# THE IMPACT OF OIL PRICE FLUCTATION ON THE ECONOMIC GROWTH OF NIGERIA

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## ABSTRACT

*This study examined the impact of oil price changes on Nigeria's economic expansion. The aims of the study were to evaluate how oil price changes effect Nigeria's revenue generation and overall economic growth. Additionally, the impact of demand and supply market dynamics on Nigerian crude oil revenue generation was evaluated. Secondary data were gathered from CBN Statistical Bulletins and utilised for the study between 1997 and 2020. The Multiple Econometric Method was used to analyse the hypotheses, and a significance level of 0.5 was applied to the results. This research demonstrated that oil price changes have a significant impact on Nigeria's economic expansion. In addition, it was shown that the interest rate and inflation rate had a significant negative effect on Nigeria's economic growth. Based on the findings, it was established that the government should ensure that oil price changes are factored into the budget at manageable rates and implement macroeconomic policies that will reduce the level of inflation.*

*Keywords:* Oil price fluctuation, Gross Domestic Product, Inflation Rate, Real Exchange Rate

## 1.  INTRODUCTION

Crude oil is a significant source of energy for the global economy and is essential to the progress of many countries. Demand and supply factors affect oil prices, which makes it vulnerable to swings in the market's supply and demand. Economic variations was caused by price fluctuations of oil, according to Hamilton (2009), Blanchard (2007) and Gali (2007), which affected numerous economic activity at once. Even though the degree and reasons of this effect may vary, it is considered that events such as a fall in growth rate, high unemployment, or high inflation have a similar influence on this shock. Economic shocks caused by a rise in the price of oil are more likely to occur in an economy that relies heavily on imports than in an economy that relies heavily on exports (Boheman and Maxén, 2018). The term "fossil fuel" or "oil" is used to describe crude oil. In 1956, Shell B.P. made the discovery in Nigeria's Niger Delta at Oloibiri, following more than half a century of research.

Nigeria became an oil producer in 1958, when its first oil field began producing 5,100 barrels per day (Ighosewe, Akan, and Agbogun 2021). The motivation to harness the immense fossil fuel riches is to alleviate the crushing poverty that plagues the majority of Nigerians by establishing systems that promote economic growth and development. The persistent disparity in poverty despite immense natural resources is indicative of what experts refer to as a "resource curse." In recent years, Nigeria's oil and natural gas exports during a period of high prices have allowed the government to post a current account surplus.

Changing prices of crude oil has a big effect on the growth of the economy and the well-being of people all over the world because it is such an important driving factor behind the world's economy. Urbanization and modernization of the global economy have led to a rise in the demand for oil because it is the primary source of energy (Eryiit, 2017). As a result of everyone's daily oil

consumption, its demand increases. As a result, the oil market has continually changed and will continue to do so as long as the significance of oil to the global economy and its market remain (Ogundipe, Ojeaga, and Ogundipe 2014). As a commodity, oil is distinguished by its exclusive role as both the common natural heritage of a country and the engine of global economic growth, its deplorability and price volatility, its enclave nature, high capital intensity, a resultant boom-and-bust cycle, technological sophistication, and the extraordinary profits that accrue to the state and its private players. This combination of variables gives rise to the so-called "paradox of plenty" or "resource curse" (Okonkwo and Mojekwu 2018). There are many reasons for the current market's oil price volatility, but according to Alenoghena (2020), information irregularity among market participants is the most important one. Other factors contributing to price fluctuations include crude oil inventories, the existence of markets for future oil exchanges, differences in production quotas, and members' mistrust.

In terms of economic growth, the crude oil industry is a major factor to take into consideration. The growth rate of the crude petroleum industry in the United States declined by _13.65 percent prior to the economic downturn that occurred in 2016. From 9.61 percent in 2015 to 8.42 percent in 2016, the oil sector's actual GDP contribution dropped. It's (NBS, Q4) Additional factors, such as monetary policy and unemployment rates, are also affected by the industry's growth rate. To put it another way, according to Adedokun, the Central Bank of Nigeria (CBN), 75 percent of government income and 93% of foreign gains from international commerce in products and services have come from oil exports in the last decade.

Nigeria, which has a population of over 180 million people and is endowed with an abundance of crude oil, ought to be wealthy. There was a reasonable expectation that profits would have been sufficient to support the people based on their value and the amount of cash generated. When oil

prices fluctuate, the government's annual budget relies heavily on oil revenues, which has a detrimental influence on the economy (Ogbonna and Ebimobowei, 2017). Crude oil has been blamed for hindering the manufacturing sector's performance in research by Mordi (2006) and Bankole and Shuaibu (2013).

