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Devaluation and inflation: Impacts on the economic growth of Nigeria

Lateef Kolawole Fijabi[1]*, Abiola Akande[1], Aminat Omilani[1] and Rasheed Oparinde Lasisi[2]

[1]Department of Ecomomics, Faculty of Social and Management Sciences, Precious Cornerstone University, Ibadan, Nigeria.
[2]Department of Accounting, Faculty of Management Sciences, Babcock University, Ilishan-Remo, Nigeria.

*Corresponding author. Email: fijabikolawole@pcu.edu.ng

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ABSTRACT: The study examined the effect of currency devaluation and inflation on Nigeria's economic growth. The research design adopted was ex post facto which involved data obtained from government agencies (1994 through 2023 - 30 years). Various economic statistics and regression analyses were carried out through the E-views 9.0 version. The findings showed that the null hypothesis could not be rejected because the p-value was greater than the 0.05 significance level (F-statistics = 2.797; p-value = 0.0788; Adjusted R^2 = 0.1102). The result also revealed a negative and significant effect of inflation on the economic growth of Nigeria (coefficient = -0.1132; p-values = 0.0256); exchange rate fluctuation had a negative and insignificant effect on the economic growth of Nigeria (-1.26653, p-value = 0.4501). It was recommended that the government review its fiscal and monetary policies to stem the effects of inflation and exchange devaluation on the citizens.

Keywords: Central Bank of Nigeria, devaluation, economic growth, exchange rate, inflation, National Bureau of Statistics.

INTRODUCTION

Economic growth refers to an increase in the number of economic goods and services produced per head of the population of a country over a period compared with a previous period. Economic growth is represented by the term gross domestic product (GDP). A positive trend in the computation of economic growth depicts growth while a negative trend shows a recession. An economic recession is a downward trend in the growth of a country's gross domestic product (GDP) caused by a slump in the economy. An efficient economic system promotes a good value chain system through procurement, production, quality control, distribution, and marketing (Araoye, 2021). It can be seen that the contributions of citizens to the production of goods and services will determine the side the economy swings to. The economy will grow when the government provides an enabling environment for the people to operate. It was reported that some big manufacturing companies are leaving the country for other countries as a result of the harsh economic conditions experienced in Nigeria. Basic infrastructures such as regular power supply, good roads, security, and stable policies required to encourage investment and production are not adequate and these make the cost of doing business very difficult and expensive.

There cannot be economic growth in a country where there is no sufficient production to cater to the population but the population relies more on imported goods and services. This trend puts more pressure on the country's insufficient foreign exchange earnings. The economy suffers at the expense of our affinity for the consumption of foreign goods (Olayiwola, 2023). In the course of reviewing the contribution of the oil and gas sector to GDP among the Organization of Petroleum Exporting Countries (OPEC), the data from the organization revealed that Africa's largest oil producer's oil sector contributes the lowest to GDP among other members of the OPEC. The oil sector in Nigeria contributed 5.34% to the total real GDP in Q2 2023 (NBS). It was reported that Angola, Africa's

second-largest oil producer, oil production, and other supporting activities contribute about 50% of the country's GDP and about 89% of exports. In Libya, the oil and gas sector accounts for about 60% of GDP while it accounts for about 40% of its exports. Saudi Arabia's oil and gas sector accounts for 40% of its GDP and about 75% of its export earnings. The oil and gas sector in the United Arab Emirates (UAE) accounts for 30% of their GDP while Venezuela's oil and gas sector is about 25% of the GDP (OPEC, 2023).

As a result of volatility in world oil prices, the revenue generated by the government of Nigeria was affected and became unstable. This unstable oil price had attracted the Federal government to look into devaluing its currency to improve its revenue base. Nigeria officially had its first currency devaluation in 1973 when Naira was devalued by 10%. This had a massive effect as the country's foreign reserves grew by 773.5% in 1974 (Ani and Udeh, 2021). In 1986, Nigeria implemented a World Bank-induced currency devaluation due to falling oil prices and economic challenges, the Naira exchanged at N9 to $1 by 1990. Devaluation is required to encourage local production and consumption but the case was not so for Nigeria because we remain an import-dependent nation. Nigeria has had various stages of devaluation from fixed to floating exchange rate systems. Officially, the Naira was allowed to float fully when it was announced by the President of the Federal Republic of Nigeria, President Bola Ahmed Tinubu in June 2023. The Naira exchanged at N750 to $1 on 14 June 2023 losing about 40% of its value. At the same time, subsidies for petroleum products were removed to give room for transparency in the oil sector and reduce the wastage affecting the government's revenue.

Devaluation worsens the economy of any import-dependent nation because they import at exorbitant prices and this fuels inflation in the economy. The two items introduced by the country in June 2023 had fueled inflation to an astronomical level from 22.79% in June 2023 to 28.92 in December 2023 The Naira suffered massive devaluation in the market from N416 at the end of May 2023 to an exchange rate of N1,482 in February 2024 representing a depreciation of 256.25%. The rate had risen to N1,900/$ before it came down to N1,250/$ in March 2024. This currency depreciation has led to an appreciation in oil revenue generation for the government to meet its fiscal needs. In the same vein, devaluation has impoverished other sectors of the economy that depend on imported inputs for their sustainability. Some companies have shut down as a result of Naira depreciation and employees were laid off. This will also impact the cost and standard of living of the citizenry. The Nigerian Naira is now considered one of the most depreciated currencies in Africa. Udo *et al*. (2018) in their study on the implication of Naira devaluation to Nigeria's economic development opined that devaluation had a negative effect due to dependence on foreign consumption.

