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IMPACT OF SELECTED MACROECONOMIC VARIABLES ON ECONOMIC GROWTH IN NIGERIA

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ABSTRACT

This study examined impact of selected macroeconomic variables on economic growth in Nigeria from 1980 and 2022. Economic growth, represented by Real Gross Domestic Product (RGDPgr), is a key indicator of the nation's economic performance. The study employed econometric techniques which includes Descriptive Statistics, Augmented Dickey Fuller Tests for Unit Roots, the Autoregressive Distributed Lag (ARDL) Bound test and the Diagnostics Tests to determine the reliability of the models and results obtained. The independent variables considered in the study are Inflation rate (INFR), Exchange Rate (EXR), Interest rate (INR), Unemployment rate (UNER) and Gross fixed capital formation (GFCF). The findings revealed that inflation rate had negative and significant impact on the economic growth in Nigeria while interest rates, exchange rate had positive significant impact on the economic growth in Nigeria. The study recommended that the negative correlation identified between inflation rate and real GDP growth rate underscores the imperative of maintaining price stability via proffer fiscal and monetary policies to assist in tackling inflation. The unexpected positive relationship between interest rates and real GDP growth rate challenges conventional economic assumptions, prompting a reconsideration of the intricate dynamics at play within the Nigerian economic context, the study concludes that a stable exchange rate environment is crucial for fostering economic growth. As Nigeria charts its economic course, the study provides valuable insights for policymakers, guiding the formulation of strategies that promote stability and pave the way for robust and sustainable economic growth.

Keywords: Economic Growth, Exchange Rate, Inflation Rate, Interest Rate, Unemployment Rate
JEL Classification Codes: E31, E43, J64.

1.0 INTRODUCTION

Economic growth is defined as a long-term, steady rise in a nation's gross domestic product (GDP) that raises per capita income (Ikeora, 2007). The increase in the GDP or another indicator of total income is known as economic growth. The rate of change in real GDP is frequently used to measure it. Godwin (2007) stated that economic growth is a rise in real GDP, or GDP that has been adjusted for inflation. The gross domestic product (GDP),

which quantifies a nation's overall output of goods and services, is the most commonly used indicator of economic growth. This is usually expressed as the annual rate of change in the real GDP (Aroriode & Ogunbadejo, 2014). It is impossible to thoroughly analyse Nigeria's economic growth rate without taking a closer look at the role that various macroeconomic variables have played in the country's economic expansion. Economic growth of any country is affected by so many macroeconomic factors such as inflation, Money supply, Exchange rate, Unemployment, capital formation, Index of industrial production, Foreign Direct Investment, Interest rate etc. Macroeconomic variables are indicators or main signposts signalling the current trends in the economy. Keynes identified some main macroeconomic variables that relate to the economy as a whole as gross domestic product, exchange rate, interest rate, Inflation, balance of payment, capital formation and money supply (Glahe, 2005).

Macroeconomics is still an evolving science but the objectives of macroeconomic policy have been uniform globally which include price stability, foreign exchange stability, full employment and economic growth. One of the major goals of macroeconomic which can be either objective or policy variables always aimed at achieving sustainable economic growth. In developed countries, the relationship between macroeconomic variables and economic growth tends to be relatively stable and predictable (World Bank, 2020). These countries usually have matured financial markets and robust institutions, which help manage macroeconomic fluctuations effectively. For instance, monetary policy, through tools like interest rates and open market operations, can significantly influence economic growth by impacting investment and consumption. Inflation targeting is common, as low and stable inflation supports predictable economic conditions conducive to growth. Exchange rates in developed economies often have a more moderated impact due to their relatively stable trade balances and diversified economies (World Bank, 2020). In the case of the developing economies, the relationship between macroeconomic variables and economic growth can be even more complex and precarious. Many developing countries face structural issues such as political instability, weak institutions, and inadequate infrastructure, which exacerbate the effects of macroeconomic variables. Inflation can be particularly damaging in developing economies where it may lead to severe economic distortions and reduce real income. Interest rates may be high due to perceived risks and inflationary pressures, making borrowing costly and hindering investment. Exchange rate volatility can be pronounced, especially in countries that rely heavily on a few export commodities or face frequent balance of payments crises (Jabaru & Jimoh, 2021).

