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The Impact of Some Economic Variables on Economic Growth in Iraq for the Period 2003-2022: A Standard Study

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ABSTRACT

Objective: *Studying the economic variables influencing economic growth in Iraq for the period 2003-2022 is important for Iraq, especially after the events of 2003 and the accompanying changes in economic policy. Therefore, the research aims to understand the impact of these variables on the path of economic development in Iraq.* ***Method:*** *To address the research problem, economic measurement was used through the utilization of Eviews 12 software and some tests, including the unit root test. The time series data were transformed into logarithms, and it was found that the statistical value was not significant because the PRO value was less than 0.005. As a result, the first difference was taken where the time series stabilized. The Box-Jenkins method was used, and then the best model was selected to study the case of economic growth for the Iraqi economy until 2032.* ***Results:*** *The analysis shows that after stabilizing the time series data, the selected Box-Jenkins model effectively captured the dynamics of economic growth in Iraq. The results indicate that key economic variables significantly influence GDP growth trends, and the forecast suggests a steady growth trajectory for the Iraqi economy up to 2032 under current policy conditions.* ***Novelty:*** *The study applies the Box-Jenkins method combined with Eviews 12 software to model and forecast economic growth in Iraq until 2032, considering the impact of economic variables after the events of 2003 and subsequent policy changes.*

INTRODUCTION

The Iraqi economy was significantly affected after 2003 through the changes that occurred in economic policy. Exchange rates reflect the relative conditions between Iraq and its trading partners in foreign trade, differences in interest rates, inflation, outputs, productivity, and Iraq's foreign currency reserves. Open up to the world after the economic blockade imposed by the United Nations during the events of the 1990s, and what happened in Iraq after 2003, led the civilian authority in Iraq to try to use economic policies that simulate the capitalist system and market mechanism by relying on the foreign private and local sector and opening borders. Therefore, we will address some economic variables (oil revenues to determine the degree of common correlation between crude oil prices denominated in US dollars and US dollar/local currency exchange rates, money supply, and inflation) to understand their future impact. The research demonstrates the clear impact of these variables through economic measurement and then predicts the future impact of these variables on economic growth until 2032 [1], [2], [3], [4], [5].

RESEARCH METHOD

1. Research Problem:

The phenomenon of economic instability is one of the most significant challenges that Iraqi economy has encountered and continue facing, in addition to the lack of security and political stability, which has led to the spread of corruption in Iraqi economy and a decline in its performance. Despite the substantial oil revenues during the years of the research, this has not been reflected in real economic growth in Iraq. Therefore, we will reflect the research problem through the following question: "Did increasing oil revenues through expanding money supply and inflation affect the rates of economic growth in Iraq?".

2. Significance of the Research:

The importance of the research lies in identifying and understanding the impact of economic variables on economic growth in Iraq until 2032.

3. Research Objective:

The research aims to determine the relationship between the increase in government expenditure resulting from the growth of oil revenues and its effects on the rate of economic growth in Iraq.

4. Research Hypothesis:

The research is based on the hypothesis that "There is an impact of changes in some economic variables on economic growth in Iraq."

5. Limitation of the Research:

- Dates of survey: A time series ranging from 2003 to 2022 was utilized.
- Spatial limits: Study of the case of the Iraqi economy.

6. Previous Studies:

1. Dynamic Relationships Between Oil Revenues, Government Spending and Economic Growth in An Oil-Dependent Economy.

Helmi Hamdi a, Rashid [6]

This research aims to study the dynamic relationship between oil revenues, government expenditure, and economic growth in the Kingdom of Bahrain. Oil revenues are the main source of funding for government expenditures and imports of goods and services. The increase in oil prices has led to increased public spending on social and economic infrastructure. Through this research, the researcher wanted to determine whether massive government spending has enhanced the pace of economic growth or not. A multi-variable co-integration analysis and an error correction model were used with data spanning from 1960 to 2010 for such a purpose. Based on the results, the researcher concluded that oil revenues remain the main source of growth and the primary channel funding government expenditure.

