

Impact of Oil Price Shocks and Economic Growth in Nigeria: Evidence from 1990-2021

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Abstract: *This research explores the impact of oil price shocks on the Nigerian economy from 1990 to 2021, focusing on Real Gross Domestic Product (RGDP), Exchange Rate (EXR), and Balance of Payments (BOP). Utilising a Vector Autoregressive (VAR) model, the study reveals a positive impact of oil price shocks on RGDP, indicating economic expansion during global crude oil price and contraction during decline, such as observed in the 2015 recession. Variance decomposition analysis demonstrates the variability contributions of oil price, exchange rate, and BOP to RGDP, emphasizing the significant role of the oil sector in Nigeria's economic dynamics. Additionally, Granger Causality/Block Exogeneity Tests reveals the directional causality between oil price and the key variables, emphasizing their substantial role in shaping economic and trade dynamics. accelerated economic diversification, investment in other sectors beyond oil, fostering export-led growth, building foreign exchange reserves to reduce the economic vulnerability to fluctuation in global oil prices.*

Key words: Balance of Payments (BOP), Vector Autoregressive (VAR), Oil Price Shocks, Impulse Response Function, Real Gross Domestic Product (RGDP).

INTRODUCTION

Oil price shocks have been a significant concern for the macroeconomic performance countries that export and import oil since the first shocks of 1973. The impact of these shocks on the economy varies among countries depending on factors such as trade relations. Oil-exporting countries tend to benefit from higher oil-price, while oil importing countries are negatively affected. Nigeria, as an oil-exporting country, stands in the middle as it both exports and imports oil. Trade can help mitigate the negative impact of oil price shocks, but the relationship between oil price and other hydrocarbon prices is complex and varies depending on supply and

demand shocks. The consequence of oil price changes has become more pronounced in recent years in Nigeria, especially in the aftermath of covid-19 pandemic, the ongoing conflict in Ukraine, global financial crisis, instability in the middle East due to Gaza conflict and unconventional monetary policy (Bello and Gidgibi 2022; Moshiri and kheirandish, 2024)

Nigeria, as one of the leading oil-producing nations in Africa, has been significantly influenced by the global dynamics of oil prices. The volatility and unpredictability of oil prices have long been recognized as a critical factor affecting various dimensions of the country's economy. This paper delves into the intricate relationship between oil price shocks, exchange rates, and the real Gross Domestic Product (RGDP), scrutinizing the impact of these shocks on Nigeria's economic growth over the period 1990 to 2022. The importance of understanding the nexus between oil prices, exchange rates, and economic growth cannot be overstated, given the central role that oil plays in Nigeria's economic structure. Shocks in oil prices can trigger a cascade of effects, not only influencing the exchange rate but also rippling through the broader economy, impacting the RGDP, Exchange Rate and overall economic growth. Against this backdrop, this study aims to provide a comprehensive analysis of the historical patterns and trends in oil price movements and their subsequent implications for the Nigerian economy. By examining data spanning over three decades, we seek to identify the key moments of oil price shocks and assess their direct and indirect consequences on the Exchange Rate and real GDP.

This research endeavors to contribute empirical evidence to the ongoing discourse surrounding the resilience and adaptability of the Nigerian economy in the face of oil market volatility. Oil price shocks can lead to fluctuations in Nigeria's exchange rate. The country heavily relies on oil exports, and changes in oil prices can impact the inflow of foreign currency, affecting the exchange rate. Sudden increases in oil prices can contribute to inflationary pressures in Nigeria. As the cost of imported goods rises due to a depreciating exchange rate, it may lead to higher inflation, affecting consumers' purchasing power. Nigeria's government heavily depends on oil revenue to fund its budget. Sharp declines in oil prices can result in revenue shortfalls, creating challenges for fiscal planning and the execution of government projects. Exchange rate fluctuations can impact the country's external debt, particularly if a significant portion of the debt is denominated in foreign currencies.

The Nigerian economy intricately tied to the dynamic of global and internal oil market, with crude oil export constitution constituting a significant portion of its revenue and export. The volatility of oil price on the international scene has posed challenges and opportunities for Nigeria, impacting on various macroeconomics indicators. This study investigates how fiscal shocks to oil prices affect macroeconomic performance, specifically with regard exchange rate, balance of payment and real gross domestic product (RGDP) in Nigeria over the period 1990-2021.