In a monoeconomy like Nigeria, oil price oscillations make it difficult to predict the future of the economy due to the depletion of oil money and the poor allocation and misuse of this cash. Since Nigeria imports refined oil, there has been a lot of debate regarding why this is necessary. Akinleye and Ekpo, 2019) indicated to the importation of refined petroleum as a key reason of a drop in public well-being, while other research (e.g., Akinleye and Ekpo, 2019) pointed to the importation of crude oil as a major source of the decline. Both studies are correct. The International Monetary Fund estimates that oil prices would fall to $20 per barrel in 2016 after falling from over $114 per barrel in 2014 to below $50 per barrel in 2015 and further below $35 per barrel in 2016. For oil-dependent countries, such as Nigeria, decreasing oil prices affect citizens' well-being more than the importation of refined petroleum and the mismanagement of oil revenues. As a result of this experience, Nigeria's economy has entered a long-term decline, and the country is now experiencing severe austerity. Expensive unemployment and stagnant savings, along with high debt payments and shrinking foreign reserves, are some of the consequences of the current economic crisis. As a result, Nigeria's revenue and inflows of foreign cash were both cut.

Using historical data, we want to acquire a better understanding of the links between oil prices and economic growth. Businesses and politicians may be better equipped to deal with inflationary pressures as a result of the study's conclusions.

## 2.        LITERATURE REVIEW

Most empirical studies concentrated on developed and developing countries, whereas studies on Nigeria focused on several drivers (that is, foreign reserves, exchange rate, trade balance, and unemployment) of global decline and their linkages with Nigerian economies.

### 2.1 Oil price Fluctuation and Exchange rate

Numerous theoretical links between exchange rates and global oil prices have been confirmed in the literature (Beckmann and Czudaj 2012). Crude oil's shifting price around the world has caused a lot of debate over its role in influencing macroeconomic indicators. Economists, politicians, and members of the general public have been deeply concerned about the effects of rising crude oil prices on macroeconomic variables since the 1970s and 2009. Is it possible to empirically model a currency's exchange rate without making significant assumptions about other macroeconomic variables? According to a number of studies, crude oil prices around the world could have a significant impact on the exchange rate. One more recent idea holds that the long-term swings in the actual exchange rate can be demonstrated using the global oil market price (EL-Badri, 2011). To achieve both internal and external balance, Nigeria has implemented two key currency rate regimes. To maintain stability, the two most common exchange rate regimes are utilized (Umar and Soliu 2009). An unstable real exchange rate as a result of fluctuating oil prices, according to Serven and Solimano (1993) and Bagella, Becchetti, and Hassan (2006), has the potential to undermine the non-oil sector of the economy as well as capital formation and per capita income in the country. Deficiencies in production and economic suffering can result when the exchange rate is out of control. There is compelling evidence that the rate of per capita output growth in low-income countries is significantly affected by exchange rate changes Isard (2007).

Trung and Vinh (2011) identified two reasons why oil price collapse influences macroeconomic factors. They began by stating explicitly that a rise in oil prices leads to a decrease in aggregate demand when the income of net oil importers and exporters is readjusted. The increase in the price of crude oil can also have an effect on economic activity, as more household money is spent on energy consumption. This development causes enterprises to reduce their crude oil purchases, resulting in insufficient use of production elements such as labour and capital. Second, in terms of supply, crude oil is regarded as the essential component of the manufacturing process. As the cost of crude oil production rises, the amount of oil that can be produced also rises, reducing world oil supplies.

Oil prices had a significant impact on growth, according to Igberaese (2013). High oil prices, in particular, stimulate short-term growth but not long-term development. The impact of oil and stock prices was also examined by Muritala, Taiwo, and Olowookere (2012). Finding a long-term correlation was made using the Johansen cointegration approach.

Using Structural VAR analysis, Buetzer, Habib, and Stracca (2016) analysed oil price shocks for a group of 43 nations. The analysis found no indication of an exchange rate appreciation between oil exporters and oil importers. The relationship between the loss and the interference on the international exchange rate market by oil-producing nations may be to blame. The findings concur with those of Beckmann and Czudaj (2013), who assessed the within and between effects of ten nations. It was established that the results differ within and across groups of oil importers and exporters.

## 2.2.    Oil price Fluctuation and Gross Domestic Products

Some studies have found a positive correlation between rising crude oil prices and rising GDP, while others have found a negative correlation. As a result, the results have been rather varied. According to Chang and Wong (2003), Singapore's gross domestic product (GDP) was affected by fluctuations in oil prices over time. Despite the fact that the effect was minor, the findings suggested a negative effect. The data also showed that crude oil prices have a minimal inverse relationship with the other factors evaluated (inflation and unemployment rate). The research of Oriakhi and Osaze contradicts that of Farzanegan and Markwardt (2009) on Iran's and Nigeria's economies (2013). Researchers found a positive correlation between the two variables after using correlation analysis. Countries like Nigeria and Iran, who export oil, are accountable for the study's findings.