The economy is facing a serious challenge resulting in a general increase in price levels called inflation. The twin policies (devaluation and subsidy removal) introduced in June 2023 led to galloping inflation from 22.79% in June 2023 to 28.92% in December 2023. This represents a 26.90% increase in the inflationary trend within seven months. This has stifled businesses across the country and consumption has also been curtailed because more Naira is chasing fewer goods. Life is becoming unbearable and tougher for the citizenry. There was a negative effect of inflation, and exchange rate on economic growth in Nigeria reported in the study carried out by Ahmed (2018).

He further opined that the indirect relationship between inflation and economic growth should be addressed urgently by the government considering the effects of exchange rate and subsidy removal. Eze and Nweke (2017) in their study on the assessment of the effect of inflation on Nigeria's economic growth: vector error correction showed that the economic growth was negatively and insignificantly impacted by inflation.

This research seeks to provide answers to research questions like: What is the effect of Naira devaluation on the economic growth in Nigeria? How does the inflation affect the economic growth in Nigeria? This study seeks to address the current economic situation in Nigeria which is a departure from past studies carried out. Not many studies treated the two independent variables together against the economic growth, it was either exchange rate or inflation against economic growth (Miftahu and Isaac, 2023; Eyung *et al*. 2021; Onwubuariri *et al.* 2021; Adaramola and Dada, 2020). The study also seeks to contribute to the literature by empirically testing the effect of devaluation and inflation on Nigeria's economic growth. Naira had never been allowed to float like this in the past. Also, past governments did not have the political will to remove subsidies on oil. These two new policies with their attendant effects on economic growth prompted this research. Two hypotheses were formulated from the literature reviewed to test the significance of the independent variables against the dependent variable as follows:

H_{01}: The exchange rate has no significant effect on the economic growth of Nigeria.
H_{02}: Inflation has no significant effect on the economic growth of Nigeria.

LITERATURE REVIEW

Conceptual review

Economic growth

Economic growth refers to the increase in market value of goods and services produced in a country over a period and compared to a previous period. The comparison of the

current period against the previous period shows whether there is a growth or recession. Due to the unstable economic environment, Nigeria's GDP has not been stable, it has witnessed recession at some times. Nigeria had gone through some phases of life such agricultural era, the oil boom era, and the ICT era. During the agricultural era (1955-1970), Nigeria recorded 3.1 per cent GDP growth annually. Nigeria recorded an impressive 6.3 per cent GDP growth annually during the oil boom period (1970-1980). The growth slowed down in the 1980s until the period 1986 Structural Adjustment Program (SAP) was adopted to reform the economy. This was when currency devaluation and oil subsidy issues started. This was the period Nigeria started romancing IMF and World Bank for external debts. The GDP was on the average of 4 per cent during this period. Nigeria recorded the highest GSP growth rate of 15.33 percent in 2002 followed by 9.25 per cent in 2004 (NBS). The GDP growth rate of Nigeria has not crossed 10 per cent since 2002. It also entered a recession twice in 2016 and 2020 respectively. The GDP growth rate was 3.25 percent in 2022 and 3.2 percent in 2023.

Currency devaluation

Currency devaluation is the downward adjustment of a country's currency value relative to another currency (especially the dollar) as expressed by Okaro (2017). Nigeria's Naira has been officially depreciated from N0.5926/$ in 1980 to N1,482 in 2024. Currency devaluation is not helpful to an import-dependent nation because it fuels cost-push inflation. Devaluation aims to increase export value but makes importation difficult, fuelling cost-push inflation (Nweze and Ejim, 2021).

Devaluation is required to create international competitiveness for local industries which should divert the consumption of foreign goods and services to local goods and services (Loto, 2018; Miftahu and Isaac, 2023). The traders and companies engaged in imported inputs will pass the cost to the final consumers. Inflation tends to reduce people's consumption level because their income does not match the prices of goods and services in the market. We have experienced the shutting down of businesses as a result of Naira devaluation, companies can no longer cope with the cost of importation. This has led to the sacking of employees in some sectors of the economy. This will reduce the contribution to GDP at an aggregate level. Since June 2023, Nigeria's Naira has suffered a 256.25 percent depreciation officially and this has made the currency to be the worst in Africa at the moment. One can see that devaluation has raked in more money for the government through oil exports but it has destroyed other sectors that depend on importation for their survival. This has brought smiles to the government but cries to the citizens who are complaining of the hardship they are going through. Prices of goods and services are no longer stable daily. Despite Nigeria's population might, the country is not found among the best five countries in Africa with economic growth rate according to World Finance report (Ethiopia – 8.5 percent, Cote d'Ivoire – 7.4 percent, Senegal – 7 percent, Tanzania – 6.4 percent, and Ghana – 6.3 percent).

