



The Role of Oil Industry in The Socioeconomic Status in Iraq

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ABSTRACT

This research is aimed at clarifying the role of oil industries in supporting the socioeconomical life in Iraq. The oil industry plays a vital role in the socioeconomic fabric of oil-producing countries like Iraq, where its dominance in the economy is driven by oil exports and associated industries. This study spotted the light on the influence of the oil industry on Iraq's socioeconomic landscape, specifically its impact on unemployment, poverty, education, and health sectors. By analyzing the data collected from reputable sources, such as the World Bank and official government reports, spanning the period from 2003 to 2021, this research conducted a comprehensive understanding of the relationship between the proportion of the oil industry in the Gross Domestic Product (GDP) and its effects on these key indicators. The findings of this study is presenting the overall analysis of the role of oil industry in enhancing the socioeconomic life in Iraq, and preparing valuable insights for policymakers and stakeholders in making informed decisions, promoting sustainable economic growth, and enhancing the overall quality of life for the people of Iraq.

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1. Introduction

The oil industry is essential segmentation of the current world economy. When many people think of the oil industry, a specific set of images and negative connotations often come to mind. The reality is that the oil industry is the backbone of economic growth in the oil countries (1). The oil industry creates lucrative, high paying jobs for geoscientists, petroleum engineers, or operators. Simply put, without oil, many jobs and products would not exist because many growing industries rely on oil and petroleum products (2). Far from the jobs and careers created in this field, the oil industry is supporting countless careers in various profitable and important fields including science, medicine, technology, and countless others. In other words, oil industry is expected to have the fundamental role in enhancing the economical status in the country.

This research represents the analysing of oil market data, trends in investment and other government policies. This image of analysis is reflecting the the social and economical role of the oil revenues in Iraq.

Th problem is how and where the government spends the oil revenues. The main question of this research is: Does the oil exports contribute in improving the status of health, education, reducing the poverty and unemployem? Such a question leads us to think if the revenues of the oil industry are spent through the right channel. The importance of the research comes from connecting the social life with the economical life and then to check the role of oil industry in enhancing the socail life in Iraq. In additions, no researches yet have discussed this topic as some papers discuss the role of oil income on the economy only to the social problems and pandemic like Corona Virus on the economy. This paper makes a super hyprid of the social and economical status of an oil country "Iraq" and then to see how they had been improved by the huge income of the oil exports.

The motivation behind this research stems from the recognition of the crucial role played by the oil industry in the socioeconomic development of oil-producing countries. Iraq, as a prominent oil country, relies heavily on its oil exports to drive economic growth and address various societal challenges. Moreover, understanding the relationship between the oil industry and the components of the social and economic life in Iraq is essential for policymakers, researchers, and stakeholders seeking to harness the potential of this sector for sustainable development.

By delving into the impact of the oil industry on education, health, poverty, and employment, this research aims to shed light on the specific mechanisms through which the oil industry influences these crucial dimensions of Iraqi society by examining the data and indicators related to these areas. We can uncover the linkages between oil revenues and the development of education and healthcare systems, as well as the potential implications for poverty reduction and employment generation.

The findings of this research have the potential to inform policymakers and decision-makers in Iraq about the significance of the oil industry in shaping the socioeconomic landscape, and allocating the positive effects of the oil industry on education and health sectors. Policy interventions can be designed to allocate resources effectively and prioritize investments in these critical areas. Additionally, insights into the relationship between the oil industry and poverty and employment can guide policymakers in formulating strategies to alleviate poverty, create job opportunities, and foster inclusive economic growth.

Furthermore, this research is motivated by the need to challenge existing assumptions and provide empirical evidence regarding the impact of the oil industry in Iraq. Ultimately, the motivation behind this research lies in the aspiration to foster sustainable development and improve the quality of life for

the people of Iraq. By conducting a comprehensive analysis of multiple socioeconomic indicators, we aim to contribute to the existing body of knowledge and bridge the gap between theory and practice. This research seeks to present a nuanced understanding of the complexities and dynamics involved in the relationship between the oil industry and the social and economic fabric of Iraq.

2. Theoretical Analysis of the socio-economic situation in Iraq

The oil industry plays a vital role in shaping the socioeconomic landscape of oil-producing countries. With its abundant oil reserves and significant oil exports, Iraq's economy heavily relies on the oil sector. Through this research, we explore the relationship between the oil industry revenues and the components of the social and economic life in Iraq. Specifically, we seek the impact of the oil industry on the education and health sectors, as well as its influence on poverty and unemployment rates.

By examining these indicators, we aim to determine the extent to which the oil industry enhances the education and health sectors, as well as its role in reducing poverty and unemployment rates. Our objective is to demonstrate the positive contribution of oil exports to the socioeconomic life in Iraq on education, healthcare, poverty reduction, and employment opportunities.

2.1. Oil industry

Oil industry plays a significant role in the global economy, serving as a vital source of energy and a driver of economic growth for many countries (3). With its high energy density and versatility, oil has become a cornerstone of modern industrialization and transportation. The industry encompasses various activities, including exploration, extraction, refining, and distribution of petroleum products (4). Iraq has a long history that is intricately tied to the oil business as an oil-rich country (5). An important source of wealth for the nation, accounting for a sizeable portion of its GDP, has been the revenues from oil exports.