Research Questions:

1. How do oil price shocks affect Nigeria's exchange rate? Nigeria's balance of payments?
2. What is the impact of oil price shocks on Nigeria's balance of payments?
3. How does the Nigerian economy respond to oil price shocks in terms of gross domestic product (GDP)?

LITERATURE REVIEW

Nwosu et al. (2020) examined the impact of oil price shocks on the actual sectors (manufacturing, industrial production, agriculture, and money supply) of the Nigerian economy from 1981 to 2018 using the vector autoregressive (VAR) model. The study's conclusions demonstrated that shocks have a detrimental effect on Nigeria's real sector of the economy, which has an adverse effect on long-term economic growth. Udoh (2019) using the generalized impulse response functions (GIRF), investigated the trade war effect on oil-exporting African countries of Algeria, Angola, Egypt, Gabon, Nigeria, and Tunisia. Results shows positive foreign GDP shocks were observed as a result of trade relations between selected oil-exporting African countries and the United States and China. On the oil price fluctuation causal effect on exchange rate Mohammed et al. (2019); Ozsoz and Akinkunmi (2012); and Olayungbo (2019) in Nigeria observed a positive nexus. Samhi and Mohamed (2018) in Algeria, Nusair and Olson (2019) in seven Asian countries of (Indonesia, Japan, Korea, Malaysia, the Philippines, Korea, and Thailand), Tasar (2018) in Romania, Gbatu et al. (2017) Kousar et al. (2019) and Widarjono et al. (2020) also substantiate this finding reporting a positive nexus. On the contrary, Eagle (2017); Turhan et al. (2013) reported a non-significant nexus between oil prices and exchange rates. Using the vector autoregressive model to examine the dynamic link. Lv et al. (2018) in Angola, Hassan et, al (2012), Tiwari, et al (2013) in India also substantiate and contribute to these results.

On oil price volatility Amany El-Anshasy et al. (2017), Van Eyden et al. (2019), and Khan et al. (2021) reported a negative effect on GDP growth and freight rates. In cross-country studies using diverse techniques Agu and Nyatanga (2021). The findings of Udo et al. (2021), revealed variation in both oil-exporting-importing nations. Patrick (2020) explored the macroeconomic impact of oil price shock on the Nigerian economy between 2015 and 2019 employing VAR technique. The result shows that oil price shocks do not have direct effects on GDP but on macroeconomic variables such as exchange rate.

While examining the dynamic effects of the various types of oil price shocks on the real exchange rates of countries that are net importer and exporter, Ji et al. (2020) adopted monthly data spanning from 1974:2 to 2016:12 and deployed a SVAR model. The study results show that oil supply shocks produced greater depreciating effects on exchange rates for the oil exporting countries than the importing countries. Bouri et al. (2020) examined how levels of oil volatility and returns affect

the sovereign risk of countries in settings that are static and time-varying. They found that the sovereign risk of the countries in the study had specific implications for the oil crash of 2014-2016.

The shocks in oil volatility and prices predicted the sovereign risk of the countries with spreads that are time varying and the oil returns impacts across quantiles that were asymmetric. The impacts of disaggregated oil price shocks on investor sentiments and uncertainties for both the short-run and long-run asymmetries was analysed by Shahzad et al. (2019) using the data span of 1995:1 to 2015:12 in a NARDL framework. They conclude that while oil demand shocks affected uncertainties, the oil supply shocks impacted treasury rates. Investor sentiments are affected by both the oil demand and supply shocks. Still on oil price shocks and currency exchange rates. The effect of changes in price of oil on exchange rates in Nigeria was examined by Osuji (2015) using monthly data covering the period 2008M1 to 2014M12. Utilizing OLS and VECM, he observed that oil price movements have a significant causal effect on Exchange rate and the country's foreign reserves.

