences. The modification process of crude oil prices due to a constant change in the Kilian economic index takes a huge time than that caused by a permanent change in the US dollar index.

The study of Apergis and Miller (2009) shows that different oil market content shocks play the important part in illustrating the adjustments in stock market returns. The volume of the influences of the structural shocks is small leading to an assumption that other control variables, such as interchange rates, benefit rates and consumer durable spending seem to be explanatory determinants of stock market returns.

## CHAPTER TWO

### 2.1. OIL

#### 2.1.1. A Historical Entrance for Oil

Man has known the use of oil for thousands of years, and its use has developed at different stages, starting from the use of oil for the purpose of painting, filling the cracks and its uses for heating, lighting, constructing and as treatment of wounds (Al-Kuli, 1997).

First discovery of an oil reservoir was in the second half of the last century in 1830 when oil flowed during the extraction of salt in the United States of America.

It was followed by another discovery in Russia in 1856 and in Romania in 1857. The extraction of oil by Edon Derbik on August 28 1859 in Tetsvile, Pennsylvania in the United States at the depth of 69.5 feet and extraction rate (25-35) barrels per day to announce the beginning of the modern oil industry.

Iraqis knew the use of oil for different purposes, both in the process of painting, building and paving roads, as well as it was used by the Assyrians in their various industries (Arab Energy Conference10th, 2014) .

The development of the oil industry in Iraq continued and Iraq became one of the countries with many important economic resources, including oil, as Iraq floats on a lake of crude oil with proven reserves of over (200) billion barrels. Turkish companies are among the first companies to acquire the right to search and prospect all over Iraq in (1925) except for the Basra area for (4) shillings of gold per ton of crude oil. In 1927 Baba Karkar fields were discovered north of the city of Kirkuk, but only in 1934 did the production of oil begin commercially (Yasiri, 2009).

During the seventies of the last century, the oil industry in Iraq witnessed a noticeable development in the field of development of oil fields, increasing production capacity and the extension of pipelines for export or internal transport of oil and liquid gas, as well as ports of export, liquidation and storage (Al-Qaisi, 2005).

### 2.1.2 Definition of Oil

The concept of oil or petroleum is the same as the Latin word "rock oil". The word oil in general used to include oil of petroleum and natural gas where oil of petroleum is known as petroleum in liquid form, while natural gas is known as oil in the form of gas and the oil consists hydrocarbons, the chemical basis of hydrogen and Carbone elements.) which take different forms can be obtained individually through distillation and manufacturing and there is oil at the surface of the earth or in the interior and despite the disagreement of scientists on the origin of oil where some of them return oil to organic materials and others due to the origin of oil to inorganic materials, but they agree , however, oil is found in nature in limited amount that are depleted and extended. The search, extraction and production of oil is based on the connected efforts of many scientists in different fields such as earth science, marine science, chemistry, physics, engineering and economics. Petroleum is essentially a complex and heterogeneous compound of organic compounds Petroleum is essentially a complex and heterogeneous form of hydrocarbon organic compounds with various partial combinations and different natural chemical properties. Crude oil contains some impurities, especially sulfur, oxygen, nitrogen, water, and mineral salts. It also contains some impurities which are undesirable and cause many problems in processes and refining (Al-Kuli, 1997).

There are several definitions of petroleum, including:

- \* The word petroleum is originally a Latin word, "petro" means "rock" and "oleum" means "oil" to become "oil of rock". Petroleum is a simple and complex substance. It is a simple substance because it consists of chemicals of only two elements, hydrogen and carbon, which is a compound substance at the same time because its derivatives vary according to the molecular structure (Mohammed, 1983)

- \* Crude oil is a greasy liquid with a special smell that distinguishes it. Its colors vary between black, green, brown and yellow.

- \*Its thickness also varies according to the intensity of the quality.

The oil is composed of organic materials (animal and plant), which absorbed millions of years in layers of fine sand under extreme pressure and heat, and the oil

which may be mixed with water remains in the pores of those sedimentary layers until the occurrence of twisting and breakdowns by the movement of the earth's crust and under pressure, and by the nature that allows it to migrate within the porous rocks to accumulate in the so-called oil trap and prevents it from continuing to migrate in that case, except what trapped the trap of layers of rock non-porous, the oil trap may also be the result of the transition of porous layers into non-porous layers by natural factors or other geological reasons. If a number of fisheries or oil-bearing classes converge, it becomes a single productive unit called an oil field.

## **2.2. OIL PRICES AND THEIR CONSEQUENCES**

### **2.2.1. The Concept of the Price of Oil**

The oil price is defined as "the value of the substance or the petroleum product expressed in cash" (Mohammed, 1983) during a specific period of time and under the influence of a range of economic, social, political and climatic factors ... Etc.

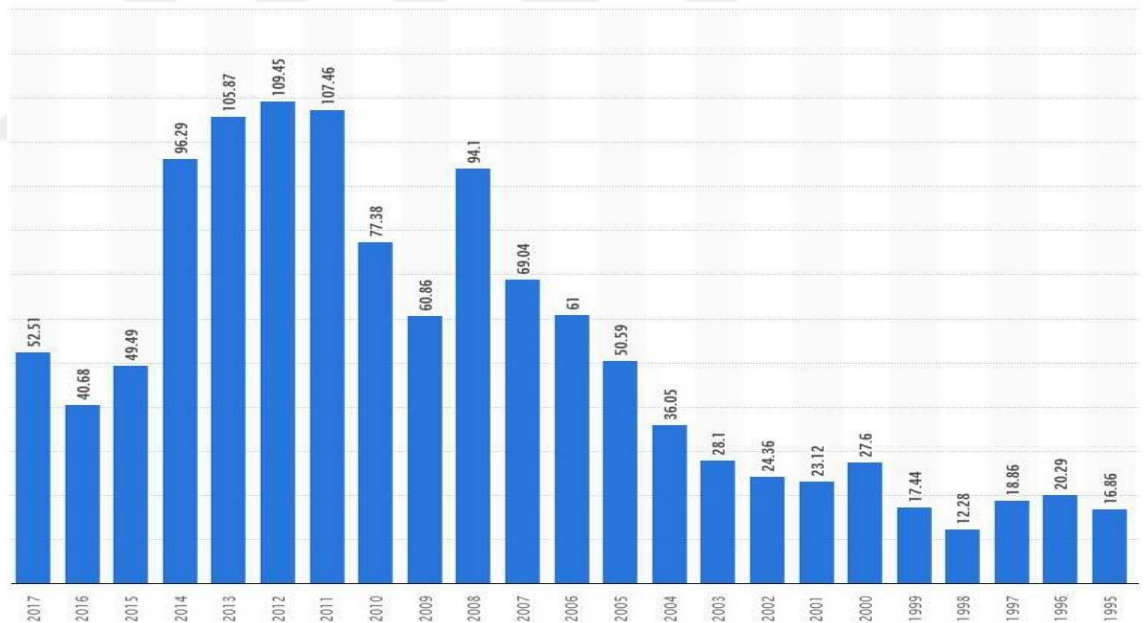
The oil price has developed since the commercial discovery of the oil market. It was at the beginning of discovery that was determined at the oil wells. Under a "monopoly of a few," the petroleum market prevailed. It was then determined in the ports where the oil industry was discovered and expanded in many countries. This is due to the monopoly of a few oil market companies that sought to maximize their profits, and then develop into a competitive price subject to demand and supply factors. This is the entry of several oil producing countries to the oil market (Shelley, 2005).

All this development in the concept of price or how to determine it indicates that the price of petroleum has several types or terms that will be mentioned in accordance with the evolution of the time of the emergence of each type of these species, and the standard used in the measurement of petroleum. And the standard on which the petroleum commodity is measured, is the monetary value or the cash image of a barrel of crude oil measured in US dollars of 42 gallons expressed in the US monetary unit for example \$ 100 / barrel and that this price is subject to constant fluctuations because of the nature of the market International oil, which is characterized by dynamism and instability, which has been reflected in oil prices and make them unstable prices and

subject to constant fluctuations until the phenomenon of volatility has become a worrying phenomenon.

At the global level since the beginning of the seventies of the last century and its continuation so far, especially after the large rises during the years 2006-2007, which peaked more than (147 dollars / barrel) and almost touched the threshold of (150 dollars / barrel) in In July 2008, but quickly began to fall and fell sharply as it rolled below the (40 d / b) at the end of the second half of the same year, especially in the (K 1), thus losing about (110 dollars / barrel) and the reason for that crisis Which has left a negative impact on the oil economy, which was clearly reflected on the international oil market, which is represented by the decline in oil prices fell dramatically, as the financial crisis worsened and the successive collapses in the financial markets and banking institutions started in August 2008, oil prices fell sharply, unprecedentedly and at very high rates (OPEC, 2018).

**Figure (2.1): Average of oil prices of the OPEC**



Source: (OPEC, 2018).

### 2.2.2. How the Oil is Priced

Some believe that oil pricing is an easy process while it is not. It is subject to a number of complex standards and processes as well as economic conditions. The price

that is advertised daily in the media is for immediate sale in the sales markets and does not necessarily reflect the reality of the actual sale of the contracted oil. The world is divided into three oil markets - Namix and West Texas - in US markets and Brent for Europe, Oman or Dubai for East Asian markets.

According to these markets, oil is priced. Oil is usually priced at three locations for five types of oil. For example, the heavy Arab is priced in the US market is \$ 7 to \$ 10 per barrel below the price of Nymex or West Texas. And it is priced in the European market at \$ 5-7 a barrel below Brent, while in the Asian market is priced below \$ 2-4 per barrel. while the excellent Arab light oil, the most expensive types of oil in the US market is priced for above \$ 1-2 a barrel from the price of Namix or West Texas and it is priced in the European market \$ 2-4 per barrel more than Brent, While it is priced in the market of East Asia 3-4 Dollars per barrel. Thus for the rest of the oil types, prices are changed according to contracts and according to the conditions of the oil market (Boudjema, 2008-2009).

Iraq's proposal to change the pricing of its crude oil in Asia is facing refining companies reservation that fear more risks because of the longer period between pricing and delivery. The Iraqi oil marketing company (SOMO) surprised traders this week by seeking to poll views on their plans to change the benchmark price of Basra crude in Asia To be determined on the Dubai Mercantile Exchange as of January 2018, rather than pricing based on the Standard & Poor's Global Plats. This move would affect the price of about two million barrels per day of crude oil supplies to Asia, especially those destined for India, China and South Korea.

The Managing Director of "Strong Petroleum" in Singapore, Oystein Bernstein, considered that "Change is important and will be closely watched, not only from Middle East producers but from all stakeholders". Basrah crude will be priced under the new method, using the monthly average price of Omani crude futures on the Dubai Mercantile Exchange two months before the oil is loaded. Other producers in the Middle East, such as Saudi Arabia, Kuwait and Iran, are pricing their raw materials based on the loading month. This means that the price of Iraqi crude will be loaded in October, based on futures contracts on the Dubai Mercantile Exchange in August. This makes buyers vulnerable to risk, as they will only be notified by mid-September



whether they have accepted their offers to buy shipments, making it difficult for them to pre-hedge price changes. A major buyer of crude in an Asian refinery said do not support it "Saying "They have to reform their (supply) program first, before they try to change the benchmark price," traders said. "Different pricing timing for other producers also makes it difficult to compare raw material valuations." Buyers are concerned that about 80 percent of crude used to price Oman futures contracts on the DME is moving to China, reflecting the economic and fundamentals of only one Asian buyer. "The transition to Oman's contracts on the Dubai Mercantile Exchange is very ambitious," said Ady Emserovic of the Center for Energy Economics at the University of Surrey in Britain. (Al-Hayat, 2017).