Iraq has worked hard in recent years to develop and modernize its oil industry, luring in foreign capital and enacting reforms to boost output and streamline processes. This expansion has increased the nation's oil production while also boosting employment prospects and the economy (6). However, Iraq has faced both possibilities and disadvantages as a result of its reliance on oil earnings. Although the nation has received a sizable income from oil exports, there have been worries about the volatile nature of oil prices and the long-term viability of this source of income.

It's important to comprehend how the socioeconomic aspects of Iraq's oil business relate to one another. Examining how oil earnings affect industries like education, healthcare, reducing poverty, and employment can help to shed light on the nation's growth and help to shape policies that will allow the country to take full use of the benefits that come with its oil resources for the welfare of its people (7).

2.2. The components of Iraqi Economy

There are numerous elements that make up the Iraqi economy, and they all play a role in how well and how quickly it is developing. These elements include numerous industries and facets of the nation's economic life. For this purpose, we will introduce the most important components of the Iraqi economy.

2.2.1. GDP

An essential part of the economy, the gross domestic product (GDP) gives an indication of the output and performance of the economy as a whole. The gross domestic product of Iraq for a given period of time is the sum of the values of all final commodities and services produced within its borders (8).

Due to the oil industry's enormous contribution to government revenue and export revenues, the GDP composition of Iraq gives it a major weight. The growth of the economy and the GDP as a whole are significantly influenced by oil exports. However, it is crucial to recognize that steps are being taken to diversify the Iraqi economy and reduce its reliance on the oil sector (9).

In many countries that produce oil, including Iraq, GDP and oil sector are closely related. The majority of Iraq's exports are oil-related, which brings in a sizable amount of foreign cash. Government spending and investment in numerous economic areas are directly influenced by the revenue generated by the oil sector. However, depending on the oil sector to boost the GDP presents difficulties and weaknesses. The stability of the economy and government revenue can be greatly impacted by changes in the price of oil globally (10).

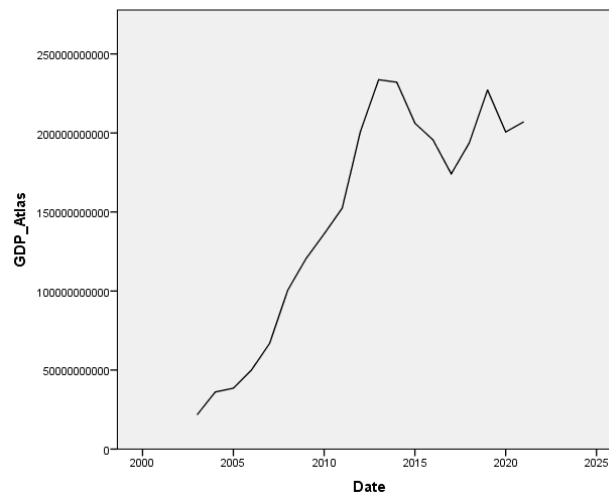


Figure 1 The Annual GDP of Iraq from 2003 to 2021

Figure 1 shows the annual development of the Iraqi GDP through the period of study from 2003 to 2021. It shows that Iraqi GDP is rapidly increased especially the within the years from 2007 to 2012 due to the ending the American war on Iraq, and recovering the economy in general.

In conclusion, the oil sector has a large impact on Iraq's GDP, making a significant contribution to tax income, export revenues, and total economic activity. Diversification initiatives are necessary to lessen reliance on oil, improve economic resilience, and promote long-term sustainable growth.

2.2.2. Oil Exports

Iraq's economy depends heavily on oil exports, which make up a large portion of its entire economic structure. One of the biggest producers of oil in the world, Iraq has enormous oil reserves. The revenue, foreign exchange earnings, and trade balance of the nation are strongly influenced by oil exports (11).

A large chunk of Iraq's total export profits come from the sale of its oil. An essential source of foreign currency, oil exports enable the nation to pay for imports of products and services, fulfill international obligations, and support economic growth programs (12). The amount and value of the nation's oil exports significantly affect the balance of payments, which measures the inflow and outflow of foreign currency. Increased oil exports may result in a favorable trade balance, generating funds for investments, the construction of infrastructure, and social welfare initiatives.

