



## ABSTRACT

The relationship between inflation and economic growth has been a controversial issue in macroeconomic theory and has remained a deliberated subject among policymakers. The study examined the effect of inflation on Nigeria economic growth using time series data spanned over a period of forty (40) years 1981-2021. The study adopted the ex-post-facto research design. Secondary data used in the study was sourced from CBN annual statistical bulletin for relevant years. Descriptive statistics, Augmented Dickey

## THE EFFECT OF INFLATION ON NIGERIA ECONOMIC GROWTH

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### Introduction

The relationship between inflation and economic growth has, over the ages, been a source of concern for policymakers, economists and even governments of both the developed and developing countries, including Nigeria. In Nigeria, one of the Monetary Policy Committee mandates, through the Central Bank of Nigeria, is promoting and maintaining price stability and ensuring a sound and efficient financial system in the country (CBN Act, 2007). This is because it is believed that monetary policies help encourage sustained growth in the economy by increasing the value of money and preventing inflation and other macroeconomic uncertainties, which will further boost the economy. On September 22, 2020, the Central Bank decreased the Monetary Policy Rate (MPR) by 100 basis points, from 12.5 per cent to 11.5 per cent, in order to lower the economy's money supply (CBN Statistical Bulletin, 2020). This reduction was made to address the rise in domestic prices and attract capital into the economy, thereby increasing the level of external reserves.

The Nigerian economy has remained largely underdeveloped despite the huge human and natural resources. The country is richly endowed with various mineral types all over the country. Huge amount is generated annually from petroleum products. More than 40 types of solid minerals have been identified in over 500 locations in the country Musa and Abdullahi (2020). Yet the per capita income is low, unemployment and inflation



*Fuller Test (ADF) and the autoregressive distributed lag (ARDL) regression techniques were the main statistical tools used to analysis the data with the help of E-view 10 statistical package. The finding of this study revealed that inflation rate exerts a negative and insignificant effect on economic growth. As a result, the study recommends that a more pragmatic effort is needed by the monetary authorities to target the inflation vigorously to prevent its adverse effect by ensuring a tolerable rate that would stimulate the economic growth of Nigeria.*

**Keywords:** *Inflation Rate, Gross Domestic Product (GDP), Economic Growth and Autoregressive Distributed Lag (ARDL).*

rates are high. There are many socio- economic challenges. The economy has continued to witness economic recovery which is immediately followed by economic recession and depression (Miftahu, 2021). The situation in Nigeria is disturbing. The various macroeconomic policies by government have been unable to achieve sustained price stability, and sustained growth cannot be achieved. The poor state of the economy has confirmed the need to manage the economy effectively. The essence of macroeconomic management underlines the rationale for the existence of government as a vital economic agent. However, it appears that government intervention has not been able to cure the ills in the Nigerian economy. The continued economic crisis, with the associated problems of high inflationary pressure, high exchange rate, and debt overhang, adverse balance of payment and high inflation rates is difficult to explain (Miftahu, 2021). Inflation has continued to pose significant challenges to the Nigerian economy's growth and development. The prices of goods and services have been on the increase. There has also been little or no production of goods and services. In other words, aggregate demand is more than aggregate supply and this has caused more money to chase fewer goods, thereby leading to inflation. The relationship between inflation and economic growth has been a controversial issue in macroeconomic theory and has remained a deliberated subject among policymakers. They can be traced back to the Latin American context in the 1950s. Hence, it has further prompted a long-standing debate between the structuralists and the monetarists (Umaru, *et al.*, 2018). The structuralists argued that inflation is necessary for economic growth, while the monetarists opine that inflation is detrimental to economic growth. According to Vinayagathan (2015), whether inflation affects real output growth or not depends on whether it affects the savings and investment level both in the short and long-run, respectively.

In the recent inflation report by the National Bureau of Statistics (2021), Nigeria's inflation rate dropped further for the second consecutive month to stand at 17.93% in May 2021 from 18.12% recorded in April 2021. The consumer price index, (CPI) which measures the inflation rate increased by 17.93% (year-on-year) in May 2021. This is 0.19% points lower than the rate recorded in April 2021 (18.12%). Meanwhile, the closely followed



food inflation index, which is felt first by the population, dropped from 22.72% recorded in April 2021 to 22.28% in May 2021, indicating the second consecutive decline in the food index. The Lagos Chamber of Commerce and Industry (LCCI) disclosed that Nigeria's inflation is a result of CBN's deficit financing, which has increased significantly, and which is highly inflationary due to its profound effect on money supply growth. Other supply-side issues remain security situation, cost of transportation and logistics, energy costs, exchange rate depreciation, and illiquidity in the forex market.