And he said "It will cause a few difficulties; it will be very difficult technically." Somo did not comment on its motives for change, and the shift to the DME may bring higher prices to the company. The average monthly price of Omani crude contracts on the Dubai Mercantile Exchange, Has reached levels of about three dollars above the average assessments of Oman and Dubai on the Plats platform between last March and July.

On the other hand, some traders support this move, because knowing the prices of Iraqi crude two months before the delivery gives traders who have shipments of Basra crude without specific destinations, more time to determine the destination where they will sell oil, based on the differences in prices in the region. It is not yet clear whether SOMO will proceed with the move, as the company is expected to solve the problems that customers have faced, according to a source familiar with the Iraqi plan.

Baghdad may change the measurement price, but while maintaining the current pricing period, that means the price of crude will remain based on the same month of loading. In the oil market, oil prices rose yesterday as the US oil sector prepared for a potential production disruption as Hurricane Harvey headed to the center of the oil sector in the Gulf of Mexico. The storm has been growing stronger since yesterday and could become the biggest hurricane to hit the US mainland in 12 years, heading toward the area between Houston and Corpus Christi on the Texas coast. US WTI crude futures rose 33 cents, or 0.7 percent, from the previous is level to \$ 47.76 a barrel.

Global Brent crude <CLC1> advanced 38 cents, or 0.7 percent, from the previous close, to \$52.42 a barrel. Prices have risen as production facilities in the affected area are closed in preparation for the hurricane, with expectations that closures could continue if the storm caused extensive damage.

Far from the potential impact of the storm on the oil sector, the crude market remains abundant in world supply, despite efforts by the Organization of the Petroleum Exporting Countries (OPEC) to cut output to boost prices. The rise in crude supplies is partly due to US production, which jumped 13 percent since mid-2016 to 9.53 million barrels per day (bpd), close to its record of 9.61 million bpd in June 2015. (Al-Hayat, 2017).

### **2.2.3. Types of Oil Prices**

#### **2.2.3.1. Declared Prices**

The price first published in 1880 in the United States by Standard-oil Company, which was the monopoly of the purchase of oil from the multi-producer in the oil market and at the mouth(nozzle) of the well and the increasing discovery and exploitation of oil outside the United States of America and the increase in global production, oil companies are announcing the announced prices in export ports of oil, In view of the sharp competition between the major monopolistic oil companies around prices, in 1928 an agreement was concluded between these companies that resulted in stability and fixed prices declared in the petroleum market, and the development of the latter and the emergence of other oil producing countries, these countries are interested in the declared price of oil through the application of the principle of semi-profits of the benefits of oil and oil companies operating on its territory, and that during the fifties and early sixties the producing countries established independent companies (Al-sammak, 1980).

#### **2.2.3.2. Prices Realized**

This type of presence emerged in the late 1950s, where independent oil companies operated by offering various facilities or discounts approved by the buyer as a discount

rate deducted from the advertised price or payment facilities. The price can be defined as the advertised price minus the various rebates or facilities granted by the seller to the buyer.

From this definition, we say that when long-term oil contracts are made between two partners, one of the buyers will benefit from larger discounts than in the short-term contracts, which makes the price achieved low according to the amount of these discounts (Al-Mousa, 2005).

### **2.2.3.3. The Reference Price or the Price Quoted**

This type of price appeared in the 1960s, where it was used to calculate the value of oil between some oil producing countries and foreign oil companies for the distribution of oil revenues between the two parties. The price of the signal is calculated on the basis of determining the rate between the declared price and the price achieved for several years, and it was adopted by many oil countries, for example Venezuela did "in 1966 to introduce the prices adopted in its financial system, thus excluding the price base achieved" (Al-aqiba, 1974).

### **2.2.3.4. The Price of Tax Cost**

It is the price equivalent to the cost of petroleum production extracted by the oil companies operating in in the oil world countries and regions, Plus a return mechanism paid by these oil companies to the governments of the designated oil countries, In other words, the oil companies operating in the oil countries buy oil extracted from the land of the latter at a price equivalent to the cost of extraction plus a return or rent is a tax on income goes to the governments of those countries, so the price is essential in the market transactions, because selling at a lower price means that the sale is a loss (Al-Muzaini, 2013).

It is the cost borne by the companies under the agreements in force to obtain a barrel of oil from crude oil. This price is equal to the cost of production plus the government's return (tax and rent) and any other amounts paid by the companies to the producing state (Al-sammak, 1980).

### **2.2.3.5. Immediate or Instant Price**

This type of price has emerged with a free or competitive market, and can be defined as "the price of oil unit exchanged simultaneously or immediately in the free petroleum market. From this definition we see that the spot or instant price is greatly affected if there are imbalances in the petroleum market, and therefore it is more scalable compared with the advertised price. It is higher if there is a significant imbalance between supply and demand, and less if there are minor imbalances.

By reviewing the prices of crude oil between the two world wars and the early sixties, we find that they were determined to suit the interests of the oil-consuming countries of the advanced industrial countries in order to provide cheap energy for the reconstruction and development of the Western economy at the expense of producing countries (Al-Amin, 1978) . While the oil prices for the period before the seventies of the last century and since the discovery of crude oil is dominated by a small group of companies on the oil industry, both in the use of transport, marketing and refining.

### **2.2.4. The Factors Affecting the Prices of Crude Oil**

Those who observe the movement of oil prices from ancient times until the present age, see that these prices are linked and influenced by several factors, including what is natural and what is market and what is political, and all these changes and effects led over time - especially the twentieth century - To impose itself on the economy of the world as a whole, the producers of this commodity is affected by economic growth down these prices, especially if these countries rely on their budgets on oil as the most important source of resources, and this applies to Iraq. (Al-Muzaini, 2013).

For the oil-consuming countries, high oil prices hinder their economic growth as oil is the main source of energy through ease of extraction and transport, in addition to its availability in many regions of the world. In this study we will highlight the most important factors affecting oil prices, even if we multiply, we will limit the most important, which is the factors of the market, supply and demand, but there is a factor of inflation, which we highlighted during the reference to the history of world oil markets.

### **2.2.4.1. Oil Supply in the Oil Market (Oil Supply)**

Through our study of the development of the international oil markets, we noticed that the impact of oil supply on oil prices has a mutual effect, so we will define the oil supply and the factors that affect oil prices (Al-Muzaini, 2013).

#### **a. Definition of Petroleum Supply**

Petroleum supply "is the quantities of crude petroleum commodities that are offered in the market, for exchange and in the light of the humanitarian need or demand within a certain time" (Mohammed, 1983).

Oil supply is the most important factor in oil prices. Its increase or decrease has a direct impact on price. Even the economic theories say that the supply with prices is invers. However, the supply and any economic activity can be developed by increase or contraction or stability, and therefore the supply of petroleum product is characterized by specific flexibility. This flexibility can be seen in two perspectives:

1 - Determination of the degree and quality of the supply flexibility, Can be defined by dividing the relative change in the amount of the item displayed to the relative price change of the commodity, and its result is elasticity affected by the price or not affected whether the impact is large or small, because the change in the offered quantities is less than the change in their price, and flexible in the medium and long term.

The lack of flexibility of the supply of petroleum in the short term is due to several reasons, including:

- \* Technical reasons, which are represented by limited or lack of production capacity, storage or transport capabilities.

- \* Political reasons related to petroleum policy in order to maintain or proper exploitation of petroleum wealth.

- \* Economic reasons or factors, such as making new investments because doing them requires or lasts several years.

2 - In terms of the discovered petroleum quantities from oil that can be extracted in the present or future, the time period of exploitation or presentation is not fixed but is

variable, and therefore it can be said that the flexibility of supply in this case is related to the age of time to exploit oil wealth,

Since the time to extract and supply the petroleum commodity is short, long and medium, the elasticity of the oil supply according to this view is flexible in the short and medium term and is not flexible in the long term.

The flexibility of the supply of petroleum is flexible in the short and medium term due to the fact that the continuity of the production process increasingly leads to the possibility to increase the supply and at the same time the possibility of reduction. In the long term, the lack of flexibility is due to the inability of the continuity of the oil production process which leads to the possibility of gradual decrease of the oil supply, all due to the following reasons:

- \* Geological reasons such as decreasing petroleum reserves.

- \* Economic reasons such as high cost of production and competing prices of alternative goods.

### **B. Factors Affecting Oil Supply**

Oil supply, like other economic activities, is influenced by a variety of different and differentiated factors, but this effect occurs when the market is competitive. It is noted that the movement of crude oil prices and oil production is considered to be under the control of the major oil companies, but after the emergence of the Organization of OPEC oil market transition from a monopoly to a competitive market, the supply of petroleum is subject to and influenced by several factors:

- \* **Oil demand:** Petroleum demand is one of the most important factors affecting the supply of oil, because demand is created by the offer, when oil producers note that there is an increase in demand for oil will definitely increase their offer in the market, but if they observe the opposite will reduce their offer.

From this perspective, we say that there is a strong relationship between the demand and the market supply of the petroleum commodity, according to which prices are determined. When there is a demand that exceeds supply, prices tend to increase. If the oil exporting countries can offer additional quantities of oil to obtain additional revenues financed by their economy, if they reach their maximum production, their

additional financial revenues - resulting from higher prices - Term oil, and when demand is lower than supply, prices tend to fall. Consumer countries are trying to raise their inventories, increase their consumption of oil and vice versa for oil exporting countries. (Majid, 2012)

\* Petroleum policy or production policy: This factor has a significant impact on the supply of the petroleum commodity, whether by increasing or decreasing or stable supply. The petroleum policy or production policy is represented in a set of actions taken by one or certain parties in how to exploit oil. Reduction or suspension of oil production is an important economic and political weapon taken in several forms in the oil market, for example, what the Arab oil producing countries during the war 1967 and 1973, when its oil was used as a weapon against hostile colonial countries and had an impact on the global oil supply. As well as the preservation of the organized supply which has several objectives, including a longer period of oil exploitation better as sought by OPEC through the codification of production.

In terms of increased supply or production, the aim is to increase financial returns to meet development requirements, as is the case for Saudi Arabia and Iran that each time demand OPEC to raise their quotas, because both have a large reserve of oil.

\*The price of oil: The economic theories show that the relation of the supply to the price in any market is inverse, the increase in the supply of the commodity leads to lower prices and vice versa. When oil prices increase, the oil producing countries seek to increase their production source and in return for additional income to meet their economic needs especially if these countries rely mainly on their income on oil revenues. If they are industrialized countries seek to increase their production in order to reduce their imports of oil, in addition to affect the prices to reduce them such as what England did for the (North Sea) and if prices are low producers seek to reduce supplies, especially if they reach levels that are not commensurate with the cost of oil extraction. This is what OPEC did during the 1980s when oil prices fell to low levels.

As for consumers, they tend to increase their consumption and build reliable strategic stocks at high oil prices. All this shows that the relationship between the oil price and the purpose is strong.

\*The price of alternative commodities: Before oil was discovered as a reliable source of human life, there were other sources of energy, such as coal. Due to their expensive costs and the difficulty of extracting them, oil was used as the least expensive source of energy.

But with time and oil crises, industrialized countries have become increasingly interested in new energy sources such as solar energy and coal - once neglected - other sources of energy compete with oil in this field.