In Nigeria the government tries to influence the performance of the national economy through fiscal, monetary and exchange rate policies such

as changing the level of taxation, government spending, or the supply of money or credit to the economy, changing macroeconomic policies affect national income, prices, interest rates, unemployment rate, inflation rate and exchange rates which influence economic growth (Jabaru & Jimoh, 2021). Government and policy makers have embarked on various macroeconomic policies to address these issues like inflation, exchange rate crisis, interest rate, unemployment rate problem facing Nigeria economy. Some of the policies involved the use of monetary and fiscal policy, export promotion strategy, exchange rate policy imports substitution strategy, National Economic Empowerment Development Strategy (NEEDS), the Economic Recovery and Growth Plan (ERGP) 2017-2020 and many others. The fundamental objectives of the policies include price stability, full employment, price stability, stable exchange rate and improved capital formation and sustainable economic growth (Nwoko et al., 2016). These policies have achieved varying degrees of success. However, challenges remain, including persistent inflation, exchange rate instability, and an over-reliance on oil revenues. Moreover, structural issues such as corruption, inadequate infrastructure, and low human capital development continue to constrain the effectiveness of these policies (Central Bank of Nigeria, 2022).

High inflation, unemployment, exchange and interest rates have hindered the growth of Nigerian economy over time. For instance, between 1999 and 2023, exchange rate has passed through different regimes in Nigeria, and it has recorded different values. In 1999, Nigeria exchange rate was ₦92.3381 per dollar, while it was ₦148.88 in 2009, ten years after. In 2019 and 2023, exchange rate was ₦306.921 and ₦899.393 respectively. Inflation on the other hand, rose from 16.95% in 2021 to 21.34% in 2022 and 28.92% in 2023 (CBN Statistical Bulletin, 2022; Budget Office of the Federation, 2023). Furthermore, in 1999, unemployment rate was 3%. It however increased to 33% in 2022 (National Bureau of Statistics, 2023). In a similar vein, in 2009, Nigeria GDP growth rate was 8%, while it contracted in 2020 by -1.9%. In 2022, it was 3.3% (NBS, 2023). These fluctuations were due to macroeconomic variables instability.

Furthermore, researchers attempt to understand the effect of macroeconomic variables on economic growth in Nigeria have resulted in conflicting opinions. The existing studies disagreed both in the line of significance and direction of relationship. Despite agreeing that economic performance responds to macroeconomic variables, these studies are at variance as to the direction of the effects. For instance, Iheanachor and Ozegbe (2021), Mohammad and Ehikioya (2015) argued that all the macroeconomic variables they employed have a negative effect on economic growth in both the long and short run suggesting that growing money supply, interest rate, inflation, exchange rate and credit extension will rather hamper growth in Nigeria as against the belief from studies like Adeniran et al. (2014), Aminu

and Anono (2012), which opined that macroeconomic variables enhance economic growth of the Nigeria economy. Therefore, this study attempts to explore the impact of selected macroeconomic variables on economic growth in Nigeria.

2.0 LITERATURE REVIEW

2.1 Basic Theories

Neoclassical Growth Theory

The growth model known as neoclassical growth theory is an extension of Solow (1956) and Harrod and Domar (1946; 1939). The model emphasised how crucial saving is to an economy. The Harrod-Domar postulation allowed the growth model to be expanded by includes labour as a second element and technology as an extra variable in the growth equation. In contrast to the fixed coefficient, constant returns to scale assumption of the Harrod-Domar model, Solow's neoclassical growth model showed constant returns to both variables combined and diminishing returns to labour and capital separately. Solow's neoclassical growth model is an extension of the theory of Cobb Douglas, explaining that the output or gross domestic product (GDP) depends on the technology, number of employees, amount of physical capital, the amount of human capital, as well as the amount of natural resources. So, it can be written by the following equation.

$$Y = A\, f\,(L, K, H, N)$$

Where f is the function that shows how the inputs are combined to produce output. *A* is a variable that indicates the availability of production technology. *L* is the amount of labor. *K* is the amount of physical capital. *H* is the amount of human capital, and *N* is the number of natural resources.