Inflation

Inflation is the general increase in price levels of goods and services (Onwubuariri *et al.* 2021). Inflation can be fueled by to demand for goods and services in an economy. It can also be a result of the cost of production or doing business which is passed down to final consumers (Adaramola and Dada, 2020). The current inflation in Nigeria is a result of cost increases fueled by full fuel subsidy removal in June 2023. According to the National Bureau of Statistics, Nigeria's inflation has been increasing with 22.79% in June 2023, 24.08% in July, 25.8% in August, 26.72% in September, 27.33% in October, 28.2% in November, and 28.92 percent in December. It is currently at 32.7% as of September 2024. Inflation reduces consumption patterns and aggregate demand, leading to low sales, downsizing, and unemployment. The aggregate demand slows down because of the high price of goods and services without a commensurate increase in income. The palliative announced by the government could not meet up with the price level of goods and services in the market. Nigeria is ranked 7th position among the top ten countries with the worst inflation rates: Sudan 63.3 per cent, Sierra Leone 52.16 per cent, Congo 42.5 per cent, Zimbabwe 34.8 per cent, Malawi 34.5 per cent, Egypt 33.7 per cent, Nigeria 28.92 per cent, Ethiopia 28.7 per cent, Ghana 23.2 per cent, and Angola 20.01 per cent).

Inflation stifles businesses and brings about low sales, which leads to company downsizing and an increase in unemployment rates. The inflation rate also influences the rise in interest rates charged by banks. The Central Bank of Nigeria raised the Monetary Policy Rate (MPR) to 18.75 percent in November 2023 to close the gap with the inflation rate. This suggests that raising capital for new and existing businesses is expensive.

Theoretical review

There are several theories addressing currency devaluation and inflation with economic growth. The following theories are reviewed for this study:

Optima Currency Area (OCA) Theory

This theory was propounded by Mundell (1961) and McKinnon (1963). The assumption behind the theory is the stabilization of the business cycle and trade which is

subject to the symmetry of shocks, the degree of openness, and labour market mobility. The theory suggests that a fixed exchange rate system can increase trade and output growth by reducing exchange rate uncertainty. Trade and output growth can be adjusted downwards through delays in the necessary relative price adjustment process.

Purchasing Power Parity (PPP)

This theory was traced to Salamanca School in Spain in the 16th century. The theory was made more pronounced in modern times by Gustav Cassel (1918). Gustav recommended PPP as a way of amending pre-World War I exchange rate parities when countries chose to return to the gold standard system after the end of the war. A modification was made due to countries that left the gold standard experienced different rates of inflation during and after the war. In determining the exchange rate system, the appropriate form of PPP is based on an international multi-good edition of the law of one price. Absolute PPP envisaged that the exchange rate should adjust to equate the prices of national baskets of goods and services between two countries due to market forces driven by arbitrage. The theory recommends adjusting exchange rates to equate prices of national baskets of goods and services between countries.

Empirical review

Studies have examined the relationship between currency devaluation, inflation, and economic growth in Nigeria. Findings include:

- Exchange rate fluctuations affecting economic growth.
- Devaluation increasing export value but felling inflation.
- Inflation having a negative effect on economic growth.

Devaluation and economic growth in Nigeria

Miftahu and Isaac (2023) reviewed the impact of exchange rate fluctuation on economic growth in Nigeria. The study adopted an ex-post facto research design which used secondary data sourced from CBN Statistical Bulletin from 1986 through 2022. The outcome of the study revealed that the exchange rate had a positive insignificant effect on economic growth in Nigeria. The result also showed that interest rate and inflation rate had a negative insignificant effect on economic growth.

Olayiwola (2023) examined whether exchange fluctuations affect economic growth in Nigeria with empirical evidence. The devaluation effect on the economic growth was broken by a non linear ARDL model. Also, the Naira devaluation effect was measured by the asymmetric effects test. In the short run, when the Naira depreciated against the US dollar, economic growth showed a decline, but when it appreciated, economic growth showed an increase. In the long run, these effects showed the opposite direction. Furthermore, the asymmetric test showed that Naira appreciation efect was more significant than its depreciation.

Eyung *et al*. (2021) examined the effect of exchange rate fluctuation on Nigeria's economic growth. The study adopted an ex post facto research design. The multiple regression analysis with OLS was used to examine the effect of exchange rate fluctuation on the economic growth of Nigeria. They used data covering 1996-2016, thirty years. The dependent variable is GDP while inflation, interest rate, and exchange rate. The findings revealed that the exchange rate had a positive significant effect on economic growth in Nigeria.

Ani and Udeh (2021) examined the effect of the exchange rate on gross domestic product (GDP), gross national product (GNP), and unemployment. An ex-post facto research design was used. Secondary data sourced from the Central Bank of Nigeria Statistical Bulletin for a period of ten years, 2009 to 2018 were used. Some diagnostic tests were carried out to confirm the integrity of the data and their relationship on both short and long-run basis. The ordinary Least Square (OLS) technique was employed in the hypotheses testing. It was found that the exchange rate had a significant effect on GDP and GNP, but it had an insignificant effect on unemployment.

Nweze and Ejim (2021) examined the effect of the devaluation of the Nigerian currency on the market share of the manufacturing firms in South-East, Nigeria. The quantitative and qualitative were used in data collection. An explanatory mixed-method design was adopted in the study. The population of the study included all 845 employees of the manufacturing firms operating in South-East Nigeria. The researcher randomly selected three hundred and fifty-three (353) for the study. The pilot study was conducted in South-East Nigeria because of its population. 20 copies of the questionnaire were distributed to respondents to pre-test the study schedule to ensure validity. The data from the study were analysed using the SPSS. The study showed that currency devaluation affected the production, citizens, importation, and exportation of goods, the economy, and the government.