**Table (2.1): The composition of global energy consumption is in different sources for 1900 to 1995.**

Energy Resources	1900	1920	1940	1960	1965	1975	1990	1995
Coal	94.2	86.6	76.6	52.0	43.3	29.5	32.2	32.3
Petroleum	3.8	9.5	17.9	31.2	36.7	49.0	41.4	41.4
Natural Gas	1.5	1.9	4.6	14.6	17.8	18.5	21.4	21.7
Hydro and Nuclear Power	0.5	2.0	2.9	2.1	2.1	3.0	5.0	6.4
Total	100	100	100	100	100	100	100	100

Source: (Chitour, 1998)

We draw from the table an increasing importance of the crude oil (oil) source of energy is estimated to increase from 3.8 to 41.4 at the end of the period. The prices of these alternative commodities appear at first sight to be ineffective in the short term oil supply because of their high costs and the impossibility of replacing the entire petroleum industry. However, in the long term it may have an impact on the oil supply as it did after the second oil crisis. The single of oil price rises during that period.

In addition to all these factors affecting the supply of petroleum, there are other factors such as temporary political crises, such as the Gulf War and natural disasters such as hurricanes that hit the Gulf of Mexico and the United States and others.



#### **2.2.4.2. The Demand for Oil and the Flexibility of Demand for Oil**

Definition of petroleum demand: Petroleum demand can be defined as representing those quantities of petroleum products that a person needs at a certain level and within a specific period of time to display satisfying various needs, whether consumption such as gasoline or lighting, and for productive purposes such as petrochemical products.

By defining the IEA for petroleum demand, we say that oil consumption is not crude directly, but is subject to refining that produces petroleum products such as gasoline and others used in the petrochemical industry (Oel Maurle, 2001).

So the demand for oil is of two types, demand for crude oil, and demand for petroleum products, so there is no demand for petroleum products unless there is a demand for crude oil. It is therefore possible to say that there is a reciprocal effect between demand for crude oil and petroleum products.

The change in the price of crude oil affects the petroleum commodities, but may be a few, because they do not appear directly, but are distributed among the petroleum products, while the change in the price of petroleum products directly affects the price of oil, either increase or decrease, this is due to the close relationship between petroleum products and their only source, namely, crude oil.

The concept of demand elasticity is the change in the demand for oil on the change in price. The elasticity of demand in the short term is nil, because an increase in price does not necessarily lead to a reduction in demand. This is because the consumer in the short term is connected to satisfying his needs. He cannot reduce his request, in the case of low prices the consumer seeks to increase his demand, but not a large quantity, but limited, because the storage capacity is limited and because it's large cost. Long-term elasticity of demand is flexible, because by increasing prices in the long term, consumers seek to reduce oil demand by looking for other sources. If the price falls, the consumer tries to increase his demand to store it as a reliable future reserve Abdul Rada and Nabil (2011).

## B. Factors Affecting Oil Demand

Oil demand is affected by a range of factors with varying degrees of influence. The most important factors are:

\* Economic growth: The most important factor in the demand for oil and closely linked to a positive relationship, as humanity reached advanced stages of economic and social development, especially with the emergence of the industrial sector as an important economic sector and the leader of all economic activities, this has effectively affected the development and increasing demand for energy, especially oil.

At present, the increase in world demand is higher for oil to meet the growth needs of the economies of the European countries and the United States, in addition to the large military operations by the United States outside its geographical limits, which increase its demand for oil,

There are also new markets of emerging capital markets in Asia and China, which are achieving increasing growth rates and increasing demand for oil "Mahdi and Haydar (2015).

**Table (2.2): Shows the annual growth rates of "PIB" between 1973 and 2010**

Country	1973-1985	1985-1995	2000-2005	2005-2010
Industrial Countries	1.6	۱.۶	۱.۹	1.9
Far East	5.0	۵.۲	۴.۶	4.6
Other (Développent countries)	0.3	-۰.۷	۲.۰	2.0
Soviet Union and Central Europe	2.2	-۰.۵	۴.۵	3.6
World	1.0	۱.۵	۱.۷	1.7

Source: (Chitour, 1998)

The relationship between economic growth and oil demand was within the range of (01) in 1973, which means that each of the economic growth requires one percent (01%) of the increase in oil consumption " (Ayoub, 1996).

In reference to Table (2.2), we see that the rate of economic growth fell from the first stage to the second stage. In comparison with the above mentioned in the analysis of the oil market, we see that the demand actually decreased during that stage, which led

to the impact of oil crisis in 1986 , Which resulted from the large supply and lack of oil demand.

\* Climate: It is one of the factors affecting the demand for petroleum, and this effect is due to the amount of change in temperature throughout the year, whether the decline or rise, usually increased demand for oil in the winter and less in the summer, but now see that the climate may not has greatly affected the global demand for oil, because it was an old reliable heating and industry, but now replaced by natural gas, especially in heating.

\* Price: One of the most important factors affecting the petroleum demand for petroleum, whether crude or oil products, as previously stated that petroleum is closely related to goods or petroleum products, the rise in the price of oil in the short term may not affect the prices of petroleum products, demand for crude oil is low, and demand for petroleum products remains the same, because this difference in prices does not appear, because it is distributed among these products. In the long run, high crude prices affect the demand for crude oil and the demand for petroleum products whose prices start to rise. (Ayoub, 1996).

\* The number of the population is one of the factors influencing the demand. As the population increases, this leads to increasing demand, but the influence of the population may not be important or important. If it is related to other factors, the most important factor is economic growth .Whether the economic growth (national income) is high and its effect is few or limited if the general national income and the individual income declined.

## **2.3. THE OIL MARKET**

### **1.3.2. The Historical Development of the Global Oil Market**

Since the discovery of oil for the first time, it can be classified as will come. The oil market has passed several stages since the discovery of oil and can be submitted by time periods.

1- During the period 1857 to 1870 (since the beginning of the oil industry until the emergence of major oil companies): The oil market at this stage was competitive among

the small oil companies that started investing in oil exploitation, especially in the United States of America and the competition was fierce among these companies, resulted in the merger of some of them and the disappearance of others, until it became a large and strong companies.

2 - During the period 1870 to 1960 (since the emergence of major oil companies until the founding of OPEC): The oil market in this period became markets of monopoly oligarchs between companies that control the US oil industry and other to the global oil market by controlling the exploration and extraction, transportation, distribution and pricing, And known in this period on 1-9-1927 an agreement Aknkari between these companies, known as the seven sisters, which provides for the division of the world oil market and the oil wells in the world between them, and thus became the oil market monopoly of these companies, especially in light of the limited role of oil-producing countries.

3- During the period 1960-1973 (since the founding of the OPEC until the 1973 crisis): With the establishment of the OPEC in 1960, the monopoly of the seven sisters was reduced and the oil market turned into monopoly of the product represented in the OPEC countries. With this organization, the producing countries worked to strengthen their position and preserve their interests. That after 1973 when OPEC member states decided to stop their oil supplies in protest against the support of the governments of the major powers to the Zionist entity ended the role of major oil companies.

4- During the period 1973 to 1980 since the beginning of the crisis of 1973: At this stage, the oil market became the monopoly market of the OPEC countries, where when oil prices rose and the interests of oil consuming countries were affected and the production of non-OPEC oil countries increased, The organization loses its power.

5. From 1980 to 2011 the rule of Law of supply and demand for the oil market: At this stage, the oil market has become including a larger number of producers and consumers and it became a competitive market, but after the occupation of oil supply and demand in 1981 by increasing oil supplies outside OPEC, the situation of instability in the market oil prices and has become known from time to time as there was a drop in prices in 1986, 1998 and 2008, the sharp rise between 2003 and 2007 and the low demand for oil in 1986 and in 2011 the increase in demand and coverage of the shortage

caused by the Libyan events and coverage by Saudi Arabia Oil producing countries (Hammadi, 2009).

### **2.3.2. Definition of the Oil Market**

The oil market is the market in which an important source of energy, which is oil, is dealt with. This market moves the law of supply and demand with some reservations in addition to the economic factors that govern the market. There are other factors such as political, military and climatic factors and conflicts of interest between consumers, producers and oil companies. The oil market is characterized by three characteristics:

1. Oligopolistic market: The petroleum market monopolizes a few "oligopolistic" companies, a kind of partial monopoly. These few companies focus on a few large projects that directly affect the overall supply.

2 - The trend towards vertical integration: As the oligopolies control the production of petroleum, transfer it refining and marketing, these processes are linked by a kind of vertical integration from the beginning of the extraction of crude oil to its appearance in the form of different derivatives.

3 - The trend towards the block: The movement of companies in the oil market on the prior agreements between them on the steps followed by each, until the arrival of the commodity of oil and its derivatives to the markets, which makes them towards full integration. (Walid, 2010-2011).

### **2.3.3. Actors in the Oil Market**

#### **2.3.3.1. In Terms of Producing Countries**

**A. OPEC:** The 1950s have witnessed a real crisis between the oil producing countries, especially the Arab ones and the monopolistic companies, so that the focus of the dispute is mainly related to the demand of the oil producing countries to improve their incomes from oil revenues. However, the oil companies did not give importance to this and remained determined to exploit the oil resources of these countries, and in Baghdad on 10 September 1960 the main suppliers of the world oil market, Venezuela, Iraq, Iran, Kuwait and Saudi Arabia established the Organization of the Petroleum

Exporting Countries, the main reason for the establishment of the Organization is the reduction by the petroleum companies declared in oil prices without consulting the governments of producing countries in 1959. (Hammadi, 2009).

This has resulted in large losses in the revenues of producing countries, which amounted to 15%, as this point was a major turning point in the development of international economic relations. Eight countries have gradually joined this organization: Qatar, 1961, Libya, Indonesia 1962, United Arab Emirates 1967, Algeria 1969, Nigeria 1971, Ecuador 1957, and Gabon in 1995 and Angola in 1973.

**The organization's goals:**

- Increasing the incomes of the members of the Organization as limited and insufficient to achieve economic growth rates commensurate with developments and changes occurring at home and abroad, all due to the low level of oil prices and the distribution of oil profits for the benefit of oil companies.

- Achieving national sovereignty over the oil economies of member states.

- Coordinate and standardize petroleum policies and determine the best ways to protect the interests of members, whether individually or collectively

- Identify methods and methods to ensure price stability in international oil markets.

- Achieve a fair return on the investments of workers in the petroleum industry.

**B. Non-OPEC Producing Countries:** After the slide of oil prices in early 1988, non-OPEC oil exporters felt the seriousness of the situation. Egypt led the invitation of senior experts in non-OPEC exporting countries to meet in Cairo. However, other countries preferred London as an average location. The meeting was held on 8 March 1988 with the participation of Egypt, Mexico, Angola, Malaysia and China.

Colombia also participated in the London meeting. The Group affirmed at the London meeting that it cannot stand idly by on the international oil market and that protecting its individual and joint interests requires taking positive positions in coordination with OPEC and trying to include as many non-member exporters as possible. Which was called the Independent Petroleum Exporting Countries. In this meeting, the basic building blocks for establishing an informal group that does not need

funding or a general secretariat were put together. It is sufficient that the meeting be held periodically (every six months) and hosted by a volunteer state.

### **2.3.3.2. In Terms of Consumer Countries**

**A: The International Energy Agency (IEA)** is a global organization founded in May 1975. Its membership includes 18 western industrialized countries. It was invited by the United States of America through the Washington Conference, which resulted in the formation of the Energy Coordination Group. The creation of an international energy agency to oversee the implementation of the plan, the establishment of a network to collect and study information on the global oil market, and the establishment of a permanent framework for consultation with international oil companies. A number of other countries joined the list, with membership increasing to 24 countries.

