

The Determinants of Inflation in Nigerian Economy: Impact Analysis

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Abstract

This research was designed to investigate the determinants of inflation in the Nigerian Economy from 1981 to 2023. Time series data were obtained from the Central Bank of Nigeria Statistical Bulletin and World Development Indicator. Inflation (INFR) represents dependent variable while Total Export (EXP), Total Import (IMP), Government Expenditure (GEXP), Exchange Rate (EXCH) and Interest Rate (INT) all represent the explanatory variables. The paper used the Autoregressive Distributed Lag approach (ARDL), co-integration test and an error correction model to examine the determinants of inflation in Nigeria. The anticipated coefficients of the variables specified that all the variables are integrated in the same order 1(1) exception of IMP which was integrated of order 1(0). IMP, GEXP, EXCH and INT were inversely related with inflation in the short run exception of EXP that is positively related with inflation. In the long run, all the variables were negative with significant impact on inflation in Nigeria exception of export and exchange rate that were positively related with inflation but the exchange rate alone was not statistically significant. The government should ensure that monetary policy of central bank is on the same page as fiscal policy of the federal Ministry of Finance. Government should discourage border closure policy in the economy. The government should use interest rate as a tool to control inflation in the economy. Inversely, when inflation is high the government can raise interest rates to slow down the economic activities and vice versa.

Key Words: Inflation, exchange rate, government expenditure, ARDL, Nigeria

1.0 Introduction

The concept of inflation has become a major topic of debate among global economists, apex bankers, practitioners, policy makers and other scholars both in the industrialised and third-world nations. The essence of this global debate on the concept of inflation is to maintain high macroeconomic stability, fish-out inflation determinants and to attain low, one-digit inflation target (Charles, Gilbert and Emerenini, 2022). From the experiences in both developed and

developing countries, high inflationary pressure disrupts the smooth functioning of market economy (Akosile, (2024). The impact of inflation, viewing it at the individual level, has a multiplier effect especially on those with fixed sources of income, favouring borrowers at the expense of lenders. At the level of a firm, it affects the total output as firms are forced to adjust to the new price in the face of high cost of factor inputs while government spends more than its annual budget. The determinants of inflation in Nigeria's economy is glaring and its impacts affect all facets of the economic activities ranging from individual consumers, firms, traders down to government respectively (Fr Andrew et al, 2025).

Acharya and Joshi (2024) defined inflation as a continuous rise in general price level of goods and services in an economy and this is of major concern to all stakeholders. The authors further stressed that this persistence or continuous increase in prices of goods and services are the most serious economic problems confronting the economy of Nigeria. In addition to this, Albahouth (2025) demonstrated that price increase is directly associated with a sharp decline in the supply of basic goods and services needed by Nigerians. Olatunji et al (2010) argue that inflation on its own erodes the purchasing power of a country's currency thereby having a multiplier effect on the value of investment and standard of living of the citizens at large. Anyanwu (1992) pointed out that the first time Nigeria experienced inflationary trend in its economy was in 1970s when global oil revenue rose sharply or suddenly. The authors later elucidated that this increase in oil revenue was accompanied by a remarkable increase in public expenditure leading to a corresponding increase in aggregate demand in the economy. On the contrary, (Nwachukwu & Yaba, 2014) argued that the situation was further worsened by an increased in money supply which later led to the monetisation of the earnings from oil revenue and upward increase in wages called Udoji Salary Awards of 1974.

The proponents of cost-push inflation argue that inflationary pressure brings an increase in the cost of production arising from a rise in wages, interest rate, and increase in costs of raw materials imported, power supply, transport and other factors of production. (Charles Gilbert & Emerenini, 2022) maintain that whenever inflation is at its climax, there is always a sharp decrease in productivity of labour employed and outputs from production. In addition to this, Nwachukwu Yaba and Dibia (2014) demonstrated that the proponents of demand-pull inflation are of the view

that inflation is primarily caused by movements in the interest rates while the structuralists believe that inflation arises as a result of low inelastic supply of agricultural products due to natural and man-made cause in the agricultural sector and foreign exchange shortages in the economy.