Theoretical Framework

The Linear/Symmetric Relationship Theory of Growth

The theory postulates that the fluctuations in a country's total output (GDP) are often occasioned by the volatility in oil prices. Based on the theory, an inverse relationship exists between oil price volatility and the GDP growth in the economy. The pioneering work on this theory was done by Hamilton (1983). As a follow-up, Hooker (1996) building on the work of Hamilton confirmed that a 10% increase in oil price was associated with a 0.6% drop in GDP growth. Also, a similar conclusion was reached by Laser (1987) and Rotemberg & Woodford (1996). On the other hand, Lee et al. (1995) observed that such a sudden and unexpected increase in the price of oil, induced a significant and asymmetric effect on total output and other macroeconomic variables including personal incomes and other forms of earnings.

The Asymmetry-in-effect Theory of Economic Growth

The theory proposes that a decline in oil prices is associated with no significant effect on the economic activities in the US and some OECD countries (Mork, 1989; Lee et al. 1995; Ferderer, 1996). For instance, Mork (1989) expanded the work of Hamilton (1983) by investigating the asymmetric response of oil price volatility by disintegrating oil price volatility into real price increases and decreases. The findings show that oil price drop is significantly different and perhaps zero. The results of Mork (1989) are reinforced in the study of Lee et al. (1995) when they examined the asymmetry-in effects during the period before and after 1985. Lee et al. (1995) was

able to resolve the issue of whether the asymmetric effect is dependent on the macroeconomic variable or not

METHODOLOGY

This study employs time series analysis and econometric model, utilizing relevant data on oil price, exchange rate and GDP from 1990 – 2021. The analyses involve ADF Unit Root Tests, Vector Autoregression (VAR) estimation, Impulse Response Function (IRF) and Granger Causality/Block Exogeneity Tests. The research design integrates these econometric modeling, to ascertain the causal relationship and quantify the impact of oil price shocks on the study variables, with specific focus on oil price, balance of payment, exchange rate, and real gross domestic product (GDP). The data were collected from the Central Bank of Nigeria's Statistical Bulletin (2021), ensuring the reliability and consistency of information. The research aimed to provide a comprehensive understanding of the implication for Nigeria's economic growth, trade balance and exchange rate dynamics.

Model Specification

The research employs Vector Autoregressive (VAR) Model, building on Sims' (1980) methodology, aptly good for capturing the complex dynamics between oil price and overall economic activities. In the VAR framework, all the variables under consideration are assumed to be endogenous.

The VAR model of order (p) is therefore compactly specified as,

$$Y_t = C_0 + \sum_{i=1}^p \Phi_i Y_{t-i} + \varepsilon_t$$

Where:

- Y_{et} = vector of endogenous variables under consideration at time t.
- C_0 = the intercept vector of the VAR model,
- Φ_i = the sequence of matrix of autoregressive coefficients of $i = 1, 2, \dots, p$ and
- Y_{eti} = lagged value of the endogenous variables
- ε_t = the generalization of a white noise process or shocks in the languages of VAR.

The model can be explicitly specified as below:

$$op_t = \alpha_{1t} + \sum_{j=1}^q \beta_j \text{OilP}_{t-j} + \sum_{j=1}^q \gamma_j \text{RGDP}_{t-j} + \sum_{j=1}^q \delta_j \text{EXR}_{t-j} + \sum_{j=1}^q \omega_j \text{BOP}_{t-j} + \mu_t$$

$$\text{GDP} = \alpha_{1t} + \sum_{j=1}^q \beta_j \text{OilP}_{t-j} + \sum_{j=1}^q \gamma_j \text{RGDP}_{t-j} + \sum_{j=1}^q \delta_j \text{EXR}_{t-j} + \sum_{j=1}^q \omega_j \text{BOP}_{t-j} + \mu_t$$

$$\text{Exer}_t = \alpha_{1t} + \sum_{j=1}^q \beta_j \text{OilP}_{t-j} + \sum_{j=1}^q \gamma_j \text{RGDP}_{t-j} + \sum_{j=1}^q \delta_j \text{EXR}_{t-j} + \sum_{j=1}^q \omega_j \text{BOP}_{t-j} + \mu_t$$

$$\text{Bop} = \alpha_{1t} + \sum_{j=1}^q \beta_j \text{OilP}_{t-j} + \sum_{j=1}^q \gamma_j \text{RGDP}_{t-j} + \sum_{j=1}^q \delta_j \text{EXR}_{t-j} + \sum_{j=1}^q \omega_j \text{BOP}_{t-j} + \mu_t$$

