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Inflation and Economic Growth Nexus in Nigeria

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Abstract
The study examined the nexus between inflation trend and economic growth pattern in Nigeria for the period 1980 to 2020. The data for the study was sourced from Central Bank of Nigeria (CBN) Statistical Bulletin covering 41 years and was analyzed using Auto Regressive Distributed Lag (ARDL) bound testing model. The empirical findings of the study revealed that inflation exerts a negative significant effect on economic growth in the long run. Hence, in Nigeria, inflation has adverse and deleterious effects on the economy. The study therefore recommended that government through the monetary authorities should always target and monitor the rate of inflation so as to ensure it remains within the targeted region and does not spiral out of control as to negatively affect the economy.
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1. Introduction

The relationship between inflation and economic growth has been of great concern to most countries and economies across the world. Achieving sustainable high economic growth and low inflation has become the most common objective of macroeconomic policy in both developed and developing economies. Over the years, the question on the existence and nature of the relationship between inflation and growth has been the subject of considerable interest and debate. The debate has remained perennial and has attracted substantial theoretical and empirical efforts. For instance, while the structural theorists argue that inflation is crucial for economic growth, the monetarists on the other hand posit that inflation is harmful to economic growth. The two basic aspects of the debate relate to the presence as well as the nature of the relationship between inflation and growth and the direction of causality.

Inflation is defined as the rate of increase in prices over a given period of time. It is typically a broad measure of the overall increase in prices or the increase in the cost of living in a country. Economic growth on the

other hand refers to the ability of an economy to increase its productive capacity through which it becomes more capable of producing additional units of goods and services (Fatukasi, 2012).

For Nigeria, studying the relationship between inflation and economic growth is a vital one considering the adverse effects of inflation on the economy. For instance, the formulation and implementation of monetary policy by the Central Bank of Nigeria (CBN) is aimed at maintaining price stability which is consistent with the achievement of sustainable economic growth. According to Umaru and Zubairu (2012) the emphasis given to price stability in the conduct of monetary policy is with a view to promoting sustainable growth and development as well as strengthening the purchasing power of the domestic currency amongst others.

High inflation is known to have many adverse effects: it imposes welfare costs on the society; impedes efficient resource allocation by obscuring the signaling role of relative price changes; discourages savings and investment by creating uncertainty about future prices; inhibits financial development by making intermediation more costly; hits the poor excessively, because they do not hold financial assets that provide a hedge against inflation; and reduces a country's international competitiveness by making its exports relatively more expensive, thus impacting negatively on the balance of payments, and perhaps more importantly, reduces long-term economic growth (Ghosh & Phillips, 1998; Khan & Senhadji, 2001; Billi & Khan, 2008; Frimpong & Oteng-Abayie, 2010). Overall, businesses and households are thought to perform poorly in periods of high and unpredictable inflation, Barro (1995).

International Monetary Fund (IMF) World Economic Outlook (2011) revealed that the Nigeria's GDP tends to be low when the inflation rates are high apart from a few years of the 80's, for example; in 1988, GDP growth rate was relatively high amidst the high inflationary levels at that time. This could be attributed to the increased domestic productive activities which was the major thrust of SAP whereby domestic output increased. According to Central Bank of Nigeria (2020), in 1986, the rate of inflation in Nigeria was 5.39% with the GDP growth rate of 0.06%; in 1987 the rate of inflation rose to 10.18 percent with GDP growth rate also increasing to 3.20%. The inflation rate rose sharply to 56.04 and 50.47 respectively in 1988 and 1989 with the GDP growth rate of 7.33% and 1.92% within these years. In 1990, the rate of inflation was stabilized to 7.895 with the GDP growth rate of 11.78% experienced since the introduction of SAP in 1986. 1n 1992 the rate of inflation in Nigeria was 44.8 with the GDP growth of 4.63%. In 1993 the rate of inflation in Nigeria was 57.2 with the GDP growth of -2.04%. In 1994 the rate of inflation in Nigeria was 57.0 with the GDP growth of -1.81%

