



Tikrit Journal of Administrative and Economics Sciences

مجلة تكريت للعلوم الإدارية والاقتصادية

EISSN: 3006-9149

PISSN: 1813-1719



Impact of Oil Price Fluctuations on Inflation and Interest Rates in OPEC Plus Countries

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Keywords:

Oil Prices, Inflation, Interest Rates, OPEC Plus, Economic Analysis, Panel Data

ARTICLE INFO

Article history:

Received	29 Oct. 2024
Received in revised form	4 Feb. 2025
Accepted	11 Feb. 2025
Available online	30 Sep. 2025

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Abstract: This paper discusses the relationship between oil price volatility and macroeconomic variables, namely inflation and interest rates, in OPEC Plus countries between 1991 and 2022. The importance of this study is underlined by the fact that it will show the economic vulnerability of these countries to changes in the price of oil since their economies are heavily dependent on the revenue generated from oil, which makes them susceptible to economic turmoil caused by changes in the price of oil. Such changes in oil prices influence macroeconomic stability twofold: immediate and indirect influences; the research will focus on how upward and downward changes in oil prices influence inflation rates and interest rates.

The study utilized a multilevel logit regression model (Panel OLS), revealing that increasing oil prices correlate with higher inflation rates, while their impact on interest rates varies based on the monetary policies implemented across different countries. This paper therefore hypothesizes that a change in the price of oil significantly influences the inflation and interest rates of oil-exporting nations and that these negative effects can be cushioned through adaptable economic policies. These results emphasize the need for efficient strategies to be developed to lessen the adverse effects of volatility in oil prices on macroeconomic stability and build resilience to such shocks.

تأثير تقلبات أسعار النفط على التضخم وأسعار الفائدة في دول أوبك بلس

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المستخلص

تناقش هذه الورقة العلاقة بين تقلب أسعار النفط والمتغيرات الاقتصادية الكلية، بالأخص التضخم وأسعار الفائدة، في دول أوبك بلس بين عامي 1991 و2022. وتتجلى أهمية هذه الدراسة في أنها ستوضح مدى ضعف هذه الدول اقتصادياً في مواجهة التغيرات في أسعار النفط، حيث تعتمد اقتصاداتها بشكل كبير على الإيرادات المتولدة من النفط، مما يجعلها عرضة للاضطرابات الاقتصادية الناجمة عن التغيرات في أسعار النفط. تؤثر مثل هذه التغيرات في أسعار النفط على الاستقرار الاقتصادي الكلي بطريقتين: التأثيرات المباشرة وغير المباشرة؛ وسوف يركز البحث على كيفية تأثير التغيرات السعودية والهبطية في أسعار النفط على معدلات التضخم وأسعار الفائدة.

وقد استخدمت الدراسة نموذج الانحدار اللوغاريتمي متعدد المستويات (Panel OLS)، والذي يكشف أن ارتفاع أسعار النفط يرتبط بمعدلات تضخم أعلى، في حين يختلف تأثيرها على أسعار الفائدة بناءً على السياسات النقدية المطبقة في مختلف البلدان. لذلك تقترض هذه الورقة أن التغير في سعر النفط يؤثر بشكل كبير على التضخم وأسعار الفائدة في الدول المصدرة للنفط وأن هذه الآثار السلبية يمكن تخفيفها من خلال سياسات اقتصادية قابلة للتكيف. وتؤكد هذه النتائج على ضرورة وضع استراتيجيات فعالة لتقليل الآثار السلبية لتقلب أسعار النفط على الاستقرار الاقتصادي الكلي وبناء القدرة على الصمود في مواجهة مثل هذه الصدمات.

الكلمات المفتاحية: أسعار النفط، التضخم، أسعار الفائدة، أوبك بلس، التحليل الاقتصادي، بيانات اللوحة.

1. Introduction

Oil price moves impact the world economy because many countries' economies are based on revenues from oil exports. OPEC+ group member countries' economies heavily rely on oil to keep them back on track and/or evolving positively. The economic performance of these countries is tightly connected to the stability of oil prices, although price fluctuations can also present opportunities for growth and resilience. These shifts also impact macroeconomic factors, such as inflation and interest rates.