Loto (2018) examined the devaluation of the Naira and the state of the Nigerian economy from 1985-2015 (an econometric analysis). The study adopted the elasticity approach using the import and export demand equation with secondary data. The tests carried out were Ordinary Least Squares (OLS) regression, initial stationarity and stability. The result of the unit root test showed that the variables were of the same order of iteration being stationary at first difference. This led to the co-integration and error correction tests. The overall result revealed that devaluation could not address the problem of the Nigerian economy.

Udo *et al.* (2018) examined the implication of Naira devaluation on Nigeria's economic development. Secondary data from 2000-2015 were sourced from the National Bureau of Statistics using the Classical Linear Regression Model (CLRM). The Ordinary Least Square (OLS) was used to analyze the data for results. The findings revealed that R^2 explained 92% of the variation in GDP in the model study explained by the principal regressors. Exchange and inflation rates had a positive and significant effect on GDP while external debt and public investment had negative and non-significant effects. The results showed that devaluation has caused more evil than good in the Nigerian economy context since the needed prerequisite to ensure gains from devaluation is not present in the system owing to over-dependency on foreign exchange.

Okaro (2017) examined the currency devaluation and Nigerian economic growth (2000-2015). This study used time series data generated for a period of 16 years, from 2000-2015. The Ordinary Least Square (OLS) regression method on the E-views 8.0 version was used for the analysis. The result showed a significant relationship between currency devaluation and real GDP in Nigeria. There was also a significant relationship between currency devaluation and external debt in Nigeria and there is no significant relationship between currency devaluation and private domestic investment in Nigeria. Thus, currency devaluation reduces importation and encourages exportation but increases interest rates. Inflation and unemployment are the side effects of devaluation in the short run.

Inflation and economic growth in Nigeria

Onwubuariri *et al*. (2021) examined the effect of inflation on economic growth in Nigeria with the use of an ARDL-bound testing approach. The research design used was ex-post facto with data sourced from the World Development Indicators (WDI) published by the World Bank for the period 1980-2019. Inflation rate, interest rate, exchange rate, and government expenditure constituted the independent variable while the GDP was used as a dependent variable. The Autoregressive Distribution Lag (ARDL) model and the Error Correction Model (ECM) were used to analyze the data collected. The results revealed that inflation had a negative effect on economic growth in Nigeria during the period covered. This was said to reduce competitiveness and the purchasing power of money.

Adaramola and Dada (2020) examined the impact of inflation on economic growth, evidence from Nigeria. The study employed the autoregressive distributed lag (ARDL) on the selected variables, i.e. economic measure, rate of price increase, rate of interest, devaluation, economic liberalization, money supply, and government consumption expenditures for the period 1980–2018. The study findings indicated that inflation and real exchange rate exerted a negative significant effect on GDP, while interest rate and money supply had a positive significant effect on economic growth. Other variables in the model did not affect the economic growth of Nigeria. The Granger causality finding revealed a one way effect among the study's variables. However, inflation and the degree of openness showed no causal relationship with gross domestic product.

A study was carried out on the effect of inflation and devaluation on Nigeria's economic growth by Ahmed (2018). The study adopted annual time series data from 1981 to 2016 sourced from the Central Bank of Nigeria Statistical Bulletin (CBN). The study employed the ARDL Model to test for short and long-run relationships among the variables. The findings showed that there is a long-run relationship among the variables but there was a negative effect of inflation on GDP growth in the short run. The indirect relationship between inflation and economic growth requires urgent attention by the government because inflation will result from currency devaluation since our imports exceed exports

Eze and Nweke (2017) assessed the effect of inflation on Nigeria's economic growth using the vector error correction model approach (VECM). Co-integration approach, vector error correction model (VECM), and Granger causality test were used for the analysis. Real gross domestic product (RGDP) was used as the dependent variable while inflation rate (INFR), government investment expenditure (GINVXP), private investment expenditure (PINVXP), and total export (TEXP) were used as the independent variable. The results of the co-integration test showed evidence of a long-run relationship among the selected variables. The VECM results demonstrated that inflation had a negative insignificant effect on Nigeria's economic growth. Furthermore, it was revealed that GINVXP and TEXP had negative significance on RGDP. The results also showed that PINVXP had a positive significant influence on RGDP. Similarly, the results of the Granger causality test revealed no causation between the inflation rate and real GDP.

Conceptual framework

The items shown in the conceptual framework have been discussed under conceptual review. The diagrammatic representation (Figure 1) is shown below to reflect their relationship. Devaluation and inflation represent independent variables while economic growth stands for the dependent variable.

METHODOLOGY

Research design

The study adopted an ex post facto research design. Data from secondary sources through annualized time series from the CBN Statistical Bulletin 1994 – 2023 were used.