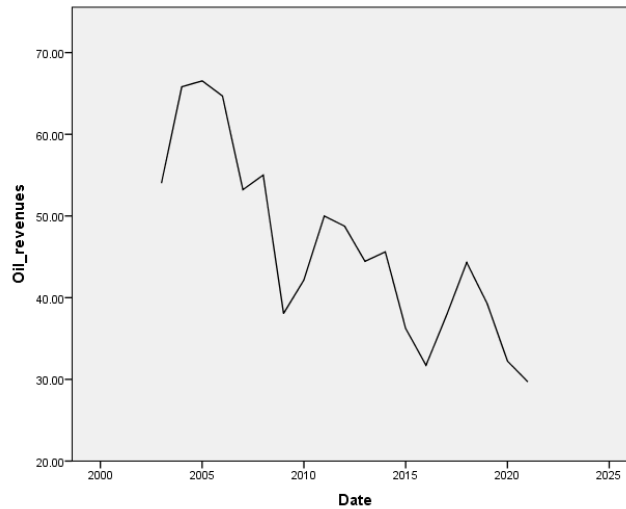


Figure 2 The Annual Oil Revenues of Iraq from 2003 to 2021

Figure 2 shows the annual development of the Iraqi GDP through the period of study from 2003 to 2021. It shows that Iraqi GDP is generally decreased through the period of time going allign with enhancing the GDP, It simply refers to the well investing the oil revenues and less depending on it to manage the economy.

In conclusion, oil exports are an essential part of the Iraqi economy, making a sizable contribution to tax income, foreign exchange earnings, and trade balance. However, diversification initiatives are essential to lessen reliance on oil and improve the economy's sustainability and resilience in the face of changes in the world's oil markets.

2.3. The major indexes of the social economical life in Iraq

Iraq's social and economic life is influenced by a number of important indicators that show different facets of the nation's growth and well-being. These indices offer important insights into the general socioeconomic situation and the advancements made in fields like employment, health, education, and poverty alleviation (17).

2.3.1. Education

The Education Index focuses on statistics about education, such as enrolment rates, literacy rates, and degrees of education attained (18). The Education Index is a crucial component of assessing the social-economic life in Iraq. Over the years, attempts have been undertaken in Iraq to increase educational access and standard. To promote universal primary education and increase access to secondary and tertiary education, the government has put laws and programs into place. To improve the whole educational experience, expenditures have also been made in infrastructure development, teacher training, and curriculum improvements (19).

The educational system in Iraq still faces difficulties, nevertheless. Equitable access to education is hampered by a lack of funding, infrastructure shortcomings, and regional differences. The country's persistent conflicts and instability have also damaged educational systems and slowed educational advancement (20).

The expansion and viability of Iraq's oil sector as a whole are greatly influenced by the education index. For the oil business to develop, innovate, and remain competitive, a highly educated workforce is crucial (21). The education index has the following effects on the oil industry:

Skilled Workforce: A high education index denotes a population with a greater degree of educational attainment. This indicates that there are more skilled employees who have the knowledge and skills necessary to work in a variety of industries, including the oil business (22).

Research and Development: Education is essential for fostering R&D activities, which are essential for the oil industry's technological development and innovation. In order to improve the effectiveness and sustainability of oil extraction, refining, and distribution processes, researchers and scientists are encouraged to explore new technologies, techniques, and practices that are supported by a strong education index (23).

Technical and vocational education: The oil sector needs a wide variety of technical knowledge and abilities. Geology, petroleum engineering, chemical engineering, environmental sciences, and the upkeep and operation of oil infrastructure are a few examples of these fields. The oil sector may increase the performance of its employees and its human capital by making investments in technical education and training (24).

Local Workforce Development: To aid in the socio-economic growth of the surrounding areas, the oil sector frequently looks to hire and train locals. This increases employment prospects while simultaneously encouraging local economic development and reducing reliance on foreign labor (25).

Knowledge Transfer and Capacity Building: Knowledge sharing, training, and capacity building activities that involve research institutes, oil businesses, and educational institutions can be improved. This fosters technological transfer, develops local talent, and creates a dependable workforce that can support the expansion and competitiveness of the oil industry (26).

In this research, we represent the governmental spending and the percentage of GDP spendings on education in Iraq. The figure below shows the annual education in Iraq through the period of our study.

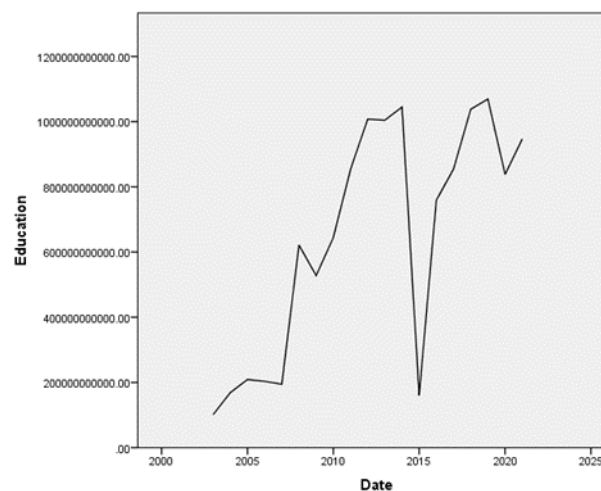


Figure 3 The Annual Spending on Education by Iraqi Government from 2003 to 2021

Figure 3 shows the annual Spending on Education by Iraqi Government from 2003 to 2021. It shows that Iraqi spending on education is rapidly increased especially the within the years from 2007 to 2014

due to the ending the American war on Iraq, and recovering the economy in general, but it clearly being reduced to the lowest level in 2015 because of the security situation in the western north area of Iraq.