Many studies on the effect of inflation on economic growth have been done and researchers have different contradictory results. This is attributed to different macroeconomic conditions of the individual countries, different dataset and years of investigation, and different analysis techniques and model specifications. Unfortunately, despite the numerous studies aimed at providing solution to the problem of inflation, it has persisted, hence this study. However, this study will use a recent dataset (1981 – 2021) and it will have its focus on the Nigerian economy to provide meaningful information on the level of inflation and its effect on the economy. This will go a long way in helping policymakers and other stakeholders in subsequent economic decisions. Given this background, this study aims to investigate the effect of inflation on Nigeria's economic growth. This research is divided into five sections: the introduction, the literature review, the research methodology, the results and discussion and finally, the conclusion and recommendations.

The following null hypothesis is therefore formulated thus;

**Ho:** Inflation rate has no significant effect on gross domestic product in Nigeria.

## **LITERATURE REVIEW**

### **Conceptual Framework**

#### **Concept of Inflation in Nigeria**

Inflation occurs when the price of goods and services rises. When a price increase is sustained and exceeds a predetermined threshold, it is referred to as inflation. For example, an increase in the money supply would quickly lead to an increase in the price level. In the literature, there are different kinds of inflation. Some examples of these varieties are: Demand-pull, which occurs when aggregate demand increases without a corresponding increase in supply while a supply push, or cost-push inflation occur when there, is a decrease in supply due to an increase in the cost/price of the commodity produced (Anochiwa & Maduka, 2015). Inflation is the steady rise in the price level that can lead to low productivity of the population. If productivity is low, the economy will not grow as it should. Money is a medium of exchange for goods and services and the strength and stability of the purchasing power of money can be affected by inflation, which influences individuals' ability to acquire goods and services (Jacobs *et al.*, 2014).

According to the classical and neoclassical economists, inflation is caused by increase in the volume or quantity of money in circulation assuming that velocity of circulation and output level is constant and given the equation of exchange  $MV=PQ$ . To the Keynesians inflation is caused by persistent increase in the demand for goods and service assuming



that velocity of circulation and output level is not constant and that when quantity of money increases the first noticeable thing is increase in interest rate and not increase in price level. The monetarist position is in sharp contrast to the structuralist school, which sees financial factors as forces propagating inflation rather than causing it. According to structuralist school inflation can result from a number of special problems in developing countries, and not just from excessive money growth. Their explanations of inflation usually centres around “structural” problems such as supply bottlenecks or high dependency on imported intermediate goods. Inflation could also arise from the cost side. Costs could change through a supply shock, an increase in local earning power arising from a boom in export earnings, (for instance, Nigeria oil boom), or devaluation. Any of these could result in a push for higher nominal wages, which drive up production costs and increases final goods prices (Miftahu, 2021).

Post-Keynesian perspectives on the causes of inflation take a conflict theory approach, which is generally consistent with a structuralist framework. The conflict theory regards inflation as an outcome of struggles by economic groups over income shares according to Rowthorn, (1977), Rosenberg and Weisskopf, (1981). They assumed that capitalists and workers each have target real incomes, which may or may not be consistent with each other. If total claims for real income by all groups are not greater than the actual real output produced, then price stability is possible. But if total claims exceed real output available, then inflation arises. The main cause of inflation is then the rate at which the money wage rises in excess of the growth of average labour productivity.

For both structuralists and post-Keynesians, an endogenous money supply is assumed. However, while the monetarists believe that excess aggregate demand caused by excess supply of money causes inflation, the structuralists hold that the inflation rate can increase regardless of aggregate demand, making stagflation possible. Inflation also occurs because of cost-push factors. Since the increase in money supply follows a prior price increase, structuralists believe in the endogeneity of money. According Miftahu (2021) and Aminu and Anono (2012) the causes of inflation in Nigeria are: the degree of openness of the Nigerian economy which may lead to the importation of inflated goods and services into the country (inflation is therefore determined also by forces outside the country (imported inflation), announcement of salary increment, such as the recent eighteen naira minimum wage increase, shortage of supply of goods and services, excess demand for goods and services, high price elasticity of demand for foreign made goods and services, high cost of production, for instance the recent removal of subsidy by federal government of Nigeria fuel inflation though it lasted just for short period.

### **Concept of Gross Domestic Product (GDP)**

Economic growth is the rise in the total output of a country over a specified period of time (Onwubuariri *et al*, 2021). The growth of an economy over time is widely measured with Gross Domestic Product (GDP). The GDP may be nominal GDP or real GDP, the nominal GDP does not take account the devastating effect of inflation, but the latter is adjusted to



capture the likely impact of inflation. Nigeria economic performance since independence in 1960 has been decidedly mediocre, despite the availability and expenditure colossal amount of foreign exchange derive mainly from its oil and gas resources, economic growth has been weak and the incidences of poverty has increased (Ismaila, 2016). Economic growth are determined by various macroeconomic indices which include but no limited to exchange rate, inflation, government expenditure, capital mobilization *visa viz*: well-functioning of the financial sector, human capital development and index of industrial production among others. Traditionally, inflation and economic growth negatively correlated, because the higher the prices of commodities less the purchasing power of money and more people will be reluctant to spend. A reduction in spending would result in low production of goods and services, which ultimately decrease the GDP. Similarly, if government expenditure is high there is no corresponding monetary policy measure to cope inflation, there will much money in circulation resulting in inflation (Onwubuariri *et al*, 2021). The purchasing power of money for productive activities would be eroded, hurting the total output within that period of budget implementation. However, the liquidity mops up measure, higher government would lead capital accumulation which will enhance production, thereby increasing the GDP.