Where;

Oil: Oil Price Shock

GDP: Real Gross Domestic Product

EXPR: Exchange Rate

BOP: Balance of Payment

α_{1t} to α_{6t} are the intercepts

$\beta_1, \beta_2, \beta_3, \beta_j, \gamma_1, \gamma_2, \gamma_j, \delta_1, \delta_2, \delta_j, \omega_1, \omega_2, \omega_j$ and θ_j , are coefficients for the lagged values of the variables under consideration as defined earlier.

u_{1t} to u_{6t} are the white noise error terms or impulses or innovations.

PRESENTATION OF RESULTS AND DISCUSSION

Table 1. Results of ADF Unit Root Tests

Variables	Level		First Difference		Order of Integration
	ADF	p-value	ADF	p-value	
OILP	-1.923	0.617	-4.835***	0.001	I (1)
RGDP	-2.212	0.465	-2.901*	0.058	I (1)
EXR	-0.578	0.973	-3.829***	0.007	I (1)
BOP	-2.515	0.319	-5.115***	0.000	I (1)

Notes: Lag length in the ADF test is automatically selected using the Schwarz Information criterion (SIC). ***, ** and * indicate statistical significance at 1%, 5% and 10%

Table 1. present the results of Augmented Dickey-Fuller (ADF) united root test for the variables of study (OILO (Oil Price), RGDP (Real Gross Domestic Product), EXR (Exchange Rate)). The ADF test result reveal non-stationarity at levels, however reveal that all variables are integrated of order 1 (I (1)), indication stationarity after first differencing. This implies that the variables show a stable, non-trending behavior over time. The statistical significance levels, denoted by ***, **, and *, suggest that the results are robust, with p-values indicating significance at the 1%, 5%, and 10% levels, respectively. These analyses lay a foundational understanding for further time series analyses, supporting the suitability of the Vector Autoregressive (VAR) model for investigating the dynamic relationships between oil price shocks, economic growth, exchange rates and balance of payment in Nigeria.

Vector Autoregressive (VAR)

Oil price shock has a positive impact on RGDP in Nigeria which means when there is an increase in the global price of crude oil, Nigeria will take more revenue from the sale from crude oil and the Nigeria economy will boom or expansion (Akarara and Baker, 2023). The result of the VAR estimate reveals that this impact is not consistent since 1st lag while 2 and 3rd lags not significant as this shows the uncertainty in the price of crude oil ((Seen in Appendix). In addition to crude oil price, the 1st lag of EXR has positive impact on RGDP. BOP is in-significant in influencing real economic growth in Nigeria. BOP is not influenced by the shocks in oil price, neither by the other variables in the model. The first lag of EXR is negative and it has a significant impact on EXR in Nigeria and it is also consistent which means if crude oil price increase local currency will appreciate, through an increase in the supply of FOREX while a decrease in oil price will lead to a decrease in local currency. In addition to OILP, RGDP has a positive impact on EXR, more

economic activities, more export, more foreign exchange and Naira will appreciate. Exchange rate is not influenced by shocks in VAR results, the same things apply in the model, RGDP, BOP as this shows that EXR shocks are not determined by the fundamentals of the economy, as this may not be unconnected by the dual exchange rate been operated in Nigeria, where there is official rate and unofficial rate.