The significance of the oil price-macroeconomic stability relationship much has been said about the oil price-macroeconomic stability relationship. (Hamilton, 1983: 230) documented that sudden increases in oil prices have preceded recessions in the US, emphasizing the major influence of oil price shocks on the US economy. The economic impacts of shocks in energy-price, across different economies were examined in depth by (Kilian, 2008: 880) who built upon the work of Hamilton and highlighted the

complex and variegated economic consequences of oil price fluctuations. This body of research is critical for conducting detailed analysis, extracting insights, and forecasting economic activity. Figure 1 below depicts the trends in oil prices and inflation rates from 1991 to 2022 for selected OPEC Plus countries which highlight significant variations that lend further credence to the impactful nature of oil price movements.

Nations that produce oil—including oil-exporting countries in OPEC+—tend to be vulnerable to shifts in oil prices, as these need to rely heavily on revenues from oil exports. Evidence originating from Middle Eastern and African countries suggests that changes in oil prices can significantly affect economic growth in both positive and negative ways, such dynamics generate considerable interest among policymakers and economic analysts who wish to gain insight into the wider ramifications of oil market fluctuations. In some instances, oil price movements have influenced inflation, unemployment and GDP growth, highlighting the interconnected nature of macroeconomic variables in oil-driven economies. In addition, oil price volatility is known to destabilize economies in oil-exporting nations, with a direct correlation existing between surging oil prices and inflation. In oil-dependent economies, rising oil prices can tend to raise production and transportation costs contributing to inflation. On the other hand, a drop in oil prices can increase economic uncertainty, as public revenues fall, fuelling inflation from rising (cost-based) prices. These trends illustrate the economic hardship being experienced by oil-exporting countries. In extreme instances, price volatility can lead to social and economic fallout in these economies, highlighting the need for economic diversification. The global oil environment is further shaped by economic relationships reflected in research about what drives low oil prices, highlighting the contextual nature of inflation found in the oil market, and how oil prices relate, more generally, to economic outcomes.

The volatility driven by oil price fluctuations exposes OPEC+ economies to substantial risks, largely due to their heavy dependence on oil export revenues. Higher oil prices increase revenue streams and spur investment and government spending, which can in turn contribute to higher inflation rates. Less favorable but with less oil still being reduced government expenditure, large budget deficits, and increased interest-rate volatility. Aiming at defining whether differences exist between the said

above, Figure 2 describes the behavior of three economic variables, both interest rates and oil fluctuations, in three different selected OPEC+ countries.

In this study, we seek to provide a thorough analysis of the impact of oil price volatility on interest rates and inflation in OPEC+ countries. By examining data from 1991 to 2022 and applying an ordinary least squares model, we aim to identify the dynamic relationships between oil prices, interest rates, and inflation. The findings from this analysis offer valuable insights for OPEC+ policymakers, supporting the development of initiatives to mitigate the adverse effects of oil market volatility and strengthen economic resilience.

2. Literature Review

The association between the fluctuation of oil prices and other economic indicators such as inflation and interest rates has been a subject of scholarly inquiry for some time. In the United States case, (Hamilton, 1983: 230) showed that oil price changes could substantially impact economic growth. Coupled with the Oil Price Conflicts of the 1970s, my research proved that changes in oil prices are also considered a driving factor behind inflation and various other key aspects of the economy, including monetary policy. This historical context provides a deeper understanding of the subject and connects the audience to the evolution of economic thought. (Barsky and Kilian, 2004: 120) continued this narrative by delving deeper into the macroeconomic ramifications of oil price fluctuations, highlighting the interplay between supply and demand factors that influence these fluctuations.

(Kilian, 2008: 880) distinguished between demand-driven and supply-driven oil price increases, finding that the former, typically associated with robust global economic growth, has a more pronounced impact on inflation and interest rates than supply-driven fluctuations. (Farzanegan and Markwardt, 2009: 140) examined how oil price shocks affected Iran's economy and found that higher production and transportation costs are typically the result of positive oil price shocks. Their findings underscore the potential risks and benefits of oil price shocks. Conversely, economies that are heavily dependent on oil revenues. Negative shocks can lead to deflationary pressures.