Economic growth is an indication of society's welfare. It reflects the changes in its ability to attain any socially agreed upon set of goals, whether consumption, capital formation and improvement in general well-being of individuals in the society (Abraham, 2011). In other words, growth can be defined as sustained increase in macroeconomic aggregates particularly real gross domestic product. According to Miftahu (2021) economic growth is generated by the endogenous introduction of product and/or process innovations. In other words, the essential characteristic of this growth model is the incorporation of technological progress which is a result of the endogenous introduction of product and/or process innovations.

A much detailed and acceptable definition of economic growth is that of Kuznets (1955) who opines that modern economic growth of nations has two distinctive features: in all cases, it involves a sustained and substantial rise in produce per capita and in almost all cases it involves a sustained and sustained rise in population. Kuznet (1955) further stressed that modern economic growth implies major structural changes and correspondingly large social and institutional conditions under which the greatly increased product per capita is attained.

### **Empirical Review**

Onwubuariri *et al*, (2021) evaluated the impact of inflation on Nigeria's economic growth for the past four decades, beginning from 1980 to 2019. Inflation rate, interest rate, exchange rate and government expenditure were the independent variables, while the gross domestic product was the dependent variable. Annual time series secondary data covering the period 1980 to 2019 were obtained from the World Development Indicators (WDI) published by the World Bank. Data collected were analysed using the



Autoregressive Distribution Lag (ARDL) model and the Error Correction Model (ECM). Results indicated that inflation has negatively affected economic growth over the years as it reduces competitiveness as well as lowering the purchasing power of money. The study concludes that while inflation and exchange rate negatively impact the Nigerian economy's growth, interest rate maintains a positive relationship. Government consumption proved to be an insignificant factor in the growth of the economy. The study recommended that measures be put in place by the CBN through the Monetary Policy Committee to ensure that the rate of inflation is reduced to the barest minimum.

Miftahu (2021) investigated the effect of unemployment and inflation on economic growth in Nigeria using annual time series data covering the period of 1986 to 2020. To examine the model coefficient, ordinary least square technique is employed. Findings indicate that the coefficient of unemployment has a negative and significant effect on economic growth in Nigeria; while inflation exerts a positive effect. The nature of unemployment and inflation characterizing the Nigerian economy are structural and cost-push respectively; hence, the study recommends that government and relevant agencies need to formulate policies to encourage self-employment and reduce cost of doing business so as to achieve a high, rapid and sustainable economic growth.

Musa and Abdullahi (2020) examined effect inflation on economic growth in Nigeria over period of 1981 to 2018. To achieve the objective of the study, annual time series data on GDP (economic growth) inflation, exchange rate and interest rate were collected from the online database of central bank of Nigeria (CBN) and the world development indicators. The study employs augmented dickey fuller test (ADF), co-integration and vector error correction models. From the result of the ADF test the variables are stationary at first difference. However, the Johansen Co-integration test shows the existence of long run equilibrium relationship among the variables. The result of long run co-integration coefficients shows that inflation has negative and significant effect on GDP. Whereby, exchange rate and interest rate have positive and significant effect on GDP. In addition, the error correction term of the vector error correction model is negative and statistically significant. Based on the findings of the study, the study recommends that monetary authority should embark on inflationary targeting based on single digit inflation rate, government should encourage production of goods and services because increase in the output level can reduce inflation to the required minimum level and government should embark on suitable exchange rate and interest rate policies that will boost the economy.

Adaramola *et al* (2020) examine the influence of inflation on the growth prospects of the Nigerian economy, the study employs the autoregressive distributed lag on the selected variables, i.e. real gross domestic product (GDP), inflation rate, interest rate, exchange rate, degree of economy's openness, money supply, and government consumption expenditures for the period 1980–2018. The study findings indicate that inflation and real



exchange rate exert a significant negative impact on economic growth, while interest rate and money supply indicate a positive and significant impact on economic growth. Other variables in the model depict no influence on the economic growth of Nigeria. The causality result shows the unidirectional relationships between interest rate, exchange rate, government consumption expenditures and gross domestic product. However, inflation and the degree of openness show no causal relationship with gross domestic product. As a result, the study recommends that a more pragmatic effort is needed by the monetary authorities to target the inflation vigorously to prevent its adverse effect by ensuring a tolerable rate that would stimulate the economic growth of Nigeria.