New Growth Theory

The hypothesis of new growth theory (endogenous growth theory) has its roots in the events of the 1980s.The idea behind the endogenous growth theory is that internal economic causes, rather than external ones, drive economic expansion. The theory is predicated on the notion that greater productivity and favourable effects on the outlook and growth of the economy result from enhanced innovation, knowledge, and human capital. In order to counter the neoclassical exogenous growth theory, the endogenous growth theory was developed without factoring in technological changes. Barro (1990) developed the endogenous growth model, which held that although human and physical capital do influence economic growth, the output level and steady growth rate are influenced by variables related to fiscal policy, such as taxation and productive expenditure. The endogenous growth theory placed importance on the role technological advancement. Given that the growth rate of economic output per person is the basis for long-term economic growth, productivity levels, in turn, depend on the advancement of technological change as postulated by Arrow Model of growth theory.

Some of the proponents of endogenous growth model includes; Arrow (1962), Lucas (1988) and Romer (1986) among other economists.

2.2 Empirical Review

Ukangwa and Ikechi (2022) used data from 1987 to 2018 to examine the impact of the exchange rate on economic growth in Nigeria. The study used the regression model's ordinary least squares analytic technique and the results showed that the exchange rate has no appreciable effect on Nigeria's economy. Haruna and Chiebonam, (2022) examined interest rate and its effect on economic growth in Nigeria from 2010 to 2020. The study employed OLS method of analysis and the result revealed that interest rate had significant influence on the economic growth. Ogosi et al. (2022) investigated the macroeconomic factors that influence Nigeria's economic growth from 1991 to 2019. The study utilized both Simple Linear and Multiple Regression analysis. The study also used ECM and the Johansen cointegration test. The findings demonstrated that while inflation had a negative impact on economic growth, unemployment and foreign direct investment had favourable effects. Jabaru and Jimoh (2021) examined the impact of some selected macroeconomic variables on economic growth in Nigeria for a period of (1980 – 2017). The study established that unemployment rate, inflation rate and crude oil exports had a negative impact on GDP while exchange rate, foreign direct investment, population growth rate and age dependency ratio had positive impact on GDP over the period reviewed.

In order to determine whether there are long-term relationships between a few key macroeconomic variables and how they affect economic growth, Gisaor et al. (2021) empirically tested the validity of Okun's law in Nigeria using time series data from 1970 to 2018 and the ARDL bounds test approach. As a result, Okun's law was found not to be applicable in Nigeria, even though Nigeria has a high unemployment rate and relatively high economic growth. Cole and Akintola, (2021) investigated the impact of interest rate on economic growth in Nigeria between 1990 to 2019. The research employed descriptive and multiple regression for data analysis in model. The result of the study revealed that interest rate had positive and insignificant effect on gross domestic product in Nigeria. From 1980 to 2019, Onwubuariri et al. (2021) assessed how inflation affected Nigeria's economic growth. The Autoregressive Distribution Lag (ARDL) model and the Error Correction Model (ECM) were used to analyse the data. The findings showed that inflation has a negative long-term impact on economic growth because it lowers purchasing power of money and decreases competitiveness.

Iheanachor and Ozegbe (2021) examined the consequences of exchange rate fluctuations on Nigeria's economic performance using annual time series data from 1986 to 2019. The study also employed ARDL technique and the empirical result revealed that the exchange rate, net foreign direct investment and inflation rate had a significant negative impact

on Nigeria economic growth in the long - run. Osunkwo (2021) investigated the relationship between capital formation and the economic growth of Nigeria from 1980 to 2017, using ECM. The empirical findings show that capital production significantly boosted economic growth in Nigeria throughout the studied period, but interest rates had a negative effect. Hussain et al (2016) studied impact of macroeconomic variables on economic growth in Nigeria, obtained time series data for the period 1980 to 2011. The study adopted multiple regression analysis and descriptive statistics for their data analysis. It was established that there is a significant effect of inflation rate, interest rate and exchange rate on GDP. Inflation rate and interest rate had a negative impact on GDP while exchange rate had positive relationship to GDP. Okorontah and Odoemena (2016) looked into how Nigeria's economic growth was impacted by changes in exchange rates. The study used annual data from 1986 to 2012 and OLS and ECM as methods of analysis. The outcome suggests that there is no much of a correlation between Nigeria's economic growth and currency rate.