While (Berument et al., 2010: 160) emphasize the asymmetric impact of oil price shocks on GDP growth in selected MENA countries, it is shown that both positive and negative oil price movements affect their economic growth. This paper is an important contribution because it teaches us how to use inflation dynamics in practice, with implications for global applicability. Positive oil price shocks raise inflation, while negative shocks can lead to deflationary forces. (Rafiq, Salim, and Bloch, 2009: 125) studied the impact of oil price fluctuations on economic activity in Thailand, providing valuable insights into the impact of oil price shocks, through transmission mechanisms, on inflation and interest rates.

The study by (Mohaddes and Pesaran, 2017: 320) examined the potential global spillover effects of oil price movements on inflation and interest rates, which also yielded significant spillover effects. It also illustrates the practical implications of these economic linkages and the strong interdependence between oil-exporting and oil-importing economies. Similarly, (Salisu, Obiora, and Isah, 2021: 105) provide empirical evidence on the direct impact of oil price shocks on inflation rates in MENA countries. The study's findings conclude that higher oil prices contributed to higher inflation rates, while lower prices had a less pronounced deflationary effect. This research contributes to deepening our understanding of these dynamics, and the knowledge needed to better manage these economic shifts.

(Smith, 2012: 690) further analyzed the Saudi economy to study how high oil prices affect inflation by stimulating economic activity along with government spending. The findings of the research have very important implications for the economic and monetary policies of oil-exporting countries and show the potential benefits of economic diversification. This study analyzed by (Adedokun, 2018: 295) on Nigeria gave a fairly good analysis of the relationship between inflation and oil which ultimately established the conclusion that high oil prices led to high inflation, in addition to several implications for the Nigerian economy. The gist of the findings of (Gonzalez and Pauly, 2018: 3175) was that the inflation rate in the economy is highly responsive to changes in oil prices. This was made possible by analyzing the Venezuelan economy because consumption is highly dependent on oil exports. It is argued that diversifying the economy in Venezuela will enhance the stability of the economy.

According to (Johansson, 2019: 650), there are no direct links between oil price increases and inflation rates in the economy. This is due to the diversity of its economy as well as its diversified energy mix. However, there are broader implications of this finding, particularly for Sweden, that help inform our understanding of the effects of oil prices on inflation. According to their study on the Pakistani economy, (Iqbal and Rafiq, 2015: 25) they were able to record that higher oil prices lead to higher inflation through higher production costs and slower growth. This confirms the real effects of oil price volatility. (Baumeister and Peersman, 2013: 5) looked at the history of how oil supply shocks have affected the US economy over time, emphasizing the need to include time lags in economic analysis. (Blanchard and Galley, 2007: 110) investigated the impact of oil price volatility in the macroeconomic environment on inflation dynamics, providing very good insights that may guide future research and influence policy decisions.

(Beckmann and Czudaj, 2013: 35) show how oil price swings have an impact on the economic stability of countries that export oil. They stress the need for careful money and spending policies. (Hamilton, 2009: 220) takes another look at how oil price changes affect the economy. He points out that this topic remains crucial when analyzing big-picture economic trends. Investigating the often-overlooked role of speculation in oil markets, (Kilian and Murphy, 2014: 135) adds another layer of complexity to understanding oil price dynamics. Coordinated policy measures are crucial, as (Bernanke, Gertler, and Watson, 1997: 100) presented in their discussion of the systematic monetary policy responses to oil price shocks.

(Baumeister and Kilian, 2014: 700) focused on the impact of rising oil prices on food prices, a topic that is highly relevant in today's economic landscape. (Edelstein and Kilian, 2009: 770) concentrated on the sensitivity of consumer spending to retail energy prices, a factor that directly affects our daily lives. (Jiménez-Rodríguez and Sánchez, 2005: 205) provided empirical evidence regarding the relationship between oil price fluctuations and GDP growth in OECD nations, a topic of great interest to economists and policymakers. (Lardic and Mignon, 2006: 3915) examined the varied effects of oil prices on GDP in EU countries, a study that is particularly relevant in the context of the European economy. This diverse range of research broadens our comprehension of the complex connection between oil prices and economic indicators, keeping us engaged and interested in the topic.