In conclusion, Iraq can boost its oil industry and guarantee its long-term viability and profitability by making investments in education and the development of its human resources.

2.3.2. Health

The Health Index is a key metric that gauges a population's general well-being and provides information about Iraq's healthcare system. The Health Index takes into account a number of important factors, including life expectancy, newborn and maternal mortality rates, disease prevalence, healthcare infrastructure, and healthcare spending. The healthcare industry in Iraq has both successes and (27). The government has put a lot of effort into enhancing healthcare services and increasing access to basic medical care.

The Iraqi healthcare system is still battling a number of issues, though. The provision of high-quality healthcare services across the nation is hampered by scarce resources, poor funding, and geographical differences (28). Initiatives to boost primary healthcare services, improve illness prevention and control, and raise public knowledge of health are some of the actions being taken to raise Iraq's health index (29). It seems that Iraqi government is aiming to create a comprehensive, integrated healthcare system that meets the population's various healthcare demands.

For people and society as a whole to be in better overall health, investment in the health index is essential. It not only increases life expectancy but also improves human capital and productivity while reducing (30). The expansion and viability of the Iraqi oil sector are greatly aided by the health index. A healthy population increases everyone's general productivity, effectiveness, and well-being, which benefits the oil industry. The health index has the following effects on the Iraqi oil sector (31):

Productivity of the Workforce: A population with a high health index is likely to be in good health and have access to high-quality medical care. The methods used in oil exploration, extraction, refining, and distribution are more productive, efficient, and safe when workers' health is improved.

Occupational health and safety: There are several risks and hazards in the oil sector. The availability and efficacy of occupational health and safety measures, such as routine physicals, safety training, and emergency response procedures, are reflected in the health index.

Community Well-Being: The oil sector frequently conducts business close to nearby communities. The oil sector can contribute to the well-being and social advancement of neighboring communities by making investments in the health infrastructure and raising the health index, building enduring relationships.

Health Research and Innovation: A high health index stimulates spending on healthcare-related research and innovation. Such advancements can indirectly assist the oil industry by improving population health and well-being, which lowers healthcare costs, improves illness management, and boosts productivity.

Environmental Health: Through pollution, emissions, and ecosystem degradation, the oil industry has the potential to have an impact on environmental health. The overall reputation and sustainability of the oil industry can be improved by putting more of an emphasis on preserving a clean environment and reducing pollution (32).

The Iraqi oil industry may prioritize expenditures in healthcare infrastructure, workplace health and safety measures, community health programs, and environmental stewardship by appreciating the significance of the health index.

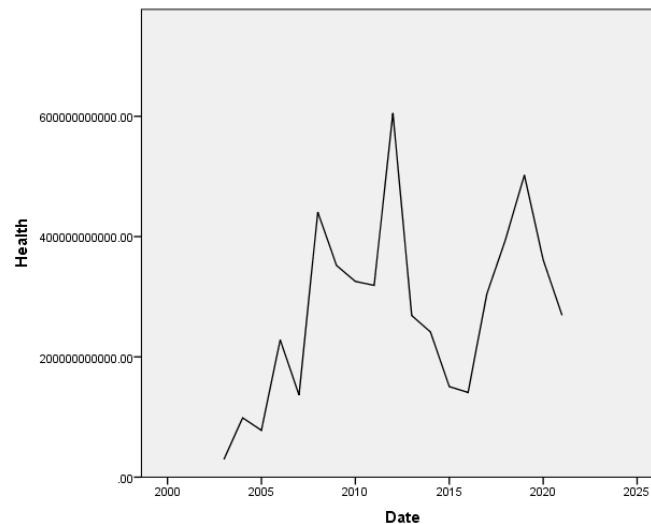


Figure 4 The Annual Spending on Health by Iraqi Government from 2003 to 2021

Similar to the analysis of education, Figure 4 shows the annual Spending on health by Iraqi Government from 2003 to 2021. It shows that Iraqi spending on health is rapidly increased especially the within the years from 2007 to 2014 due to the ending the American war on Iraq, and recovering the economy in general, but it clearly being reduced to the lowest level in 2015 because of the security situation in the western north area of Iraq.

The long-term viability and sustainability of the oil industry in Iraq can be facilitated by a holistic strategy that takes into account the welfare of the employees, local people, and the environment.

2.3.3. Poverty

The Poverty Index is a tool used to gauge how common and severe poverty is among a community. It displays the socioeconomic circumstances and degree of income disparity in a nation or area (33). In the case of Iraq, the Poverty Index offers insightful information about the severity of poverty.

Iraq's poverty is a complicated problem that is influenced by a number of variables, such as economic instability, social inequality, geographical differences, and the effects of hostilities and displacement (34). Indicators including the poverty rate, income distribution, accessibility to essential services, employment possibilities, and social protection programs are taken into account by the poverty index (35).

Over the years, Iraq has reduced its poverty rate, yet obstacles still exist. The effects of military conflicts, political upheaval, and economic changes have hampered efforts to reduce poverty. The country's varied levels of poverty are partly a result of regional differences and a lack of social infrastructure. The Iraqi government has created a number of social safety nets and programs to combat poverty and advance inclusive development (36). An all-encompassing strategy that incorporates economic growth, social welfare measures, and focused interventions is needed to alleviate poverty in Iraq (37).