Table 2: Variance Decomposition of RGDP

Period	S.E.	OILP	RGDP	EXR	BOP
1	1324.636	15.445	84.555	0.000	0.000
2	1829.126	23.110	73.035	3.254	0.169
3	2267.864	25.680	66.526	6.529	0.492
4	2656.022	26.101	63.176	9.043	0.736
5	2993.202	25.852	61.419	10.813	0.883
6	3296.057	25.465	60.398	12.079	0.973
7	3574.380	25.103	59.749	12.999	1.030
8	3834.381	24.806	59.300	13.684	1.070
9	4080.216	24.569	58.965	14.210	1.098
10	4314.658	24.380	58.702	14.627	1.120

Table 2, provides valuable insights into the relationships between the variables, shedding light on the impact of oil price shocks on real gross domestic product (RGDP) in Nigeria. The variance decomposition analysis over the ten periods reveals that, in the initial period, a substantial 84% of the variation in RGDP is self-accounted, with 15% attributed to oil price shocks. Gradually the influence of oil price increase and it reach a peak of 25.8% in the 5th period and subsequently reduced slightly and reached 24.4 % in the 10th period. The next input and variable accounting for variation in standard error of gross domestic product is exchange rate and accounting for maximum of 14.6% in the 10th period, balance of payment account for insignificant variation (less 2 %). Shocks in oil price has a positive impact on real gross domestic product in Nigeria, which means when there is an increase in global prices of crude oil and Nigeria rakes in more revenue from the sale of crude increase on the other hand a fall in price of crude oil leads to economy down fall as in the case of recession in 2015 and 2016.

However, the inconsistency in impact over different lags indicates the uncertainty associated with oil prices. Additionally, the positive impact of the first lag of the exchange rate on RGDP is noted, while balance of payments is found to be insignificant in influencing economic growth in Nigeria. Overall, this interpretation effectively relates the findings to the research questions and contributes to the understanding of the dynamic relationships between oil prices and economic growth in Nigeria.

Table 3: Variance Decomposition of EXR

Period	S.E.	OILP	RGDP	EXR	BOP
1	28.465	13.605	5.158	81.237	0.000
2	30.322	15.568	6.727	77.703	0.000
3	30.882	15.612	8.283	76.081	0.018
4	31.237	15.263	9.890	74.819	0.022
5	31.627	15.199	11.396	73.361	0.024
6	32.078	15.370	12.816	71.726	0.040
7	32.565	15.623	14.159	70.066	0.068
8	33.066	15.878	15.433	68.467	0.103
9	33.570	16.111	16.647	66.949	0.138
10	34.072	16.321	17.805	65.513	0.173

Table 3, showcase the Variance Decomposition of Exchange Rate (EXR), provides valuable insights into the factors influencing the variability of exchange rates in Nigeria over a ten-period span. In the first period, a significant 81.2% of the variation in the standard error of the exchange rate is accounted for by the exchange rate itself, gradually decreasing to 65.5% by the 10th period. The variables oil price and real gross domestic product (RGDP) emerge as key contributors, with oil price starting at 13.6% and peaking at 16.3% in the 10th period. RGDP exhibits a consistent and positive impact on exchange rates, indicating that economic growth and activities lead to increased foreign exchange earnings, causing the local currency (Naira) to appreciate. Balance of payments (BOP) is found to be negligible, contributing to less than 1% variation in all periods.

The first lag of the exchange rate is identified as a significant factor, demonstrating a consistent negative impact on the exchange rate in Nigeria. This suggests that an increase in crude oil prices leads to a stronger local currency through an augmented supply of foreign exchange. Conversely, a decrease in crude oil prices results in a depreciation of the local currency. Furthermore, the positive impact of both oil prices and RGDP on the exchange rate underscores the role of economic activities and foreign exchange earnings in influencing the appreciation of the Naira.

Table 4: Variance Decomposition of BOP

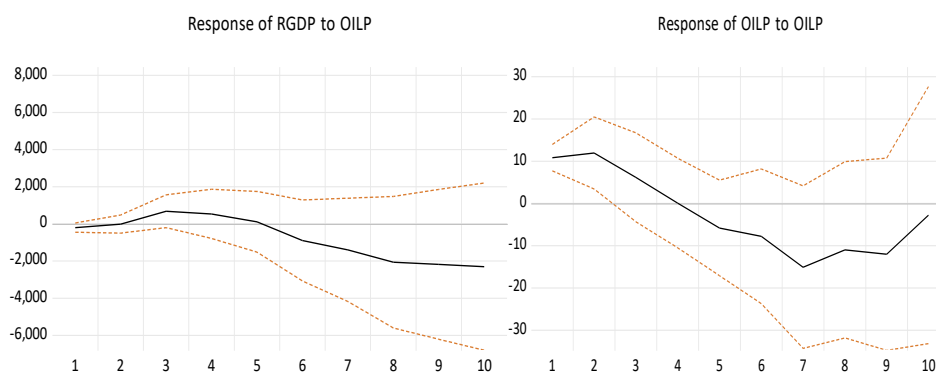
Period	S.E.	OILP	RGDP	EXR	BOP
1	1370938.000	7.752	0.021	5.587	86.565
2	1381771.000	7.724	0.143	6.218	85.830
3	1387679.000	7.659	0.305	6.713	85.232