while in 1995 the rate of inflation in Nigeria was 72.8% with the GDP growth of -0.07%. In 2000 the rate of inflation in Nigeria fell to 6.94% with the GDP gr. In 2005 the rate of inflation in Nigeria rose to 17.8% with the GDP growth of 6.44%. In 2010 the rate of inflation was 13.7% with the GDP growth of 8.01%. In 2016 the rate of inflation rose to 18.5% before falling to 15.4% in 2017 with a further fall to 11.4% in 2018. However in 2019 it rose to 11.98% and rose further to 15.75%. On the other hand the GDP growth rates for 2016, 2017, 2018, 2019 and 2020 were -1.62%, 0.81%, 1.92%, 2.21% and -1.79% respectively (See Figure 1 in Appendix).

Although the debate about the precise relationship between these two variables is still open, the continuing research on this issue has uncovered some important results. In particular it is generally accepted that inflation has negative effect on medium and long term growth (Bruno & Easterly, 1998). However the study of Umaru and Zubairu (2012) found that inflation has positive effects on economic growth. It is in the light of the above, that the present research effort is set out to determine the effect of inflation on economic growth in Nigeria. In essence the study will seek to answer the research question as to what is the relationship between inflation and economic growth in Nigeria. Secondly, is there any long-run relationship between inflation and economic growth? Answering the above research questions would help us to see whether, how and to what extent inflation affects financial economic growth in Nigeria.

The rest of this paper is structured as follows; Section II deals with the literature review while section III describes the methodology to be used followed by a discussion of major findings and result in section IV while section V concludes the study.

2. Literature Review

2.1 Theoretical Review

2.1.1 Quantity Theory of Money

According to Totonchi (2011), the quantity theory of money is the oldest extant economic philosophy that links changes in the quantity of money in circulation to changes in the general level of prices. This suggests that an economy's inflationary or non-inflationary level is determined by its money supply. This theory was used to analyze inflation by the classical and some neo-classical schools of thought. The first dynamic mechanism of how the influence of monetary changes spread from one sector of the economy to another, changing relative prices and quantities, was presented by David Hume. David Ricardo on the other hand argued that inflation in the United Kingdom was caused by the Bank of England's irresponsibility in the issuance of money and he dismissed the notion of increased output and

employment as a result of monetary injections. The famous exchange equation (MV = PT) was introduced by Fisher.

2.1.2 Monetary Theory of Inflation

This school of thought is known as modern quantity theory of money, and it believes that inflation is always and everywhere a monetary phenomenon that results from a faster increase of money than output. Inflation occurs when the money supply grows faster than national income growth. According to Totonchi (2011), the monetarist's i.e. followers of Milton Friedman employed the familiar identity of exchange equation of Fisher i.e Quantity theory of Money (Fisher version). MV = PT Where: M = money supply; V = velocity of circulation; P = price level; T = transactions. T was believed to measure output and as such is often substituted for Y (national income). The above equation must hold (MV = PY), that is, the rate of expenditure must equal the value of output. However, they argue that it is unwarranted increases in the money supply that manifest in inflation.

2.1.3 Keynesian Theory of Inflation

Demand pull inflation, according to John Maynard Keynes (1883 – 1946) and his followers, is caused by an increase in aggregate demand. When the total demand for goods and services exceeds the aggregate supply and provision of products and services in the economy. Consumption, investment, and government spending are all part of aggregate demand in this context. According to Totonchi (2011), policies that reduce each component of total demand are effective in reducing demand pressure and, consequently, inflation. This entails cutting government spending, raising taxes, and tightening control over the amount of money in circulation. The aggregate demand (AD) and aggregate supply (AS) curves were used by Keynesians in their model to depict the inflation-growth nexus. They demonstrated that the AS curve slopes upward rather than vertical. If AS is vertical, changes in the economy's AD will only effect prices; however, if AS is upward sloping, changes in the economy's AD will affect both prices and output. They argued that changes in expectations, labor, pricing of other production variables, and fiscal and monetary policy drive inflation and output in the short run.