Amassoma and Odeniyi (2016) used annual data spanning forty-three (43) years to study the effect of exchange rate fluctuations on the growth of the Nigerian economy (1970 – 2013). The research utilised various econometric methods, including multiple regression models, and the ECM. The study's findings demonstrated that exchange rate fluctuations have a small but favourable effect on Nigeria's economic growth over the long and short terms. Sola et al. (2016) investigated the effect of exchange rate fluctuations on economic growth Nigeria from 1990 to 2014. They employed the ARDL and based on their empirical result, they found no effect of exchange rate fluctuations on economic growth in the long – run but in the short- run an effect exists. Ubaka (2016) explored how macroeconomic parameters affected Nigeria's economic growth between 1999 and 2014. The research utilised econometric method, including, the error correction model (ECM) and the analysis discovered that while inflation had a negative link with economic growth, the exchange rate and interest rate had a favourable relationship.

Muhammad and Ehikioya (2015) looked at how key economic factors affected Nigeria's economic expansion from 1970 to 2014, using OLS multiple regression. This conclusion showed that, in comparison to other factors that significantly affect Nigeria's economic conditions, all the variables that were chosen had less of an impact on the nation's economic growth. Ayodele (2014) analysed the impact of exchange rate on the economic performance of Nigeria using the ordinary least squares (OLS) method. The study covered the period of 13 years from year 2000 to year 2012. From his findings, exchange rate of naira to dollar has negative correlation with the GDP.

Adeniran et al. (2014) focused at the 28-year period between 1986 and 2013 and studied how the exchange rate affected economic

growth in Nigeria. The data were analysed using regression analysis of the OLS and correlation. The findings showed that the exchange rate has a favourable relationship with economic growth but not significant. This implies that exchange rate volatility contributes to GDP. The effects of inflation on economic growth and development in Nigeria between 1970 and 2010 were studied by Aminu and Anono (2012) using the Granger causality test to ascertain the relationship between GDP and inflation. The Causality results suggest that GDP drives inflation rather than inflation driving GDP. Additionally, the results demonstrated that inflation fosters productivity and production levels as well as the evolution of total factor productivity, all of which are favourable for economic growth. Asher (2012) investigated the effects of the exchange rate fluctuations on the economic growth of Nigeria between 1980 and 2010. The finding demonstrates that the real exchange rate positively affects GDP growth. He also believes that the country's output level is determined by the exchange rate.

3. Methodology

3.2 Model Specification

The model used for the study was the adaptation and modification from the work of Jabaru and Jimoh (2021) who examined effect of selected macroeconomic variables on the Nigeria economy.

The Model is stated thus:

GDP= f (UR, IR, ER, FDI, PGR, ADR, COE)

Where;

GDP = Gross Domestic Product;

f = Functional Relationship;

UR= Unemployment Rate;

IR = Inflation Rate;

ER = Exchange Rate;

FDI= Foreign Direct Investment;

PGR=Population Growth Rate;

ADR=Age Dependency Ratio;

COE=Crude Oil Exports.

The model of Jabaru and Jimoh (2021) was adapted and modified by introducing the core macroeconomic variables such as inflation rate, exchange rate, interest rate, unemployment rate and capital formation as independent variables and contemporaneously using real gross domestic product growth rate as dependent variable which serve as an excellent tool for measuring economic growth.

The functional form of the adapted and modified model is specified as**;**

$$\text{RGDPgr} = \text{f}(\text{IFR}, \text{EXR}, \text{INR}, \text{UNER}, \text{GFCF}) \quad 3.1$$

The econometric equation model becomes:

$$RGDP_{gr} = \beta_0 + \beta_1 IFR + \beta_2 EXR + \beta_3 INR + \beta_4 UNER + \beta_5 GFCF + \mu \quad 3.2$$

Stating the ARDL equation from equation (3.2), the model becomes;

$$RGDP_{grt-1} = \beta_0 + \Sigma\beta 1IFR_{t-1} + \Sigma\beta 2EXR_{t-1} + \Sigma\beta 3INR_{t-1} + \Sigma\beta 4UNER_{t-1} + \Sigma\beta 5GFCF_{t-1} + \mu t \quad 3.3$$

Where

RGDPgr = Real Gross Domestic Product Growth Rate; f = Functional Relationship; IFR = Inflation Rate; EXR = Exchange Rate; INR = Interest Rate; UNER= Unemployment Rate; GFCF= Gross Fixed Capital Formation; β0= Intercept of Relationship in the Model/Constant; β_1, β_2, β_3, β_4 and β_5 = Coefficients of the independent variables; μ = Stochastic disturbance (error term).