In clear terms, the structuralists argued that inflation is fundamental for economic growth but the popular monetarist school of thought argued that inflation is detrimental to economic growth and vice versa (Adeleye et al, 2020). Nell (2000) observed that single digit inflation stimulates economic growth while double digits inhibit steady growth of the economy. On the other hand, the author further lamented that zero inflation is harmful or severe to other productive sectors of the economy with falling price, profit, employment and aggregate demand respectively. In fact, the importance of inflation is captioned on the distortions that high inflation can pressure on domestic macroeconomic stability, with the potential to wreck the economy from the path of sustainable economic growth and development at a given time period (Nwachukwu, Yaba and, 2014).

Generally, galloping inflation has unprecedented impacts on an economy because it disrupts the price mechanism system and discourages investment and savings leading to the break down on morals (Zubair, Adams and Aniagolu, 2022). Nigerian inflation rate grew to 13.7 percent in April 2016, 0.9 percent higher than the previous month level of 12.8 percent. The cost-push inflation is driven primarily by the severe scarcity of petroleum products which had led to a general increase in the factor inputs prices. Inflation has further increased to 17.6 percent in August, a fresh 11-year higher and the seven monthly increases in a row (Zubair, Adams and Aniagolu, 2022; Olasunkanmi & Oladipo, 2020). In spite of these negative consequences of inflation in Nigerian and some West African economies, the conduct of academic researches on inflation determinants are very scanty within the region. The purpose of this paper is therefore to empirically investigate the determinants of inflation in Nigerian economy.

2.0 Literature Review

2.1 Theoretical Literature

Theoretical literature on the determinants of inflation is pre-occupied with conflicting interpretations by different scholars regarding to the causes of inflation in the economy. There are

several theories that elucidate the real causes of inflation (Okeke, Ohazulume and Emerenimi, 2022). However, most of these theories are premised on the basis of demand-pull inflation and cost-push inflation theories. In spite of these, there are still controversies surrounding these two theories mentioned above (Otto & Ukpere, 2016; Putri et al., 2024). Below are the theoretical explanations as postulated by various economists and other schools of thought:

2.1.1 Demand-Pull or Monetary Theory of Inflation

Demand-pull or monetary theory of inflation explains that inflation arises in an economy when the aggregate demand for goods and services exceeds aggregate supply of goods and services in an economy over a time period, thereby leading to a general increase in price levels (Otto & Ukpere, 2016). This theory is of the view that expansionary fiscal and monetary policies of government and central bank are major factors responsible for increasing the price level (Ogbokor & Sunde 2011; Nazima, 2017). The demand-pull inflation may also be called surplus demand inflation because it arises from too much money chasing too few goods and services (Akosile, 2024).

To support this, Albahouth (2025) pointed out that this situation was experienced during the Biafra-Nigeria war and after the Udoji Salary Awards of 1974 when wages increased astronomically. The author further argued that higher wages and salaries increased the purchasing power of consumers thereby leading to increased demand of goods and services. The pressure on commodities therefore led to increase in prices. More often, it occurs where there is full employment so that the excess pressure on the factors of production leads to higher prices for the factors of production, ultimately leading to a rise in the cost of production. It could also be a short-run phenomenon where demand dynamics were not well anticipated. When there are production constraints, demand beyond the possible output level could also create inflation (Okeke, Ohazulume and Emerenimi, 2022).

2.1.2 Cost-Push Theories of Inflation

Cost-push inflation arises when the total cost of production or factor inputs increase astronomically over time. When the cost of production increases, the producers will increase the price of their goods and services to the final consumers leading to cost push inflation in an economy (Fielding, 2010). However, Albahouth (2025) opined that depreciation of country's

currency in the face of foreign exchange rate can equally increase the prices of goods and services as most firms import the bulk of their raw materials required for production processes at an exorbitant price. Ogbokor and Sunde (2011) demonstrated that cost push inflation exists because of a rise in the prices of imported raw materials and an increase in the cost of factor inputs.

However, Otto and Ukpere (2016) noted that cost-push inflation is also known as “market power inflation” because increase in the prices of goods and services originate from the supply side of the economy. Similarly, Olatunji et al (2010) pointed out that in Nigeria, multiple taxation and corruption are also responsible for increase in general price levels. Alexander, Andow and Danpome (2015) opined that the cost-push theory maintains that prices of goods and services rise because wages are pushed up by trade unions’ bargaining power, or by the pricing policies of oligopolistic and monopolistic firms with market power. In view of the above, Acharya and Joshi (2024) elucidated that the cost-push inflation attributed inflation to a host of non-monetary supply-oriented influences of shocks that raise costs and consequently prices. In conclusion, Putri et al. (2024) argued that this school of thought attributes inflation to random non-monetary shocks such as crop failures, commodity shortages, vagaries of weather and an increase in the price of oil and among others.