2.A Comparative Analysis of The Dynamic Relationship Between Oil Prices and Exchange Rates.

M. Ibrahim Turhan, Ahmet Sensoy, Erk Hacihasanoglu [7]

This research applies the DCC model to compare the dynamic relationships between oil prices and exchange rates for G20 members. It then reveals significant shifts

in internal correlations for both exchange rates and oil prices, with empirical evidence confirming a strong negative correlation. This is attributed to events such as the 2003 Iraq War and the 2008 global financial crisis (mortgage-backed securities). The former event had a fundamental impact on members, as the new relationship provided benefits in risk diversification and inflation targeting.

3- ***Policy Uncertainty and Foreign Exchange Rates: The DCC-GARCH Model of the US / Japanese Foreign Exchange Rate.***

Kazutaka Kurasawa [8]

Since the collapse of the Bretton Woods system in the seventies, the exchange rate of the US and Japan has been significantly influenced by policy changes in both countries. This research analyzes the effects of policy uncertainty, measured by the EPU index on the exchange rate between the US and Japan, using the dynamic conditional correlation multivariate (DCC) - generalized autoregressive conditional heteroscedasticity model (GARCH) to analyze the time-varying effects of policy uncertainty. This variable is difficult to measure objectively as it relates to expectations about future political events.

4. ***On the Relationship between Oil and Exchange Rates of Oil-Exporting and Oil-Importing Countries: From the Great Recession Period to the COVID-19 Era.***

Vincenzo Candila, Denis Maximov, Alexey Mikhaylov, Nikita Moiseev, Tomonobu Senjyu and Nicole Tryndina [9]

This research aims to investigate the long-term relationship between exchange rates for major oil-exporting and importing countries and crude oil revenues, focusing on the long-term correlation between two crude oil markets (West Texas Intermediate and Brent crude) and four stock markets (the United States, Europe, Japan, and the United Kingdom). The research provided some economic explanations for the correlations between exchange rates and crude oil revenues, primarily focusing on two events: the collapse of the financial market in 2008 and the COVID-19 pandemic. as the price of West Texas crude fell, and the recovery period until 2012, when oil prices rose again above US $100 a barrel. Significant growth in oil revenues has led to positive correlations between exchange rates and crude oil returns for all oil-exporting countries, which is somewhat unexpected, and economists usually explain the relationship as follows: When the price of oil falls, the domestic currency market lacks the supply of foreign currency, which naturally drives the currency down and vice versa. However, as a result of the analysis, the correlations can also be positive for an appropriate period of time when the currency exchange rate depends on what was mentioned before. the potential cause of such a phenomenon is that, after the crisis, States increased the domestic monetary base, Oil prices and international currency supply are expected to increase in the future (in this case the national currency is weakening) and vice versa: When oil prices fall, countries reduce liquidity and prevent future deficits of the international currency (in this case the national currency strengthens). The research also found that oil-importing countries are more sensitive to oil price changes than oil-exporting countries.

5. ***Money Supply and Inflation in Nigeria: Implications for National Development*****. Olorunfemi Sola, Adeleke Peter** [10]

Nigeria's inflation problem is primarily linked to the failure to address the structural imbalance in the economy, particularly the failure to diversify the economy and reduce dependence on oil exports. In addition to the significant distortions caused by inflation to the country's economic growth and livelihood, there is a significant balance-of-payments deficit, high inflation rates, low domestic savings, increased government spending, declining agricultural and industrial production, weak infrastructure, and weak levels of social services. All of these problems were financed through revenues from the oil boom, which led to increases in the supply of cash and the subsequent effects on the economy through higher price levels and inflation in the mid-1990s and worsened by sanctions on Nigeria by the international community policy, Nigeria was unable to reach its target inflation level in the 1950s and early 1960s even though the various fiscal and monetary policies adopted by the Government to reduce the high rate of inflation, There was no notable success due to some constraints such as government instability and instability from the local currency exchange rate policy coordination and balance-of-payments imbalance. Nigeria's inflation problem is predominantly linked to the failure to address the structural imbalance in the economy, particularly the failure to diversify the economy and reduce dependence on oil exports.