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4	1390655.000	7.652	0.424	6.962	84.871
5	1392032.000	7.637	0.537	7.030	84.704
6	1393155.000	7.632	0.648	7.060	84.568
7	1394344.000	7.644	0.758	7.080	84.424
8	1395646.000	7.668	0.870	7.098	84.268
9	1397028.000	7.698	0.983	7.118	84.104
10	1398457.000	7.730	1.097	7.139	83.935

Table 4, depicting the Variance Decomposition of Balance of Payments (BOP), offers insights into the factors influencing the variability of BOP in Nigeria over the ten periods. The results indicate that shocks in oil prices do not significantly influence BOP, and the variation in the standard error of BOP is predominantly accounted for by BOP itself, starting at 86.65% in the first period and decreasing to 83.9% by the 10th period. The next significant variable influencing BOP variability is real gross domestic product (RGDP). RGDP's contribution to the variation of BOP standard error starts at 0.021% in the first period and increases to 1.097% in the 10th period. Following closely is oil price, contributing an average of 7.7% over the ten periods. Exchange rate is also identified as a factor, accounting for an average of 6.8% of the variation in the standard error of BOP along with RGDP.

Impulse Response Function (IRF) Results



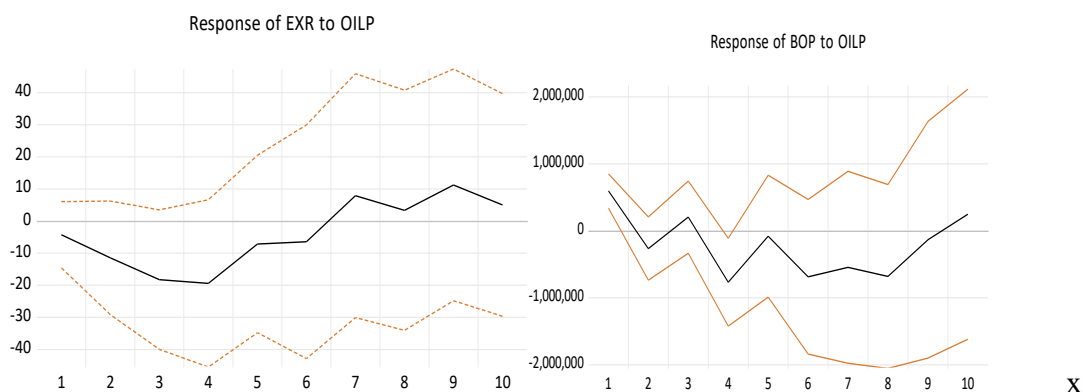


Figure 1. Impulse Response Function to Oil Price Shock

Figure 1, present the Impulse Response Function to Oil Price Shock, revealing the reactions of the variables over ten-year period. Oil Price (OILP) exhibits a consistently positive response to its own shock, indicating a persistent positive relationship. Real Gross Domestic Product (RGDP) initially responds positively for the first five years but later shows a declining trend. Exchange Rate (EXR) demonstrates a negative trend in the first four years, potentially impacting foreign exchange (FOREX) dynamics, followed by a positive trend. The Impulse Response Function provides valuable insights into the dynamic relationship between oil prices and macroeconomic variables, enhancing our understanding of their interplay in the Nigerian economy.