(United States, Canada, United Kingdom, Germany, Italy, Japan, Australia, New Zealand, Sweden, Denmark, Belgium, the Netherlands, Luxembourg, Ireland, Switzerland, Spain, Austria, Turkey, Greece, France, Finland, Hungary, Portugal and Norway) In addition to the provisions of the International Energy Agency (IEA) agreement to achieve this plan, the IEA Board has developed a number of basic principles that require members to follow (Walid, 2010-2011):

- Each Member State shall establish a national energy program aimed primarily at reducing petroleum imports.

- To allow the increase in the prices of energy produced within member countries to the level that leads to rationalization of consumption on the one hand, and the development of alternative sources of petroleum on the other.

- Replacement of alternative sources of oil in heating, electricity generation and other sectors that permit this

- Supporting (Research and Development) efforts and encouraging practical application of their results.

- Creating an encouraging atmosphere to investment in the development of energy sources.

It is through these objectives that the overall objective of the IEA is to strengthen the position of consumers

As well as encouraging its members to maintain large commercial oil reserves, through which it can influence the oil market in the stages of low production and low oil supply.

**B. International Oil Companies:** A group of companies controlled the global oil industry, it was historically called the Seven Sisters, it is owned primarily by the interests of the United States of America, Britain and the Netherlands. These companies were late in controlling about 80 per cent of world oil production outside the United States America and the socialist system. It also owns 70 per cent of the global refining industry. It operates directly or through its own manufacturing companies. In addition, it owns more than 50 per cent of oil tankers, there are at least five of these companies in the United States

And the latter is drawing up its general policies as most of its shareholders are citizens and American institutions, the largest of which are Exxon, Gulf, Texaco, Mobil Oil, and the fifth American companies is called (Chevron), in addition to the two companies the Dutch (Shell) and the British (British Petroleum) (Walid, 2010-2011). Reduction in the world has been dominated by 78 per cent of these companies. Saudi Aramco, the Iranian National Oil Company, controls the price by developing methods of production, exploration and exploration, on the lowest price of oil later. We should not neglect the important positions of national oil companies Oil price.

#### **2.3.4. Outlook for the Future of World Oil Markets**

Observers believe that global demand , which reached 85 million barrels per day in 2006, will rise to more than 120 million barrels by 2020, In order to achieve significant economic growth rates Which will be witnessed by the regions of the world, especially China and its surrounding countries, according to the vast population base of the Asia-Pacific region and its huge economic growth, it is the most influential region in the world's energy markets, and that the continued large growth in 2020 will have a major impact on global energy conditions, especially oil, and approaching levels of oil



consumption in Asia than its counterpart in North America and is Much higher than its counterpart Europe (Durian, 2005) .

This means that the economic growth rates will positively affect the rise in world oil demand in the world oil markets and regions with remarkable economic growth will be affected by what is happening in the global public markets, especially the oil market.

The Energy Agency forecasts that OPEC production capacity will increase from 2002 to 2025 from about 31 million barrels per day to about 66 million barrels a day and thus increase its share from %38 to %54 " (Abdulla, 2006).

This is due to the huge oil reserves contained by the member states, which are close to "897 billion barrels according to 2004 data, particularly Gulf countries such as Saudi Arabia and the United Arab Emirates, Iraq and Kuwait. Merrill Lynch report, released in April 2004, confirmed that OPEC's oil production capacity had proved insufficient to grow, and that rising oil prices had become a reality. In its report in 1998 that conventional oil production will peak during the second decade of the twenty-first century, to begin the phase of natural depletion gradually. And that the global supply by 2020 is limited to meet the demand for it, where the world will face a deficit by the year of the estimated 19 million barrels per day? Which should be available from another source of energy? We see that the role of OPEC remains significant in determining oil prices in the future, especially in light of the US concentration in the Middle East and its declaration of abandonment of Gulf oil, in addition to the recent blocs that took place between Iran and Venezuela, as well as Russia by trying to politicize oil and pursue a militant policy against the United States of America. As well as the recent Asian-Gulf convergence, especially in the field of oil and this in the context of geographical convergence, in addition to the ((Kyoto Protocol)), which calls for reducing the sources of energy polluting, especially coal and oil, which lead to warming by toxic gases emitted from the combustion of these sources of energy, and the most predominant of these gases carbon dioxide. (Mohammed, 1983).

## **CHAPTER THREE**

### **3. 1. ECONOMIC GROWTH**

#### **3.1.1. The Concept of Economic Growth**

The concept of economic growth differs according to the different thinkers and the specialists and the situations experienced by the countries or peoples. More attention was paid to the economic growth of the industrialized countries, which emerged with the industrial revolution in Europe. Economic growth means the spontaneous economic expansion, which does not require change in the economic structure of the society and it is measured by economic units such as national income, but after the end of World War II, the world was divided into developed and backward countries. More attention is paid to development than to growth, which means the intended economic expansion, which can only happen with the intervention of the state, which requires the need to change the economic structure (Abbas, 2014).

There are many definitions of economic growth according to different opinions of thinkers, some of whom he considers:

- Is the rate of increase of production or real income in a country during a certain period of time Abdulrahman and Mousa (1999)

- Long-term increase in country production (Longatte & Vanhove, 1998).

- Growth is the movement of the economic system that follows the market mechanisms Mustafa and Ahmd (1999).

- Growth is more productive by increasing the use of inputs and changing combinations that lead to increased production (Ali, 2007).

- Economic growth is the result of an increase in gross domestic product (GDP) or gross national income (GNI), resulting in an increase in the average real per capita income Ajamia and Nasf (2003).

Through the five definitions, the concept of economic growth can be analyzed according to the following three points:

√ The growth does not mean an increase in gross domestic product alone, but must lead to an increase in the real individual income, the rate of growth must exceed the rate of population growth, and in light of this:

Economic Growth Rate = National Income Growth Rate - Population Growth Rate

According to this criterion, countries with a large population of large estates suffer from underdevelopment.

**Table (3.1): Shows the evolution of population, national income, and individual income average from gross domestic product (GDP) for the period 1998-2011 in Iraq**

Years	Population	National income	Average per capita
1998	22702211	9.279000185	4.087267176
1999	23382068	1.589718769	6.798880103
2000	24085784	2.417555494	1.003726904
2001	24813365	1.875715051	7.559293353
2002	25564835	1.769271556	6.920723549
2003	26340227	1.15220549	4.374318757
2004	27139585	2.874837325	1.059278292
2005	27962968	4.466976701	1.597461579
2006	28810441	5.78412585	2.007649189
2007	29682081	7.906857551	2.663848789
2008	30577798	1.22422267	4.003632538
2009	31496406	1.01798907	3.232080099
2010	32437949	1.275620062	3.932492965
2011	33402567	1.66021968	4.970335602

Source: (Ministry , 2018)

The national income was calculated in dollars instead of the Iraqi dinar depending on the dinar exchange rate against the dollar and according to the appendix data NO (2).

That the increase in per capita income is not only a monetary increase but must be real, by excluding the effect of change in the value of money, excluding the effect of inflation, including:

$$\text{Economic Growth Rate} = \text{Rate of increase in per capita cash income} - \text{Inflation rate}$$

The increase in income must be in the long term, not a temporary increase. Through the following points it can be said that economic growth means Ajamia and Nasf (2003).

- An increase in average per capita income.
- The increase should be real and not monetary.
- The increase should be in the long run.

### **3.1.2. The Concept of Economic Growth Across Economic Schools**

If the subject of economic development or economic growth did not appear as an independent science until recently, specifically after the Second World War, this does not mean that the various currents and economic schools did not care about this subject, but that we can through the readings and analysis of the ideas that came from these schools to know the point of view towards economic development and, in some cases, to the fact that most of the efforts of the leaders of these schools focused on identifying the best ways and the most efficient policies that can achieve sustainable economic growth. (Ali, 2007)

The following are the most prominent economic schools.

#### **3.1.2.1. Economic Growth for Trade**

It is agreed that the traders were of great importance to gold and silver as the mainstay of wealth and this is especially true of the book of traders before the beginning of the 17th century.

The growth and the development of the nation is measured by the size of its wealth, which is based on its precious metals, gold and silver, since taxes were not a reliable tool to provide the necessary revenue. Precious metals remain the only source of

economic growth that strengthens the state and protects it from external aggression. (Ali, 2007)

Commercialists believe that the state should intervene to maximize economic growth by increasing their wealth and ownership of precious metals.

### **3.1.2.2. Economic Growth at Classics**

"The theories of growth and income distribution between wages and profits were the preoccupation of classical economists like (Adam Smith), and others (Al-Quraishi, 2007).

The analysis of each of these has been based on many hypotheses, which are represented in the freedom to practice activity, full competition, optimal use of resources, etc.

Given the classical importance view of the industry for the recovery and growth of the national economy, they looked in and pay attention to its contribution in the formation of an economic surplus. They also laid down the foundations of the theories on the part that is derived from this surplus for capitalist formation and the various factors governing this capitalist formation. "He said. The classics have linked the work of the economic apparatus in any period of time with the process of economic growth in the very long period and classical theory of economic growth is still considered a wealth of economic thought. But by reviewing the ideas of the most prominent pioneers of this trend we can recognize the classic point of view (Yoursr, 2001).

#### **3.1.2.2.1. Adam Smith's Theory of Economic Growth**

(Knfany, 1989) "Adam Smith was the most emphatic of the existence of natural laws in economics, after blatant attempts by a number of economists." This was in his famous book, *The Study and Causes of the Revolutions of Nations*, first published in 1776, revolutionized the economic policy makers and policymakers Ajamia and Al-Laise (2003) .

Adam Smith explains a set of basic ideas as laws that are based on Adam Smith's notion of economic growth that governs economic analysis as an economy is not a

fantastic combination of passions, but it is governed by economic laws of nature, They were mainly represented in:

**Capital accumulation:** Adam Smith believes that capital accumulation is a prerequisite for economic growth. He believes that the national economy needs capital accumulation that depends on individuals 'ability to save and therefore on investment. In other words, capital accumulation depends on individuals' desire to save instead of consumption. All of their income, savings are an important factor in the accumulation of capital, and the latter is an important factor in economic growth.

**Table (3.2): Number of employees, Wages and salaries, Advantages, Working income, Employee income benefits**

Years	Number of employees in (thousands)	Wages and salaries	Advantages	Working income	Employee income benefits
٢٠٠٠	108.311	43215344.74	6594815.967	398993.1285	60887.77656
٢٠٠١	134.801	79186823.29	4811338.001	587434.9841	35692.15363
٢٠٠٢	79.400	563784418.37	2114183.673	7100559.424	26626.9984
٢٠٠٣	108.613	81483251.23	4430094.044	750216.3758	40787.88031
٢٠٠٤	142.534	306378404.4	11651237.96	2149511.025	81743.56967
٢٠٠٥	142.868	361675354.4	13475007.47	2531535.084	94317.88413
٢٠٠٦	166.245	19032036.56	19032036.56	114481.8585	114481.8585
٢٠٠٧	172.439	553320247.2	26477764.61	3208788.309	153548.5859
٢٠٠٨	190.247	1073969915	57229023.22	5645134.562	300782.7888
٢٠٠٩	193.851	1497520363	74807879.97	7725110.332	385904.0189
2010	189.001	1412577338	90696714.14	7473914.625	479874.2554
2011	185.900	1413747373	97191743.12	7604880.974	522817.3379

Source: (Ministry , 2018)

National income, wages and benefits were calculated in dollars instead of the Iraqi dinar depending on the exchange rate of the dinar against the dollar and according to the appendix data No (2)

**Division of work:** Adam Smith considers that the land cannot be regarded as the sole source of value opposite the natural school. He saw that the concerted efforts of

human translated in the form of effort with the combination of strong nature represented in the earth as one of the determinants of value.