2.1.3 The Structuralist Theory of Inflation

In 1987, Myrdal and Straiten propounded an inflation theory called Structuralist Theory of Inflation. This developed theory by this school of thought explained the long run inflationary pressure in developing nations in terms of structural rigidity, social tension and market imperfection or market failure, relative inelasticity of food supply, foreign exchange volatility, insecurity, rise in aggregate demand for goods and services, sharp fall in export earnings and political instabilities. The theory demonstrates that the third world countries are vulnerable to inflation due to structural rigidity which has an inverse relationship with economic growth and development. This theory captions inflation from the supply side of the economy and recognised some mechanism that cause inflationary pressure in an economy (Charles, Gilbert and Emerenini, 2022).

2.1.4 The Classical Theory of Inflation

The classical theory of inflation is factored out directly from the classical quantity theory of money which is one of the fundamental economic doctrines. The theory is embedded or enveloped in the renowned equation of exchange developed by Irving Fisher (1876 – 1947) in the 19th century. This Fisher’s equation of exchange demonstrates that $MV = PY$. However, if velocity (V) and output (Y) remained constant, then increase in money (M) will stimulate and cause prices (P) to increase proportionately (Adeleye et al., 2020). The theory assumes full employment in the economy while money is exogenously determined by the monetary policy of the apex bank. The greatest shortcoming of this theory is that it does not explain the channel (whether interest rate, wages, unemployment, demand, government spending and among others) by which an increase in money supply causes the rise in the price level (Charles, Gilbert and Emerenini, 2022).

2.1.5 The Keynesian theory of inflation

The Keynesian theory of inflation was developed and propounded by John Maynard Keynes (1883 – 1946) and the proponents of this theory are in full support for the demand-pull inflation theory. The opinion of this thought showed that inflation is primarily caused by an increase in aggregate demand of goods and services in the face of scanty aggregate supply of goods and services. The proponents use inflationary gap, the excess of aggregate demand over and above aggregate supply to elucidate the theory. Keynes argued that the larger the gap between aggregate demand and aggregate supply, the more the speediness of inflation in the economy. The Keynesian economists attribute inflation to demand pressures within the economy. In addition to these, the proponents are of the view that inflation is caused by money supply that empowers people financially to have ability to pay for goods and services (Fatukasi, 2003).

2.1.6 The Monetarists’ theory of inflation

The monetarists argue that there is a direct relationship between price and money supply. They believe that inflation is always and everywhere a monetary phenomenon. Prices are likely to increase when the rate of money supply is greater than the rate of increase in real output of goods and services (Moser, 1995). In addition, Otto and Ukpere (2016) noted that such a situation whereby any extra cash balance is spent on the acquisition of assets will give rise to excess demand for assets, which will ultimately lead to increase in the general price level, thereby leading to a rise

in inflation. In Milton Friedman's submission, the author added that only money matters and monetary policy is the potential in ensuring economic stabilisation as against the fiscal policy, which is vehemently supported by the demand-pull theory. According to the monetarists, money is the dominant but not exclusive determinant of inflation in an economy.

2.2 Empirical Literature Review

Several empirical studies are carried out at different periods in different places by different scholars to investigate the determinants of inflation in the economies with the intention of bringing inflation to a single digit or what actually cause the inflation to be low and high in a given economy. Despite these enormous studies on this topic carried out by academic scholars only a few of them are conducted in Nigeria (Charles, Gilbert and Emerenini, 2022). However, it is on that background that this research paper delves in to contribute its quota to knowledge in this regards.

Kabundi (2011) independently investigated the determinants of inflation or the main features underlying inflation in Uganda, both in the long -run and short run, using monthly data from January 1999 to October 2010 respectively. The paper employed econometric methodology called Error Correction Model (ECM) based on the quantity theory of money involving both foreign and local variables. The paper established that there is evidence of inflation inertia which can be attributed to expectations of inflation persistence.