II. The Standard Model

1. Description of the Standard Model:

The standard model will be described based on the economic phenomenon to be studied and in line with economic and financial theory. The standard model consists of one equation or a set of equations, and in this research, the model will be described as follows:

$$y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + u$$

Given:

β_0: Intercept

β_1: Coefficient of independent variable x1

β_2: Coefficient of independent variable x2

β_3: Coefficient of independent variable x3

U: Random error

X1: Oil revenues

X2: Broad money supply

X3: Inflation rate

Y: Gross Domestic Product (Economic growth)

The impact of the independent variables (X1, X2, X3) on the dependent variable Y (economic growth) has been determined, as shown in the following table**:**

Table 1. Impact of the independent variables (X1, X2, X3) on the dependent variable Y (economic growth).

Dependent Variable Y							
independent variable	**X1**	**Signed**	**t**	**SIG.**	**F**	**SIG.**	**R^2**
	B0	93019666	5.56	0.000	19.02	0.000	0.51
	B1	0.869706	4.36	0.000			
	X2	Signed	t	SIG.	F	SIG.	R^2
	B0	92440023	8.29	0.000	46.95	0.000	0.72
	B1	1.021970	6.85	0.000			
	X3	Signed	t	SIG.	F	SIG.	R^2
	B0	1.81E+08	19.61	0.000	18.12	0.000	0.50
	B1	2070738-	-4.27	0.000			

The researchers have provided an analysis based on the outputs of the Eviews program, indicating the following from Table (1):

1. The intercept value, B0, in the first estimated model is statistically significant below a significance level of (0.01). This is because the p-value for the t-test value (0.000) of the intercept which is less than (0.01), indicates significance. Similarly, the coefficient of the variable X1 is statistically significant below a significance level of 0.01. The p-value for the t-test value (0.00) of the X1 coefficient is less than 0.01, leading to the rejection of the null hypothesis of no significant effect of the revenue variable X1 on the Gross Domestic Product (GDP) Y, and acceptance of the alternative hypothesis of a significant effect. Thus, it's concluded that there is a significant impact of the revenue variable X1 on the GDP Y. Additionally, the calculated F-value (0.000) is statistically significant below a significance level of (0.01), with a p-value less than 0.01, indicating that the estimated model as a whole is significant. Furthermore, the coefficient of determination (R^2) is (0.51), meaning that the independent variable explains (51%) of the variance in the dependent variable, while the remaining (49%) is attributed to factors within the random error.
2. The intercept value, B0, in the first estimated model is statistically significant below a significance level of (0.01). This is because the p-value for the t-test of the intercept is (0.000) which is less than (0.01), indicating significance. Similarly, the coefficient of the variable X2 is (0.000) statistically significant below a significance level of 0.01. The p-value for the t-test (0.000) of the X2 coefficient is less than (0.01), leading to the rejection of the null hypothesis of no significant effect of the broad money supply variable X2 on the GDP Y, and acceptance of the alternative hypothesis of a significant effect. Thus, it's concluded that there is a significant impact of the broad money supply variable X2 on the GDP Y. Additionally, the calculated F-value (0.000) is statistically significant below a significance level of (0.01), with a p-value less than (0.01), indicating that the estimated model as a whole is significant. Furthermore, the coefficient of determination (R^2) is (0.72), meaning that the

independent variable explains (72%) of the variance in the dependent variable, while the remaining (28%) is attributed to factors within the random error.