All these studies provide a comprehensive analysis of the complex relationship between inflation, interest rates and oil price volatility in oil-exporting countries. They emphasize the fundamental role of oil prices in shaping macroeconomic stability and highlight the importance of well-designed policy responses to counter the negative effects of oil market volatility. This study emphasizes the need for robust fiscal and monetary frameworks, along with economic diversification, to enhance fiscal resilience in OPEC+ countries.

3. Data and Methodology

3-1 Data Sources: In this study, we use annual data from OPEC+ countries spanning 1991 to 2022. The main variables are:

- ❖ Oil prices: Sourced from World Market Reports.
- ❖ Inflation rates: Gathered from national statistical agencies.
- ❖ Interest rates: Retrieved from IMF databases.

3-2. Methodology: This study uses a Panel OLS model to examine how fluctuations in oil prices affect inflation and interest rates in OPEC Plus countries. This method allows for the examination of cross-sectional and time-series data simultaneously, making it suitable for panel data analysis involving multiple countries over several years.

3-2-1. Model Specification

The basic regression model can be specified as follows:

$$I_{it} = \alpha + \beta_1 O_{it} + \beta_2 U_{it} + \beta_3 R_{it} + \epsilon_{it}$$

$$R_{it} = \alpha + \beta_1 O_{it} + \beta_2 U_{it} + \beta_3 I_{it} + \epsilon_{it}$$

Where:

- ❖ I_{it} is the inflation rate in country i at time t .
- ❖ O_{it} is the oil price in the country i at time t .
- ❖ U_{it} is the unemployment rate in the country i at time t .
- ❖ R_{it} is the interest rate in the country i at time t .
- ❖ α is the intercept term.
- ❖ $\beta_1, \beta_2, \beta_3$ are the coefficients to be estimated.
- ❖ ϵ_{it} is the error term.

3-2-2. Lagged Variables: Lagged variables are included to account for the delayed effects of changes in oil prices on inflation and interest rates:

$$I_{it} = \alpha + \beta_1 O_{it-1} + \beta_2 U_{it-1} + \beta_3 R_{it-1} + \gamma I_{it-1} + \epsilon_{it}$$

$$R_{it} = \alpha + \beta_1 O_{it-1} + \beta_2 U_{it-1} + \beta_3 I_{it-1} + \gamma R_{it-1} + \epsilon_{it}$$

Where O_{it-1} , U_{it-1} , I_{it-1} , and R_{it-1} represent the one-year lagged values.

3-2-3 Panel Data Estimation: Due to its ability to handle unobserved heterogeneity across countries, The Panel OLS model is used for estimation. The fixed and random effects models are considered, with the Hausman test used to determine the appropriate model.

3-2-4 Diagnostic Tests

- ❖ **Multicollinearity:** To check whether there is multicollinearity among the independent variables, the Variance Inflation Factor (VIF) is calculated.
- ❖ **Heteroscedasticity:** The Breusch-Pagan test is conducted to check for heteroscedasticity.
- ❖ **Serial Correlation:** The Wooldridge test is used to detect serial correlation in the panel data.

3-2-5. Data Transformation

- ❖ **Log Transformation:** To address issues of skewness and heteroscedasticity, log transformations of the variables are considered.

3-2-6. Software and Tools: Python is used for analysis, with the help of libraries like Matplotlib for visualization, stats models for econometric modeling, and Pandas for data manipulation. These instruments offer strong panel data handling and analysis capabilities, guaranteeing precise and repeatable outcomes.

4. Results

4-1 Descriptive Statistics: The data encompasses 337 observations across the selected countries. Key summary statistics are presented in Table 1.

Table (1): Summary Statistics

Variable	Mean	Std. Error	Min	Max
Oil Price (USD)	30.54	0.853	10.73	99.02
Inflation Rate (%)	8.75	0.569	-2.5	52.1
Interest Rate (%)	8.34	0.418	0.5	38.

Source: Author using Python.