The a priori expectations for the coefficients in the model are stated thus;

A priori expectation: $\beta_1 < 0$, $\beta_2 > 0$, $\beta_3 < 0$, $\beta_4 < 0$ and $\beta_5 > 0$

3.5 Estimation Techniques/ Method of Analyses

The data were analysed using Augmented Dickey Fuller Tests for Unit Roots to test for stationarity so as not to run spurious regression. The Autoregressive Distributive Lag (ARDL) Approach which is capable of handling both stationarity at level I(0) and first difference I(1) was applied to test both the long and short run relationships. The ARDL) Bounds test for cointegration was carried out to check long run relationship among the variables.

4. ANALYSIS OF DATA, PRESENTATION AND DISCUSSION OF RESULTS

This section covers the descriptive statistics, correlation analysis, stationarity test, ARDL Bound test which are presented in turns.

Table 1: Descriptive Statistics

	RGDPGR	UNER	EXR	GFCF	IFR	INR
Mean	4.520930	13.16884	124.3419	13407.75	25.49302	10.10465
Median	4.800000	9.780000	120.0000	8730.800	15.20000	10.00000
Maximum	7.900000	34.00000	419.0000	44414.00	77.60000	20.00000
Minimum	1.900000	4.300000	0.620000	1175.300	6.000000	1.000000
Std. Dev.	2.251514	8.228065	120.7095	12520.18	21.73436	5.599275
Skewness	-1.281339	0.989506	0.977521	1.007725	1.290301	-0.002550
Kurtosis	4.925739	3.818925	3.215361	3.886162	3.119054	3.896920
Jarque-Bera	18.41079	7.075780	6.931189	7.301037	11.95701	2.180120
Probability	0.070100	0.069075	0.081254	0.075978	0.062533	0.396196
Sum	194.4000	566.2600	5346.700	576533.1	1096.200	434.5000
Sum Sq. Dev.	212.9112	2843.444	611973.0	6.58E+09	19840.06	1316.779
Observations	43	43	43	43	43	43

Source: Researchers Computation (2023) using E-Views 9.0

The variables' descriptive statistics are presented in Table 1. There is a significant change in the trends of the variable over the time of consideration, as indicated by the large difference between the minimum and highest values of the series. Due to the fact that every variable exceeds the conventional threshold of 2, the result demonstrates that there is non-normality in every variable. The Jarque-Bera test statistics for all variables are not significant, which indicates that the distributions are not significantly different from a normal distribution as the p-values for all variables are greater than 0.05, which is the level of significance. Furthermore, for most of the variables, the skewness is slightly positive, which indicates the tendency of the distributions slightly skewed to the right. In other words, the results based on the statistical distribution of the series shows that the series are positively skewed except interest rate. The kurtosis exceeds '3' for all variables, which indicates that the distributions are peaked (leptokurtic) relative to the normal. Overall, the descriptive statistics indicate that the distributions the variables are fairly symmetrical and approximately normally distributed.

Table 2: Correlation Matrix

	LNRGDPGR	LNINR	LNIFR	LNGFCF	LNEXR	LNUNER
LNRGDPGR	1.000000	0.268368	0.037105	-0.142180	-0.146907	-0.080793
LNINR	0.268368	1.000000	-0.374002	-0.134482	0.054267	-0.236376
LNIFR	0.037105	-0.374002	1.000000	-0.426394	-0.378383	-0.394542
LNGFCF	-0.142180	-0.134482	-0.426394	1.000000	0.037423	0.033420
LNEXR	-0.146907	0.054267	-0.378383	0.037423	1.000000	0.028025
LNUNER	-0.080793	-0.236376	-0.394542	0.033420	0.028025	1.000000

Source: Researchers Computation (2023) using E-Views 9.0

The correlation matrix presented in Table 2 shows the coefficient values that are below the threshold of 0.80 for all the variables. This clearly suggests that there is no multicollinearity in the model. Thus, the null hypothesis can be accepted.