Ezeibeke (2020) used the vector error correction model to determine how the inflation rate changes affect monetary policy tools' ability to stabilise the Nigerian economy and stimulate investment. The study's result suggested that the impact of the interest rates on investment depends on the inflation rate level. Also, the size of the effect of interest rates on investment gets weaker as the inflation rate increases suggesting that monetary policy tools like the monetary policy rate (MPR) are robust stabilisation tools during periods of declining inflation rates but are not significant during periods of rising inflation rates. The study added that the impact of the money supply target on investment does not depend on the inflation rate level, which suggests that monetary policy tools, such as open market operations, are relevant during economic booms and recessions. The suggested that the Central Bank of Nigeria should deepen the scale, capacity, and efficiency of its open market operations by ensuring that most people can participate with minimal transaction cost and make different financial instruments available.

Eze and Nweke (2017) examined the effect of inflation on Nigeria's economic growth for the period ranging from 1980 to 2015. Cointegration approach, vector error correction model (VECM) and Granger causality test were employed in the analysis. Variables engaged in the study involve real gross domestic product (RGDP), inflation rate (INFR), government investment expenditure (GINVXP), private investment expenditure (PINVXP) and total export (TEXP). The results of cointegration test showed evidence of long-run relationship among the selected variables. The VECM results demonstrated that inflation affect Nigeria's economic growth negatively and insignificantly. More so, it was shown in the results that GINVXP and TEXP have significant and negative effect on RGDP. The results also indicate that PINVXP has significant and positive influence on RGDP. Similarly, the results of the Granger causality test revealed no causation between inflation rate and real GDP. The implication of these results is that while government economic measures aimed at improving public spending on both private and public investments leads to increase real GDP, such measure does not lead to solving Nigeria's inflation problems. In view of the above, the study therefore recommends as follows: that government may reconsider the over reliance in its spending on public and private investments in solving inflation problems in Nigeria, as there are other factors responsible for high inflation in the economy.

Izuchukwu and Patricia (2015) ascertained the impact of inflation rate on economic growth in Nigeria. The methodology employed in this study is the quantitative research



design. Consumer price index (CPI) was used as a proxy for inflation and the GDP as proxy for economic growth, to examine the relationship. The scope of the study spanned from 2000 to 2009. Ordinary least square method and t-test was used to test the variables most likely to impact on economic growth in Nigeria due to inflation. The findings also shows that there is strong relationship between inflation and economic growth in Nigeria, that exchange rate has positive impact on economic growth and that high interest rate discourages investment and hence forestalls economic growth. It is therefore, recommended that the monetary policies aimed at exchange rate be strengthened through effective supervision and regulatory framework of financial system by the monetary framework of financial system by the monetary authorities. Continuous monetary policies that will achieve the desired macroeconomic stability, increase in private sector credits and there is also need fro more effective management of interest rate in Nigeria.

### **Theoretical Framework**

#### **Quantity Theory of Money**

Quantity theory was propounded by Keynes in (1930s). Quantity theory of money belief that the quantity of money in circulation is the main factor that determines prices level in any economy. If the quantity of money in circulation changes, it will lead to change in the price level of goods and services. The theory was restated by Irving (1956) in his famous equation of exchange:  $MV=PQ$ , where M is stock of money, V is the velocity of circulation of money, Q is the volume of transactions generated internally, while P is the general price level. Transforming the equation by substituting Y, which is the total amount of goods and services exchanged for money for Q, the equation of exchange becomes  $MV=PY$ . The introduction of Y provides the relationship between the monetary and the real side of the economy. However, P, V and Y are endogenously determined internally. The variable M is the policy variable, which is exogenously determined by the monetary authorities. The monetarists argued that change in quantity of money affects price level only or the monetary side of the economy with the real sector totally excluded. This implies that variations in the supply of money do not affect the real output of goods and services, rather, their values or the prices at which they are exchanged. The main trust of the monetarists' model is its focus on long run supply side properties of the economy as against the short run dynamics (Dornbusch *et al*, 1996).

#### **The Keynesian Theory of Money**

Keynesian theory was formulated by economist John Marynard Keynes (1936). The Keynesian theory countered the postulation of the monetarists of direct and proportional links between the quantity of money and price level. The school of thought argued that the nexus between changes in the quantity of money and price level is never proportionate and indirect via interest rate. The Keynesian theory is famous due to its integration of monetary theory; and the theory of output and employment through the



interest rate. Keynesian theory argued that when the quantity of money rises, interest rate will fall resulting to increase in the volume of investment and aggregate demand; which in turn, raise output and employment in an economy. In contrast, the theory saw a relationship between the real sector and the monetary sector of the economy as an economic phenomenon that explains equilibrium relationship between the commodity and the money markets. Other important aspect of the Keynesian theory is that they looked into the relationship between the quantity of money and price level in both the unemployment and the full employment situations. Accordingly, as long as unemployment, employment and output exist, it will always change in the same proportion as the quantity of money changes, while there will be no change in prices. At full employment, however, change in the quantity of money induces a proportionate change in price level. Olafin (2001) argued that, the approach emphasizes that the objectives of full employment and price stability may be unachievable.