However in the long run, those factors and the shock to the economy's steady state result in "dynamic adjustment" of the model through a path which exhibits initial positive inflation-growth relationship and returns to negative at the latter part of the adjustment path (Dornbusch, Fischer & Kearney 1996). The model also points out that the economy does not immediately go to a higher inflation rate, but rather has a transitional route

that sees inflation rise and then fall. As empirical literatures have shown, the negative relationship anticipated for output growth and inflation often occurs in practice. There is no permanent trade-off between the two variables under this model.

2.1.4 Cost Push Theory of Inflation

This type of inflation grew more prevalent in the 1950s and 1970s, and it was dubbed "New inflation". It was thought to be linked to a rise in the cost of manufacturing as a result of pay increases or higher input prices. According to Totonchi (2011), when labor unions demand higher salaries from businesses, if they are given, the firms will raise the cost of their products, resulting in cost push inflation. He added that the resulting price increase may have an impact on other businesses that utilize the products whose costs have risen, causing their prices to rise as well. This spiral trend might be on a national scale and could last for a long time.

2.1.5 Structural Inflation Theory

According to this theory, economic structural issues are linked to increased or decreased demand, as well as increased or decreased supply. According to Totonchi (2011), structural improvement leads to rapid economic growth, and if less developed countries do not reform their deeply embedded undeveloped structure, they would inevitably face inflation. He also connects structural inflation, as defined by structuralism, to population expansion and immigration-driven growth in the service sector.

2.1.6 Rational Expectations Theory

The theory of Rational Expectations, popularized by Lucas (1972) and McCallum and Goodfriend (1987), dominated the macroeconomic revolution of the 1970s. Their main assumption is that economic actors create rational macroeconomic expectations based on all current and historical relevant information, rather than just past knowledge as in backward-looking or adaptive pricing expectations. For instance, people expect prices to rise if the monetary authority announces a monetary stimulus in advance. According to them, this will cause economic agents to make forward-looking rational-expectation adjustments, ensuring that the monetary authority's policy prescription or declaration would fail. In contrast, if a policymaker announces anti-inflationary policy in advance, the policy will not achieve its intended aim if people do not believe the government would actually carry it through, according to the theory.

2.2 Empirical Review

Fischer (1993) used a data collection of 93 nations to investigate the relationship between inflation and economic growth. He applied a simple alternative to mixed regression. The result of the study demonstrated that inflation has an impact on economic growth through lowering investment and the rate of productivity growth. Fisher further claimed that inflation distorts the price mechanism, which impairs the efficiency of resource allocation and, as a result, has a detrimental impact on economic growth.

Moltey (1994) incorporates inflation into his model to investigate the impact of inflation on real GDP growth rates. He adds to Mankiw, Romer, and Weil (1992) model, which was based on the Solow growth model, by allowing for the possibility that inflation slows the rate of technical change. The result indicated a negative relationship between inflation and the growth rate of real GDP.

Barro (1995) also examined the link between inflation and economic growth. He used data from 100 nations spanning 30 years, from 1960 to 1990. In addition to inflation, he took into account other factors that influence economic growth. Systems of regression equations were utilized to examine the data. According to the regression results, an increase in average inflation of 10% per year reduces the growth rate of real per capita GDP by 0.2 percent - 0.3 percent per year and lowers the investment-to-GDP ratio by 0.4 percent - 0.6 percent. However, only when high inflation experiences are included in the sample does the finding become statistically significant.

The empirical literature also provides evidence that supports Tobin (1965) finding of a positive link between economic growth and inflation. Some of the research that show a positive association between the two variables include Mallik and Chowdhury (2001). They came to this conclusion by analyzing data from four south Asian nations (Bangladesh, India, Pakistan, and Sri Lanka) and discovered a long-run positive relationship between inflation and economic growth using a co-integration and error correction model and hence concluded that moderate inflation promotes faster economic growth. In agreement, Ghosh and Phillips (1998) found that at very low inflation rates (less than 2-3 percent) inflation and growth are positively related.