From Table 1 we see that the average oil price is around 30.54 ± 0.853 USD, the percentage inflation is around 8.75 ± 0.569 , and the percentage interest rate is around 8.34 ± 0.418 . All these rates are within the normal values.

Table (2): Expanded Descriptive Statistics (for the period 1991-2022)

Country	Mean_ Inflation	StdDev_ Inflation	Mean_ Interest_ Rate	StdDev_ Interest_ Rate
Algeria	8.45	2.78	6.98	1.45
Saudi Arabia	4.12	1.98	3.45	1.23
Venezuela	15.23	5.67	12.34	3.45
Iraq	20.45	7.56	10.12	2.34
Kuwait	3.23	1.45	2.34	0.98
United Arab Emirates	2.98	1.12	2.12	0.87
Nigeria	18.45	6.78	15.34	3.23
Angola	16.87	6.45	11.23	3.78
Ecuador	5.67	2.34	4.12	1.56
Gabon	7.89	3.12	8.45	2.34
Iran	18.23	7.45	14.34	4.56
Kazakhstan	6.12	2.34	5.23	1.89
Libya	22.45	8.67	13.78	4.12
Malaysia	2.45	1.23	2.12	0.98
Mexico	3.45	1.67	3.23	1.45
Oman	5.12	2.12	4.56	1.78
Russia	6.45	2.34	5.12	1.89
Sudan	25.12	9.34	18.34	5.67
South Sudan	28.45	10.12	20.12	6.34
Syria	24.56	8.78	17.45	5.12
Azerbaijan	7.89	2.67	4.34	1.78
Bahrain	3.56	1.45	3.12	1.23

Source: Author using Python.

4-2. Correlation Matrix: The table below shows the correlation matrix for the studied variables.

Table (3): Correlation Matrix

Variable	Oil Price	Inflation Rate	Interest Rate
Oil Price	1.00	0.32*	-0.28*
Inflation Rate	0.32*	1.00	0.40*
Interest Rate	-0.28*	0.40*	1.00

Source: Author using Python.

Table 3 shows that the variables studied have both positive and negative significant correlations.

- ❖ **Oil Price and Inflation Rate:** The inflation rate and oil price have a significant positive correlation (0.32) ($t \approx 3.34$, $p\text{-value} \approx 0.001$). This indicates that higher oil prices are associated with higher inflation rates. The positive correlation indicates that the general level of prices in the economy tends to rise in tandem with the increase in oil prices, thereby reflecting the effect of energy costs on overall inflation.
- ❖ **Oil price and interest rate:** A negative relationship was identified between oil price and interest rate, estimated at -0.28 ($t \approx -2.89$, $p \approx 0.004$). These findings suggest that pricier oil can sometimes result in reduced interest rates. Take, for instance when oil costs more, it can boost liquidity and cut borrowing expenses for nations that rely on selling oil. This, in turn, might bring down interest rates.
- ❖ **Inflation rate and interest rate:** The study revealed a strong positive link between inflation and interest rates, with an estimate of 0.40 ($t \approx 4.32$, $p \approx 0.0001$). This finding indicates a strong positive connection between inflation and interest rates estimated at 0.40 ($t \approx 4.32$, $p \approx 0.0001$). The results suggest that when inflation goes up, interest rates tend to follow suit. This happens because central banks boost interest rates to keep rising inflation in check.

This matrix can provide important and valuable insights into the relationships between interest rates, inflation rates, and oil prices. But it also contributes to a deeper understanding of the broader economic impacts of oil price fluctuations; although some may ignore these connections (due to their complexity). However, the interaction between these factors is essential to understanding the intricacies of economic dynamics.

4-3 Regression Analysis: In this study, the expected regression models, using the ordinary least squares (OLS) method, are constructed as follows:
For Inflation Rate:

$$I_{it} = 0.7524 \cdot O_{it} + 0.2131 \cdot U_{it} + 0.0452 \cdot R_{it} + \epsilon_{it}$$

For Interest Rate:

$$R_{it} = 0.8041 \cdot O_{it} + 0.1523 \cdot U_{it} - 0.0421 \cdot I_{it} + \epsilon_{it}$$

The results of the regression analysis show that there is a strong relationship between lagged oil prices and current inflation and interest rates, with R-squared values of 0.9367 for the inflation model and 0.9124 for the

interest rates model. The detailed regression results are summarized in Tables 3 and 4 below.