The economic growth of Kenya was evaluated by Mureithi (2014) in light of the shifts in oil imports. Oil import changes have been shown to have a significant negative impact on GDP growth, both in the near term and over the long term. But a rise in oil imports, according to some analysts, might spur the economy.

Odera (2015) found a correlation between Kenya's inflation rate and the global price of diesel. Using secondary time series data. According to the correlation matrix and regression analysis, this is the case. Granger causality analyses confirm that there is no short-term relationship between the increase in global diesel oil costs and the national inflation rate, as expected by monthly variables.

## 2.3. Oil price Fluctuation and Trade Balance

To understand how oil prices affect the trade balance by transferring money from oil importers to exporters and adjusting non-oil commerce, Bodenstein, Erceg, and Guerrieri (2011) developed a theoretical framework. The linear foundation of the model, on the other hand, was recognised as being at odds with recent developments in the body of knowledge. A rise in oil prices may also boost exports from oil importers due to a rise in global demand. Similar findings to Bodenstein et al. (2011) are supported by this finding, namely that the effects of wealth movement on the trade balance are essentially outweighed by the effects of any one direction. A rise in the oil trade balance will lead to an initial upsurge in Nigeria's total trade balance, which will be offset by a decrease in the non-oil trade balance due to a rise in wealth, an increase in GDP, and an appreciation of the currency.

Le and Chang (2013) analysed the impact of oil prices on Malaysia, Singapore, and Japan's trade balances. Unanticipated rise in oil prices are connected with improvements in Malaysia's oil, non-oil, and overall trade balances, according to the results of a VAR. For Singapore and Japan, which import oil, a negative effect was noted. Monthly data from 1980 to 2011 and VAR approaches were utilised by Arouri, Tiwari, and Teulon (2014) to get to the conclusion that India's trade balance suffers when oil prices rise.

## 2.4. Oil price Fluctuation and Inflation Rate

According to Arinze (2011), there is a strong association between inflation and the price of petroleum products. Oil prices have a positive long-term impact on inflation, according to Eregha, Mesaran, and Ayoola (2015). The investigation found just a minuscule link between the years 1994 and 2012.

Kenya's diesel price and inflation rate were studied by Odera (2013). Even though the association was small, it was nevertheless significant enough to warrant further investigation. Vector Error Correction and Johannsen Cointegration techniques were utilised by Suleiman (2013) to examine quarterly data from 1996Q1 to 2011Q4 and found a strong and positive connection. However, in the long run, there was no significant connection.

Oil price shocks have had a favourable impact on inflation in Turkey between 1990 and 2011, according to Ozturk (2015). Rasasi and Yilmaz (2016) discovered that an increase in oil prices had a favourable impact on inflation. In Pakistan, Malik (2017) identified a correlation between oil price volatility and inflation. Oil price fluctuations harm the G-7 countries, according to a study by Cologni and Manera (2008). Inflation has been found to be significantly affected by crude oil prices.

A case study of Iran was used by Abounoori, Nazarian, and Amiri (2014) for their research. Studies show that oil prices have a positive effect both short and long term on inflation. Davari and Kamalian (2018), on the other hand, came to the conclusion that the rise in oil prices and the rate of inflation had little in common. The study also found a link between falling oil prices and rising inflation.

## 3.    METHODS

### 3.1    Sample and Sampling Technique

Sample used in the study comprises of data provided on the applicable features from the CBN. The study used Gross Domestic Products (GDP) as dependent variable while the explanatory variables are foreign exchange, external reserve, trade balance, Unemployment rate, Gross Domestic Products and inflation rate. The regression model is employed with the aid of the EViews.

## 3.2 Model Specification

The study will make use of modified model of Milbourne, Otto and Voss (2003) for a similar study in Nigeria which is based on studies by Mankiw, Romer, Weil (1992), initially linearized his model thus:

$GDP = f$ (FER, TRB, INR) . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .. 3.1

The estimation regression equation based on the above functional relation is:

$\text{Log GDP}_t = \beta_0 + \beta_1 \text{LogFER} + \beta_2 \text{LogTRB} + \beta_3 \text{LogINR} + \mu t$. . . . . . . . . . . . . . . . . . . . . . . . . .3.2

Where:

GDP = Gross Domestic Products (dependent variable)

FER = Foreign Exchange Rate

TRB = Trade Balance

INR = Inflation Rate

$\mu$ =stochastic error term

$\beta_0$……. $B_3$ = regression coefficients of the parameter estimate.

The economic apriori of the signs of parameters is expected that $\beta_1 > 0$, $\beta_2 > 0$, $\beta_3 > 0$.