Iraq may endeavor to create a more fair and prosperous society for all of its residents by tackling the causes of poverty and putting in place efficient poverty reduction policies (38).

Understanding the socioeconomic effects of the Iraqi oil industry on the populace heavily relies on the poverty index. The following are some characteristics of the connection between the Iraqi oil industry and the poverty index (39):

Economic Opportunities: The oil industry has the ability to bring in a sizable sum of money and produce employment. A healthy oil industry can promote economic expansion, employment, and revenue generation, which can lower poverty rates. The rise of ancillary businesses and the development of linked sectors can be aided by increased oil industry investment, creating more job possibilities for the local populace.

Government Income and Social Programs: The government receives a sizable amount of income from oil exports, which is used to promote social assistance and programs aimed at reducing poverty.

Regional Disparities: The distribution of oil riches might affect differences in poverty rates between regions. The poverty index enables policymakers to target particular locations for interventions and resource allocation in order to achieve a more fair distribution of benefits associated to oil.

Social and Economic Infrastructure: Oil revenues can be used to build out social and economic infrastructure, such as public transportation, healthcare facilities, and roadways. By enhancing the population's access to fundamental services can have a positive impact on efforts to reduce poverty. The amount of development in these regions can be reflected in the poverty index, which can also help direct future investments to meet particular needs.

Sustainable Development: Poverty rates may be affected by the oil industry's effects on the environment and natural resources. Long-term poverty reduction can be aided by responsible and sustainable management of oil resources. It is possible to ensure that the advantages of the oil industry are sustainable and available to future generations by balancing economic growth with environmental management.

The figure below shows the development of the poverty rate through the period of study.

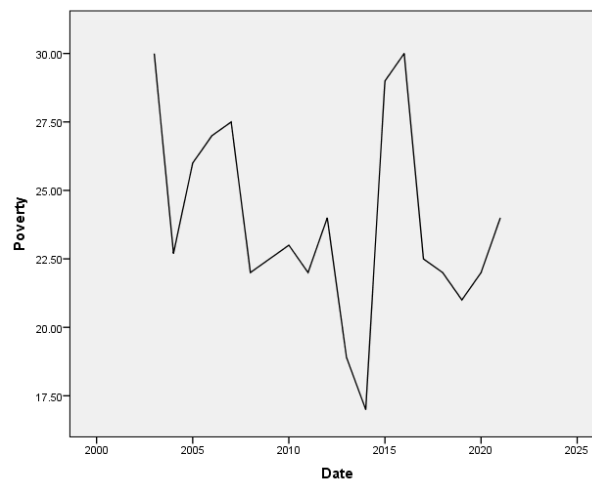


Figure 4 The Annual Poverty rate in Iraq from 2003 to 2021

This figure represents the stability of the poverty rate and the high caring of the government and it has

almost the opposite with lag one or two years to the behaviour of the oil revenue through the period of study. It has a higher value at 2015 because of lower oil revenues at that time.

2.4. Iraqi central bank policy

To maintain stability and foster economic progress in the nation, the Central Bank of Iraq is essential corporation in developing and implementing monetary policies. The central bank is charged with developing and carrying out policies that control the money supply, interest rates, exchange rates, and banking activities because it is the principal financial authority (13). Central Bank of Iraq's major goal is to keep prices stable and inflation under control and managing interest rates to control inflationary pressures and maintain the national currency's buying power. Central bank implements steps to check inflationary trends and advance price stability by carefully monitoring economic indicators and market conditions.

Central bank is essential in overseeing and controlling the banking industry. To guarantee banks' stability, honesty, and adherence to global best practices, it establishes prudential laws and standards for financial institutions. The central bank builds trust and confidence in the financial sector, which in turn supports economic growth and development, through promoting a strong and well-functioning banking system (14).

Because they affect the nation's overall economic climate and the investment climate, Central Bank of Iraq's policy decisions have a big impact on the oil industry. And, the regulation of the currency rate by the central bank is a crucial component of its strategy. Central bank contributes to creating a predictable and advantageous climate for oil exports, which is essential for the industry's ability to generate income (15).

The oil sector is impacted by the central bank's interest rate and inflation policies. This is crucial for the oil sector because it guarantees that output and operating expenses will continue to be within reach. Stable inflation rates support a positive investment environment by enticing both domestic and international investors to invest in the oil industry. The integrity and stability of the financial sector are upheld by the central bank's policies regarding banking supervision and regulation, which indirectly contribute to the operation of the oil industry (16).

In conclusion, the Central Bank of Iraq's policies have a significant impact on the oil industry through affecting the availability of financial services, exchange rates, investment climate, and economic stability. The central bank has established a favorable policy environment that encourages the expansion of the oil sector, which benefits Iraq's overall socioeconomic development.