Adam Smith see "The division of labor, the multiplicity of professions and the clarity of disciplines will lead to an increase in the number of goods and also to improve their quality Mustafa and Said (2000).The division of labor provides externals economics, Productivity, and then increases per capita income and this contributes to the accumulation of capital increase".

#### **3.1.2.2.2. Analysis by David Ricardo**

Ricardo's views on economic growth and economic development can be summarized as follows: Baghdli and Haje (2007),

##### **\* State and its importance in economic activity:**

Ricardo believes that the state should not intervene in economic activity and that the capitalists are the pillar of economic development. Riccardo is therefore in favor of imposing taxes that impede their activity so as not to be less pessimistic and thus lose the chances of development.

##### **\* Dividing income at Ricardo:**

Ricardo's income is divided into the following elements:

- Profit and obtained by the capitalist.
- The wage and the worker get it.
- The rents taken by the feudal.

Since profits are the greatest of these incomes, the capitalist provides the greatest workers for the process of production and society and this is through the reuse of these profits in the field of production and that Ricardo focused on increasing profits as the more profits, the formation of capital increases investment thus leading to high growth rates.

**\* International Trade at Ricardo:**

International trade is very important in the economic field and leads to economic growth through the international division of labor by the specialization of each country in the production of goods and materials that can be produced at relatively lower costs "relative cost theory".

**3.1.2.3. Economic Growth in Keynesian Economic Thought**

In the aftermath of the Great Depression of the 1929 Great Depression, economist John Miller Keynes created an intellectual wealth unlike the traditionalists and his neoclassical predecessors, analyzing the economy as a whole without identifying individual economists.

Keynes realized that the level of production is determined by the total effective demand as the income earned by individuals does not become an effective demand unless it is directed towards consumption or investment. The portion of consumption is not a problem because it is determined by the level of income that individuals receive, For many is the part allocated to investment and is mainly because the size of investment is determined by the interest rate and the rate of marginal adequacy of capital and therefore if individuals see that the expected return of investment less, they are reluctant to invest and therefore less effective overall demand is the imbalance occurs in parallel Economic growth in the country. Baghdli and Haje (2007),

Keynes also acknowledged that there is a balance at any level of employment and demanded that the state intervene to address the causes of crises that may be exposed to the national economy and work to define the parameters of the new economic policy, which should follow until the economy to full employment and balance in national income and To remedy this, he believes that it is necessary to enter the state through fiscal policy and raise the level of public spending and monetary policy by increasing the money supply and the so-called cheap money policy and financing inflation Baghdli and Haje (2007), Because of the difficulty of obtaining data on Iraqi prices, the concept of economic growth is achieved by Keynes, the researcher facilitated the idea of economic growth.



The researcher believes that Iraq has passed through this stage thanks to its economic income (dependence on crude oil as a main source to finance the requirements of development and development of its national economy).

### **3.2. ELEMENTS OF ECONOMIC GROWTH**

In order to achieve economic growth in any society, there must be basic components: Hussni and Mahmud (2006).

#### **3.2.1. Capital Accumulation**

Capital is defined as: the sum of goods that exist at a given time, in a particular economy (Bernieh and Simon). In addition to work, capital is an element of growth. It helps to achieve technical delivery on the one hand and to expand production through different investments achieved. Longatte and Vanhove (1998)

This will result in the allocation of a portion of the current income as savings, so that investment will be increased in order to increase the growth of income and future output. The determinants of the rate of capital accumulation are those that affect investment, namely, profit expectations and government policy towards investment.

So capital accumulation is directly related to the size of savings, which is equivalent to the proportion of the income of the community that is not spent on consumption, but the effect of this factor varies from country to another.

#### **3.2.2. Work**

It is the group of physical and cultural capabilities that a person can use to produce goods and services. Population growth and labor force increase are a traditional factor in economic growth. The increase in the labor force means a greater increase in the number of productive workers. On the other hand, population growth means an increase in purchasing power through an increase in the size of domestic markets.

However, population growth has a positive impact and a negative impact on economic growth, especially in countries that suffer from excess labor. This is in line with the ability of the economic system to absorb and employ additional labor. This

ability depends in turn on the rate and type of capital accumulation, Availability of factors associated with organizational skill.

Longatte and Vanhove (1998). We mean by work is "the total physical and cultural capacities that humans can use in the production of essential goods and services to meet his needs".

The volume of work is linked to the number of active people in the country as well as the number of hours worked by each worker, on the one hand, and productivity of labor element on the other hand, so that the greater the labor productivity, the greater the production, Or the number of hours worked remains the same. The productivity of the work is the sum of the production divided by the number of work units used in its production.

### **3.2.2. Technological Introduction**

It is defined as "the speed in the development of application of technical knowledge, in order to increase the standard of living of the population Abdulrahman and Mousa (1999).

A number of economists believe that technological advancement is the most important component of the process of economic growth. It means the continuous efforts of the entire society to increase the exploitation of available economic resources and to develop and discover new resources in the production process which will inevitably lead to increased production and economic increase.

Technological progress is a new organization of production allows:

- Production of a larger quantity of the product with the same quantities of production elements.

- Or produce the same quantity of the product in less quantity than the factors of production. That is, technological progress means the optimal use of factors of production in the production process. Thus, even if the quantities of production elements remain unchanged and technological progress occurs, this will inevitably lead to increased production and economic growth.

### **3.3. FACTORS OF ECONOMIC GROWTH**

There are many factors that determine the degree of growth and economic development of a country, namely, labor, capital, technical progress (Ali, 2007).

#### **3.3.1. Work**

The search for the reasons for economic growth is due to the ability to invest and renew on the one hand, and the ability to use the new means and resources available on the other, and therefore find ourselves in two problems. The first problem is the amount of work done by the labor force, which is easily measured. The second problem is the labor skill, intensity and organization of labor. (Ali, 2007).

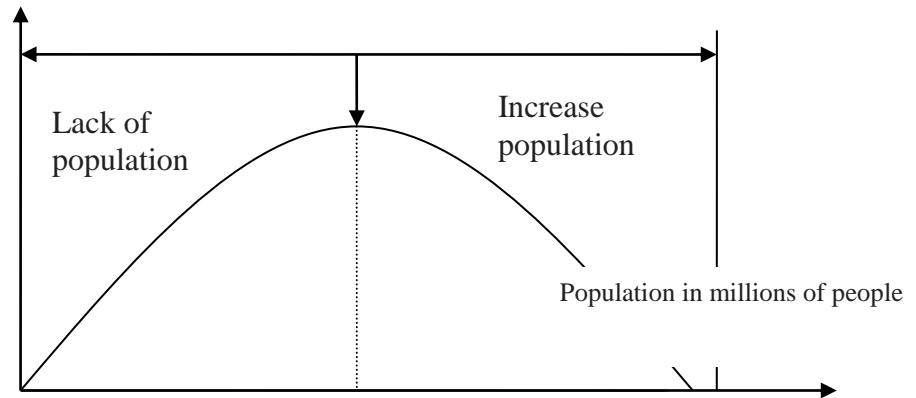
##### **3.3.1.1. The Amount of Work**

The talk about the size of the population and the extent of its contribution to the labor force is important because it affects the quantity of one of the elements of production (labor component).

The contribution of additions to the number of people working in different branches of production increases or decreases the level of per capita income. In theory, it is possible to imagine a map linking the size of the population to the level of income, and thus we conclude from the reality of this relationship between population and income that there is a similar size of population as the following figure shows:

**Figure (3.1): Relationship between population and income**

Average per capita income in dollars



Source: (Ali, 2007).

The figure shows that there is a positive correlation between the population growth rate and the economic growth rate to a certain extent, which is the peak point in Figure (3.1), which represents the optimal size of the population, which corresponds to the optimal rate of growth in an economy through the lack of per capita national income.

### 3.3.1.2. Quality of Human Capital

The advanced organization and the good technical training play a large role in increasing the total output and thus increasing the average of the individual's achievement. Scientific studies have shown that the level of production in the institutions increases with low illiteracy and high technical and administrative skill. The quality of the work is positively related to the health of the population. Their ages, of course, are desirable as goals in and of themselves, in addition to their good reflection on production and productivity. (Ali, 2007).

### 3.3.2. Equity Capital (The capital)

Capital in terms of its availability and rate of accumulation is one of the main determinants of the productive capacity of societies and their rates of change, and hence

the level of progress achieved and the rate of growth. The capital is divided into two types:

### **3.3.2.1. Social Capital**

It is the infrastructure of the community of roads and water networks and means of transport and indirectly contributes to the production process.

The search for the causes of growth is due to progress which in turn follows the scientific progress and effort to include it in the production and distribution stage. The existence of a comprehensive system of education and training and creating an environment suitable for scientific research will help to create and apply modern technology. The effect of this is on the economic growth achieved in the Iraqi economy and focus only on the impact of fluctuations in the price of crude oil.

### **3.3.3. Land and Natural Resources**

The factor of land in terms of area, quality and storage of underground resources has a major role in the process of economic growth and development, and these two factors are the oldest explanations provided to show the reasons for differences between production capacity in different societies and then standards of living. The most important economic resources in Iraq and its revenues cover almost two-thirds of the general budget of the country. Here comes the importance of fluctuations in the price of crude oil on the number of economic variables, which is the subject of the researcher in his research.

## **3.4. THE DIFFERENCE BETWEEN GROWTH AND DEVELOPMENT**

The distinction between economic growth and economic development is evident. Economic growth refers to the growth of GDP or GDP, which is a necessary condition for development, but it is not an only or sufficient condition. Economic development is an economic growth accompanied by a set of structural and distributional changes that bring about the fundamental change that affects all the economic and social aspects of the life of the individual and society, so that the quality of life enjoyed by the members of the society improves. The concept of economic development is different from

economic growth. The entry of the national economy stage of rapid economic growth and the state to push economic variables towards growth faster than the rate of natural growth is a voluntary process by the community. While economic increase is called a mere increase in average per capita real national income.

According to Bonnet, economic growth is an automatic economic expansion process that takes place in the framework of fixed and specific social organizations. It is measured by the size of quantitative changes, while economic development assumes effective and conscious development, changes in the social organization of the state. Moustafa and Ahmad (1999).

While, Dr. Mohamed Zaki Shafei believes "growth is only meant to increase real per capita income". Development, however, is defined as gaining access to rapid economic growth, in other words achieving a rapid, cumulative and sustained increase in real per capita income over an extended period of time "Since anything that grows must change, development cannot be achieved without a radical change in the economic and social structure. Hence the elements of development are the structural change and the strong impulse and appropriate strategy. If we take human as an example, the person grows from childhood to young people, which increases in weight and height and this means growth, and development means the change in the behavior of the individual as a result of experience and the acquired experiences.

### **3.5. CRITERIA FOR MEASURING ECONOMIC GROWTH**

Perhaps what concerns us in this study is the means by which we learn about the progress, growth or development of the society, which means can measure the degree of progress in a country?

There are three criteria for measuring development or growth that we will address in these demands.

#### **3.5.1. Standard Income**

The income criteria that we will mention are that income is the main indicator used to measure development and the degree of economic progress Ajamia and Nasf (2003) .

### **3.5.1.1. Total National Income**

Moustafa and Ahmad (1999). Meade suggests measuring economic growth by identifying total national income rather than average per capita income. However, this measure has not been accepted and accepted by the economic community because increasing or decreasing income may not lead to positive or negative results.

The increase in national income does not mean economic growth when the population increases at a higher rate and the lack of national income does not mean economic backwardness, and when the population declines, it is not possible to take advantage of this measure when migration is spreading to and from the state.