Ratnasiri (2006) carried out an investigation on the determinants of inflation for Sri Lanka which covered the period from 1980 to 2005 employing VAR based co-integration methodology. The findings of the paper indicate that increase in money supply and the increases in rice price are the most significant determinants of inflation in Sri Lanka in both short run and long run period. The impact of GDP growth and exchange rate depreciation on inflation have been found to be negligible and statistically insignificant. The short-run effect of money supply, rice price and exchange rate impact on inflation is statistically significant. However, it is concluded that the supply side effect on inflation in Sri Lanka is obviously reflected in the price of rice.

Fatukasi and Bayo (2006) independently investigated on the determinants of inflation in Nigeria between 1981 and 2003 period. The paper selected explanatory variables as fiscal deficits, money supply, interest and exchange rates respectively and made inflation as dependent variable. The

paper employed econometric technique called ARDL. The studies concluded that the explanatory variables employed are significantly and positively impacted inflation in Nigeria during the above period under review.

Musa and Yousif (2018) conducted another research on the determinants of inflation in Sudan between 2000 to 2017 period. The paper employed the econometric technique called the Generalized Method of Moments (GMM) and explanatory variables such as inflation rate, Gross Domestic Product, Government Expenditure, Money Supply, Exchange Rate and Unemployment Rate and Consumer Price Index respectively. The data on these variables are annual time series sourced from World Development Indicator. The results depicted that all other variables are positively significant on inflation exception of money supply and unemployment that are negatively impacted on inflation.

Alexander, Andow and Danpome (2015) carried out an examination on the main determinants of inflation in Nigeria for 1986-2011 period employing the Vector Autoregressive (VAR) technique and time series data on Inflation Rate, Real Gross Domestic Product, Exchange Rate, Lending Rate and Fiscal Deficit, GDP of Agriculture, Money Supply and Import. The findings of the paper depicted that exchange rate, fiscal deficits, GDP of agriculture, money supply and import of goods and services have a long-run influence on the inflation rate in Nigeria. Only lending rates influenced inflation in the short and long-run respectively. The paper recommends a lending rate policy that promotes investment and money supply as well as interest rates that reduce the inflationary rate in Nigeria.

Uddin, Chowdhury and Hossain (2014) carried out an examination on the link between inflation rate and its determinants in Bangladesh employing the Autoregressive Distributed Lag (ARDL) technique and time series data from 1972 to 2012 period. The model expressed Inflation as a function of Gross Domestic Product, broad Money Supply, Real Exchange Rate and Interest Rate. The findings showed that the Gross Domestic Product, Money Supply and Interest Rate of the current year, as well as previous year's real Exchange and Inflation Rate, impacted positively and significantly on inflation in Bangladesh within the period under review while real exchange rate of the current year and previous year's broad money supply have a significant and negative impact on inflation.

Abidemi and Maliq (2010) investigated the dynamic and simultaneous inter-relationship between inflation and its determinants in Nigeria between the period 1970 and 2007. The paper indicated that within the periods of high monetary growth 1988, 1990, 1992-1994, inflation increased tremendously, though with some lags. Similarly, when money supply growth increased substantially, inflation accelerated as well. On the other hand, the decline in the monetary growth rate led to a decline in the inflation rate. This established the fact that there is a strong relationship between increases in money supply and inflation in the economy.

3.0 Methodology

The paper employed annual time series data covering the period from 1981 to 2023. These periods were good enough to capture the relationship between inflation and the determinants of inflation in the economy of Nigeria. These data were sourced from Central Bank of Nigeria Statistical Bulletin (2023) and World Development Indicator (2023). The study used Augmented Dickey-Fuller (ADF) Unit Root Test to make non-stationary variables stationary to address spurious results. Non-stationary series always result in spurious and misleading regression. After establishing stationarity of the data, Johansen Co-integration test is used to know whether there is a long run relationship exist among the variables in question. This study applied the Auto-Regressive Distributed Lag (ARDL) technique to regress these variables selected for the study. The data obtained were subjected to several econometric tests with the aid of e-views.

3.1 Model specification

This research paper adopted the models in Greenidge and DaCoasta (2009) and Alexander, Andow and Danpome (2015) but with adjustments due to the non-inclusion of some independent variables. The explanatory variables employed in this research include Inflation Rate (INFR), Total Import (IMP), Total Export (EXP), Government Expenditure (GEXP), Exchange Rate (EXR) and Interest Rate (INR) respectively.