Table 3: Augmented Dickey-Fuller (ADF) Unit Root Test

Variables	At Levels				At First Difference			
	ADF	95% Critical Value of ADF	P value	Status	ADF	95% Critical Value of ADF	P value	Status
INR	-0.383956	-2.933158	0.9027	N.S	-4.688160	-2.935001	0.0005	S
IFR	-1.706115	-2.933158	0.4209	N.S	-5.549500	-2.935001	0.0000	S
RGDPgr	-5.276811	-2.933158	0.0001	S	-10.42199	-2.935001	0.0000	S
UNER	-0.075485	-2.933158	0.9455	N.S	-6.740690	-2.935001	0.0000	S
EXR	1.187034	-3.520787	0.9076	N.S.	-5.770481	-3.526609	0.0000	S
GFCF	9.875806	-2.933158	1.0000	N.S	-5.363558	-3.523623	0.0004	S

Source: Researchers Computation (2023) using E-Views 9.0

N.S = Non Stationary; S = Stationary

The estimation results revealed that all the variables were not stationary at levels; but became stationary after first differencing at 5% critical value. Precisely, the estimated result in the Table 3 found only RGDPgr to be stationary at level as shown by it corresponding values of ADF test statistics, critical values and p-value. However, upon first differencing, all variables became stationary. Thus RGDPgr was integrated of order zero i.e I(0) while other variables were integrated of order one i.e. I(1). Having examined the stationarity state of the variables, it is imperative henceforth we conduct the Bound cointegration test since the variables are integrated in different orders, which is the basis for using ARDL approach.

Table 4: ARDL Bounds Test for Co-integration

Test Statistics	**Value**	
F-Statistic	**4.722379**	
	Critical Value Bounds	
Significance	I(0)	**I(1)**
10%	1.81	**2.930**
5%	2.140	**3.340**
1%	**2.820**	**4.210**

Source: Researchers Computation (2023) using E-Views 9

The F-statistic value is compared to the higher I(1) and lower I(0) critical bound values in the ARDL Bound test, as shown in Table 4, to determine whether co-integration exists among the variables. If the F-statistic value falls below the upper bound at 5 percent, there is no cointegration. However, if the F-statistic value

is greater than the upper bound at 5 percent, it simply suggests a cointegrating relationship. From the result, the F-statistic value is 4.722379, greater than both the lower and upper bounds at critical level of 5%. This indicates that there is a significant long-run link among the variables.

Table 5: Autoregressive Distributed Lag (ARDL) Long Run Estimate (1980–2022)

Dependent Variable: D(LNRGDPGR)

Variable	Coefficient	Std. Error	t–Statistic	Probability
C	5.329691	4.035396	1.320736	0.2094
LNRGDPGR(-1)	0.780357	0.313308	2.490699	0.0271
LNIFR(-1)	-0.324124	0.090893	-3.565998	0.0034
LNINR(-1)	0.190384	0.694225	2.742406	0.0168
LNEXR(-1)	0.155962	0.050124	3.111523	0.0083
LNUNER(-1)	-0.609599	0.213273	-2.858309	0.0134
LNGFCF(-1)	0.003644	0.001537	2.370303	0.0339
LNGFCF	-0.001516	0.001492	-1.015858	0.3282
LNIFR	0.228766	0.088133	2.595695	0.0222
LNINR	-0.772398	0.388207	-1.989657	0.0681
LNUNER	1.106643	0.356979	3.100022	0.0084
LNEXR	-0.092940	0.044206	-2.102420	0.0556
R-squared				0.990494
Adjusted R-squared				0.988300
F-statistic				451.509600
Prob.(F-statistic)				0.000000

Source: Researchers Computation (2023) using E-Views 9.0

Table 6: Autoregressive Distributed Lag (ARDL) Short Run Estimate (1980–2022)

Dependent Variable: D(RGDPGR)

Variable	Coefficient	Std. Error	t-Statistic	Probability
C	0.316976	0.595169	0.532581	0.5981
D(RGDPGR(-1))	-0.086225	0.204457	0.421726	0.6761
D(UNER(-1))	-0.037599	0.132691	-0.283361	0.7788
D(EXR(-1))	0.026884	0.016622	1.617441	0.1159
D(IFR(-1))	0.008832	0.046646	0.189347	0.8511
D(INR(-1))	-0.070004	0.102087	-0.685732	0.4980
D(GFCF(-1))	-0.000498	0.000447	-1.114739	0.2735
ECM(-1)	-0.926503	0.253055	-3.661275	0.0009