3. The intercept value, B0, in the first estimated model is statistically significant below a significance level of (0.01). This is because the p-value for the t-test (0.000) of the intercept is less than (0.01), indicating significance. Similarly, the coefficient of the variable X3 (0.000) is statistically significant below a significance level of (0.01). The p-value for the t-test (0.000) of the X3 coefficient is less than (0.01), leading to the rejection of the null hypothesis of no significant effect of the inflation rate variable X3 on the GDP Y, and acceptance of the alternative hypothesis of a significant effect. Thus, it's concluded that there is a significant impact of the inflation rate variable X3 on the GDP Y. Additionally, the calculated F-value (0.000) is statistically significant below a significance level of (0.01), with a p-value less than (0.01), indicating that the estimated model as a whole is significant. Furthermore, the coefficient of determination (R^2) is 0.50, meaning that the independent variable explains 50% of the variance in the dependent variable, while the remaining 50% is attributed to factors within the random error.

To forecast the values of GDP, future values of the variables X1, X2, and X3 are needed. The Box-Jenkins method will be used to ensure accuracy in the forecasted values, as it provides accurate predictions.

Forecasting X1:

The time series variable X1 was forecasted using the Box-Jenkins method as follows:

Before forecasting, it's necessary to measure the stability of the time series using the unit root test. The data of the series were transformed into logarithms to increase stability in variance according to the following hypothesis:

Unit root exists (series X1 is unstable): H0

Unit root doesn't exist (series X1 is stable): H1

The conclusion is:

Null Hypothesis: LOGX1 has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=4)

	t-Statistic	**Prob.***
Augmented Dickey-Fuller test statistic	-2.281540	0.1872

Figure 1. Augmented Dickey-Fuller (ADF) Unit Root Test for LOGX1

We notice from Figure (1) that the statistical value is not significant because the p-value (PRO.) is less than 005. Therefore, we take the first difference and test again at the first difference:

Null Hypothesis: D(LOGX1) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=4)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-4.491253	0.0028

We notice that the series stabilized at the first difference, it can be predicted if the following models have been selected for the series: LOGX1 and finding the mean squared error (MSE) for each model to choose the best model according to the following table:

Table 2. Comparison of MSE Values for Different ARIMA Models.

MSE	model
0.026411	ARIMA (1,1,0)
0.025967	ARIMA (0,1,1)
0.023142	ARIMA (1,1,1)
0.024680	ARIMA (1,1,2)
0.024624	ARIMA (2,1,1)
0.025487	ARIMA (2,1,0)
0.023846	ARIMA (0,1,2)
0.025538	ARIMA (2,1,2)

We notice that the best model is ARIMA (1,1,1) because it has the least variance. It can be used for prediction if the forecasts for the upcoming years are as follows:

Table 3. Forecasted Values of X1 for the Period 2024–2032.

Forecasted Value for X1	Year
177723318.4	2024
190262206.1	2025
205706079	2026
223575810	2027
243679239	2028
265986708.1	2029
290567016.8	2030
317553158.5	2031
347123826.7	2032

Table 4. The forecast for the values of Y according to the first model is as follows:

Forecasted Value for Y	Year
247586702	2024
258491848	2025
271923477	2026
287464889	2027
304948962	2028
324349902	2029
345727544	2030
369197553	2031
394915341	2032

Forecast for X2:

The time series variable X2 was forecasted using the Box-Jenkins method as follows:

Before forecasting, the stability of the time series must be measured using a unit root test. The data of the time series were transformed into logarithms to make them more stable in terms of variance, according to the following hypothesis:

Null hypothesis (H0): There is a unit root (X2 series is unstable).

Alternative hypothesis (H1): There is no unit root (X2 series is stable).

It was concluded that:

Null Hypothesis: LOGX2 has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=4)

	t-Statistic	**Prob.***
Augmented Dickey-Fuller test statistic	-1.892158	0.3285

Figure 2. Augmented Dickey-Fuller (ADF) Unit Root Test for LOGX2

From Figure (2), it is noticeable that the test statistic value is not significant because the p-value (PRO.) is less than 0.05. Therefore, we take the first difference and test again at the first difference.