## 3.3 Description of Variables

**Table 3.1: Variable Measurement**

| S/NO | Variable | Symbol | Measurement of Variables |
|------|----------|--------|--------------------------|
| 1. | Gross Domestic Products | GDP | The worth of all the commodities and services produced within a country's borders over a specified time period, generally a year. |
| 2. | Foreign Exchange Rate | FER | The most familiar way to measure foreign exchange rate is through bilateral exchange rate. A bilateral exchange rate is the value of one currency in relation to another. Bilateral exchange rates are usually quoted against the US dollar (USD), as it is the most traded currency internationally. |
| 3 | Trade Balance | TRB | A nation's trade balance equals the value of its exports minus it's the value of its imports. Exports are goods or services made locally and sold to a foreign country. |
| 4. | Inflation Rate | INR | This is a sustained increase in the overall price level of goods and services in an economy over time. A prolonged period of inflation results from the money supply expanding faster than the pace of economic growth. |

**Source:** Various Literature Definitions

## 4.    RESULTS AND DISCUSSIONS

Using the model's summary statistics, the study's empirical portion tries to uncover underlying patterns in the data it uses. Table 4.1 following provides a quick snapshot of the data.

**Table 4.1: Results of Descriptive Statistics**

|  | LOGGDP | LOGFER | LOGINR | LOGTRB |
|------|--------|--------|--------|--------|
| Mean | 5.671111 | 1.703056 | 1.174722 | 36.05611 |
| Median | 5.580000 | 2.065000 | 1.095000 | 36.54000 |
| Maximum | 6.330000 | 2.550000 | 1.860000 | 63.27000 |
| Minimum | 5.300000 | -0.100000 | 0.730000 | 9.140000 |
| Std. Dev. | 0.292534 | 0.718474 | 0.322371 | 12.55020 |
| Skewness | 0.665143 | -0.962449 | 0.859399 | -0.095153 |
| Kurtosis | 2.260416 | 2.986572 | 2.570564 | 2.903087 |
| Jarque-Bera | 3.474968 | 5.558116 | 4.708027 | 0.068413 |
| Probability | 0.175963 | 0.062097 | 0.094987 | 0.966372 |
| Sum | 204.1600 | 61.31000 | 42.29000 | 1298.020 |
| Sum Sq. Dev. | 2.995156 | 18.06716 | 3.637297 | 5512.763 |
| Observations | 36 | 36 | 36 | 36 |

Source: E-Views

The study period's mean values reflect a wide range of variability in the variables. The standard deviation of the Trade Balance has been abnormally large, according to the study in the above table. This illustrates the Trade Balance's high degree of volatility throughout the time period under consideration. Skewness/kurtosis values for all variables were used to further strengthen this model's analysis. Negative skews in the distributions of the Foreign Exchange Rate and Trade Balance, whereas positive skews in Gross Domestic Products and Inflation Rate. Platykurtic (also known as fat or short-tailed) variables have a kurtosis value less than three, and all of the variables in the study fell into this category.
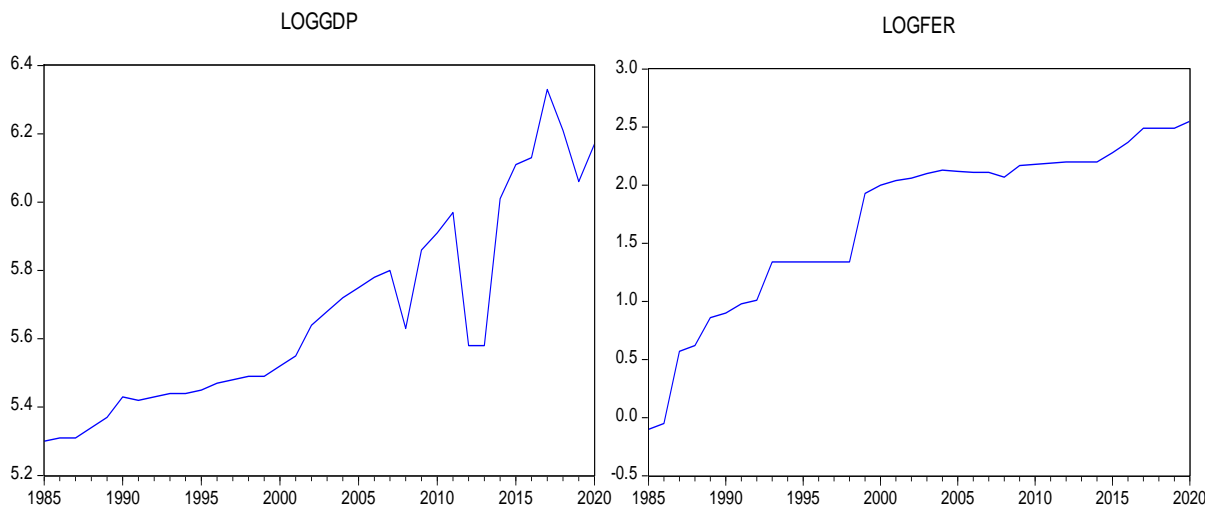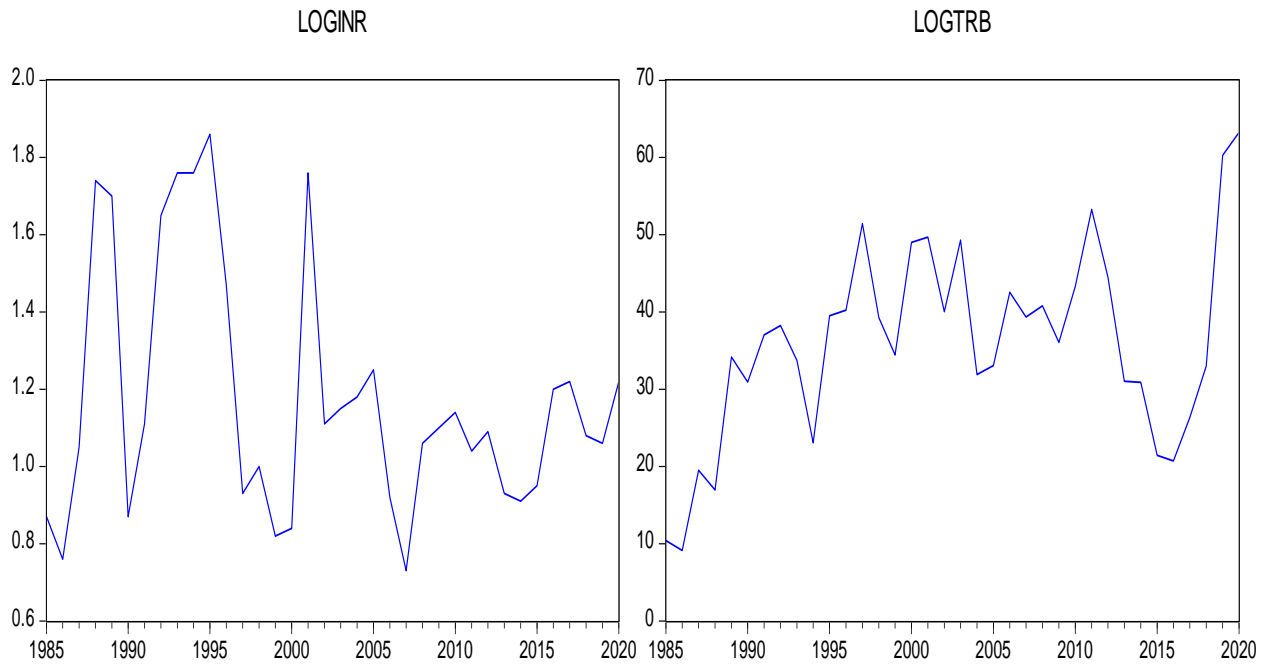
**Figure 4.1: Trends on the selected variables**