Table 5. Results of the Granger Causality/Block Exogeneity Tests

Dependent variable: OILP			
Excluded	Chi-sq	Df	Prob.
BOP	6.172806	3	0.1035
RGDP	8.302794	3	0.0402
EXR	15.97167	3	0.0011
All	38.96698	12	0.0001
Dependent variable: BOP			

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OILP	0.921009	3	0.8204
RGDP	10.38415	3	0.0156
EXR	9.800580	3	0.0203
All	46.59388	12	0.0000
Dependent variable: RGDP			
OILP	13.41962	3	0.0038
BOP	2.332857	3	0.5063
EXR	10.77116	3	0.0130
All	70.39037	12	0.0000
Dependent variable: EXR			
OILP	1.114901	3	0.7735
BOP	1.799961	3	0.6149
RGDP	1.778913	3	0.6195
All	9.264538	12	0.6802

Table 5 presents the results of Granger Causality/Block Exogeneity Tests, examining the directional causality between Oil Price (OILP) and the variables Balance of Payments (BOP), Real Gross Domestic Product (RGDP), and Exchange Rate (EXR) in Nigeria. The chi-squared statistics and associated probabilities are crucial for determining whether one variable Granger causes another, providing insights into the temporal relationships between these variables. For OILP as the dependent variable, the tests reveal that BOP and RGDP are not significant predictors, while EXR exhibits statistical significance at the 1% level. Similarly, for BOP as the dependent variable, OILP is not a significant predictor, while both RGDP and EXR show statistical significance. In the case of RGDP as the dependent variable, OILP is a significant predictor, emphasizing the influence of oil prices on economic growth. For EXR as the dependent variable, none of the variables, OILP, BOP, or RGDP emerge as significant predictors.

DISCUSSION OF FINDINGS

The findings from the analyses provide significant information into the impact of oil price shocks on selected macroeconomic variables (GDP, EXR and BOP) in Nigeria. Firstly, the positive influence of oil price shocks on RGDP underscores the crucial role of the oil sector in driving economic growth (Aladotun *et al.*, 2023). The observed inconsistency in this impact across

different lags, particularly with the significance diminishing in the 2nd and 3rd lags, highlights the inherent uncertainties associated with oil prices. This aligns with the research question on the persistence and consistency of the economic impact of oil price shocks, this support findings by Gbadamosi, *et al.*, (2022). This is a direction to policymakers to recognize the time-dependent nature of this relationship when formulating strategies to navigate economic consequences of oil price fluctuations.

More so, the examination of the exchange rate dynamics reveals the complex relationship between oil price shocks and foreign exchange markets. The variance decomposition analysis illustrates that EXR is significantly influenced by its own past values, oil price and Real Gross Domestic Product as also supported by Nasir, *et al.*, (2023). The result reveals that an increase in crude oil price leads to stronger local currency through heightened foreign exchange earnings. This provides insight for policymakers managing exchange rate dynamics. The first lag of the exchange rate is identified as a consistent and significant factor, contributing to a clearer understanding of the immediate impact of oil price change on the exchange rate in Nigeria.

The influence of oil price shocks on Balance of Payment (BOP), showing the trade dynamics in response to fluctuations in oil prices. The variance decomposition of BOP emphasizes the predominant role of the BOP itself in influencing its variation, starting at 86.65 % in the first period. Additionally, real gross domestic product emerges as a notable contributor to BOP variation, signifying the importance of economic growth and activities in fostering favourable trade balance (Agu, *et al.*, 2023). The research answers the question of how oil price shocks affect the external balance and trade dynamics, offering insights for policymakers seeking to enhance the resilience of the balance of payments in the face of oil price volatility. The finding contributes valuable knowledge for policymakers and researchers grappling with the multifaceted relationship between oil price shocks and key economic indicators in Nigeria.

CONCLUSION

The study investigates the dynamics between oil price shocks and key macroeconomic indicators in Nigeria, namely Real Gross Domestic Product (RGDP), Exchange Rate (EXR), and Balance of Payments (BOP). The finding reveals significant impact of oil price shocks on economic growth, a relationship characterized by variability across different lags. The study highlights the immediate and lasting effects on the exchange rate, where a surge in oil price leads to a strengthened local currency. More over, the examination of BOP underscores the influence of economic growth on trade dynamic. These finding provides a more comprehensive understanding of the complex

interplay between oil price and Nigeria's economic landscape, offering policymakers valuable consideration for resilient strategies in the face of oil price volatility.