### **3.5.1.2. Gross National Income Expected**

Some suggest measuring economic growth on the basis of expected income rather than actual income. The state may have rich potential resources and have different possibilities to capitalize on its potential wealth. In addition to its technical progress in this case, some economists recommend that these factors be taken into consideration when calculating income.

### **3.5.1.3. Average Income Criteria**

Per capita income is the most widely used and most reliable measure of economic progress in most countries.

However, there are many problems and difficulties facing developing countries to obtain correct figures that represent real per capita income. Another issue is whether we divide the gross national income over the entire population or divide it by the working population alone.

The calculation of the income of the entire population is restricted in terms of consumption and the income account of the labor force is restricted in terms of production. Economic growth is measured initially using the so-called simple growth rate and can be obtained by the following equation:

$$\text{Growth rate} = \frac{\text{Real income in the current period} - \text{Real income in the previous period}}{\text{Real income in the previous period}} \times 100$$

Singer's equation for economic growth:

Singer expressed the growth equation as a function of three factors:

A- Net savings.

B- Capital productivity.

C - Population growth rate.

This function takes the following form:  $D = SP - R$

D: The annual growth rate of per capita income.

The researcher will rely on the index in calculating growth indicators (GDP, capital accumulation, population, national income)

S: Is the net saving rate.

P: Is the capital productivity.

R: Is the annual population growth rate.

Annual growth rate per capita income = [net saving rate (x) new investment productivity] - population growth rate.

### **3.5.2. Social Standards**

Social standards are meant to provide a number of indicators of the quality of the services that contribute to the daily life of the members of the community and the changes they make. There are health aspects and aspects of nutrition, educational and cultural aspects Ajamia and Nasf (2003).

#### **3.5.2.1. Health Standard**

Among the criteria used to measure health progress are:



- The number of deaths per thousand population, the number of deaths per thousand children of the population, the high mortality means inadequate health services and malnutrition and all the signs of underdevelopment.
- The average age of the individual the greater the degree of economic progress and the lower the degree of economic backwardness.
- There are also other indicators, including the number of individuals per doctor and the number of individuals per bed in hospitals.

### **3.5.2.2. Education Standard**

Among the criteria used:

- Proportion of those who knows reading and writing from individuals.
- Proportion of those who enrolled in primary education as well as the proportion of those enrolled in secondary education in the community.
- Expenditure on education is in all its stages to GDP as well as to total government expenditure.

### **3.5.2.3. Nutrition Standard**

Many developing countries are unable to provide basic food to their populations which lead them to lack or malnutrition, which results in poor production capacity and thus low levels of income.

### **3.5.2.4. Standard Quality of Life Material**

Is a composite standard which depends on most aspects of life and consists of:

- Life expectancy at birth.
- A healthy indicator for adults.
- Infant mortality rate.
- A healthy indicator for young people.
- Knowledge of reading and writing.

- Adult education index.

### **3.5.2.5. Human Development Index (HDI)**

This criterion is an attempt to link the vocabulary of the quality of life standard and the adjusted national product by purchasing power. This criterion focuses on three variables:

- Life expectancy at birth
- Standard of educational achievement consists of two parts: Literacy The average number of years of schooling in educational institutions.
- Average PPP (purchasing power) per capita income.

### **3.5.3. Structural Standards**

Developing countries have embarked on structural changes in their economic environments through the trend towards industrialization to expand and diversify the production base, increase income and raise living standards.

This trend leads to significant changes in the importance of different sectors of the economy. This has also affected the structure of exports and imports, different employment opportunities and the distribution of the population between rural and urban areas.

All these variables can be taken as indicators to indicate the degree of growth and economic progress. Perhaps the most important of these indicators:

- The relative importance of industrial production to GDP.
- Relative importance of exports of industrial goods to total exports. Percentage of employment in the industrial sector to total employment.

The researcher will rely on the index of the number of workers in the industry in determining the impact of fluctuations in the price of crude oil on the proportion of industry workers of GDP.

There is no doubt that the trend towards industrialization must lead to an increase in GDP as a result of the contribution of new industries. It also leads to increased exports and increased employment opportunities Ajamia and Nasf (2003).

### **3.5.4. Difficulties and Problems of Economic Growth**

Income standards are the most widely used criteria for measuring the level of economic growth of a country's economy. However, it is interesting to note that the adoption of the income criterion as an indicator of the level of development is faced by a number of problems related mainly to calculating the gross domestic product (Ali, 2007).

#### **3.5.4.1. Problematic Integration of Non-Marketed Goods**

It is mainly related to the problem of self-consumption and non-market production where total output is measured by self-held transactions, especially in the agriculture sector, where farmers consume a large part of the crops they produce and no accurate estimate of this part of self-consumption can be made. Suggesting that gross output is undervalued, as well as the terrible proliferation of parallel markets, which contain many unlisted products when calculating value added. In addition to the services provided by housewives in their homes, although these services are considered real production it has no monetary value.

#### **3.5.4.2. Problematic Entertainment Rating**

The estimation of the size of the national product is faced by another problem, which is mainly the fact that individuals benefit not only from goods and services, but also from times of rest and leisure. National income accounts do not include leisure time, as recent studies have shown that when workers and employees enjoy longer rest periods, the volume of production will increase. Here, we realize that our assessment of output in the traditional way neglects entertainment and thus understates its value.

### 3.5.4.3. Problematic Transition from Nominal Output to Real Output

GDP is usually presented either at current prices, which reflects nominal value or real prices, which reflects real value. In the study of economic growth we are concerned only with the price in quantities, and we do not care about the change in prices. When moving from nominal values to real values, the indices are usually used. The best measure of this is the gross domestic product (GDP) according to the following mathematical relationship:

$$\text{PIB r} = \frac{\text{PIB n}}{\text{Deflateur du PIB}}$$

Where as:

Deflateur du PIB

PIB r: represents real GDP.

PIB n: represents nominal domestic product.

Deflator du PIB: represents a low GDP.

But the main problem is the lack of statistical data in developing and underdeveloped countries. Which depends only on consumer price indices .For Iraq, the researcher will depend on the calculation of GDP at constant prices. Ajamia and Nasf (2003)

## **CHAPTER FOUR**

### **THE ANALYSIS OF THE DATA**

The findings from this study revealed that economic growth is one of the most important sources of economic transformation because it reflects the community's ability to increase productive capacity and optimal investment and also sustainability requirement includes a diversified economy on the face of shocks, dynamically adopts technology and head accumulation human money, competitively can gain relative advantages compared to the other. Thus, It operates within stable, stable economic policies and economic development and there were positively statistically significance between oil price and GDP, oil production value and GDP. This means that increasing one point of oil price and oil production value in Iraq, GDP increases as well. According to (Nwanna, 2015) ,Oil price have a positive impact on the GDP through its contribution to government revenues (export revenues). Globally and locally, the oil prices is fluctuations among the global factors and it is arising from global events. In his view, if the oil price increased, it encourages oil exporting economic and hurt oil importing economics.

#### **4.1. Oil Price**

The oil price is a monetary value or a monetary image which is per barrel of crude oil in the US dollar and it is expressed in cash because it is linked to US dollar and can be exposed to oil price in the oil market within the concepts of many things such as (the price achieved, the price declared, the tax rate and the price of signal) (Shelley T. , 2005) .It can be seen in the table (4.1) and figure (4.1) that the period of (1995-2017) were taken in order to show fluctuation of oil price in those period witnessed many economic developments, political and military reflected in the whole of the reality of the oil market then as oil price fell from (16.86\$) in 1995 and it increased by 0.203 in 1996 (20.29\$), the rises continued in 1997 by 0.118 (18.86\$) then the price of oil in 1998 decreased by 0.271 (12.44\$). Moreover, after 1998, the price of oil increased when 1995

were as a base year. The price of oil increased a lot in 2012 (109.45). Moreover, the rise of oil prices continued until 2013 then it decreased due to many reasons:

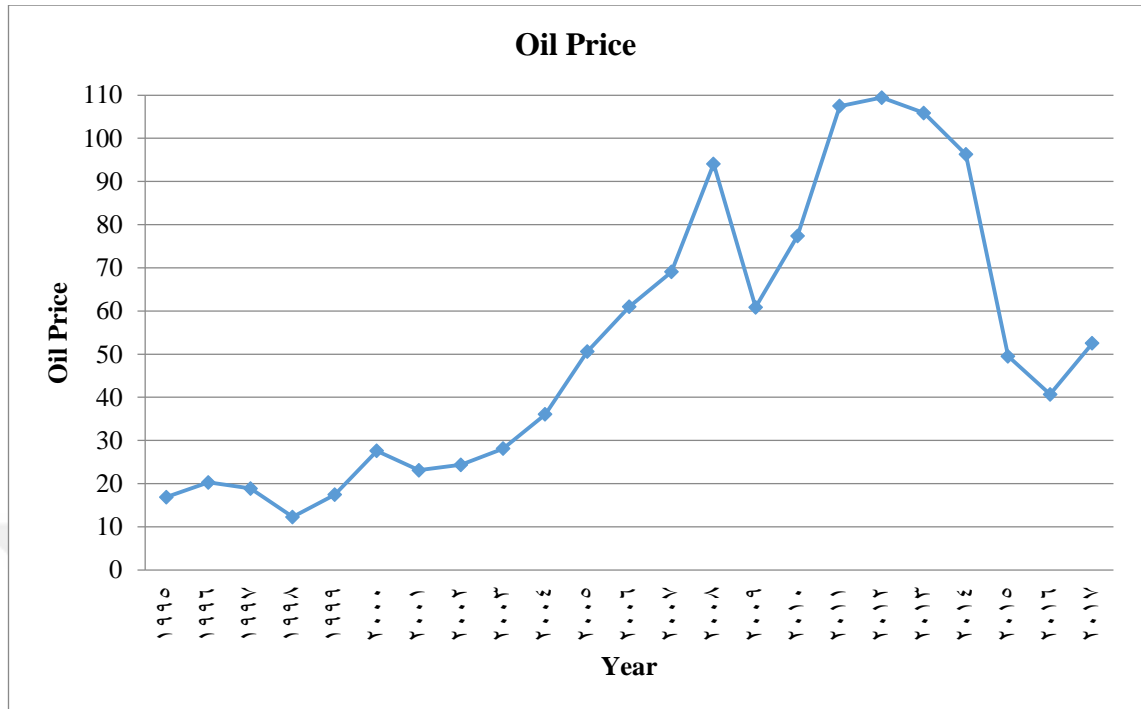
- In general, the phenomenon of speculation which is exposed to the oil industry
- The decline in global economic growth rates has led to a reduction global consumption of crude oil, as well as political factors and others contributed in one way or another to the decline in oil prices.
- The rise in oil prices has contributed significantly to the encouragement of countries.

By reviewing historical developments in oil prices it can be concluded that Oil prices have been subject to many fluctuations as a result of factors that overlap Economic, political, military and other.

**Table (4.1): The relative of oil price 1995 as a base year**

Years	Oil price	1995 as a base year
1995	16.86	-
1996	20.29	0.203
1997	18.86	0.118
1998	12.28	-0.271
1999	17.44	0.034
2000	27.6	0.637
2001	23.12	0.371
2002	24.36	0.444
2003	28.1	0.666
2004	36.05	1.138
2005	50.59	2.00
2006	61	2.610
2007	69.04	3.094
2008	94.1	4.58
2009	60.86	2.609
2010	77.38	3.589
2011	107.46	5.373
2012	109.45	5.491
2013	105.87	5.279
2014	96.29	4.711
2015	49.49	1.935
2016	40.68	1.412
2017	52.51	2.114

Source: (OPEC, 2018).

**Figure (4.1): Evolution of oil prices during the period (1995 - 2017) (US \$)**

Source: (OPEC, 2018).