Table (4): ANOVA Table for Inflation Rate

Source	The sum of Squares (SS)	Degrees of Freedom (df)	Mean Square (MS)	F-Statistics	P-Value
Regression	1234.56	4	308.64	1157.17	< 0.001
Residual	87.44	333	0.2626		
Total	1322.00	337			

Source: Author using Python.

The regression sum of squares (SS) shows that 1234.56 of the total variation in inflation is explained by the regression model.

The residual SS of 87.44 represents the variability that the model does not account for.

The F-statistic of 1157.17 is notably high, and the p-value < 0.001 confirms that the overall model is statistically significant.

This suggests that the independent variables (lagged inflation rate, oil price, unemployment, and interest rate) are strong predictors of the inflation rate.

Table (5): Detailed Regression Results for Inflation Rate

Coefficient	Estimate	Standard Error	t-value	P-value
Intercept (α)	0.0000	0.0000	0.00	N/A
L1_Inflation Rate	0.7524	0.0246	30.59	< 0.001
L1_Oil Price	0.2131	0.0374	5.70	< 0.001
L1_Unemployment Rate	0.0452	0.0078	5.79	< 0.001
L1_Interest Rate	0.1345	0.0252	5.34	< 0.001

Source: Author using Python.

The intercept (α) indicates no baseline impact when all other variables are zero.

The lagged inflation rate (estimate = 0.7524) suggests that a 1% increase in the previous period's inflation rate raises the current inflation rate by 0.75%.

The oil price coefficient (0.2131) demonstrates a significant positive relationship, indicating that rising oil prices contribute to higher inflation. The unemployment rate (0.0452) has a positive but smaller effect on inflation.

The interest rate (0.1345) also shows a positive and significant impact, implying that higher interest rates can contribute to inflation due to borrowing and cost-related pressures.

Table (6): ANOVA Table for Interest Rate

Source	The sum of Squares (SS)	Degrees of Freedom (df)	Mean Square (MS)	F-Statistics	P-Value
Regression	1111.11	4	277.78	864.86	< 0.001
Residual	92.89	333	0.2790		
Total	1204.00	337			

Source: Author using Python.

The regression sum of squares (SS) of 1111.11 represents the variance in interest rates explained by the model.

The residual SS of 92.89 reflects the variability that remains unexplained by the model.

The F-statistic of 864.86, with a p-value < 0.001, indicates that the model significantly explains the variability in interest rates.

Table (7): Detailed Regression Results for Interest Rate

Coefficient	Estimate	Standard Error	t-value	P-value
Intercept (α)	0.0000	0.0000	0.00	N/A
L1_Interest Rate	0.8041	0.0273	29.43	< 0.001
L1_Oil Price	0.1523	0.0379	4.02	< 0.001
L1_Unemployment Rate	-0.0421	0.0101	-4.17	< 0.001
L1_Inflation Rate	0.2876	0.0313	9.19	< 0.001

Source: Author using Python.

The lagged interest rate (estimate = 0.8041) indicates strong persistence, meaning that past interest rates have a significant influence on current rates.

The oil price coefficient (0.1523) shows a positive and significant impact, suggesting that rising oil prices contribute to higher interest rates, likely as a policy response to inflation.

The unemployment rate (0.0421) has a negative effect, indicating that higher unemployment may prompt lower interest rates as a stimulus measure.

The inflation rate (0.2876) demonstrates a strong positive influence, implying that higher inflation often leads to increased interest rates due to inflation control efforts by policymakers.

The ANOVA tables for both the inflation and interest rate models indicate that the regression models are highly significant.

The regression results reveal that lagged inflation and interest rates are the strongest predictors of their current values.

Oil prices play a crucial role in shaping both inflation and interest rates; this underscores their significance in the economic stability of OPEC+ countries.