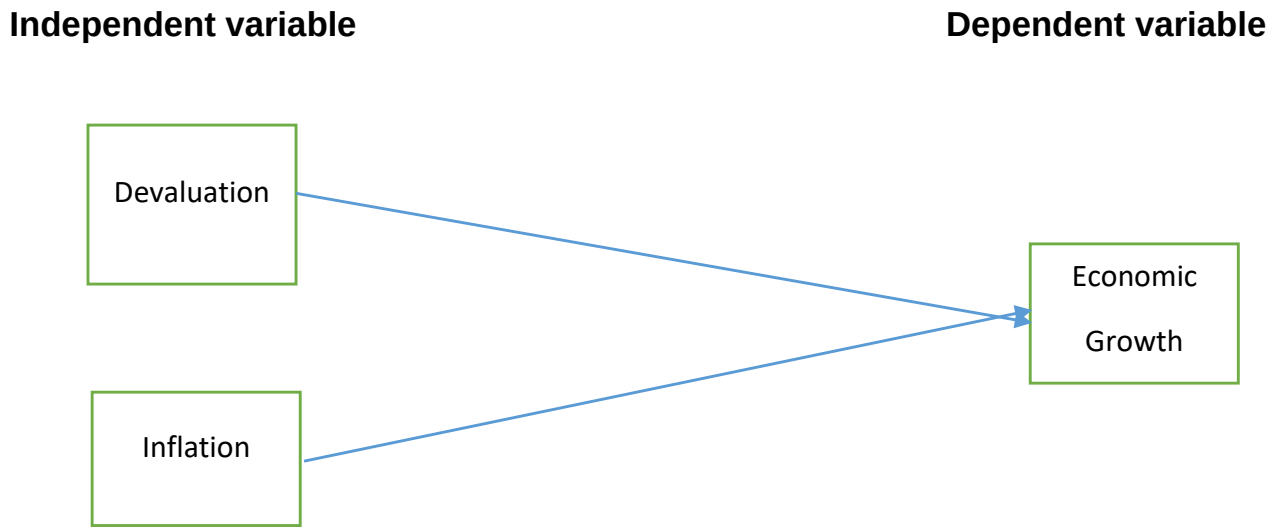

Figure 1. Conceptual framework.

Population

This refers to the entire space of items available for an experiment. It has various features from which a few with similar features can be selected for an experiment. The population for the study covered Nigerian macroeconomic data from 1960 to 2023.

Sample and sampling technique

A sample is a proportion of the population with similar characteristics selected for a test. A purposive sampling was adopted for the study. The study covers 30 years (1994-2023). The interest rate was initially considered but excluded due to multicollinearity issues detected during data analysis.

Method of data collection

Data used for the study were obtained from the Statistical Bulletin of the Central Bank of Nigeria (CBN, 2023) and the National Bureau of Statistics (NBS, 2023) for the period of 30 years (1994-2023). The two agencies are considered reliable hence data obtained from them are certified correct.

Method of data analysis

A combination of descriptive, correlation, and inferential statistics was used to analyze the data obtained. Auto Regressive Distributed Lag (ARDL) and regression analysis were also carried out with the use of E-views version 12.0. E-views 12.0 version was used because of its robustness in handling various analyses carried out for the study.

Model Specification

The model for the study shows the relationship among the variables. The equation for the model is given as follows:

$Y = f(X)$

$Y = y_1$

$X = x_1, x_2$

$y_1 = \beta_0 + \beta_{1X1} + \beta_{2X2} + \varepsilon$ 1

Where: Y = dependent variable, X = independent variable, $\beta_{0\,=}$ intercept term, $\beta_{1,}$ $\beta_{2,}$ = Regression coefficients to be determined, $X_{1,}$ $X_{2,}$ = set of explanatory variables, y_1 = GDP, X_1 = Foreign exchange rate, X_2 = Inflation rate.

RGDP = $\beta_0 + \beta_1 LogExcht + \beta_2 Inf_{t\,+}\, u_t$ 2

Where; RGDP is the real Gross Domestic Product, Exch is a Foreign Exchange rate, Inf = Inflation rate, $\beta_{0\,=}$ intercept of the regression equation, $\beta_{1,}$ $\beta_{2,}$ ….. β_n = Regression coefficients to be determined
t = Time Series.

ANALYSIS AND PRESENTATION OF DATA

Table 1 shows the statistical distribution of various data used for the study. The study showed mean values of 4.3177, 17.036, and 2.121 for GDP_Growth, infl rate, and Lg_excg rate with standard deviation of 3.677, 14.478, and 0.419 respectively. The standard deviation shows the dispersion of mean values from each other. The difference between the minimum and maximum values also describes the difference between the periods of the data

Table 1. Descriptive statistics.

Parameters	GDP_GROWTH	INFL_RATE	LG_EXCG_RATE
Mean	4.317667	17.03633	2.120939
Median	4.215000	11.99000	2.152110
Maximum	15.33000	72.84000	2.953950
Minimum	-1.810000	6.600000	1.340047
Std. Dev.	3.677141	14.47890	0.419870
Skewness	0.539341	2.696406	-0.585759
Kurtosis	4.048471	10.04276	2.972447
Jarque-Bera	2.828560	98.35366	1.716518
Probability	0.243101	0.000000	0.423899
Sum	129.5300	511.0900	63.62818
Sum Sq. Dev.	392.1195	6079.519	5.112438
Observations	30	30	30

Source: Author's computation (2024) – E-views 9.0 version.

Table 2. Correlation test.

	INFL_RATE	INT_RATE	LG_EXCG_RATE	VIF
INFL_RATE	1.000000	0.981837	-0.371936	28.763
INT_RATE	0.981837	1.000000	-0.411685	29.863
LG_EXCG_RATE	-0.371936	-0.411685	1.000000	1.247

Source: Author's computation (2024) - E-views 9.0 version.

Table 3. Correlation

	INFL_RATE	LG_EXCG_RATE	VIF
INFL_RATE	1.000000	-0.371936	1.160546
LG_EXCG_RATE	-0.371936	1.000000	1.160546

Source: Author's computation (2024) - E-views 9.0 version.

values. The table showed the minimum values of -1.810, 6.600, and 1.340 and maximum values of 15.330, 72.840, and 2.954 for GDP Growth, Infl-rate, and Lg_excg respectively. There is a wide margin in the difference between GDP growth -1.810 and 15.330) and Inf_rate (6.600 and 72.840) while Lg_exxcg did not show much difference between minimum and maximum values (1.342.and 2.954).