The econometric form of the model is specified as: $INFR = F(IMP, EXP, GEXP, EXR, INR)$ **3.1**

The econometric equation is thus

$$INFR = \alpha_0 + \beta_1 IMP_t + \beta_2 EXP_t + \beta_3 GEXP_t + \beta_4 EXCH_t + \beta_5 INT_t + \mu_t \quad \mathbf{3.2}$$

Where:

INFR = inflation

IMP = total import

EXP = total export

GEXP = government expenditure

EXCH = exchange rate

INT= interest rate

α_0 = the constant

β_1 - β_5 = coefficients of the independent variables

μ = the error term or stochastic variable

3.2 Method of Data Analysis

For this work to establish the determinant of inflation in Nigerian economy, the paper applied Autoregressive Distributed Lag (ARDL) technique, descriptive statistics, unit root test, co-integration test and test of normality respectively. E-view 12 econometric statistical software package was used for econometric regression.

3.3 Autoregressive Distributed Lag (ARDL)

The ARDL technique was intentionally employed to assess the long-run and short-run relationship between inflation and inflation determinants in the economy between 1981-2023 period. The ARDL was chosen in this research work for the following reasons: i. ARDL calculates the model's parameters adequately. ii. It obtains accurate and impartial assessment. iii. it compares to Johansen's co-integration techniques. iv. It produces superior findings in a little sample.

The adopted ARDL model for this study takes the following form:

$$\begin{aligned} \Delta INFR_t = & \beta_0 + \beta_1 + \gamma_1 \Delta INFR_{t-1} + \gamma_2 \Delta IMP_{t-1} + \gamma_3 \Delta EXP_{t-1} + \gamma_4 \Delta GEXP_{t-1} + \\ & \gamma_5 \Delta EXCH_{t-1} + \gamma_6 \Delta INT_{t-1} + \\ & \sum_{i=1}^n \pi_1 \rho \Delta INFR_{t-1} + \sum_{i=1}^n \pi_2 \partial \Delta IMP_{t-1} + \sum_{i=1}^n \pi_3 \varphi \Delta EXP_{t-1} + \sum_{i=1}^n \pi_4 \sigma \Delta GEXP_{t-1} + \\ & \sum_{i=1}^n \pi_5 \rho \Delta EXCH_{t-1} + \sum_{i=1}^n \pi_1 \rho \Delta IMP_{t-1} + \varphi ECT_{t-1} + \mu_t \end{aligned} \quad 3.3$$

Where:

INFR = inflation

IMP = total import

EXP = total export

GEXP = government expenditure

EXCH = exchange rate

INT = interest rate

Δ = differenced operator

π = short run Parameter estimates

γ = long-run parameter estimates

β_0 = constant term

ECT = adjustment speed

φ = adjusted parameter.

3.4 Evaluation Techniques

Before the above function is estimated, both dependent and independent variables are subjected to some statistical tests like stationarity test as shown below:

3.4.1 Unit Root Test

The first step taking in testing the order of integration of the variables was Unit Root Test. The tests were conducted with and without a deterministic trend (t) for each of the individual variables selected for the study.

$$\Delta Y_t = \alpha + \beta_t + \gamma Y_{t-1} + \delta \Delta Y_{t-1} + \dots + \delta_{\rho-1} \Delta Y_{t-\rho+1} + \varepsilon_t \quad 3.4$$

Where α = constant

β_t = coefficient on a time trend

ρ = the lag order of the autoregressive process. By including lags of the order p , the Augmented Dickey Fuller (ADF) formulation gives room for higher-order autoregressive processes. The unit

root test is then carried out under the null hypothesis $\gamma = 0$ against the alternative hypothesis of $\gamma < 0$.

Significance at 5% level

3.4.2 Decision Rule

If ADFs > critical value- stationary

If ADFs < critical value- Non stationary

3.4.3 Granger Causality Test

The Granger Causality was equally used to determine the causal direction between border closure (total import) and cost of living (inflation). The easiest way to test the causal relationships between two variables is the application of Granger- Causality Test as shown below:

$$X_t = \sum_{i=1}^n \alpha_i Y_{t-1} + \sum_{j=1}^n \beta_j X_{t-1} + U_{1t} \tag{3.5}$$

$$Y_t = \sum_{i=1}^m \gamma_i Y_{t-1} + \sum_{j=1}^m \delta_j X_{t-1} + U_{2t} \tag{3.6}$$

4.0 Data Presentation, Analyses and Discussions of Results

4.1 Data Presentation

In this section, the research paper presents the data that were regressed using econometric software. This helps the research study to comprehend the relationship between inflation and its determinants in Nigeria between 1981 – 2023.