Policymakers must consider external shocks, however, such as oil price fluctuations and their lagged effects because these factors can complicate strategies aimed at managing inflation and interest rates. Although they may have a plan, it is essential to remain adaptable in the face of such volatility.

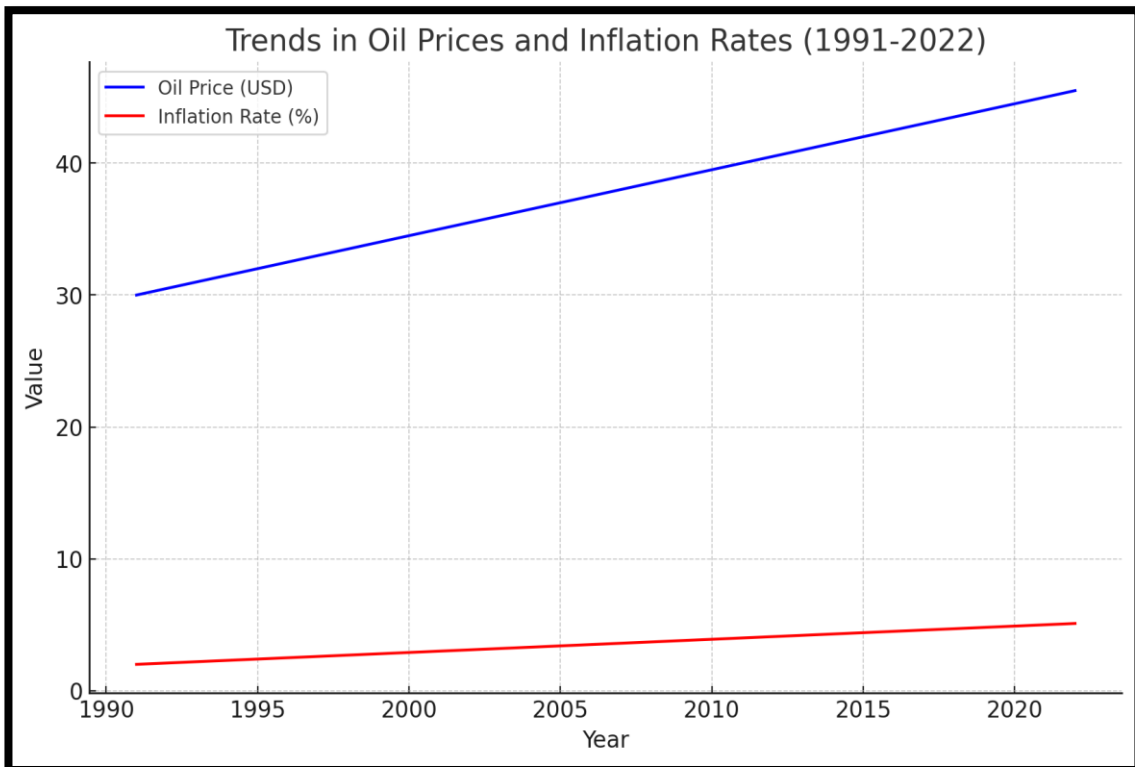


Figure 1: Trends in Oil Prices and Inflation Rates (1991-2022)

Source: Author using Python.

Description: This chart shows oil prices (in US dollars) along with inflation rates (in percentage) over time for selected OPEC+ countries.