#### **The Neo-Keynesian Theory of Money**

This theory combines both aggregate demand and aggregate supply. The theory assumes a Keynesian view in the short run and a classical view in the long run. Therefore, the approach adopted in the theory explained that a change in public expenditure or nominal money supply, which is expected to produce inflation, is zero. As a result, aggregate demand increases with real money balances and therefore, decreases with the price level. The Neo-Keynesian theory focuses on productivity; this is because, a decline in productivity leads to diminishing returns to scale and consequently, results to inflationary pressures which widened output gap. This study is underpinning by Neo-Keynesian theory of money.

#### **RESEARCH METHODOLOGY**

To estimate the concerned models and examine the statistical significance of the variables that relate to inflation and economic growth, this study employed annual time series data from 1981 - 2021. The variables under consideration are: Gross Domestic Product (GDP) which is a measure for Economic Growth and inflation rate (INF). The variables are obtained from the Central Bank on Nigeria statistical bulletin (2021). Various econometric techniques have been employed in estimating the effects of inflation on economic growth. This study used Autoregressive Distributed Lag Model (ARDL) with the help of E-view 10. This is because the ARDL method yields consistent and robust results both for the long-run and short-run relationship between series with different integration orders performed to know if the series were stationary or not. The lag selection test was also done to determine the appropriate lag length for the analysis.

To examine if inflation is detrimental to Nigeria's economic growth, the study modifies the model developed by Idris & Suleiman (2019) and Inyama (2013). In accordance with their models, the model for this study is as follows:



$$GDP_{it} = \beta_0 + \beta_1 INF + e_{it} \text{----- (i)}$$

Where;

GDP = Gross Domestic Product

INF = Inflation Rate

$\beta_0$  = constant or intercept

$\beta_1$  = regression coefficients.

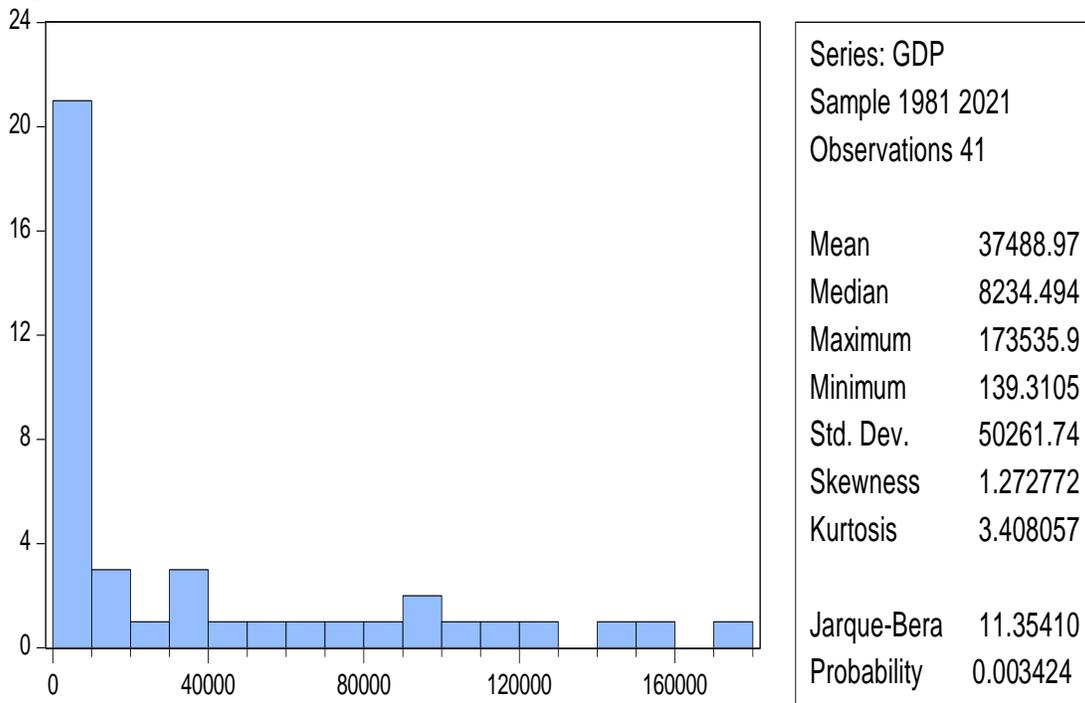
$e_{it}$  = stochastic error term.

## RESULT AND DISCUSSION

### Descriptive Statistics

In order to have glimpse of the data used in the study, a first pass at the data in form of descriptive statistics was carried out. This gives us a good idea of the patterns in the data used for the analysis. The summary statistics and graph is presented in figure 1 and 2.