Three independent variables (inflation rate, interest rate, and exchange rate) were chosen for the study. A correlation test was carried out along with the variance inflation factor (VIF) to test for the presence of multicollinearity. The result showed a high correlation between the inflation rate and the interest rate. The interest rate was excluded to remove the presence of multicollinearity. The VIF for inflation rate and interest rate showed a high value of more than 10. Any VIF value exceeding 10 shows a presence of multicollinearity (Table 2). Interest rate was excluded and the test was rerun to confirm the presence of multicollinearity.

The revised Table 3 showed a negative relationship between inflation rate and interest rate which signifies an inverse relationship between the two variables. This means that as one variable increases, the other variable tends to decrease. There was a weak negative relationship of -0.371936, the variables have a slight tendency to move in opposite directions. The VIF of 1.160546 shows a very low multicollinearity. The two independent variables are independent of each other and there is no significant correlation. This implies that there are no issues with multicollinearity, regression coefficients are likely reliable, and model stability and interpretability are maintained.

Table 4. Unit root Test Augmented Dicky Fuller (ADF).

Variable	ADF Test At Level	Critical value 5%	Interpretation	Remark
GDP_Growth	-3.176350	-3.574244	I(0)	Stationary
INFL	-2.863207	-3.574244	I(0)	Stationary
Lg_rxcg_rate	-2.046670	-3.574244	I(0)	Stationary

Source: Author's computation (2024) - E-views 9.0 version.

Table 5. ARDL Bounds Test.

ARDL Bounds Test		
Date: 09/21/24 Time: 21:53		
Sample: 5 30		
Included observations: 26		
Null Hypothesis: No long-run relationships exist		
Test Statistic	**Value**	**K**
F-statistic	2.609503	2
Critical Value Bounds		
Significance	I0 Bound	I1 Bound
10%	3.17	4.14
5%	3.79	4.85
2.5%	4.41	5.52
1%	5.15	6.36

Source: Author's computation (2024) - E-views 9.0 version.

Stationary test

Table 4 shows a summary of the Unit root Test for the series at levels with all the variables being stationary at levels 1(0) since the ADF statistical values are less than the critical values of all the variables. The null hypothesis is rejected when the ADF statistic is less than the critical value (the series is stationary) while we fail to reject the null hypothesis when the ADF statistic is greater than the critical value (the series is likely non-stationary). The result confirmed the adoption of the ARDL system.

ARDL Bounds Test for Co-Integration

Table 5 shows the ARDL bounds test result having GDP as the dependent variable while inflation rate and exchange rate serve as independent variables. In the ARDL bounds test for co-integration, the null hypothesis of no co-integration is rejected when the F-statistic is greater than the upper critical bound /(UCB) 1(1), this implies that co-integration exists among variables and that variables co-integrate on a long-run relationship. If the f-statistic is lower than the lower critical bound (LCB) 1(1), it shows no co-integration among variables hence we fail to reject the null hypothesis of no co-integration. This implies that there is no co-integration among the variables which indicates no long-run relationship. In a situation where the F-statistic is between LCB and UCB 1(1), the result is said to be inconclusive. F-statistics in Table 5 is 2.609503 which is less than the upper bounds 4.14, 4.85. 5.52, 6.36 at 10%, 5%, 2.5%, and 1% significance levels respectively. This suggests that there is a short-run relationship among the variables and no co-integration exists at all levels of existence hence there is no long-run relationship among the variables.

Granger Causality Test

The Granger causality test is used to determine whether a one-time series variable can be used to forecast another. The null hypothesis is reflected by X does not Granger cause Y while the alternate hypothesis is stated as X Granger causes Y. The Null hypothesis is rejected when the p-value is less than 0.05 that is, X Granger causes Y. X can be used to predict Y, and that is, past values of X can provide information to predict Y. The opposite is the case when the p-value is more than 0.05, the null hypothesis cannot be rejected, and that is, X cannot Granger cause Y. This suggests that X cannot be used to predict Y and that past values of X cannot provide informa-

Table 6. Granger causality test.

Pairwise Granger Causality Tests			
Date: 09/21/24 Time: 16:55			
Sample: 1 30			
Lags: 2			
Null Hypothesis	**Obs**	**F-Statistic**	**Prob.**
INFL_RATE does not Granger Cause GDP_GROWTH	28	1.72386	0.2006
GDP_GROWTH does not Granger Cause INFL_RATE		4.04342	0.0313
LG_EXCG_RATE does not Granger Cause GDP_GROWTH	28	0.45108	0.6425
GDP_GROWTH does not Granger Cause LG_EXCG_RATE		0.32329	0.7270
LG_EXCG_RATE does not Granger Cause INFL_RATE	28	2.31774	0.1211
INFL_RATE does not Granger Cause LG_EXCG_RATE		1.87851	0.1755

Source: Author's computation 2024. E-views 9.0 version.

tion to predict Y.

There are three directions of Causality which are Unidirectional Causality, Bidirectional Causality, and No Causality. Unidirectional Causality shows that X Granger causes Y but Y does not Granger cause X. Bidirectional Causality shows that X Granger causes Y, and Y Granger causes X. No Causality shows that neither X nor Y Granger causes the other.