Null Hypothesis: D(LOGX2) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=4)

	t-Statistic	**Prob.***
Augmented Dickey-Fuller test statistic	-4.730549	0.0021

So, we notice that the series stabilized at the first difference, and therefore it can be predicted if the following models have been selected for the series: LOGX2. The mean squared error (MSE) for each model has been calculated to choose the best model, as shown in the following table:

Table 5. ARIMA Model Selection Based on Mean Squared Error (MSE)

MSE	**model**
0.0043629	ARIMA (1,1,0)
0.0042737	ARIMA (0,1,1)
0.0045405	ARIMA (1,1,1)
0.0045597	ARIMA (1,1,2)
0.0045597	ARIMA (2,1,1)
0.0046261	ARIMA (2,1,0)
0.0044683	ARIMA (0,1,2)
0.0047100	ARIMA (2,1,2)

We observe that the best model is ARIMA (1,1,1) because it has the lowest variance, making it suitable for prediction if the forecasts for the upcoming years are as follows:

Table 6. Forecasted Values of X2 Using the Selected ARIMA Model for 2024–2032

Forecasted Value for X2	Year
267528447.8	2024
313442014.2	2025
367235324.3	2026
430260709.4	2027
504102589.9	2028
590617306.1	2029
691979786.1	2030
810738221.4	2031
949878127.8	2032

Table 7. The forecast for the values of Y according to the second model is as follows:

Forecasted Value for Y	Year
365846071	2024
412768358	2025
467743507	2026
532153560	2027
607617747	2028
696033191	2029
799622605	2030
920990163	2031
1063000000	2032

Forecast for X3:

The time series variable X3 was forecasted using the Box-Jenkins method as follows:

Before forecasting, the stability of the time series must be measured using a unit root test according to the following hypothesis:

Null hypothesis (H0): There is a unit root (X3 series is unstable).

Alternative hypothesis (H1): There is no unit root (X3 series is stable).

The conclusion is:

Null Hypothesis: X3 has a unit root
Exogenous: Constant
Lag Length: 1 (Automatic - based on SIC, maxlag=4)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-2.020946	0.2760

Figure 3. Augmented Dickey-Fuller (ADF) Unit Root Test Results for X3

We notice from Figure (3) that the test statistic value is not significant because the p-value (PRO.) is less than 0.05. Therefore, we take the first difference and test again at the first difference.

Null Hypothesis: D(X3) has a unit root
Exogenous: Constant
Lag Length: 1 (Automatic - based on SIC, maxlag=4)

	t-Statistic	**Prob.***
Augmented Dickey-Fuller test statistic	-5.219017	0.0007

So, we notice that the series stabilized at the first difference, and therefore it can be predicted if the following models have been selected for the series X3. The mean squared error (MSE) for each model has been calculated to choose the best model, as shown in the following table:

Table 8. ARIMA Model Selection Based on Mean Squared Error (MSE)

MSE	**model**
97.33	ARIMA (1,1,0)
68.30	ARIMA (0,1,1)
71.78	ARIMA (1,1,1)
44.79	ARIMA (1,1,2)
56.40	ARIMA (2,1,1)
52.14	ARIMA (2,1,0)
65.73	ARIMA (0,1,2)
60.67	ARIMA (2,1,2)

We observe that the best model is ARIMA (1,1,2) because it has the lowest variance, making it suitable for prediction. The forecasts for the upcoming years are as follows:

Table 9. Forecasted Values of X3 Using the Selected ARIMA Model for 2024–2032

Forecasted Value for X3	**Year**
-4.1906	2024
-7.2070	2025
-9.5972	2026
-11.6807	2027
-13.6141	2028
-15.4740	2029
-17.2979	2030
-19.1041	2031
-20.9018	2032

The forecast for the values of Y according to the third model is as follows:

Table 10. Forecasted Values of Y for the Period 2024–2032

Forecasted Value for Y	Year
189677634.7	2024
195923808.8	2025
200873286.7	2026
205187669.4	2027
209191234.2	2028
213042599.8	2029
216819418.9	2030
220559585.8	2031
224282151.5	2032

The preceding analysis indicates that oil revenues are expected to rise to 347,123,826 dinars. This increase will lead to a rise in the Gross National Product, reflected in an increase in the money supply, subsequently impacting the inflation rate, which is predicted to reach approximately -29.9 by 2032, indicating a negative relationship between resource abundance and weak economic performance, supporting the resource curse hypothesis. The clear negative relationship between natural resource-based exports and economic growth in Iraq is evident from the results.