#### 4.2. Annual Growth Rate and Annual Compound Growth Rate for Oil Price

The annual growth rate can be calculated in the following formula:

$$\text{annual growth rate} = \frac{\text{oil price in comparative year} - \text{oil price in base year}}{\text{oil price in base year}} * 100$$

and also annual compound growth rate is calculated in the following formula:

$$R = \left( \sqrt[n]{\frac{X_t}{X_0}} - 1 \right) * 100$$

where

R: compound growth rate

$X_t$ : the value of the variable in the last year

$X_0$ : the value of the variable in the first year

n= number of year

It can be seen in the table (4.2) that the oil equaled to (20.29) dollar and the annual growth rate were positive increased by (20.34%) in 1996. In (1997, 1998), the oil price were (18.86, 12.28) dollar respectively and the annual growth rate were negative equaling to (-7.04%, -34.88%) respectively. In (1999, 2000), the oil price were (17.44, 27.6) dollar respectively and the annual growth rate were positive equaling to (42.01%, 58.25%) respectively. In addition, the annual growth rate become negative result in 2001 but after 2001 the annual growth rate were positive rate until 2009. The annual growth rate were negative in 2009 which were (-35.32%) then In (2010, 2011, 2012), the oil price were (77.38, 107.46, 109.45) dollar respectively and the annual growth rate were positive equaling to (27.14%, 38.87%, 1.85%) respectively. Finally, the annual growth rate were positive result in 2017. The annual compound rate for the series years were 0.05%.

**Table (4.2): Annual growth rate and annual compound growth rate for oil price 1995 as a base year**

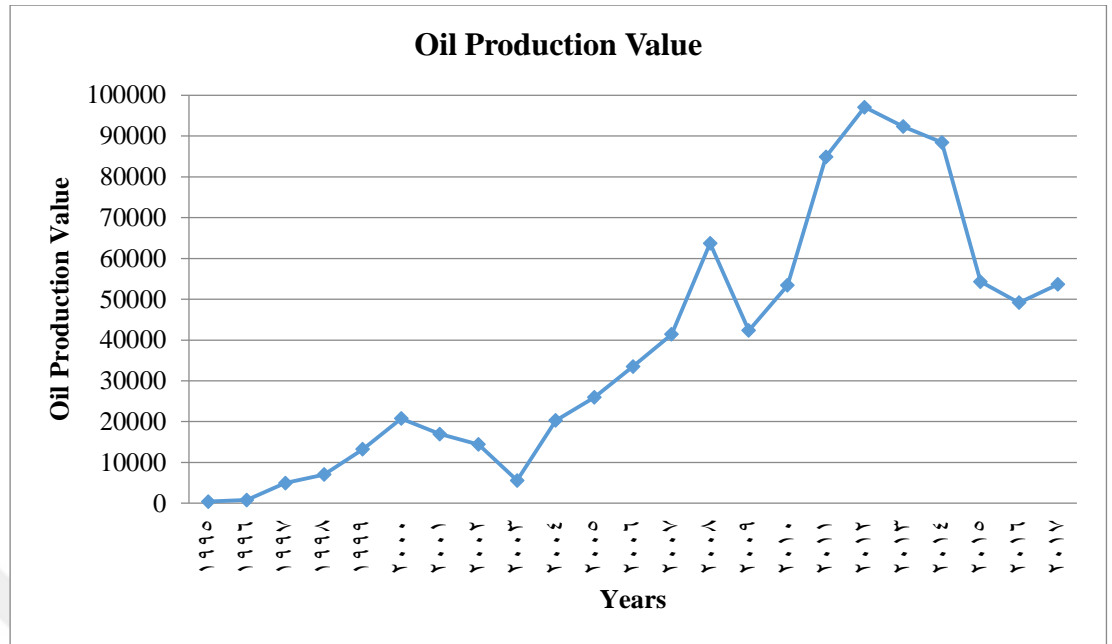
Years	Oil Price	Annual Growth Rate	Annual Compound Growth Rate
1995	16.86	-	0.05%
1996	20.29	20.34%	
1997	18.86	-7.04%	
1998	12.28	-34.88%	
1999	17.44	42.01%	
2000	27.6	58.25%	
2001	23.12	-16.23%	
2002	24.36	5.36%	
2003	28.1	15.35%	
2004	36.05	28.29%	
2005	50.59	40.33%	
2006	61	20.57%	
2007	69.04	13.18%	
2008	94.1	36.29%	
2009	60.86	-35.32%	
2010	77.38	27.14%	
2011	107.46	38.87%	
2012	109.45	1.85%	
2013	105.87	-3.27%	
2014	96.29	-9.04%	
2015	49.49	-48.60%	
2016	40.68	-17.80%	
2017	52.51	29.08%	

Source: (OPEC, 2018).



### 4.3. Oil Production Value

Historically, the first oil fields were discovered in 1923. (Khana Oil) was for local consumption and also Iraq were the second major oil producer after Iran which began commercial production in 1912 but Iraq had a actual production and big quantities in 1934. The oil production had been increasing to reach (3.7) million barrels per day in 1979 while the oil production became (3.5) million barrels per day in 1989 because of war and Iraq's invasion of Kuwait in 1991, oil production dropped to (282.5) thousand barrels per day. The situation continued until 1996 when the program of changing oil for food happened (Chalabi, 2005). Additionally, the oil production value were found by multiplying the oil production and oil price. As a result, the oil production value equaled to (392.838) million dollar in 1995 which increased to (779.136) million dollar and it increased until 2000 (20780.04) million dollar. It deceased slowly from 2000-2003. but in 2003, the oil production value decreased sharply because of war. From 2003 to 2009, the oil production value increased a lot because in this period the oil price and oil production increased. The best year for oil production value were 2012 (97071.21) because the oil price become maximum price comparing to other years then oil price become less and less from 2013 to 2016 and the oil production value become less and less from this period. Finally, the oil production value increased gradually in 2017 (53630.24).

**Figure (4.2): Oil Production Value**

Source: (OPEC, 2018) and (World Bank, 2018).

#### 4.4. Annual Growth Rate and Annual Compound Growth Rate Oil Production Value

It is clear in the table (4.3) that in (1996, 1997, 1998, 1999, 2000), the oil production were (779.136, 4939.43, 7022.93, 13217.78, 20780.04) respectively and the annual growth rate were (98.33%, 533.96%, 42.18%, 88.19%, 57.21%) respectively which had positive annual growth rate. The annual growth rate were negative after year of 2000 until 2004. In (2004, 2005, 2006, 2007, 2008) the oil production were (20292.55, 25947.61, 33513.4, 41396.38, 63715.11) respectively and the annual growth rate were (262.89%, 27.86%, 29.15%, 23.52%, 53.91%) respectively which had positive annual growth rate.

**Table (4.3): Annual growth rate and annual compound growth rate for oil production value 1995 as a base year**

Years	Oil Production Value (Million)	Annual growth rate	Annual Compound growth rate
1995	392.838	-	0.20%
1996	779.136	98.33%	
1997	4939.43	533.96%	
1998	7022.93	42.18%	
1999	13217.78	88.19%	
2000	20780.04	57.21%	
2001	16972.39	-13.82%	
2002	14412.84	-15.08%	
2003	5591.9	-61.20%	
2004	20292.55	262.89%	
2005	25947.61	27.86%	
2006	33513.4	29.15%	
2007	41396.38	23.52%	
2008	63715.11	53.91%	
2009	42322.04	-33.57%	
2010	53392.97	26.15%	
2011	84893.4	58.99%	
2012	97071.21	14.34%	
2013	92318.64	-4.89%	
2014	88411.55	-4.23%	
2015	54280.63	-38.60%	
2016	49159.34	-9.43%	
2017	53630.24	9.09%	

Sources: (OPEC, 2018) and (World Bank, 2018).

#### 4.5. Gross Domestic Product

It can be seen in the table (4.4) that the **Gross Domestic Product** equaled to (3999.691) million dollar and the annual growth rate were positive increased by (63.84%) in 1996. In (1997), the Gross Domestic Product were (1027.443) dollar respectively and the annual growth rate were negative equaling to (-84.32%) respectively. In (2001, 2002, 2003), the Gross Domestic Product were (-18.94%, -

0.80%, -36.69) dollar respectively and the annual growth rate were positive. In addition, The compound worth rate of Gross Domestic Production were 15%

**Table (4.4): Annual growth rate and annual compound growth rate for Gross Domestic Product 1995 as a base year**

Years	Gross Domestic Product (Million)	Annual Growth Rate	Annual Compound Growth Rate
1995	3999.691	-	0.15%
1996	6553.351	63.84%	
1997	1027.443	-84.32%	
1998	1058.458	3.01%	
1999	1745.897	64.94%	
2000	2603.095	49.09%	
2001	2110.039	-18.94%	
2002	2093.007	-0.80%	
2003	1325.015	-36.69%	
2004	36627.9	266.25%	
2005	49954.89	36.38%	
2006	65140.29	30.40%	
2007	88840.05	36.38%	
2008	131613.7	48.14%	
2009	111660.9	-15.16%	
2010	138516.7	24.05%	
2011	185749.7	34.09%	
2012	218001	17.36%	
2013	234648.4	7.63%	
2014	214648.4	-8.52%	
2015	179640.2	-16.30%	
2016	171489	-4.53%	
2017	172346.4	0.049%	

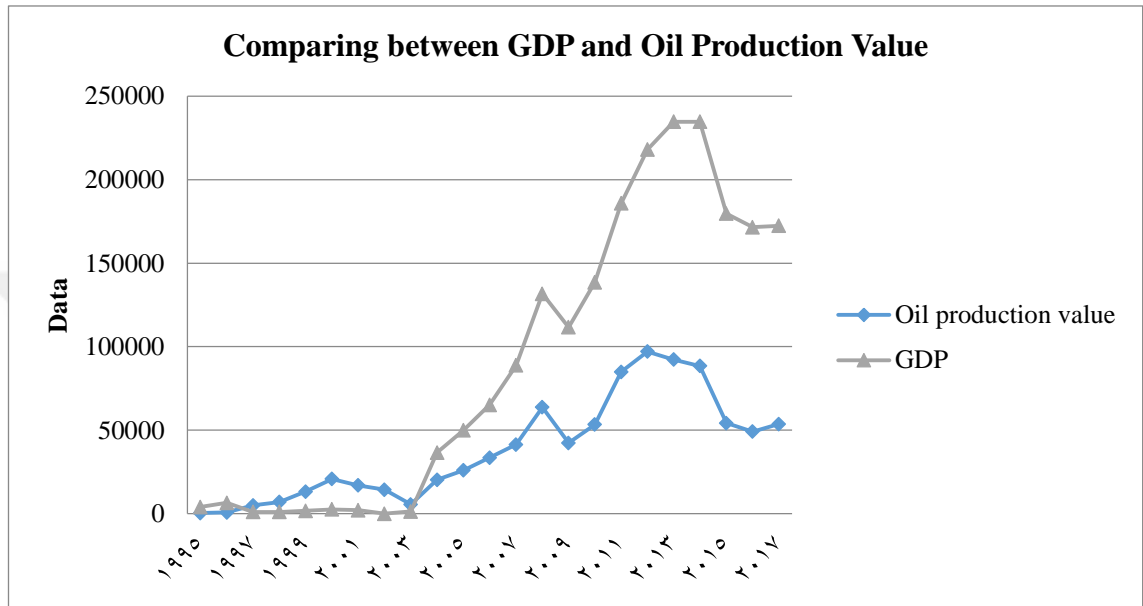
Source: (World Bank, 2018).