## 4.2    Unit Root Tests

The study adopt Augmented dickey fuller (ADF) unit root test. The result is presented below:

**Table 4.2: Unit Root Test (Variable in the Level)**

| Variable | 1% | 5% | 10% | ADF | Order of integration | Prob. |
|---|---|---|---|---|---|---|
| D(GDP) | -3.646342 | -2.954021 | -2.615817 | -6.191070 | I (1) | 0.0000 |
| D(FER) | -3.639407 | -2.951125 | -2.614300 | -5.939140 | I (1) | 0.0000 |
| D(INR) | -3.639407 | -2.951125 | -2.614300 | -6.176600 | I (1) | 0.0000 |
| D(TRB) | -3.639407 | -2.951125 | -2.614300 | -6.444978 | I (1) | 0.0000 |

Source: Computed using E-view Statistical
.

As noted in table 4.2, the stationarity test output (root unit) indicates that all variables are stationary

at first difference.

### 4.3.  Johansen Co-integration Tests

The Johansen approach was preferred for the investigation because, among other benefits, it permits the use of multiple co-integrating vectors. The Johansen co-integration test result is displayed in table 4.3 below:

**Table 4.3: Co-integration Test Result (Johansen Co-integration Method).**

| Unrestricted Cointegration Rank Test (Trace) | | | | |
|---|---|---|---|---|
| Hypothesized | | Trace | 0.05 | |
| No. of CE(s) | Eigenvalue | Statistic | Critical Value | Prob.** |
| None * | 0.715562 | 79.97192 | 47.85613 | 0.0000 |
| At most 1 * | 0.437596 | 37.22580 | 29.79707 | 0.0058 |
| At most 2 * | 0.333704 | 17.65762 | 15.49471 | 0.0233 |
| At most 3 * | 0.107135 | 3.852879 | 3.841466 | 0.0497 |

Source: Computed using E-view Statistical

For the purposes of the trace and Eigen value tests, all variables in the study are assumed to be endogenous. At the "At most 1," "At most 2," and "At most 2" co-integration estimates. A long-term equilibrium relationship exists between the used variables, as shown by the results. The results show that the country's GDP rises in parallel with changes in oil prices. To expand the economy's ability to produce goods and services, there's an increased desire to invest in productive assets and increase the economy's productive capacity.