Inflation rates reflect the overall price level in Iraq. Moderate inflation rates do not necessarily indicate a negative situation; stable inflation rates are consistent with the flexibility of the production system and demand for goods and services, thereby affecting economic growth. A decrease in inflation rates is acceptable as long as it does not fall below the percentage set by monetary policymakers. However, a decline into negative inflation rates signifies a potential contraction in purchasing power necessary for economic growth, necessitating monetary policies, especially interest rate policies, to encourage commercial banks to grant loans and increase the volume of bank credit by providing personal loans, corporate loans, and investment loans that suit the structural imbalances in the Iraqi economy.

Addressing the negative inflation occurring over consecutive years, as indicated by the forecasts in Table (9), reflects an economic downturn in Iraq, which is undesirable. Therefore, monetary policymakers in Iraq must consider that Iraq is a rentier state relying on the export of crude oil, which represents around 95% of federal budgets, affecting the foreign exchange market, especially the parallel market dealing with foreign currencies, particularly the dollar, according to the law of supply and demand, as global oil sales are calculated in dollars.

Formulating economic policies should be undertaken by specialists in these policies, as monetary policy formulation must align with fiscal policies, which should correspond to the specificities of the Iraqi economy, especially concerning poverty and unemployment, which annually increase due to the inability to absorb thousands of graduates into the labor market. Additionally, there is a mismatch between skills and the

job market, especially the local private sector, which is one of the most important sectors that accommodate the workforce. However, the weakness of the private sector in Iraq is well-known, as it cannot compete with the public sector and often resorts to quick profits without engaging in large-scale projects, including infrastructure projects, which could accelerate economic growth and diversification, contributing to various revenues that would increase national income and per capita income.

Therefore, it is imperative to establish numerous small projects that absorb a significant portion of the workforce, as well as large-scale export projects that employ a large number of workers, while considering the use of modern technology. Moreover, developing human resources through their involvement in developmental courses would enhance their skills, facilitating their integration into foreign companies operating in Iraq. Furthermore, providing easy loans for graduates and specialists interested in starting small projects is crucial. The state should also be responsible for establishing projects that the private sector is not willing to engage in, as this would contribute to the production of goods and services meeting the needs of the local market, with any surplus exported abroad, thereby enhancing economic growth.

RESULTS AND DISCUSSION

Results

The empirical results show that the selected economic variables have a statistically significant effect on economic growth in Iraq during the period 2003–2022. The estimated models indicate that oil revenues, broad money supply, and inflation rate influence Gross Domestic Product (GDP) as the dependent variable. Based on the regression results, oil revenues have a positive and significant effect on GDP, with a coefficient value of 0.869706 and a significance level below 0.01. The coefficient of determination shows that oil revenues explain approximately 51% of the variation in economic growth, while the remaining 49% is explained by other factors outside the model. This result confirms that oil revenues remain an important determinant of Iraq's economic growth because the national economy is highly dependent on oil exports as the main source of public revenue.

The result for broad money supply also indicates a positive and statistically significant effect on GDP. The coefficient of broad money supply is 1.021970, with a significance value below 0.01. The coefficient of determination reaches 0.72, meaning that broad money supply explains 72% of the variation in GDP. This finding suggests that changes in money supply have a strong relationship with economic growth in Iraq. However, the strong effect of money supply also reflects the sensitivity of the Iraqi economy to monetary expansion, especially when the increase in liquidity is not accompanied by productive investment, industrial development, and diversification of the real sector.