Table 6 shows the Granger Causality test results among the variables used for the study. It was revealed that causality does not run between inflation and GDP growth. This is shown by the p-values of causalities that ran from inflation to GDP (0.2006) which is more than 0.05 significance level but it is not so with GDP Granger causing inflation with a p-value of 0.0313.

The coefficient results as displayed in Table 7 revealed that real GDP will grow significantly by 8.9% if the inflation rate and exchange rate remain constant. The inflation rate coefficient showed a significant negative effect on economic growth (real GDP) for the period of the study. The exchange coefficient showed an insignificant negative effect on the economic growth (GDP) of Nigeria for the period of the study. The adjusted R squared is the coefficient of determination that shows the strength of independent variables over the dependent variable, that is, the effect of the combined strength of independent variables over dependent variables. The table 7 showed that 11.02% of independent variables accounted for the result of dependent variables. This shows that the inflation rate and devaluation (exchange rate) accounted for 11.02% of the result of the economic growth of Nigeria. Other factors outside the independent variables accounted for 88.98% of dependent variables. This has created a gap for other researchers to work on. This study is in contrast with the study of Udo *et al.* (2018) which has an adjusted R squared of 92% with a positive significant effect of exchange rate and inflation rate on economic growth.

Decision

Table 7 showed F-statistics (2.796550) and a p-value of 0.78743. The p-value is more than 0.05 significance level. The statistics rule says that the null hypothesis is rejected when the computed value (p-value) is less than 0.05 but the null hypothesis cannot be rejected when the p-value is more than 0.05 significance level. In the table above, the p-value is more than 0.05 significance level hence the null hypothesis cannot be rejected which shows that the combined strength of inflation and exchange rate does not affect the economic growth of Nigeria. This suggests that other factors in the system impact the economic growth as depicted by the adjusted R squared.

DISCUSSION

The inflation rate has a negative and significant effect on the economic growth of Nigeria. This shows that every unit of inflation introduced into the system leads to a 0.11% reduction in economic growth. This suggests that the current inflation rate needs to be watched carefully so as not to affect the standard of living of citizens. Common people at the moment are finding life difficult to cope with the cost of living, this will deteriorate the standard of living and affect economic growth downwards. Prices of goods and services are no longer stable in the market. Salary earners are the worst hit as their salary is fixed against increasing prices daily. The result also showed that the effect of inflation on the economy is very significant as all aspects of the economy are affected negatively. The inflation rate is currently at 32.7% as of September 2024. The result of this study is in tandem with the results of Onwubuariri *et al.* (2021) and Ahmed (2018) which reported a negative effect of the inflation rate on the economic growth of Nigeria. The result of this study does

Table 7. Regression analysis

Dependent Variable: GDP_GROWTH				
Method: Least Squares				
Date: 09/21/24 Time: 17:39				
Sample: 1 30				
Included observations: 30				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	8.932215	3.934653	2.270141	0.0314
INFL_RATE	-0.113189	0.047923	-2.361889	0.0256
LG_EXCG_RATE	-1.266529	1.652584	-0.766393	0.4501
R-squared	0.171604	Mean dependent var		4.317667
Adjusted R-squared	0.110241	S.D. dependent var		3.677141
S.E. of regression	3.468538	Akaike info criterion		5.419983
Sum squared resid	324.8303	Schwarz criterion		5.560102
Log-likelihood	-78.29974	Hannan-Quinn criter.		5.464808
F-statistic	2.796550	Durbin-Watson stat		0.823228
Prob(F-statistic)	0.078743			

Source: Author's computation 2024. E-views 9.0 version.

not agree with the report of Olu and Idih (2015) which reported a positive and insignificant effect of inflation on the economic growth of Nigeria. Miftahu and Isaac (2023) had a mixed result when it was reported that inflation had a negative but insignificant effect on economic growth.

The fuel subsidy removal announced by the present government on 29 May 2023 triggered inflation in other sectors of the economy because everyone depends on the transport system to carry out his activities. The movement of fuel [rice from N165 to N500 to N600 has a ripple effect on all economic activities. This trend was rejected in the context of labour force protests and an increase in the minimum wage for workers. The call for an increase in the minimum wage of workers is not the solution to inflation in the economy because only civil servants are privileged to benefit from the wage increase while workers in other sectors might be retrenched as a result of inflation's effect on their business. Consumption reduces in the period of inflation as a result of reduced value of their income. This is supported by the optima currency area (OCA) theory which says that trade and output can be adjusted downwards through delay in the necessary relative price adjustments process. Inflation is triggered through one process and it spreads to other areas of the economy.

Devaluation (exchange rate) showed a negative and insignificant relationship with economic growth. It revealed that every unit of exchange rate introduced resulted in a 1.267% reduction in economic growth. This result is in tandem with the study of Ishola *et al*. (2016) which reported that exchange rate fluctuation did not affect economic growth in the long run relationship. The study was not in agreement with the studies of Miftahu and Isaac (2023), Olayiwola (2023), Eyung *et al*. (2021), Nweze and Ejim (2021), Ani and Udeh (2021), and Okaro (2017) which reported a positive and significant effect of exchange rate devaluation on the economic growth of Nigeria.