**Figure 1: Representation of Gross Domestic Product**

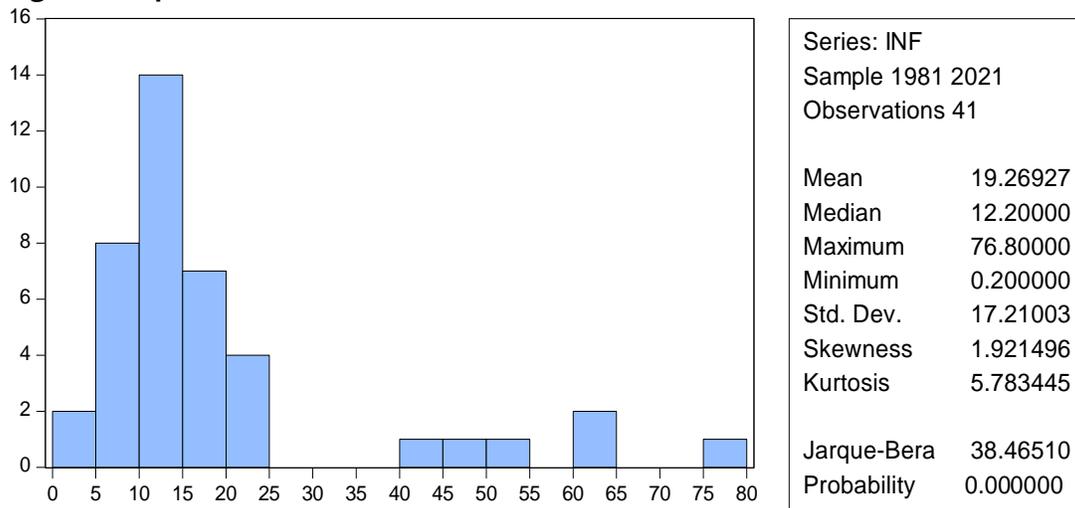


Source: E-view 10

The mean value for Gross Domestic Product is 37488.97 while the median is 8234.494. The standard deviation is 50261.74 which is not volatile while the significant Jarque-Bera Statistic of 0.003424 depicts an abnormal distribution of the time series data. The GDP graph shows some fluctuations resulting from instability in economic indices. The graph depicts some level of gyrations occasioned by disproportionate and corrupt practice.



**Figure 2: Representation of Inflation Rate**



**Source: E-view 10**

The mean value for inflation rate is 19.26927 while the median is 12.20000. The standard deviation is 17.21003 which is not volatile while the significant Jarque-Bera Statistic of 0.00000 depicts an abnormal distribution of the time series data. The GDP graph shows some fluctuations resulting from instability in economic indices.

On a general note, the descriptive statistics revealed that all the data sets are not normally distributed except.

**Unit Root Test**

The unit root test adopted here is the Augmented Dickey Fuller Test and the results are shown in Table 1 below;

**Table 4.1. Summary of ADF unit Root Test for the series of GDP and INF**

VARIABLES	Lags	T-statistic	5% critical value	P-Value	Integrated order	Remarks
GDP	0	0.203755	-2.941145	0.9693	-	Not Stationary
	1	-10.15266	-2.941145	0.0000*	I (1)	Stationary
INF	0	-3.110017	-2.936942	0.0338*	I (0)	Stationary

**Source: Researchers Computation (E-view 10) 2022**

From Table 4.1, it could be observed that GDP and INF were all found to be stationary at first difference and at level respectively; that is integrated at order one and at 5% level of significance. Since all the variables were found to be stationary at level and first different orders, it was safe for the study to employ ARDL bound test approach to validate the dataset.



**Bound Test**

**Table 4.2: ARDL Bound Test for Co-integration Analysis**

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
			Asymptotic: n=1000	
F-statistic	101.5381	10%	3.02	3.51
K	1	5%	3.62	4.16
		2.5%	4.18	4.79
		1%	4.94	5.58
Actual Sample Size	40		Finite Sample: n=40	
		10%	3.21	3.73
		5%	3.937	4.523

**Source: E-view 10 (2022)**

The result of the ARDL bounds testing approach for the inflation model in table 4.2 above shows that the F-statistic value of 101.5381 calculated at K = 1 (number of independent variables) falls above the upper bound critical value at 5% significance level. Therefore, the study concludes that there is a long-run relationship among the model variables and thereby reject the hypothesis of no co-integration at 5% significance level. This indicates a long-run relationship between the variable for the period.