Meanwhile, the inflation rate has a negative and statistically significant effect on GDP. The estimated coefficient of inflation is -2,070,738, indicating that an increase in inflation tends to reduce economic growth. The coefficient of determination for this model is 0.50, which means that inflation explains 50% of the changes in GDP, while the other 50% is influenced by variables not included in the model. This result shows that

inflationary pressure can weaken purchasing power, disturb price stability, and create uncertainty in economic activity. Therefore, inflation control becomes an essential condition for maintaining sustainable economic growth in Iraq.

The unit root test results show that the time series data for oil revenues, broad money supply, and inflation rate were not stationary at level. After applying the first difference, the variables became stationary, allowing the forecasting process to be continued using the Box-Jenkins method. The ARIMA model selection was based on the smallest Mean Squared Error (MSE). For oil revenues, the best model was ARIMA (1,1,1), which produced a forecasted increase from 177,723,318.4 in 2024 to 347,123,826.7 in 2032. Based on this model, GDP is also forecasted to increase from 247,586,702 in 2024 to 394,915,341 in 2032.

For broad money supply, the selected forecasting model was also ARIMA (1,1,1). The forecast indicates a continuous increase in broad money supply from 267,528,447.8 in 2024 to 949,878,127.8 in 2032. Accordingly, GDP based on the second model is projected to rise sharply from 365,846,071 in 2024 to approximately 1,063,000,000 in 2032. This result indicates that broad money supply has the strongest predictive relationship with economic growth compared to the other variables. Nevertheless, this increase must be interpreted carefully because excessive monetary expansion without real productive capacity may create future instability.

For inflation, the best forecasting model was ARIMA (1,1,2). The forecasted values show a declining trend in the inflation rate, reaching negative values from -4.1906 in 2024 to -20.9018 in 2032. Based on this model, GDP is projected to increase only moderately from 189,677,634.7 in 2024 to 224,282,151.5 in 2032. This indicates that declining or negative inflation does not automatically lead to strong economic growth. Instead, persistent negative inflation may reflect weak demand, limited purchasing power, and a slowdown in economic activity. Therefore, the forecast suggests that Iraq needs balanced monetary and fiscal policies to maintain price stability and encourage productive economic growth.

Discussion

The findings confirm that Iraq's economic growth is strongly associated with oil revenues, broad money supply, and inflation dynamics. The positive relationship between oil revenues and GDP reflects the rentier nature of the Iraqi economy, where public spending, foreign currency reserves, and development activities are largely financed by crude oil exports. When oil revenues increase, the government obtains greater fiscal capacity to finance public expenditure, wages, infrastructure, and imports. However, the dependence on oil revenues also creates vulnerability because economic growth becomes highly sensitive to fluctuations in global oil prices. This condition indicates that economic growth in Iraq is not fully supported by diversified productive sectors, but is still dominated by oil-based income [11], [12], [13], [14], [15].

The significant effect of oil revenues on GDP supports the argument that oil remains the main engine of Iraq's economic activity. Nevertheless, the result also reveals a structural challenge. The increase in oil revenues has not been fully transformed into sustainable development, industrial expansion, or employment creation. The article

shows that despite large oil revenues, Iraq has continued to face unemployment, weak private sector development, and limited productive investment. This condition is consistent with the resource curse phenomenon, in which natural resource abundance does not necessarily produce broad-based economic development when governance, investment planning, and institutional capacity remain weak.

The strong positive effect of broad money supply on economic growth shows the important role of monetary expansion in stimulating economic activity. An increase in money supply can support transactions, consumption, credit availability, and government spending. In the Iraqi context, however, the expansion of money supply is closely related to oil revenues and public expenditure. When oil revenues increase, government spending also rises, leading to an increase in liquidity in the economy. If this liquidity is directed toward productive sectors, it can encourage growth. However, if it mainly finances salaries, imports, and consumption, its contribution to long-term development becomes limited.

The high explanatory power of broad money supply indicates that monetary variables are central to understanding Iraq's economic performance. However, this also creates a policy challenge. Excessive dependence on liquidity expansion may increase inflationary pressure, weaken the effectiveness of monetary policy, and create imbalance between nominal growth and real productive growth. Therefore, monetary policy should not only focus on increasing money supply, but also on ensuring that credit flows into productive sectors such as agriculture, industry, infrastructure, small enterprises, and technology-based businesses. This would help transform monetary expansion into real economic growth.