R-squared 0.537579 Mean dependent var 0.087692 Prob(F-statistic) 0.000576

Adjusted R-squared 0.433161 S.D. dependent var 3.090139
S.E. of regression 2.326526 Akaike info criterion 4.707311
Sum squared resid 167.7944 Schwarz criterion 5.048555
Log likelihood -83.79257 Hannan-Quinn criter. 4.82974
F-statistic 5.148348 Durbin-Watson stat 1.943706

Source: Researchers Computation (2023) using E-Views 9.0

Discussion of Findings

In the first place, this study has shown that some selected macroeconomic variables can have different impacts on the economic growth. The findings of this study contribute to the growing body of literature on the relationship between inflation rate and real GDP growth rate in emerging economies. Precisely, the analysis shows that a percentage increase in inflation rate will lead to a 32.4% decrease in the growth rate of real GDP in the long run and 0.009% increase in the short run. While this study aligns with the consensus that higher inflation is associated with lower economic growth, recent empirical studies, such as those by Jabaru and Jimoh (2021), Hussain et al. (2016), have highlighted negative relationships between inflation and growth. These studies argue that the inflation-growth link may depend on the level of inflation and the broader economic context. Therefore, Nigerian policymakers should consider the specific thresholds and circumstances under which inflation can become detrimental to economic growth, allowing for a more tailored and context-specific monetary policy.

Furthermore, interest rate (INR) from the analysis was found to be positively related to the growth rate of real GDP in Nigeria in the long run but negatively related in the short run. This implies that 1 percentage increase in interest rate leads to a corresponding 19% increase in real GDPgr in Nigeria and 0.07% decrease respectively. The unexpected positive association between interest rates and real GDP growth rate challenges traditional economic assumptions. Contrary to the prevailing view that higher interest rates dampen economic activity, studies like those by Haruna and Chiebonam (2022), Cole and Akinola (2021) have found instances where higher interest rates positively impact economic growth, particularly in the context of developing economies. These studies emphasize the importance of considering the specific economic conditions and the effectiveness of monetary transmission mechanisms. Nigerian policymakers should conduct further research to understand the unique factors influencing this positive correlation and adapt interest rate policies accordingly to harness the potential positive impact on economic growth.

Exchange rate (EXR) in Nigeria was found to be positively related to real GDPgr both in the long and short run, such that a percentage increase in exchange rate leads to 15.6% increase in the growth rate of real GDP in the country in the long run and 0.027% increase in the short run. The positive relationship identified in this study between exchange rates and real GDP growth rate aligns with findings in recent literature. Research by Jabaru and Jimoh (2021), Hussain et al. (2016) suggests that exchange rate can positively influence economic growth, acting as a stimulant for export-oriented economies. This supports the notion that a favorable exchange rate environment is conducive to attracting foreign investments and promoting export-led growth. Nigerian policymakers should leverage this insight, ensuring that policies are in place to maintain stability in the exchange rate and

attract foreign investment, aligning with the findings of these recent studies.

Unemployment rate (UNER) in Nigeria was found to be negatively related to the growth rate of GDP such that a percentage increase in the unemployment rate leads to a 61% decrease in real GDPgr in the long run and 0.038% decrease in the short run. The negative correlation between the unemployment rate and GDP growth in Nigeria is consistent with broader economic literature. The study of Jabaru and Jimoh (2021) highlights the adverse or negative impact of high unemployment on overall economic growth and prosperity of a country. Policymakers in Nigeria should consider the nuanced nature of unemployment and design targeted interventions that address both cyclical and structural components, drawing insights from the latest empirical research on this topic.