#### 4.6. Comparing GDP and Oil Production Value

Figure (4.3) shows comparison between GDP and oil production value which the green line is GDP and blue line is oil production value. from 1995 to 2003, the GDP increased in 1996 comparing to the result of GDP in 1995 then after 1996 the GDP increased or decreased slowly until 2003 but the oil production increased from 1995 to

2000 then it decreased until 2003. Moreover, after 2003 the GDP and oil product value were changed the same which means that when oil production value increased then the GDP increased as well and that when oil production value decreased then the GDP decreased as well.

**Figure (4.3): Comparing GDP and Oil production value**



Sources: (OPEC, 2018) and (World Bank, 2018).

**Table (4.5): Correlation coefficient between variables**

		GDP	Oil price	Oil Production Value
GDP	Pearson Correlation	1	.864**	.945**
	Sig. (2-tailed)		.000	.000
	N	23	23	23
Oil price	Pearson Correlation	.864**	1	.958**
	Sig. (2-tailed)	.000		.000
	N	23	23	23
Oil Production Value	Pearson Correlation	.945**	.958**	1
	Sig. (2-tailed)	.000	.000	
	N	23	23	23

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Source: prepared by researcher of SPSS programing

It is indicated in the table (4.5) that there were statistically significant relationship between GDP and Oil price because the p-value were less than the common alpha 0.05. As a result, the relationship between GDP and Oil price were strongly positive because the value of correlation coefficient equals to 0.864 which is greater than the value of correlation coefficient (0.5) this means that if the oil price increases, the GDP will increase as well. Moreover, there were statistically significant relationship between GDP and Oil production value because the p-value were less than the common alpha 0.05. As a result, the relationship between GDP and Oil production value were strongly positive because the value of correlation coefficient equals to 0.958 which is greater than the value of correlation coefficient (0.5) this means that if the oil production value increases, the GDP will increase as well.

**Table (4.6): Data for GDP, Oil price and Oil production value**

Time/Year	GDP Million/Dollar (Dependent Variable)	Oil Price (Dollar) (Independent Variable)	Oil Production Value Million/Dollar (Independent Variable)
1995	3999.691	16.86	392.838
1996	6553.351	20.29	779.136
1997	1027.443	18.86	4939.43
1998	1058.458	12.28	7022.93
1999	1745.897	17.44	13217.78
2000	2603.095	27.6	20780.04
2001	2110.039	23.12	16972.39
2002	20.93007	24.36	14412.84
2003	1325.015	28.1	5591.9
2004	36627.9	36.05	20292.55
2005	49954.89	50.59	25947.61
2006	65140.29	61	33513.4
2007	88840.05	69.04	41396.38
2008	131613.7	94.1	63715.11
2009	111660.9	60.86	42322.04
2010	138516.7	77.38	53392.97
2011	185749.7	107.46	84893.4
2012	218001	109.45	97071.21
2013	234648.4	105.87	92318.64
2014	234648.4	96.29	88411.55
2015	179640.2	49.49	54280.63
2016	171489	40.68	49159.34
2017	172346.4	52.51	53630.24

Sources: OPEC (2018), (Ministry , 2018) and (World Bank, 2018).

## CONCLUSION AND RECOMMENDATION

### Conclusion

1. Economic growth is one of the most important sources of economic transformation because it reflects the community's ability to increase productive capacity and optimal investment and also sustainability requirement includes a diversified economy on the face of shocks, dynamically adopts technology and head accumulation human money, competitively can gain relative advantages compared to the other. Thus, it operates within stable, stable economic policies and economic development.

2. Oil prices have been affected by international crises, as oil is a strategic international commodity combining political, economic and geopolitical factors which is influence it.

3. There were statistically significant relationship between GDP and Oil price because the p-value was less than the common alpha 0.05. As a result, the relationship between real GDP and oil price were strongly positive because the value of correlation coefficient equals to 0.864 which is greater than the value of correlation coefficient (0.5) this means that if the oil price increases, the real GDP will increase as well. Moreover, there were statistically significant relationships between real GDP and oil production value because the p-value was less than the common alpha 0.05. As a result, the relationship between real GDP and Oil production value were strongly positive because the value of correlation coefficient equals to 0.958 which is greater than the value of correlation coefficient (0.5) this means that if the oil production value increases, the real GDP will increase as well.

### **Recommendation**

1. Encourage banks move to the market in order to support policy directions Cash in providing credit and bank financing which requires by the case of real GDP and work should raise level of economic growth which requires raising the financial depth of the country.

2. The economic policy-makers should make the oil sector, the growth locomotive through the petrochemical industries, in addition to exploit financial saving to support other economic sector in this times oil price rises in the world markets.

3. The government tries to strengthen cooperation and partnership with OPEC to control supply of crude oil in the OPEC region with the of affecting global crude oil prices.

4. Take advantage of successful experiences in all countries that have similar resources in order to open institutes or specialized colleges or centers in this field.



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## LIST OF APPENDIX

### Appendix (1): Data for Analysis

Time/ Year	GDP(dollar) (dependent Variable)	Oil price(dollar) (Independent Variable)	Oil production Million/ baril(Indepe ndent Variable)	Oil production Value Independent Variable
1995	3999.691	16.86	23.30	392.838
1996	6553.351	20.29	38.40	779.136
1997	1027.443	18.86	261.90	4939.43
1998	1058.458	12.28	571.90	7022.93
1999	1745.897	17.44	757.90	13217.78
2000	2603.095	27.6	752.90	20780.04
2001	2110.039	23.12	734.10	16972.39
2002	20.93007	24.36	591.66	14412.84
2003	1325.015	28.1	199.00	5591.9
2004	36627.9	36.05	562.90	20292.55
2005	49954.89	50.59	512.90	25947.61
2006	65140.29	61	549.40	33513.4
2007	88840.05	69.04	599.60	41396.38
2008	131613.7	94.1	677.10	63715.11
2009	111660.9	60.86	695.40	42322.04
2010	138516.7	77.38	690.01	53392.97
2011	185749.7	107.46	790.00	84893.4
2012	218001	109.45	886.90	97071.21
2013	234648.4	105.87	872.00	92318.64
2014	234648.4	96.29	918.18	88411.55
2015	179640.2	49.49	1096.80	54280.63
2016	171489	40.68	1208.44	49159.34
2017	172346.4	52.51	1021.33	53630.24

Sources: (OPEC, 2018), (World Bank, 2018) and (Ministry , 2018)

## Appendix (2): Dollar Exchange Rate

## مستويات الاسعار في العراق لسنة 2016

جدول رقم (35) : معدل سعر صرف الدولار في مدينة بغداد حسب الاشهر السنوات (2016-1996)  
Table(35): Dollar Exchange Rate in Baghdad City by Months for the Years (1996-2016)

السنة الشهر Year Month	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
كانون الثاني Jan	—	1284	1625	1869	1920	1819	1864	2295	1442	1455	1483	1319	1227	1181	1185	1194	1207	1229	1237	1222	1243
فبراير Feb	—	1300	1552	1889	1963	**1819	1953	2519	1428	1461	1481	1306	1222	1180	1185	1194	1235	1235	1229	1240	1248
مارس Mar	—	1200	1426	1944	1979	***1752	1954	2828	1425	1469	1482	1289	1220	1180	1186	1193	1244	1257	1231	1276	1268
أبريل Apr	—	1245	1389	1989	1996	1852	1937	—	1441	1475	1483	1289	1218	1179	1188	1191	1271	1269	1217	1298	1287
مايو May	—	1417	1480	2155	1969	1900	1870	—	1465	1475	1487	1278	1218	1189	1186	1201	1252	1270	1218	1311	1294
حزيران Jun	—	1626	1514	1995	1989	1940	1738	—	1465	1473	1488	1259	1218	1181	1187	1186	1237	1237	1220	1315	1275
تموز Jul	—	1742	1621	1970	2018	1949	1880	—	1465	1478	1488	1261	1208	1186	1186	1197	1252	1220	1221	1238	1279
أغسطس Aug	—	1580	1723	2052	2043	2001	1951	—	1463	1479	1490	1255	1194	1184	1186	1202	1280	1206	1213	1283	1283
سبتمبر Sep	—	1473	1821	2065	2001	2021	1990	2152	1465	1480	1490	1248	1191	1184	1186	1205	1234	1209	1207	1227	1293
تشرين الأول Oct	—	1574	1717	1934	1840	2016	2014	2012	1463	1475	1488	1242	1187	1183	1186	1200	1201	1222	1209	1225	1301
تشرين الثاني Nov	**880	1608	1740	1917	1735	2035	2052	2041	1464	1479	1465	1239	1185	1183	1190	1202	1208	1218	1205	1225	1297
كانون الأول Dec	982	1547	1810	1907	1696	2044	2239	1786	1464	1479	1399	1193	1182	1186	1195	1216	1220	1225	1204	1218	1304
المعدل السنوي Annual Average	992	1469	1618	1874	1829	1858	1980	2233	1454	1473	1477	1266	1206	1183	1187	1199	1234	1233	1218	1251	1281

\*Data collection of Dollar exchange started on 26/11/1996.

\*\* Dollar exchange rate for February is up to 10/2/2001.

\*\*\*Dollar exchange rate for March is for two weeks only from 15/3/2001.

\*\*\*\*The figures of Dollar exchange rates represent the Dollar average selling rates in three money exchange bureau in Baghdad city.

1996/11/26



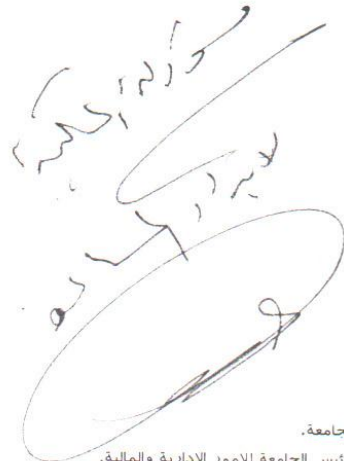
\* بدأ العمل ببيع البيجات حول سعر صرف الدولار بتاريخ

\*\* معدل سعر صرف الدولار لشهر شباط للعام 2001/12/10

\*\*\* معدل سعر صرف الدولار لشهر آذار للعام 2001/3/15 تاريخ من تاريخ

\*\*\*\* بيانات السعر الصرف تمثل معدل السعر بيع الدولار في ثلاثة مكاتب صرفية في مدينة بغداد.

## Appendix (3):

	<p>Kurdistan Regional Government Council Of Ministers Ministry of Higher Education &amp; Scientific Research University of Charmo presidency</p>	<p>حكومة إقليم كردستان رئاسة مجلس الوزراء وزارة التعليم العالي والبحث العلمي رئاسة جامعة چهرموو</p>	
<p>Human Resource Department</p>		<p>مديرية الموارد البشرية</p>	
<p>No:</p>	<p>Date: / /</p>	<p>٢٧١٧/ كوردى</p>	<p>عدد: ٤ / ٢٤٩ تاريخ: ٣١ / ١٢ / ٢٠١٨</p>
<p>الى / مديرية الاحصاء في كركوك موضوع / تأييد</p>			
<p>بعد التحية..</p>			
<p>نؤيد لكم بان السيد (هاوار رفعت ستار) بعنوان (ملاحظ) موظف على ملاك الدائم لجامعتنا/ رئاسه جامعه چهرموو ومستمر بالخدمة و طالب الدراسات العليا (ماجستير) في دولة تركيا. بناء على طلبه زودناه بهذا التأييد.</p>			
<p>مع التقدير....</p>			
<p>أ.م.د. بارام أحمد حمه امين</p>	<p>مساعد رئيس الجامعة للشؤون المالية والإدارية</p>		
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