Table 1: Summary Statistics

Summary	INFR	LNIMP	LNEXP01	LNGEXP	INT	EXCH
Mean	18.66029	23.47714	23.82353	24.45870	0.453578	107.5953
Median	12.55496	23.48070	23.81840	24.49196	4.310292	111.2313
Maximum	72.83550	25.22060	25.70938	25.71382	18.18000	381.0000

Minimum	5.113699	21.47947	21.77995	23.23637	-65.85715	0.617708
Std. Dev.	16.79685	1.194120	1.078705	0.674185	14.25917	108.6647
Skewness	1.847128	-0.112825	-0.001494	0.142071	-2.717477	0.932788
Kurtosis	5.273479	1.654265	1.850727	1.930694	12.91104	3.026081
Jarque-Bera	32.14440	3.180780	2.256430	2.091260	218.2694	5.946799
Probability	0.000000	0.203846	0.323610	0.351470	0.000000	0.051129

Source: Author's Computation using E- view 12, (2025)

From the table above, descriptive statistics was computed for Inflation Rate (INFR), Import (IMP), Export (EXP), Government Expenditure (GEXP), Interest Rate (INT) and Exchange Rate (EXCH) over a period of 42 years (1981-2023). In this study, the inflation rate ranged from a minimum of 5.1% to a maximum of 72.8%. This depicted a high level of fluctuations in the general price level for many years back caused by various economic factors like changes in policy of government and external shocks.

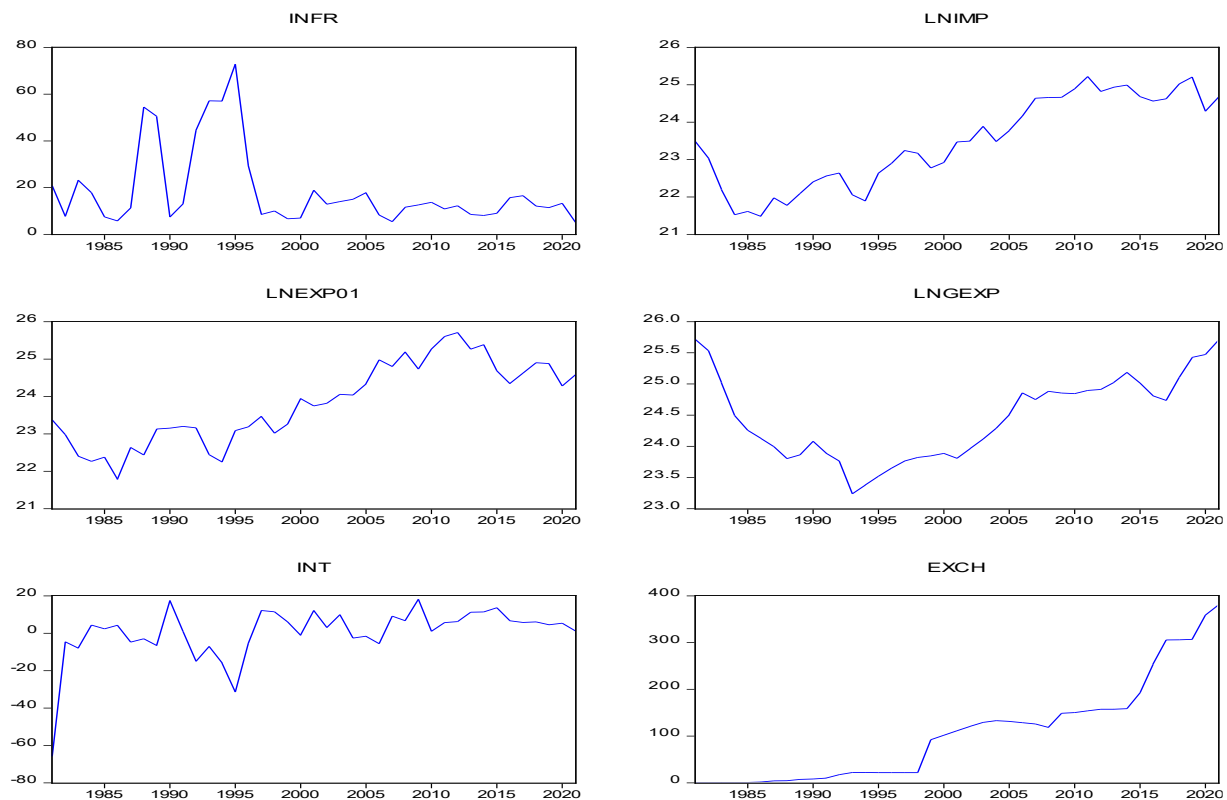
Import displayed relatively stable fluctuations, with the minimum of 21.5% and the maximum of 25.2% over the 42-year period. Similarly, export ranged between 21.8% minimum and 25.7% maximum. These figures reflect the country's trade movement in the face of global economic conditions and economic policy changes. However, Interest rates exhibited a minimum of -65.9% to a maximum of 18.2% throughout the period under study. These sharp differences indicated the unpredictability in borrowing costs and monetary policy responses to economic conditions caused by factors such as inflation and external economic pressures. Government expenditure ranged from a minimum of 23.2% to a maximum of 25.7% throughout the period under study. These expenditures movement reflects fiscal policy decisions of government aiming at managing economic stability amidst various challenges like impacts on revenue, cost of living and expenditure patterns. The Exchange rate fluctuated significantly from a minimum of 0.61 to a maximum of 38.1 over the study period. These fluctuations illustrated that the Nigerian currency