2.5. The government management of the socioeconomic life

The management of Iraq's socioeconomic is the charge of creating and carrying out policies and plans aimed at enhancing the quality of life and general wellbeing of its residents (40). In Iraq, the government's management of the socioeconomic life involves several key aspects (41):

Economic Planning: To encourage economic growth, draw in investors, diversify the economy, and open up employment prospects, the government develops long-term development plans and strategies (42). To ensure a minimal level of living for all citizens, these programs include financial aid, access to essential services, healthcare, education, and social assistance.

Infrastructure Development: The government makes investments in the development of the transportation, electricity, water, and sanitary systems, as well as the facilities for healthcare and education (43).

Governance and Transparency: Effective socioeconomic life management depends on good governance practices. Its objectives are to reduce corruption, enhance the delivery of public services, and support efficient and effective government (44).

Regional and Local Development: The government strives to close regional gaps and acknowledges the significance of regional and local development. This strategy aids in encouraging inclusive growth and makes sure that the positive effects of development are felt throughout the entire nation (45).

Collaboration and Partnerships: In order to benefit from their experience, resources, and support the government. The government wants to increase the impact of its programs and advance sustainable development, so it encourages collaborations (46). Strong leadership, coordination across various ministries and government agencies, and an emphasis on evidence-based policymaking are all necessary for the government of Iraq to handle the socioeconomic life in the country effectively. In order to confront new issues and guarantee the welfare and prosperity of the Iraqi people, this process must be continuously monitored, evaluated, and adjusted.

3. The numerical case study and discussions

As this research aims at investigating the effect of the oil industry on the socioeconomically status in Iraq, it leads us to ask many questions in details:

1. What is the relationship between the oil exports and the GDP?
2. How can the oil exports improve the health situation, Education in Iraq?
3. How can the oil exports helps in treating the social problems such as poverty and unemployment in Iraq?
4. How can the oil exports support the national government in covering their expenses?

And many other questions those in total contribute in enhancing the social anconomical situation in an oil country like Iraq. The researcher claims that there could be a positive affect of the social and economical life in Iraq. The variable selected throuth the research were: GDP, the ratio of Iraqi government expenditue on health, the ratio of Iraqi government expenditure on eduation, the poverty rate, and the unemployment rate as dependent variables against the oil revenues of Iraq as an independent variable consequently.

3.1. Research hypotheses

The main question of the research can be interpreted in the main hypothesis as:

The null hypothesis H0: There is no affect of the oil industry on the socioeconomic life against the alternative hypothesis H1: There is a positive effect of the oil industry on the socioeconomic life.

And then we can derive the following sub-hypotheses as:

The first hypothesis about GDP

H0: There is no effect of the oil industry on the GDP in Iraq.

H1: There is affect of the oil industry on the GDP in Iraq.

The second hypothesis about health sector

H0: There is no positive affect of the oil industry on the health sector in Iraq.

H1: There is positive affect of the oil industry on the health sector in Iraq.

The third hypothesis about education sector

H0: There is no positive effect of the oil industry on the education sector in Iraq.

H1: There is positive effect of the oil industry on the education sector in Iraq.

The fourth hypothesis about poverty

H0: There is no role of the oil industry in reducing the poverty rate in Iraq.

H1: There is an important role of the oil industry in reducing the poverty rate in Iraq.

The fifth hypothesis about unemployment

H0: There is no role of the oil industry in reducing the unemployment rate in Iraq.

H1: There is an important role of the oil industry in reducing the unemployment rate in Iraq.

This study is done for a significance level 5% and it is the comparative level for all hypotheses testing later as:

1. We do not reject the null hypothesis if the calculated significance level (it is also called p-value) is greater than the critical significance level (5%).
2. We reject the null hypothesis if the calculated significance level (it is also called p-value) is less than the critical significance level (5%).

The significance level refers to the rejection level if we assume there is a real correlation between the variable and here it will be compared to the critical level (5%) and to accept the null hypothesis (no relationship) if the calculated p-value is greater. The decisions of either accepting the null hypothesis or to reject is built upon the comparing the calculated significance level to the critical level 5% for all subhypothesis. In other word, we have a subhypothesis related to the original subhypothesis to tell if the correlation is real or not. This hypothesis is arranged as $r=0$ if the null hypothesis is not rejected so there is no real correlation between the dependent variable and the independent one, the value of the correlation coefficient we get is almost equal zero. That is, against the alternative hypothesis which tells that the calculated correlation coefficient is real and then there is a real correlation between the variables.

3.2. Data and measurement

A set of data is collected from the world bank and the Iraqi government reports and even the central bank of Iraq (CBI) for the period of time 2003-2021. In this research, we analyse the relationship between the dependant variables (The variable selected through the research were: GDP, the ratio of Iraqi government expenditure on health, the ratio of Iraqi government expenditure on education, the poverty rate, and the unemployment rate) and the independent variable (the oil revenues) consequently.