Recommendations

Based on the findings that have been established and the conclusion is drawn from the study, the following recommendations were proffer:

- i. Nigerian government should accelerate efforts towards economic diversification. Policymakers should actively promote and invest in sectors beyond oil, such as agriculture, manufacturing, and technology, to reduce the economy's vulnerability to fluctuations in global oil prices.
- ii. Nigerian government through the Central Bank of Nigeria should implement robust foreign exchange policies. This to include fostering export-led growth, building foreign exchange reserves, and adopting measure to stabilize the currency in the face of market volatility
- iii. The Government should establish a strategic reserve fund could serve as a financial buffer against the economic repercussions of oil price fluctuations. This fund could be used to support critical sectors during periods of low oil prices, providing stability and preventing drastic economic downturns.
- iv. The Nigerian government should intensify efforts to invest in renewable energy sources. This not only aligns with global sustainability goals but also reduces the country's susceptibility to the volatility of oil markets.
- v. Policymakers should focus on formulating and implementing resilient trade policies. This includes fostering international trade partnerships, negotiating favourable terms, and implementing measures to enhance the competitiveness of non-oil export, thereby contributing to a more stable external balance.

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Appendix: VAR Estimation Results

Variables	OILP	RGDP	EXR	BOP
OILP (-1)	0.183 [2.09464]	16.321 [2.50624]	-0.215 [-1.74586]	2622.494 [0.40346]
OILP (-2)	0.017 [0.35918]	3.894 [1.07406]	-0.048 [-0.69504]	-714.147 [-0.19735]
OILP (-3)	0.000 [-0.00011]	1.096 [0.44515]	-0.010 [-0.21298]	-514.902 [-0.20954]
RGDP (-1)	0.001 [1.39713]	0.740 [14.0487]	0.002 [2.14516]	22.575 [0.43252]
RGDP (-2)	0.000 [-0.15965]	0.135 [3.02292]	0.001 [0.84273]	-0.968 [-0.02197]
RGDP (-3)	0.000 [-0.37973]	0.043 [1.37661]	0.000 [0.54192]	-8.815 [-0.28661]
EXR (-1)	-0.011 [-0.18995]	7.662 [1.77243]	0.287 [3.49060]	3940.462 [0.91333]
EXR (-2)	0.011 [0.33600]	2.671 [1.05560]	0.039 [0.80976]	1499.834 [0.59396]
EXR (-3)	0.007 [0.30269]	1.135 [0.65884]	0.007 [0.20919]	917.683 [0.53386]
UMP (-1)	0.370 [1.51725]	31.111 [1.69738]	0.035 [0.10166]	-3157.443 [-0.17259]
UMP (-2)	0.060 [0.46226]	9.786 [0.99865]	-0.047 [-0.25199]	1922.733 [0.19657]
UMP (-3)	0.002 [0.02505]	2.285 [0.34541]	-0.020 [-0.16090]	-21.878 [-0.00331]
BOP (-1)	0.000 [1.16802]	0.000 [0.66765]	0.000 [-0.01122]	0.085 [0.95874]

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BOP (-2)	0.000 [0.60059]	0.000 [0.73886]	0.000 [-0.16401]	0.028 [0.56980]
BOP (-3)	0.000 [0.30260]	0.000 [0.39932]	0.000 [-0.13528]	-0.001 [-0.04536]
C	2.343 [0.25412]	2723.524 [3.92829]	-21.959 [-1.67404]	210005.500 [0.30355]

F-test and Diagnostic Tests

R-squared	0.719	0.995	0.888	0.485	0.375
Adj. R-squared	0.192	0.986	0.677	-0.479	-0.796
Sum sq. resids	6615	35093200	16205	745	37600000000000
S.E. equation	28.755	2094.433	45.007	9.650	2167643.000
F-statistic	1.365	111.724	4.217	0.503	0.321
Mean dependent	53.009	44139.700	133.239	13.896	1752653.000
S.D. dependent	31.995	17920.730	79.214	7.934	1617627.000

Note: t-statistics are in squared bracket