diminishes in value caused by trade imbalances, domestic monetary policies and external economic shocks which affect foreign exchange reserves and market confidence respectively.

According to the Jacque-Bera test results, Inflation rate (INFR) and Interest rate (INT) did not agree to a normal distribution ($p < 0.05$). This means that these variables' distributions skewed from a typical bell-shaped curve, caused by non-linear economic reactions to policy changes and external shocks. Import (IMP), Export (EXP), Government Expenditure (GEXP) and Exchange rate (EXCH) exhibited trends resembling normality. This statistical characteristic implies that these economic indicators followed the patterns closer to expected statistical norms, providing a clearer basis for analyzing the relationship between inflation and explanatory variables.

Above all, the descriptive statistics provided a comprehensive overview of how key economic variables have changed over many years' periods in Nigeria. These insights are crucial for understanding the economic implications of inflation on the explanatory variables as they reflected varying levels of volatility, stability and policy responsiveness within Nigeria's economic framework.

Figure 1: Trend movements of variables selected



Source: Author’s Computation using E- view 12, (2025)

Table 2: Result of Stationarity (Unit Root) Test

Variables	ADF Statistics	Probability Value	Order of stationary
INFR	-2.940183	0.0496	Level 1(1)
LNIMP	-5.569572	0.0000	First Difference 1(1)
LNEXP01	-7.150137	0.0000	First Difference 1(1)
LNGEXP	-3.601055	0.0102	First Difference 1(1)
INT	-7.477454	0.0000	Level 1(0)
EXCH	-4.500911	0.0009	First Difference 1(1)

Source: Author’s Computation using E- view 12, (2024)

The Augmented Dickey-Fuller (ADF) unit root test was employed to assess the trend movements and stationarity of major variables used in the study on the determinants of inflation in the economy in Nigeria. Table 2 above reveals the integration orders for each variable:

Only interest rate was found to be integrated of order zero, denoted as $I(0)$. This means that these variables are stationary at level or order zero and do not possess a unit root. LNIMP (Natural Log of Import), LNEXP (Natural Log of Export), LNGEXP (Natural Log of Government Expenditure) and EXCH (Exchange Rate) were integrated of order one or at first difference, denoted as $I(1)$. This means that these variables are stationary after first-order differencing. Given the integration orders identified above, ARDL technique would be the appropriate method of estimation for the relationships between these variables selected.

Table 3: ARDL F-Bound Co-Integration Test

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
Asymptotic: n=1000				
F-statistic	18.15456	10%	2.49	3.38
K	5	5%	2.81	3.76
		2.5%	3.11	4.13
		1%	3.5	4.63

Source: Author's Computation using E-view, (2025)

From table 3 above, F-statistic value is 18.15456, which is over and above the critical values of the Pesaran test statistic of 2.81 and 3.76 at the 5% level of significance. This means that there is statistical reliability. This means that the variables factored in the research model showed robust relationship in the long run.