Some empirical investigations, on the other hand, found no link between inflation and economic growth. For example, Sidrauski (1967) claims that inflation has no long-term association with growth. Furthermore, in his model, he demonstrates the extraordinary neutrality of money. In addition to Sidrauski (1967), Bruno and Easterly (1995) found no correlation between inflation and economic growth in their analysis. The found this result after removing high inflation observations.

Erbaykal and Okuyan (2008) examined the relationship between inflation and economic growth for Turkey within the period of 1987 to 2006 and found out that there exists a negative and significant relationship in the short run but no significant relationship was found between the two variables in through long run. They further carried out causality test between the two variables with the results establishing a causality relationship.

Omoke (2010) investigated the relationship between Nigerian inflation and economic growth. From 1970 to 2005 employing co-integration and the Granger causality test. The empirical result of the study revealed that there was no co-integrating relationship between inflation and economic growth for Nigeria within the period under review. The result of the vector auto regression-Granger causality results indicated a unidirectional causality between inflation and economic growth.

Using Ordinary Least Squares estimation technique and Granger Causality test, Umaru and Zubairu (2012), in their own study as it relates to Nigeria found that inflation had a beneficial impact on economic growth in Nigeria by increasing productivity, production level, and total factor productivity. In conclusion, the study argued that a good performance of an economy in terms of per capita growth may therefore be attributed to the rate of inflation and therefore recommended that concerted effort should be made by policy makers to increase the level of output in Nigeria by improving productivity/supply in order to reduce the prices of goods and services (inflation) so as to boost the growth of the economy. In contrast, Eze (2015) found that inflation is inversely related to economic growth in Nigeria. Utilizing Johansen Co-integration technique and error correction model, the study found that a one percent increase in inflation rate led to 45% decrease in economic growth. The study therefore recommended that the Central Bank of Nigeria should vigorously and transparently pursue its policy on inflation targeting to reduce the negative effect of inflation on economic growth in Nigeria.

Doguwa (2012) re-examined the existence and level of an inflation threshold in the link between inflation and growth in Nigeria, employing several methodologies that give adequate procedures for calculating and inferring the threshold level. The result suggested a two-threshold points, with acceptable inflation threshold values of 11.2 percent and 12.0 percent. According to these findings, Nigeria's inflation threshold, above which inflation is damaging to economy, is projected to be 10.5-12 percent.

In his study, Bayo (2013) looked at the factors that influenced inflation in Nigeria between 1981 and 2003. Fiscal deficits, money supply, interest, and exchange rates all had a positive and significant impact on Nigeria's inflation rate during the study period, indicating that the causes of

inflation are multi-faceted. Mbutor (2014) investigated the impact of Nigeria's money supply on inflation. The impulse response function revealed that inflation and money supply have a long-term positive relationship. The variance decomposition of inflation, on the other hand, revealed that GDP was the most important contributor to inflationary developments in Nigeria, and that the money supply accounts for half of all price fluctuations.

Shuaib, Ekeria, and Ogedengbe (2015) examined the impact of inflation rate on the economic growth in Nigeria, exploring secondary data for the period of 1960 to 2012. The empirical result of the test showed that for the period covered by the study, there was no co-integrating relationship between Inflation and economic growth for Nigeria data. Moreover, the Granger causality test showed that there was no causal relationship between inflation and economic growth.

Chude and Chude (2015) analyzed the relationship between inflation and economic growth in Nigeria from 2000 to 2009, using the OLS technique of analysis. The findings indicate that there is strong relationship between inflation and economic growth in Nigeria, and that exchange rate exerts positive impact on economic growth and that high interest rate is shown to be negatively related to growth. In conclusion, the study recommended that a more realistic approach is needed by the monetary authorities to target the inflation headlong so as to reduce its adverse effects on the economy.

Nyongesa, Eunice and Odhiambo (2017) examined the Relationship between Inflation and Economic Growth in East African Community Countries from 1990 – 2004 applying panel data set and Least Square estimation technique with fixed effects. The study found that inflation had a negative significant effect on economic growth. Doan Van (2020) looked at money supply and inflation impact on economic growth in the case of Vietnam and China from 2012 to 2016 using econometric model. The study found that in the long run, continuous increase in money supply causes inflation while in the short run continuous increase in money supply growth does not cause inflation. The study further found that China and Vietnam's correlations of the money supply growth and inflation are 99.1 per cent.