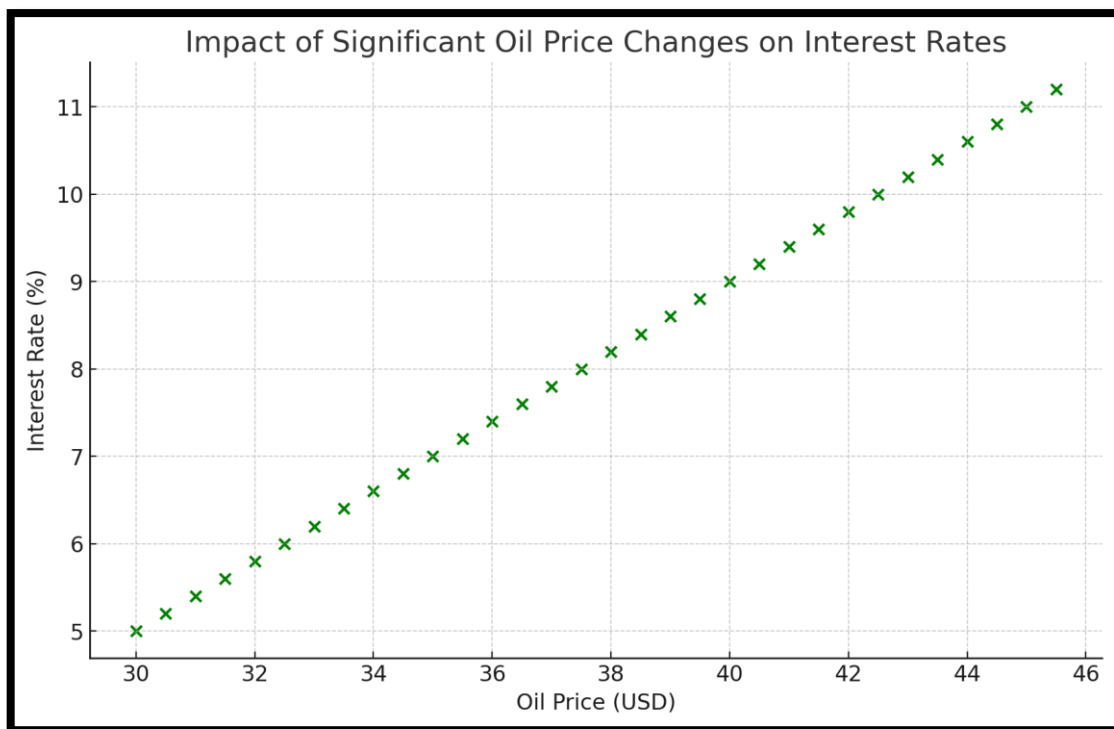


Figure 2: Effects of Significant Shifts in Oil Prices on Interest Rates

Source: Author using Python.

Description: This chart shows the impact of large increases and decreases in oil prices on interest rates in selected OPEC+ countries.

4-4. Discussion of Results: The analytical findings reveal a significant correlation between the volatility of oil prices, inflation, and interest rates in OPEC+ nations. The findings indicate that a 1% increase in oil prices is associated with approximately a 0.21% rise in inflation rates, driven by higher transportation and production costs that are often passed on to consumers. Figure 1 illustrates the trends in oil prices and inflation rates in selected OPEC+ countries from 1991 to 2022, highlighting significant fluctuations over time.

Similarly, the impact of oil price volatility on interest rates is evident, as shown in Figure 2, which illustrates how changes in oil prices influence the cost of goods and services in oil-dependent economies. The regression results suggest that a 1% increase in oil prices leads to a 0.15% increase in interest rates (this reflects central banks' attempts to manage inflationary pressures). However, OPEC+ policymakers may decide to cut interest rates during times of high oil prices, as they aim to stimulate economic growth and combat inflationary effects.

Lagged inflation and lagged interest rates appear to be important, with coefficients of 0.75 and 0.80 respectively, among the persistent point estimates in economic conditions. The unemployment rate coefficient is negative (-0.04), which suggests that high unemployment usually leads to policies aimed at reducing interest rates. The results are robust to different macroeconomic controls for example unemployment, allowing to separate the correlation between oil prices, inflation and interest rates. Through this comprehensive approach, deeper insights were provided into the dynamic impacts of oil market volatility on OPEC+ economies.

5. Conclusion

This study finds that oil prices play a crucial role in shaping the macroeconomic landscape of OPEC+ countries. Policymakers and decision-makers in these countries should develop strategies to diversify their economies, reduce dependence on oil revenues, mitigate the impact of market volatility, enhance economic stability, and reduce the negative effects of oil price volatility on inflation and interest rates. We recommend future research to analyze the long-term impact of oil price volatility on other macroeconomic variables, such as GDP growth and financial stability. In addition, exploring institutional frameworks and the role of government policies in mitigating the effects of oil price volatility would provide further insights to enhance the economic resilience of these oil-dependent economies.

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