3.3. Descriptive analysis of the data

The descriptive analysis of the data showed that the mean and standard deviation of the variables as the following table:

Variable	Mean	SD	Normality test	
			K-S Statistics	Sig
GDP	150	7.11	0.157	0.200
Health	2.11	0.1	0.149	0.200
Education	6.4	0.36	0.202	0.040
Poverty	23.84	3.56	0.173	0.138
Unemployment	10.16	2.18	0.257	0.002
Oil Revenues	46.29	11.38	0.105	0.200

From the table, we can see that the mean of the iraqi gross domestic product is 150 billion with standard deviation 7.11, the mean yearly government expenditure on health is 2.11 billion with standard deviation 0.1 billion, the mean yearly government expenditure on education is 6.4 billion with standard deviation 0.36 billion, the mean of the poverty rate is 23.84% of iraqi people with standard deviation 3.56, and finally, the mean of the unemployment rate is 10.16% of iraqi people with standard deviation 2.18. The test of normality for this ratio data shows that some variables do not follow the normal distribution such as GDP, health, poverty and oil revenues; whereas others do. In this case, we apply the nonparametric methods such as rank correlation to check the relationship between the dependent and the independent variables and other nonparametric hypotheses testing.

3.4. Hypotheses testing and results discussion

Testing the hypotheses came by calculating the Spearman Rho correlation between the dependent variables and the independent variable consequently as the following table:

Correlatio	GDP	Health	Education	Poverty	Unemployment
Oil revenues	0.678	0.549	0.569	-0.458	-0.665
Sig	0.01	0.015	0.011	0.012	0.002

From the table above, we can say that there is a real correlation between the oil revenues and the other social economical variables. It really consumes in decreasing the poverty and the unemployment rates as they have a negative correlation coefficient and it has an inverse relationship between these two variables and the oil revenues. On the other hand, there is positive relationship between the oil revenues and GDP, health, and the education. For all subhypotheses will be arranged as:

$$H10: r (\text{GDP} * \text{Oil revenues}) = 0$$

$$H11: r (\text{GDP} * \text{Oil revenues}) \neq 0 = 0.678$$

The calculated Sig is 0.01, less than the critical 5% and the decision is to reject the null hypothesis and there is a positive relationship between the GDP and the oil revenues, and it equals 0.678. Oil revenues explains a good affect on the GDP. The prediction of GDP can be prepared by the oil revenues as a linear combination in a linear regression analysis in the following equation:

$$\text{GDP} = 3.47 + 4.23 * \text{Oil Revenue}$$

The GDP above is estimated by billions of Iraqi Dinar, and the equation coefficient (4.23) refers to amount of GDP increasing when the oil revenues increased by one dinar.

$$H20: r (\text{Health} * \text{Oil revenues}) = 0$$

$$H21: r (\text{Health} * \text{Oil revenues}) \neq 0 = 0.549$$

The calculated Sig is 0.015 for this correlation, it is less than the critical 5% and the decision is also to reject the null hypothesis and there is a positive relationship between the government expenditure on health and the oil revenues. Correlation coefficient equals 0.549, and then, the oil revenues explains a good affect on the government expenditure on health. The prediction of Governmental spending on health can be prepared by the oil revenues as a linear combination in a linear regression analysis in the following equation:

$$\text{Health} = -0.256 + 0.051 * \text{Oil Revenue}$$

The Governmental spending on health above is estimated by billions of Iraqi Dinar, and the equation coefficient (0.051) refers to amount of Governmental spending on health increasing when the oil revenues increased by one dinar. It shows also that there will be a loss in spending on health when it is not supported by the oil revenues. Actually, it reflects the importance of oil exports in financing the health sector in Iraq.

$$\text{H30: } r(\text{Education} * \text{Oil revenues}) = 0$$

$$\text{H31: } r(\text{Education} * \text{Oil revenues}) \neq 0 = 0.569$$

The calculated Sig is 0.011 for this correlation, it is less than the critical 5% and the decision is also to reject the null hypothesis and there is a positive relationship between the government expenditure on education and the oil revenues. Correlation coefficient equals 0.569, and then, the oil revenues explains a good affect on the government expenditure on education. The prediction of Governmental spending on education can be prepared by the oil revenues as a linear combination in a linear regression analysis in the following equation:

$$\text{Education} = 1.48 + 1.8 * \text{Oil Revenue}$$

The Governmental spending on education above is estimated by billions of Iraqi Dinar, and the equation coefficient (1.8) refers to amount of Governmental spending on education increasing when the oil revenues increased by one dinar. It reflects the importance of oil exports in financing the education sector in Iraq.

$$\text{H40: } r(\text{Poverty} * \text{Oil revenues}) = 0$$

$$\text{H41: } r(\text{Poverty} * \text{Oil revenues}) \neq 0 = -0.458$$

The calculated Sig is 0.012 for this correlation, it is less than the critical 5% and the decision is also to reject the null hypothesis and there is a real inverse relationship between the development of the poverty rate and the oil revenues through the period of time 2003-2021. Correlation coefficient equals -0.458, and then, the oil revenues explains a good affect on decreasing the poverty rate in Iraq. The prediction of poverty rate can be prepared by the oil revenues as a linear combination in a linear regression analysis in the following equation:

$$\text{Poverty rate} = 22.36 - 0.032 * \text{Oil Revenue}$$

The poverty rate above is estimated by billions of Iraqi Dinar, and the equation coefficient (-0.032) refers to poverty rate decreasing when the oil revenues increased by one dinar. It reflects the importance of oil exports in treating poverty in Iraq.