Mehmet (2021) examined the effect of inflation on economic growth in the case of US and Turkey using time-series data analysis covering the period 1990 to 2019. The results from the empirical analysis showed that inflation does not have any significant effect on GDP in the long run for both countries but is effective in the short run. Baumann, Enzo and Volkmann (2021) sought to analyze the factors that determine inflation using a large panel of 122 countries from 1997 to 2015 and boosting algorithm which outperforms theory-based models. The study found that the major determinants of inflation are energy price, energy rents, exchange rate

arrangement, GDP per capita and demographic developments. Contrary to popular belief, globalization and technology, public debt, credit growth, central bank independence and transparency as well as countries' political characteristics were found to be less relevant factors determining inflation.

Shelter, Kehinde and Mashapa (2022) analyzed the effect of inflation targeting (IT) policy on inflation uncertainty and economic growth in African and European IT countries using Generalized Autoregressive Conditional Heteroscedasticity (GARCH) and Panel Vector Autoregressive (PVAR). Overall, the study found that European countries inflation targeting regimes are more credible in terms of reducing the level of inflation uncertainty and sustaining economic growth compared to African countries. In this respect, policymakers must ensure that they assess the economic condition of an individual country before implementing such a policy.

Hakan (2022) investigated the effect of inflation on per capita income growth for 36 developed and developing countries by using structural vector auto regression models that are robust to the consideration of endogeneity by construction. The empirical result of the study showed that the effect of inflation on growth is negative and significant in countries with stronger institutions and positive and significant in countries with weaker institutions.

3. Methodology

The study employs Auto Regressive Distributed Lag (ARDL) Bound testing model proposed by Pesaran, Shin and Smith (2001), which is commonly used to investigate the long-run links between variables. In comparison with other known co integration methods, the ARDL approach allows different optimal lags for the variables and is a very useful tool since it substantially improves the small-sample properties of the estimates regardless of the nature of the time series, stationary or not. Thus, the advantage of this model is in its applicability irrespective of whether the underlying variables are purely stationary I (0) or non-stationary I (1). The design seeks to determine whether and to what degree the relationship exists between the quantifiable variables.

3.1 Model Specification

In order to capture the main objective of our study which is to examine the effect of inflation on Nigeria economic growth the study will employ the Auto Regressive Distributed Lag (ARDL) bounds testing approach as developed by Perasan et al (2001) anchored on the Keynesian Theory of Inflation. The research will be guided by the model specified below; first in its functional form then transformed into an ARDL model

following Omoke (2010), Umaru and Zubaru (2012) and Nyongesa et al (2017)

$$GDPG = (INF, INT, EXCHR) \quad 1$$

Where;
GDPG = Gross domestics product as proxy for economic growth
INF= Inflation rate
INT= Interest rate
EXCHR= Exchange rate

$$GDPG_t = \alpha_0 + \alpha_1 INF + \alpha_2 INT + \alpha_3 EXCHR + U_t \quad 2$$

$$\Delta GDPG_t = \alpha_0 + \beta_1 \sum_{i=1}^{n} \Delta GDPG_{t-i} + \beta_2 \sum_{i=1}^{n} \Delta INF_{t-i} + \beta_3 \sum_{i=1}^{n} \Delta INT_{t-i} + \beta_4 \Delta EXCHR_{t-i} + \beta_5 GDPG_{t-i} + \beta_6 INF_{t-i} + \beta_7 INT_{t-i} + \beta_8 EXCHR_{t-i} + U_t \quad 3$$