### 4.4.  Test of Hypotheses

**Table 4.4: Regression Analysis showing the relationship between Oil Price Fluctuation and GDP**

| Dependent Variable: LOGGDP | | | | |
|---|---|---|---|---|
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| LOGFER | 0.381886 | 0.047078 | 8.111768 | 0.0000 |
| LOGINR | -0.072532 | 0.087472 | -0.829200 | 0.4131 |
| LOGTRB | -0.005789 | 0.002664 | -2.172895 | 0.0373 |
| C | 5.314685 | 0.138158 | 38.46828 | 0.0000 |
| R-squared | 0.713777 | Mean dependent var | | 5.671111 |
| Adjusted R-squared | 0.686943 | S.D. dependent var | | 0.292534 |
| F-statistic | 26.60028 | Durbin-Watson stat | | 1.793676 |
| Prob(F-statistic) | 0.000000 | | | |

*Source: Researcher's computation, 2021.*

The results presented in Table 4.4 show that Foreign Exchange Rate, and Trade Balance are statistically significant at a 5% level influencing the Gross Domestic Products. The data revealed

that the t-statistics are significant at 5 percent (p<0.05). This indicates that the LogFER (t= 8.111768 p=0.0000<0.05), and LogTRB (t=-2.172895 p=0.0373<0.05) contributed significantly to the GDP during the period under consideration while LogINR (t=-0.829200 p=0.4131>0.05) contributed insignificantly to the GDP during the period under consideration. In the same vein, the value of R-square and the adjusted R represents the independent variables' ability to explain the data. There was a correlation of 0.71, or 71%, between the variables in the model and their dependent variables. This value was deemed significant enough to be used in calculating the coefficient of determination. Because the F statistic value is significant at 5% (p=0.00), the model appears to be well-suited for the data. Also, the Durbin Watson statistics value of 1.79 indicates no autocorrelation and thus the model is conclusive.

### 4.4.1   Test of Hypothesis one

Restatement of Hypothesis in Null form:

Ho1: There is no significant impact of oil price fluctuations on GDP growth in Nigeria

**Interpretation of Regression Result**

The nature and level of effect can be shown in the equation below:

$LogGDP_t = \beta_0 + \beta_1 LogFER + \beta_2 LogTRB + \beta_3 LogINR + \mu t$

From the analysis above, $\beta_0 = 5.314685$, $\beta_1 = 0.381886$, $\beta_2 = -0.005789$, $\beta_3 = -0.829200$

Therefore, the linear regression equation obtained from the data is;

$LogGDP_t = 5.314685 + \beta_1 0.381886 LogFER + \beta_2 -0.005789 LogTRB + \beta_3 -0.829200 LogINR + \mu t$

**The Decision:** Accept the null hypothesis (H0) if the P- value is not significant at 0.05.

Explanatory power of the independent variables is shown by R-squared and modified R, which show that the model's independent variables explained 71% of the variation in the dependent variables. This value was deemed significant enough to be used in calculating the coefficient of determination. A substantial F-statistics value of 5% (p=0.0000) is predicted by the model.

**Conclusion:** In line with the stated decision criterion, the study, therefore, concluded that oil price fluctuations has a significant impact on GDP growth in Nigeria

### 4.4.2. Test of Hypothesis Two

Restatement of Hypotheses in Null form:

Ho2: Trade balance has no significant impact on economic growth in Nigeria.

**Interpretation of Regression Result**

The nature and level of effect can be shown in the equation below:

$$LogGDP_t = \beta_0 + \beta_1 LogFER + \beta_2 LogTRB + \beta_3 LogINR + \mu t$$

From the analysis above, $\beta_0 = 5.314685$, $\beta_1 = 0.381886$, $\beta_2 = -0.005789$, $\beta_3 = -0.829200$

Therefore, the linear regression equation obtained from the data is;

$$LogGDP_t = 5.314685 + \beta_1 0.381886 LogFER + \beta_2 -0.005789 LogTRB + \beta_3 -0.829200 LogINR + \mu t$$

The coefficient of trade balance from model estimation is -0.005789LogTRB. This indicates a negative relationship such that a unit rise in trade balance is expected to bring about 0.58 percent increases in the economic growth in Nigeria. However, the t-statistics is -2.172895 with a probability value of 0.0373.

**Conclusion:** In line with the stated decision criterion, the study, therefore, concluded that trade balance has significant impact on economic growth in Nigeria.

### 4.4.3. Test of Hypothesis Three

Restatement of Hypothesis in Null form:

Ho3: Oil price fluctuation on inflation has no significant impact on economic growth in Nigeria.