**ARDL Regression Analysis**

**Table 4.3 ARDL Regression Result**

Dependent Variable: GDP

Method: ARDL

Date: 04/22/22 Time: 15:30

Sample (adjusted): 1982 2021

Included observations: 40 after adjustments

Maximum dependent lags: 1 (Automatic selection)

Model selection method: Akaike info criterion (AIC)

Dynamic regressors (0 lag, automatic): INF

Fixed regressors: C

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
GDP(-1)	1.098856	0.008260	133.0388	0.0000
INF	-17.36320	21.74249	-0.798584	0.4296
C	1299.056	668.3467	1.943685	0.0596
R-squared	0.998067	Mean dependent var		38422.71
Adjusted R-squared	0.997962	S.D. dependent var		50540.63
S.E. of regression	2281.594	Akaike info criterion		18.37517
Sum squared resid	1.93E+08	Schwarz criterion		18.50184
Log likelihood	-364.5035	Hannan-Quinn criter.		18.42097
F-statistic	9549.898	Durbin-Watson stat		1.898729
Prob(F-statistic)	0.000000			



\*Note: p-values and any subsequent tests do not account for model selection.

Source: E-view 10 (2022)

The result of table 4.3 above shows that inflation (INF) has negative effect on GDP growth rate but statistically insignificant (P-values > 0.05). The coefficient of determination  $R^2$  shows how well the model fits the sample data, and about 99% has been accounted by the model. This value implies that 99% of the variation in economic growth is explained by the independent variables. It shows a good fit for the model since greater variation of the dependent variable is accounted for by the variables in the model. The F-test which tests the significance of  $R^2$  and the joint significance of parameters is statistically significant at 5%. This fact confirms the goodness of fit implied by the  $R^2$ ; and shows that the independent variables put together contribute in influencing economic growth. The Durbin-Watson statistic of 1.89 is within the acceptable range of 1.5 to 2 for a sample of at least 50 observations. The result support/accept the null hypotheses which state that inflation rate has no significant effect of economic growth.

### Long- Run Analysis

#### Table 4.4 ARDL Long-run Result

ARDL Long Run Form and Bounds Test

Dependent Variable: D(GDP)

Selected Model: ARDL (1, 0)

Case 2: Restricted Constant and No Trend

Date: 04/22/22 Time: 15:36

Sample: 1981 2021

Included observations: 40

Conditional Error Correction Regression

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1299.056	668.3467	1.943685	0.0596
GDP (-1)*	0.098856	0.008260	11.96847	0.0000
INF**	-17.36320	21.74249	-0.798584	0.4296

\* p-value incompatible with t-Bounds distribution.

\*\* Variable interpreted as  $Z = Z(-1) + D(Z)$ .

Source: E-view 10 (2022)

In terms of the signs and magnitude of the coefficients, the long-run result indicates that inflation rate had negative and insignificantly related to gross domestic product. The result shows that a unit increase in inflation rate will lead to 17.36 units decrease in gross domestic product, respectively.

### Error Correction Model

#### Table 4.5: Error Correction Model

ARDL Error Correction Regression

Dependent Variable: D(GDP)



Selected Model: ARDL(1, 0)  
Case 2: Restricted Constant and No Trend  
Date: 04/22/22 Time: 15:40  
Sample: 1981 2021  
Included observations: 40  
ECM Regression  
Case 2: Restricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CointEq(-1)*	0.098856	0.005517	17.91870	0.0000

Source: E-view 10 (2022)

The ECM result shown in table 4.5 is positive and statistically significant. It shows a 10% speed of adjustment after disequilibrium within a year.

#### Table 4.6 ARDL Diagnostic Estimation

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.363853	Prob. F(2,35)	0.6976
Obs*R-squared	0.814724	Prob. Chi-Square(2)	0.6654

Source: E-view 10 (2022)

Table 4.6 presents the post-estimation test to examine the suitability of the model using serial correlation LM test, normality test. From the estimates, variables are normally distributed; there is no problem of serial correlation and the variables show homoscedasticity.