Devaluation is also a contributory factor to inflation considering the level of importation embarked upon by various sectors of the economy. The naira currency was heavily devalued from June 2023 from N405/$ to its present level of N1,654.69/$ as of 15 October 2024. Nigeria is a net importer of foreign goods as we seek to import virtually all that we consume. Nigeria is an oil-producing nation that imports fuel from other oil-producing countries despite the ownership of four local refineries that have become moribund for more than 30 years. The manufacturing sector relies heavily on imported raw materials, this has caused some of them to fold up or scale down their operations while some have relocated from the country (Shoprite Ltd, Tiger Brands Ltd, Woolworths Holdings Ltd, Microsoft, Bayer AG, Bolt Food, Unilever Plc, Procter and Gamble Co., GSK Plc, Kimberley-Clark Corporation, and Sanofi SA).

This is supported by the purchasing power parity (PPP) which states that currency devaluation is meant to equalize the trade activities between two countries due to market forces driven by arbitrage. Exchange rate devaluation was announced on 29 May 2023. The Naira was allowed to float and be determined by the market forces. The exchange rate devaluation is beneficial to exporting countries who find their exports cheaper to sell to other countries but it is inimical to a net importer country that finds imported goods and services more expensive to buy. They require more Naira to buy a few imported materials. The Naira moved from N405/$ in May 2023 to N700/$ in June 2023 and is currently trading at N1,705/$

in parallel market on 17 October 2024. The devaluation has a negative effect on economic activities as some manufacturing companies cannot cope with the cost of importation of their raw materials. Some of them have folded up while some reduced their scale of operations through retrenchment. This also affects the debt repayment of the country as more Naira is required to settle the debts. Debt acquired at N405/$ will now be repaid at N1,705/$.

The stationary tests revealed that the variables were stationary at levels 1(0) because the ADF statistical values were less than the critical values. In the ARDL Bounds test carried out, it was shown that there was no co-integration among the variables which suggests a short-run relationship at all levels. This means that the situation runs for just a short period and can be corrected in the long run. The Granger causality test was carried out to show the prediction of variables against each other. The result showed a unidirectional status between inflation and GDP in which inflation could not Granger cause GDP (0.2006) but GDP Granger caused inflation (0.0313). This result is in tandem with the study of Loto (2018) which showed that the variables were of the same order of iteration being stationary at first difference. This can be referred to as unidirectional causality which is in tandem with the results of the study carried out by Eze and Nweke (2017) on assessment of the effect of inflation on Nigeria's economic growth: vector error correction model approach. There is a contrast with the result of Adaramola and Dada (2020) which reported that inflation and the degree of openness had no causal relationship with GDP.

Implication of findings

The study has shown that the two independent variables are bitter pills difficult to swallow for the Nigerian economy to survive. Exchange rate devaluation was adopted on the advice of the World Bank as a conditionality to take a loan from it. Exchange devaluation does not augur well for any import-dependent nation because it makes imported materials, goods, and services more expensive and unaffordable by common citizens and it worsens their standard of living. Exchange rate devaluation makes our exported goods cheaper and imported goods more expensive. Nigeria being a net importer of foreign products suffers more from the exchange rate devaluation. Virtually all our manufacturing companies rely on imported materials to function. The cost of imported materials is passed down to final consumers. Inflation is an increase in the general prices of goods and services in the market. So many factors are responsible for inflation in the economy ranging from devaluation, subsidy removal, minimum wage increase, food shortage, and shutting down of companies. Businesses are affected by the results of this study because customers can no longer afford what they used to buy. A customer that used to buy 5 items could hardly afford to buy 2 items now. Businesses are shutting down, employees are retrenched from employment and these have a negative impact on economic growth. Small businesses are not faring any better.

Conclusion

The study examined the relationship of inflation and devaluation on Nigeria's economic growth (GDP). It was shown that inflation affected Nigeria's GDP negatively. This reflects that the inflation rate reduces the purchasing power of people and contracts economic activities.

The result also showed a negative and insignificant effect of exchange rate devaluation on the economic growth of Nigeria. This showed that every devaluation introduced caused a reduction in the economic activities of the country.

The two independent variables are important factors that affect the economy of the country. They need to be seriously reviewed to bring the economy to the right course and restore normalcy to the living standard of Nigerians. The Inflation stood at 32.7% in September 2024. Prices of materials are no longer stable in the market hence one cannot predict the prices of goods any longer. The country's currency has been floated hence it is no longer stable, and it keeps depreciating regularly. These two items (inflation and exchange rate devaluation need to be revisited by the government to provide temporary relief to the citizens and put some sustainable measures in place to cushion their impacts.

Recommendations

Subject to the objective of the study and the findings, the following objectives are proffered:

1. The government should review its fiscal and monetary policies to address the challenges of inflation and exchange rate devaluation. This can be achieved through income redistribution, cost-effective governance, and aggressive clamp down on corruptive practices in all facets of the Nigerian economy. The government should review its debt profile to ensure that every debt procured should be tracked to a particular project.
2. The government embarks on a local consumption orientation that will reduce reliance on the importation of goods and services from foreign countries. All the states in the country should be tasked to look inward and develop agricultural and mineral resources in their areas within a particular period. The government agencies involved in oil refineries and steel production should be given a timeline to make these industries work. Turnaround maintenance had been done on the four oil refineries in Nigeria without results. Steel

companies have become moribund and ineffective as they were commissioned in the ‘80s.
3. The government should devise monitoring and evaluation frameworks to assess policy effectiveness.

CONFLICT OF INTEREST

There is no conflict of interest involved in writing the paper. The paper was written to improve the economic growth of Nigeria and to not seek favour from any level of government in Nigeria or any other country. All authors contributed in various forms to the success of the paper.

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