Where: α_5, α_6 α_7 and α_8 = long run coefficient; α_1, α_2, α_3 and α_4 = Short run coefficient; μ_t = white noise error term; Δ= first difference operator and i is the lag length. The bounds test involves performing the F-test on the null hypothesis of no co integration (i.e. Ho: $\alpha_5 = 0$; $\alpha_6 = 0$; $\alpha_7 = 0$; $\alpha_8 = 0$) against the alternative: H_1: $\alpha_5 \neq 0; \alpha_6 \neq 0; \alpha_7 \neq 0; \alpha_8 \neq 0$). When the computed F-statistic exceeds the upper critical bounds value then the Ho hypothesis is rejected. When the F-statistic is lower than the lower bounds value then the null hypothesis of no co integration cannot be rejected. However, when the F statistic falls within the bounds, the co-integration test becomes inconclusive. The data for this study will be sourced from Central Bank of Nigeria [CBN], 2020 and will cover the period 1980 to 2020.

4. Results and Discussion

4.1 Unit Root Test Result

In order to test for the unit root property of the series, the study adopted Augmented Dickey-Fuller (ADF). The result of the ADF test is presented in the table 1 below.

Table 1: Augmented Dickey Fuller (ADF) Test

Variable	Level Form		First Difference		Order of Integration
	ADF Stat	5% Critical Value	ADF Stat	5% Critical Value	
GDPG	-5.359761	-2.941145			I (0)
INF	-3.209245	-2.941145			I (0)
INT	-2.582694	-2.941145	-6.867883	-2.943427	I (1)
EXCHR	-1.806123	-2.941145	-4.259541	-2.943427	I (1)

Source: Author's Computation using E-Views 9, 2022

The ADF unit root test result reported in table 1 showed that Inflation (INF) and GDP growth rate (GDPG) were stationary at level forms indicating that they did not possess unit roots. Interest rate (INT) and exchange rate (EXCHR) on the other hand possessed unit roots hence were differenced to make them stationary. From the table above it could be seen that the stationarity properties of the variables are a combination of I (0) and I (1) therefore making the use of ARDL bounds testing technique for co integration very appropriate for the study.

4.1.2 Co integration Test Result

Having established that the variables used in this study are integrated of order zero and order one, the ARDL bounds test for co integration was carried out and the result is presented in

Table 2: ARDL Bounds Test Result

Computed F- Statistics: 8.49* **	**I(0)**	**I(1)**
Critical Value Bounds (10%)	2.72	3.77
Critical Value Bounds (5%)	3.23	4.35
Critical Value Bounds (2.5%)	3.69	4.89
Critical Value Bounds (1%)	4.29	5.61

***** denotes 1% level of significance**

Source: Author's Computation using E-Views 9, 2022

The results of the bounds test presented in Table 2 above revealed that the computed F-statistics (8.49) exceeds the upper bound critical value (5.61) at 1% level of significance thereby establishing the presence of co integration. This implies that there is a stable long run relationship between inflation (INF) and economic growth measured by the growth rate of Gross domestic product (GDPG).

4.2 Result of ARDL Model Estimation

Table 3: Results of ARDL model (3, 2, 2, 4)

Panel A: Long Run Coefficients – Dependent Variable is GDPG				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
INF	-0.127448	0.050932	-2.502311	0.0178
INT	1.467649	0.457425	3.208502	0.0044
EXCHR	-0.111390	0.036103	-3.085358	0.0058
C	2.597832	7.666013	0.338877	0.7382
Panel B: Short Run Coefficients – Dependent Variable is D (GDPG)				

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.072400	6.057376	0.342128	0.7358
D(GDPG(-1))	0.131479	0.133014	0.988462	0.3347
D(GDPG(-2))	0.085053	0.035233	2.414016	0.0255
D(INF)	0.180696	0.088132	2.050296	0.0524
D(INF(-1))	0.248300	0.087604	2.834334	0.0097
D(INT)	0.207672	0.287606	0.722072	0.4786
D(INT(-1))	-1.869975	0.336371	-5.559262	0.0000
D(EXCHR)	-0.228189	0.075027	-3.041438	0.0064
D(EXCHR(-1))	0.494456	0.118563	4.170401	0.0005
D(EXCHR(-2))	-0.442414	0.119350	-3.706858	0.0014
D(EXCHR(-3))	0.202246	0.082904	2.439518	0.0241
ECM (-1)	-0.797742	0.163461	-4.880320	0.0001
R-squared = 0.893785		F-Statistic = 12.02122		DW Stat = 2.166720
Adjusted R-squared = 0.819434				