$$\text{H50: } r(\text{unemployment} * \text{Oil revenues}) = 0$$

$$\text{H51: } r(\text{unemployment} * \text{Oil revenues}) \neq 0 = -0.665$$

The calculated Sig is 0.002 for this correlation, it is less than the critical 5% and the decision is also to reject the null hypothesis and there is a real inverse relationship between the development of the unemployment rate and the oil revenues through the period of time 2003-2021. Correlation coefficient equals -0.665, and then, the oil revenues explains a good affect on decreasing the unemployment rate in Iraq. The prediction of unemployment rate can be prepared by the oil revenues as a linear combination in a linear regression analysis in the following equation:

$$\text{Unemployment rate} = 0.128 - 16.08 * \text{Oil Revenue}$$

The unemployment rate above is estimated by billions of Iraqi Dinar, and the equation coefficient (-0.128) refers to unemployment rate decreasing when the oil revenues increased by one dinar. It reflects the importance of oil exports in treating unemployment in Iraq.

The figures bellow shows the scatterplot of the every independent variable on the dependent variable:

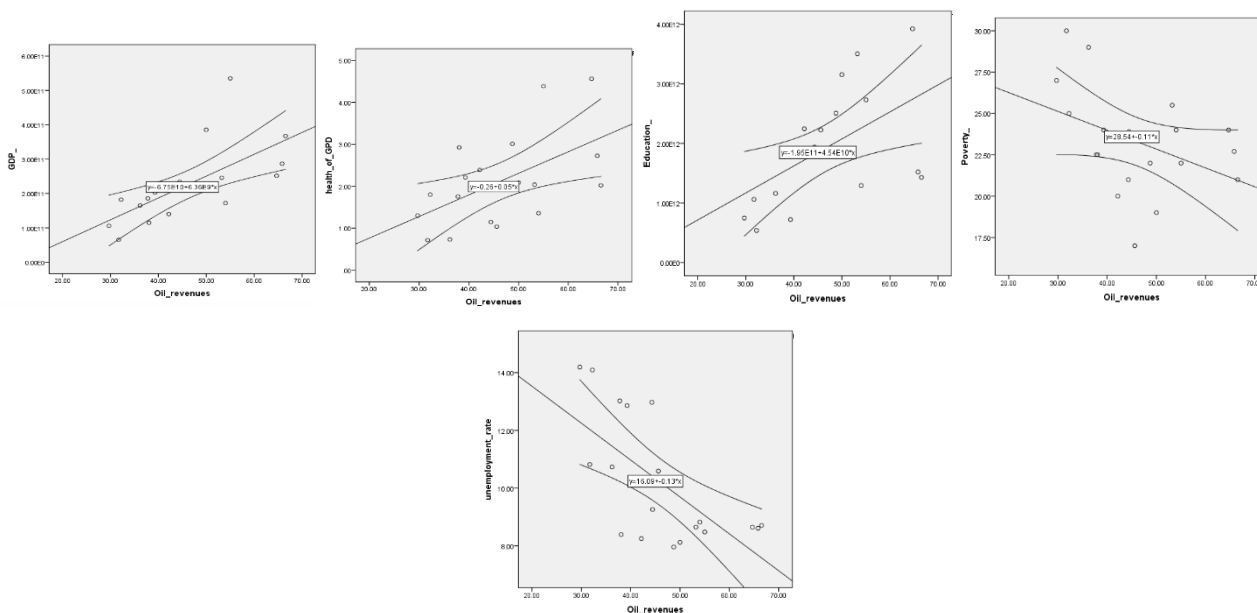


Figure (5) shows that there is a positive relationship between the oil revenues and the gross domestic product in Iraq. It logically does because Iraq is an oil-country which its economy is mainly depends on the oil industry and exports in covering the government expenditures. Figure (5) interprets the relationship between the oil revenues and the government expenditures on health, it proves the positive relationship we got at the statistical analysis. Moreover, figure (3) proves also the positive relationship between the oil revenues and the government expenditure on education. Figure (4) introduces the inverse relationship between the poverty rate and the oil revenues, and it expresses how the government policies helps in decreasing the poverty rate in Iraq depending on the oil exports. Finally, figure (5) shows that there is also an inverse relationship between the unemployment rate and the oil revenues. It tells how the oil industry contributes in solving such a social problems.

4. Conclusion:

This research was able to prove the role of oil industries and in totally the revenues to support the socioeconomical life in Iraq. It introduced an analytical study of the social and economical components Iraq, and then to propose the statistical analysis. The statistical analysis tells that there is a significant effect of the oil revenues on the other social and economical elements. There is a positive effect on the

gross domestic product, the government expenditure on health, and the government expenditure on education. On the other hand, there is an inverse relationship between the oil revenues and poverty rate and the unemployment rate. The practical study supports the theoretical research where it tells that the oil industry has the real effect in improving the social and economical status in Iraq.

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