The negative effect of inflation on GDP is consistent with economic theory, which states that high inflation reduces purchasing power, increases uncertainty, and discourages investment. In Iraq, inflation is influenced by money supply, import dependency, exchange rate movements, and public expenditure patterns. When prices increase faster than income, households reduce consumption and businesses face higher production costs. As a result, economic growth may weaken. The finding that inflation has a significant negative relationship with GDP indicates the need for stronger monetary coordination, especially between the Central Bank of Iraq and fiscal policymakers [16].

At the same time, the forecasted negative inflation values should also be interpreted carefully. A decline in inflation may appear positive if it reflects price stability. However, persistent negative inflation or deflation can indicate weak aggregate demand, declining purchasing power, and economic stagnation. In the Iraqi case, negative inflation may suggest that economic activity is not expanding sufficiently despite increases in oil revenues and money supply. Therefore, policymakers must avoid both high inflation and prolonged deflation. The objective should be to maintain moderate and stable inflation that supports consumption, investment, and production.

The forecast results until 2032 show that oil revenues and broad money supply are expected to continue increasing. However, the projected growth based on these variables may not guarantee sustainable economic development unless accompanied by structural

reform. The Iraqi economy needs to reduce excessive dependence on crude oil by strengthening non-oil sectors, especially agriculture, industry, manufacturing, and services. Economic diversification is necessary to create employment opportunities, increase domestic production, reduce import dependence, and stabilize national income when oil prices fluctuate.

Overall, the results emphasize that Iraq's economic growth requires integrated fiscal, monetary, and structural policies. Fiscal policy should direct oil revenues toward long-term investment rather than short-term consumption. Monetary policy should control inflation while encouraging productive credit expansion. Structural policy should focus on rebuilding the private sector, supporting small and medium enterprises, improving human capital, and strengthening industrial and agricultural production. Without these reforms, increases in oil revenues and money supply may only produce temporary growth and may fail to address unemployment, poverty, and weak economic diversification.

CONCLUSION

Fundamental Finding : The absence of effective monetary policies capable of addressing inflation resulting from increased money supply. Successive Iraqi governments have failed to benefit from oil windfalls due to their inability to invest funds in future development projects and address unemployment, especially among experienced professionals. The opening of borders after 2003 (economic liberalization) led to unfair competition, resulting in the closure of many industrial and agricultural projects that previously met most of the local needs, especially during the economic embargo period in Iraq, in addition to layoffs. Reliance on the public sector to provide jobs and re-employ many who left their jobs due to previous regimes has led to disguised unemployment. Federal budgets bear the burden of wages and salaries largely dependent on oil revenues, in addition to the weakness of the local private sector. **Implication :** Rely on specialized experts in formulating overall economic policies, especially in monetary policies, and ensure their harmony with other economic policies, avoiding political favoritism, especially in the central bank. Seek foreign expertise as advisors for a limited period and avoid applying ready-made recipes from the International Monetary Fund, as well as train local cadres by experts. Rely on sustainable and realistic development plans that suit the exceptional circumstances Iraq is experiencing, by utilizing the significant oil revenues accompanying oil price hikes, as well as benefiting from international experiences by establishing a sovereign fund. **Limitation :** The findings indicate structural weaknesses and policy gaps in Iraq's economy, including dependence on oil revenues, disguised unemployment, and insufficient industrial and agricultural resilience, which may limit the immediate effectiveness of any recommended interventions. **Future Research :** Restructure and rehabilitate industrial and agricultural projects, utilize modern technology, and provide support for a limited period, while considering suspending the importation of competitive goods once local alternatives are available, ensuring price stability through

market price monitoring, and punishing violators. Develop comprehensive economic policies to study the local market, especially in technological advancements and changing consumer preferences, to meet local needs and diversify income sources.

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