#### CUSUM Test

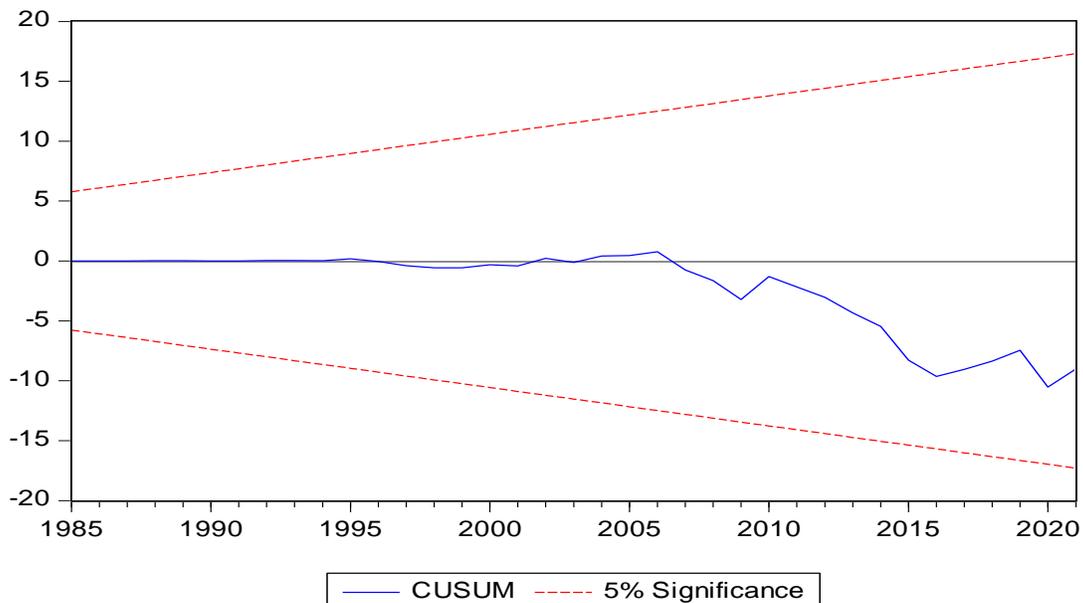


Figure 1: Cumulative Sum (CUSUM) Test



In an attempt to ensure that the ARDL model is well fitted, the study employs cumulative sum (CUSUM) test developed by Durbin, Brown, and Evans (1975). The test decision is that, if the plotted CUSUM statistics lies within 5% significance level, the coefficient estimates are accepted. Figure 1 shows that the CUSUM plot falls within the 5% level of significant (indicated by the two red lines). This shows that the model is stable and not spurious.

### **Discussion of Findings**

The study empirically examines the effect of inflation on Nigeria economic growth. The study runs through the period of 40 years (1981 -2021).

The ARDL long-run result for the focal variable (inflation rate) reveals insignificant negative relationship with the growth of the economy. This result congruent the monetarist view and the works of Anidiobu *et al.* (2018), D. Chude and N. Chude (2015), Enejoh and Tsauni (2017) who in their study found that inflation rate has negative and insignificant effect on economic growth in Nigeria. The study is inconsistent with the works of Al-Taeshi (2016), Denbel *et al.* (2016), Idris and Suleiman (2019), Kasidi and Mwakanemela (2015), Manoel (2010), Mkhathswa *et al.* (2015) and also disagrees with the structuralist view. This result implies that inflation undermines the growth of the economy in the long run. This is because inflation reduces the purchasing power of money, thereby discouraging investment, which could have induced growth prospects of the economy. This result is consistent with a priori expectation earlier stated in this study.

### **CONCLUSION AND RECOMMENDATIONS**

The study begins with descriptive statistics of the variables to ensure that they are normally distributed. This is followed by trend analysis on inflation rate in Nigeria from 1981 to 2021, while time series properties of the data were explored using Augmented Dickey-Fuller (ADF) unit root test. This is a pre-condition for autoregressive distributed lag (ARDL) bound test approach to co-integration. After that, diagnostic tests were performed using serial correlation test, and cumulative sum (CUSUM) test in order to validate the result. The study shows that inflation is one of the macroeconomic variables that undermine the growth of an economy. Efforts by the monetary agencies to tackle this menace have not yielded positive long-run response. Findings from the study indicate and conclude that inflation rate exert a insignificant negative effect on economic growth, As a result, the study recommends that a more pragmatic effort is needed by the monetary authorities to target the inflation vigorously to prevent its adverse effect by ensuring a tolerable rate that would stimulate the economic growth in Nigeria. Also, the study recommends that a more realistic effort is necessary by the monetary authorities to target inflation strongly by reducing inflation to a single digit as contained in the economic recovery growth plan (2017) should be enforced to prevent its adverse effect by ensuring a modest rate that would stimulate the economic growth in Nigeria.



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**APPENDIX**

<b>YEAR</b>	<b>GDP</b>	<b>INF</b>
1981	139.3	20.81
1982	149.1	7.7
1983	158.8	23.21
1984	165.9	17.82
1985	187.8	7.74
1986	198.1	13.7
1987	244.7	9.7
1988	315.6	61.2
1989	414.9	44.7
1990	494.6	3.6
1991	590.1	23
1992	906.0	48.8
1993	1,257.2	61.3
1994	1,768.8	76.8
1995	3,100.2	51.6
1996	4,086.1	14.3
1997	4,418.7	10.2
1998	4,805.2	11.9
1999	5,482.4	0.2
2000	7,062.8	14.5
2001	8,234.5	16.5
2002	11,501.5	12.2
2003	13,557.0	23.8
2004	18,124.1	10
2005	23,121.9	11.6
2006	30,375.2	8.5
2007	34,675.9	6.6
2008	39,954.2	15.1
2009	43,461.5	12
2010	55,469.4	11.8
2011	63,713.4	10.3
2012	72,599.6	12
2013	81,010.0	8.48
2014	90,137.0	8.06
2015	95,177.7	9.6
2016	102,575.4	18.6



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2017	114,899.2	15.4
2018	129,086.9	12.09
2019	145,639.1	11.98
2020	154,252.3	15.75
2021	173,535.9	16.9

Source, CBN Statistical Bulletin (2021)