**Analysis and Interpretation of Regression Result**

The nature and level of effect can be shown in the equation below:

$LogGDP_t = \beta_0 + \beta_1 LogFER + \beta_2 LogTRB + \beta_3 LogINR + \mu t$

From the analysis above, $\beta_0 = 5.314685$, $\beta_1 = 0.381886$, $\beta_2 = -0.005789$, $\beta_3 = -0.829200$

Therefore, the linear regression equation obtained from the data is;

$LogGDP_t = 5.314685 + \beta_1 0.381886 LogFER + \beta_2 -0.005789 LogTRB + \beta_3 -0.829200 LogINR + \mu t$

The coefficient of oil price fluctuation on inflation (-0.829200) and the t-statistics is -0.829200 ($p < 0.05$). This implies a negative impact, since an increase of one unit in oil price fluctuations on inflation is anticipated to reduce economic growth in Nigeria by 83 percent.

**Conclusion:** In line with the stated decision criterion, oil price fluctuation on inflation has no significant impact on economic growth in Nigeria.

### 4.4.4.  Test of Hypothesis Four

**Step One:** Restatement of Hypothesis in Null form:

Ho4: Oil price fluctuation on exchange rate has no significant impact on economic growth in Nigeria.

**Step Two:** Analysis and Interpretation of Regression Result

**Interpretation of Regression Result**

The nature and level of effect can be shown in the equation below:

$LogGDP_t = \beta_0 + \beta_1 LogFER + \beta_2 LogTRB + \beta_3 LogINR + \mu t$

From the analysis above, $\beta_0 = 5.314685$, $\beta_1 = 0.381886$, $\beta_2 = -0.005789$, $\beta_3 = -0.829200$

**Conclusion:** In line with the stated decision criterion, the study, therefore, concluded that oil price fluctuation on exchange rate has no significant impact on economic growth in Nigeria.

### 4.5.    Presentation of Granger Causality Test Results

To test for the direction of the relationship between the correlates, we utilized the granger causality

test presented in table 4.5 below:

**Table 4.5: Pairwise Granger Causality Tests**

Pairwise Granger Causality Tests

| Null Hypothesis: | Obs | F-Statistic | Prob. |
|---|---|---|---|
| LOGFER does not Granger Cause LOGGDP | 34 | 1.73459 | 0.1943 |
| LOGGDP does not Granger Cause LOGFER | | 1.05196 | 0.3622 |
| LOGINR does not Granger Cause LOGGDP | 34 | 0.52003 | 0.5999 |
| LOGGDP does not Granger Cause LOGINR | | 1.14064 | 0.3335 |
| LOGTRB does not Granger Cause LOGGDP | 34 | 0.44640 | 0.6442 |
| LOGGDP does not Granger Cause LOGTRB | | 1.01544 | 0.3748 |
| LOGINR does not Granger Cause LOGFER | 34 | 5.74445 | 0.0079 |
| LOGFER does not Granger Cause LOGINR | | 2.01527 | 0.1515 |
| LOGTRB does not Granger Cause LOGFER | 34 | 1.08096 | 0.3525 |
| LOGFER does not Granger Cause LOGTRB | | 0.89436 | 0.4198 |
| LOGTRB does not Granger Cause LOGINR | 34 | 0.86584 | 0.4313 |
| LOGINR does not Granger Cause LOGTRB | | 1.08071 | 0.3526 |

*Source: Extract from E-view 10 Output*

The results indicates that a rise in the foreign exchange rate reduces the price of domestic goods

for foreign customers, leading to an increase in exports, overall demand, and prices. The rise in

the foreign exchange rate causes an increase in the inflation rate.

## 5.    DISCUSSION OF FINDINGS

During the time period under consideration, changes in oil prices had a significant impact on the

growth of Nigeria's GDP. Deteriorating economic development and a decline in GDP have led to

a decrease in oil income, which affects the budget. Oil price swings amplify the turbulence on the

financial and currency markets, which in turn can influence capital flows.

During the time period under consideration, the trade balance had a significant impact on Nigeria's

economic growth. As it is stated, trade is a crucial component in economic growth through

speeding capital formation, industrial modernization, technological advancement, and institutional development. This supports the need to determine the influence of the trade balance on economic growth. Export and import impact economic growth independently, but trade balance has little effect on the economy as a whole, according to most studies.

The effect of oil price fluctuations on inflation in Nigeria over the time under study is insignificant. Inflation is not indefinite and it never promotes quicker economic expansion. In the medium and long run, which is the period they examine, more inflation never leads to higher income levels. For instance, a reduction of one percentage point in inflation when the rate is twenty percent may enhance growth by half a percentage point. If inflation grows very high, the economy may suffer; conversely, if inflation is contained and within a normal range, the economy may flourish. With inflation under control and declining, employment increases. Consumers have more money to spend on products and services, resulting in economic growth and expansion. This definitely supports the monetarist position and the studies of Anidiobu, Okolie, and Oleka (2018). The outcome refutes the work of Taderera, Runganga, Mhaka, and Mishi (2021), Al-Taeshi (2016), Idris and Suleiman (2019), Adaramola and Dada (2020), and Mkhatshwa, Tijani, and Masuku (2015), while also supporting the structuralist perspective.