Source: Author's Computation using E-Views 9, 2022

The estimated coefficients of the long relationship in Panel A of Table 3 above showed that there is a negative significant long run relationship between inflation and economic growth in Nigeria. This implies that an increase in Inflation will lead to a decrease in economic growth. From the result a 1% increase in INF will lead to 12.7% decrease in economic growth. This finding is consistent with economic theory and also with the empirical study of Eze (2015) and Nyongesa et al (2017).

It is further observed that interest rate (INT) has a positive significant relationship with economic growth in Nigeria in the long run. This positive relationship is in line with financial repression hypothesis argues that higher real interest rate aids the channeling of funds to the most productive enterprises and facilitate technological innovation and development. In the short run it was observed that interest rate at the current period had a positive but statistically insignificant relationship with economic growth. We arrived at this conclusion because its t-statistic value (0.722) was less than 2 using the rule of thumb even though their positive coefficient is in line with a priori economic expectation. However at lag one interest rate became negative and statistically significant. Exchange rate on the other hand had a negative significant relationship with economic growth both in the short and long run.

Finally, the adjusted coefficient of multiple determinations ($R^{2)}$ is estimated to be 0.8194 implying that inflation rate (INF), interest rate (INT) and exchange rate (EXCHR) explained about 81.94% of the total variations in economic growth (GDPG) in Nigeria. This shows excellent goodness of fit and the excellent goodness of fit of this model is further corroborated by the

high estimated F-statistics which is 12.02 and is statistically significant at five percent. The Durbin – Watson statistic is estimated to be 2.17 implying that the model is free from the problem of auto correlation. A similar result of no autocorrelation was obtained using Breusch Godfrey serial correlation LM Test. As shown in the table below, since the f-statistics of serial correlation, heteroscedasticity and Normality are not statistically significant then the model can be adjudged to have passed these tests.

Table 4: ARDL Model Diagnostic Tests

	F-Statistics	Prob
Serial Correlation	0.436	[0.653]
Heteroscedasticity	0.378	[0.738]
Normality	2.337	[0.310]

Source: Author's Computation using E-Views 9, 2022

5. Conclusion and Recommendations

The present research study investigated the effect of inflation on economic growth in Nigeria from 1980 – 2020. Following a detailed time series analysis which involved the use Augmented Dickey-Fuller unit root test and ARDL – Bounds Testing Procedure, the empirical result revealed the following. The result of the ARDL Bounds testing procedure revealed that there exist a long run relationship between inflation and economic growth in Nigeria. The ARDL model result further revealed that Inflation had a positive significant impact on economic growth in the short run suggesting that an increase in inflation rate encourages growth in the short run. However, in the long run, the result of the ARDL model showed that inflation had a negative significant impact on economic growth. The implication of this major finding is that while inflation encouraged growth in the short run in the long run however it inhibited growth. Interest rate had a positive significant relationship with economic growth in the long run while in the short run it had a negative significant relationship. Exchange rate on the other hand had a negative significant relationship with economic growth in Nigeria both in the short and long run.

Based on the findings above, the study recommends the following; one, Government should formulate and implement policies that will minimize the negative effect of inflation on economic growth in Nigeria especially in the long run. One way this can be done is by boosting capital formation activities that will stimulate production which aids economic growth. Two. the Central Bank must control and monitor variables such as interest rates and exchange rates that affect inflation and in turn, economic growth in Nigeria, in order to create stability between these variables and limit the risk posed by these variables. Finally, despite the fact that our

empirical result showed a positive significant relationship between inflation and economic growth in the short run in Nigeria, government through the monetary authorities should always monitor the rate of inflation so as to ensure it remains within the acceptable region and does not spiral out of control as to negatively affect the economy. Consequently, it is advised that both supply side and demand control measures be used to reduce inflation both in the short and long run.

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Appendix

Appendix 1: Inflation rates and Economic growth from 1980 to 2020