Finally, while gross fixed capital formation (GFCF) in Nigeria was found to be positively related to real GDPgr in the long run, it was negatively related in the short run. This implies that a percentage increase in GFCF leads to a 0.36% increase in real GDP growth rate in the long run, and 0.0005% decrease in the short run. The positive impact of capital formation on real GDP growth rate found in this study is consistent with recent literature emphasizing the crucial role of investment in economic growth. Recent study by Osunkwo (2021) highlights the positive correlation between capital formation and economic growth in emerging economies. Nigerian policymakers should draw inspiration from these studies, emphasizing the need for sustained investment in physical and human capital to foster long-term economic growth. This alignment with recent empirical literature provides a robust foundation for policies that encourage capital formation and economic growth in Nigeria.

The coefficient of determination (R^2) and its adjusted counterpart (R-squared bar) show a high predictive power of the model with coefficients of 99.1% and 98.8% respectively in the long run, and 0.54% and 0.43% respectively in the short run. In other words, the R-squared shows that 99% and 54% of the systemic variations of the dependent variable can be explained by the independent variables of the model, which is a good fit for the study, with only less than 1% and 46% respectively explained by the stochastic error term. Using the rule of the thumb, all the variables; IFR, INR, EXR, UNER, GFCF have absolute values of t-statistic greater than 2 which show that they are statistically significant in the model in the long run, which were further confirmed by their respective p-values (0.0034, 0.0168, 0.0083, 0.0134 and 0.0339) lesser than 0.05 at 5% level of significance. Also, in the short run, none of the variables was statistically significant at 5 percent as their p values are greater than 5%. However, F-statistic value which shows the joint significance reveals 451.5096 with a p-value of 0.0000 in the short run and 5.1483 with p value of 0.00058 in the short run. This

revealed the significance and adequacy of the ARDL model.

5. CONCLUSION AND POLICY RECOMMENDATIONS

The study concludes that the macroeconomic landscape plays a pivotal role in shaping the economic trajectory of Nigeria. The negative correlation identified between inflation rate and real GDP growth rate underscores the imperative of maintaining price stability. Furthermore, the unexpected positive relationship between interest rates and real GDP growth rate challenges conventional economic assumptions, prompting a reconsideration of the intricate dynamics at play within the Nigerian economic context.

Additionally, the study concludes that a stable exchange rate environment is crucial for fostering economic growth, aligning with expectations. The positive correlation between gross fixed capital formation and real GDP growth rate highlights the pivotal role of sustained investment in capital assets. As Nigeria charts its economic course, the study's conclusions provide valuable insights for policymakers, guiding the formulation of strategies that promote stability, encourage investment, and pave the way for robust and sustainable economic growth.

5.1 Recommendations:

Based on the findings of the study, the following recommendations are proffered:

Given the adverse impact of inflation on real GDP growth rate, the study recommends a vigilant and proactive approach to inflation management via price control system agency and Monetary Policy. Policymakers should prioritize the implementation of monetary policies that ensure price stability. Continuous monitoring of inflationary pressures and swift policy adjustments will be essential to mitigate the negative effects on GDP growth.

The unexpected positive impact of interest rates on real GDP growth rate calls for a thorough re-evaluation of interest rate policies. In the meantime, a cautious approach to interest rate adjustments is recommended. Policymakers should consider the broader economic conditions and tailor interest rate policies to support both price stability and sustainable economic growth.

Building on the positive impact between exchange rates and real GDP growth rate, the study recommends a focus on maintaining a stable exchange rate environment by streamlining the activities of commercial bank and parallel market of FOREX by Central Bank of Nigeria. Policymakers should implement measures to minimize volatility and fluctuations in the exchange rate, as this contributes positively to economic growth. Ongoing monitoring of external economic factors and timely interventions to address imbalances will be crucial to sustaining a favorable exchange rate environment.

Recognizing the negative impact of unemployment on real GDP growth rate, the study recommends the conscious implementation of targeted strategies to reduce unemployment rates via industrialization policies of Nigeria economy. Policymakers

should prioritize initiatives that enhance skills development, education, and job creation. Public-private partnerships can play a pivotal role in fostering a conducive environment for employment generation; ultimately contributing to improved economic growth. Initiatives could include vocational training programs, apprenticeships, and targeted interventions in sectors with high growth potential.

To capitalize on the positive impact between gross fixed capital formation and real GDP growth rate, policymakers should implement policies that encourage sustained investment in capital assets. This may involve creating a favorable business environment, providing incentives for private sector investments, and prioritizing infrastructure development in our short and long term development plan.

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