There has been no impact on Nigeria's economic growth over the period under study due to the change in the oil price. This shows that the continuous use of foreign currency by Nigeria's central bank (CBN) to maintain the exchange rate level may expose the absence of causal impacts on the exchange rate from the oil price. The currency of Nigeria is subject to a managed float policy. The influence of fluctuating oil prices on currency exchange rates can be greatly reduced by the use of this form of system mediation. Russia, Norway, and Saudi Arabia's exchange rates have no direct relationship with oil prices, according to Habib and Kalamova (2007), who found the opposite in

their study. According to frequency domain research conducted by Bayat, Nazlioglu, and Kayhan (2015), the oil price has no causal effect on the Hungarian currency rate.

## 6.    CONCLUSION

Using exchange rate, trade balance, and inflation rate, the study investigated the impact of oil price variations on Nigeria's economic growth from 1985 to 2020. Using ordinary least square regression, the researcher determined the impact of oil price variations on Nigeria's economic growth. The unit root test and the cointegration test revealed that the variables have long-term relationships, as established by the researcher. However, causal relationships have been found among oil price variations, inflation, and the currency rate.

The absence of causal effects in other variables shows that the oil price has no effect on Nigeria's exchange rate or trade balance. As a result, the influence of oil prices on Nigeria's currency exchange rate and trade balance is quite low. Nigeria's economy can only be stimulated by oil prices in the short term, and not in the long term, according to the short-term oil price prediction. As a result, it means that Nigeria's long-term economic growth cannot rely entirely on oil prices. The government should continue to focus on diversifying its economy away from oil and toward non-oil businesses that earn foreign currency for reserve building. The country's economy can benefit from increased capital inflows as well as increases in oil prices.

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**Appendix**

| YEAR | LogGDP | LogFER | LogTRB | LogINR |
|------|--------|--------|--------|--------|
| 1985 | 5.3 | -0.1 | 10.39 | 0.87 |
| 1986 | 5.31 | -0.05 | 9.14 | 0.76 |
| 1987 | 5.31 | 0.57 | 19.5 | 1.05 |
| 1988 | 5.34 | 0.62 | 16.94 | 1.74 |
| 1989 | 5.37 | 0.86 | 34.18 | 1.7 |
| 1990 | 5.43 | 0.9 | 30.92 | 0.87 |
| 1991 | 5.42 | 0.98 | 37.02 | 1.11 |
| 1992 | 5.43 | 1.01 | 38.23 | 1.65 |
| 1993 | 5.44 | 1.34 | 33.72 | 1.76 |
| 1994 | 5.44 | 1.34 | 23.06 | 1.76 |
| 1995 | 5.45 | 1.34 | 39.53 | 1.86 |
| 1996 | 5.47 | 1.34 | 40.26 | 1.47 |
| 1997 | 5.48 | 1.34 | 51.46 | 0.93 |
| 1998 | 5.49 | 1.34 | 39.28 | 1 |
| 1999 | 5.49 | 1.93 | 34.46 | 0.82 |
| 2000 | 5.52 | 2 | 49 | 0.84 |
| 2001 | 5.55 | 2.04 | 49.68 | 1.76 |
| 2002 | 5.64 | 2.06 | 40.04 | 1.11 |
| 2003 | 5.68 | 2.1 | 49.33 | 1.15 |
| 2004 | 5.72 | 2.13 | 31.9 | 1.18 |
| 2005 | 5.75 | 2.12 | 33.06 | 1.25 |
| 2006 | 5.78 | 2.11 | 42.57 | 0.92 |
| 2007 | 5.8 | 2.11 | 39.34 | 0.73 |
| 2008 | 5.63 | 2.07 | 40.8 | 1.06 |
| 2009 | 5.86 | 2.17 | 36.06 | 1.1 |
| 2010 | 5.91 | 2.18 | 43.32 | 1.14 |
| 2011 | 5.97 | 2.19 | 53.28 | 1.04 |
| 2012 | 5.58 | 2.2 | 44.53 | 1.09 |
| 2013 | 5.58 | 2.2 | 31.05 | 0.93 |
| 2014 | 6.01 | 2.2 | 30.89 | 0.91 |
| 2015 | 6.11 | 2.28 | 21.45 | 0.95 |
| 2016 | 6.13 | 2.37 | 20.72 | 1.2 |
| 2017 | 6.33 | 2.49 | 26.35 | 1.22 |
| 2018 | 6.21 | 2.49 | 33 | 1.08 |
| 2019 | 6.06 | 2.49 | 60.29 | 1.06 |
| 2020 | 6.17 | 2.55 | 63.27 | 1.22 |