The significant F-statistic suggests that there was long-run co-integration between inflation and its determinants in Nigeria. This result indicated that inflation had sustained significant on explanatory variables under the study period (1981-2023).

Table 4: Short Run Estimation Result of ARDL

Case 4: Unrestricted Constant and Restricted Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1335.380	91.72276	14.55888	0.0000
D(LNIMP)	-35.43962	4.776920	-7.418927	0.0000
D(LNEXP01)	29.15449	3.845833	7.580800	0.0000
D(LNGEXP)	-75.65270	5.992654	-12.62424	0.0000
D(INT)	-0.985613	0.101511	-9.709453	0.0000
D(EXCH)	-0.293152	0.054127	-5.416051	0.0004
CointEq(-1)*	-0.889617	0.061128	-14.55346	0.0000
R-squared	0.981891			
Adjusted R-squared	0.956539			
F-statistic	38.72985	Durbin-Watson stat		2.189660
Prob(F-statistic)	0.000000			

Source: Author's Computation using E- view, (2025)

From the table 4 above, a 1% increase in import is associated with a 35.4% decrease in inflation rate. Invariably, a 1% increase in export led to a 29.2% increase in inflation rate. Government expenditure indicated a reasonable impact, where a 1% increase led to a 75.7% decrease in inflation rate. Interest rate displayed an equal or proportional inverse relationship with inflation, this means that a 1% increase in interest rate would cause a 1% decrease in inflation rate respectively. Exchange rate also displayed a role, with a 1% increase associated to a 0.3% decrease in inflation rate.

These results actually showed real relationships between economic variables employed for this study and inflation proxied for cost of living dynamics in Nigeria's short-term economic activities. The movement of independent variables against dependent variable were in line with the work of Mohammed et al. (2021). The short-run model exhibited a great coefficient of determination (R-squared) of 0.98. This proved that the model explained 98% of the volatility in inflation rate. Such

strong explanatory power suggests that the variables actually captured and predicted short-term inflationary trends influenced by explanatory variables employed. The model displayed negative autocorrelation, as indicated by the Durbin–Watson statistics relatively above 2.0. The error correction term in the model is statistically significant with a negative value of -0.89. This term signifies that deviations from the long-run equilibrium in inflation rate was corrected by 89%.

Table 5: Long Run Estimation Result of ARDL

Levels Equation				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNIMP	-18.9582	32.82114	-3.624438	0.0055
LNEXP01	61.11568	21.69559	2.816963	0.0201
LNGEXP	-13.61192	7.146391	-1.904726	0.0892
INT	-1.472404	0.350959	-4.195366	0.0023
EXCH	0.029624	0.095474	0.310286	0.7634
@TREND	9.195704	2.523173	3.644500	0.0054

$$EC = INFR - (-18.9582*LNIMP + 61.1157*LNEXP01 - 13.6119*LNGEXP - 1.4724*INT + 0.0296*EXCH + 9.1957*@TREND)$$

Source: Author's Computation using E- view, (2025)

From Table 5 above, 1% increase in import is associated with a 19% decrease in inflation rate in the long run period. This suggested that encouraging trade and imports could lead to deflation, thereby reducing the cost of living as prices of goods decline which is in line with the work of Mohammed et al. (2021). In the main stream, a 1% increase in export brought about a 61.1% increase in inflation rate in Nigeria. This means that increasing exports may lead to higher domestic prices, impacting the cost of living positively in the long run.

Conversely, a 1% increase in government expenditure resulted 13.6% decrease in inflation rate. This signified that government expenditures have some reducing impact on inflation but does not reach statistical significance. In the same way, a 1% increase of interest rate is resulted to 2%

decrease in inflation rate in the long run. This showed that higher interest rate would curb inflationary pressures by reducing aggregate demand. Finally, a 1% increase in exchange rate led to a 0.02% inflation rate in the long term in Nigeria. This indicated that changes in exchange rates can have a direct impact on local prices respectively.

These findings indicate the varied impact of variables on the cost of living in Nigeria's long-run economic position. In summary, import and interest rate displayed deflationary pressures while export and exchange rate exhibited inflationary pressures, causing consumer prices moving upward.

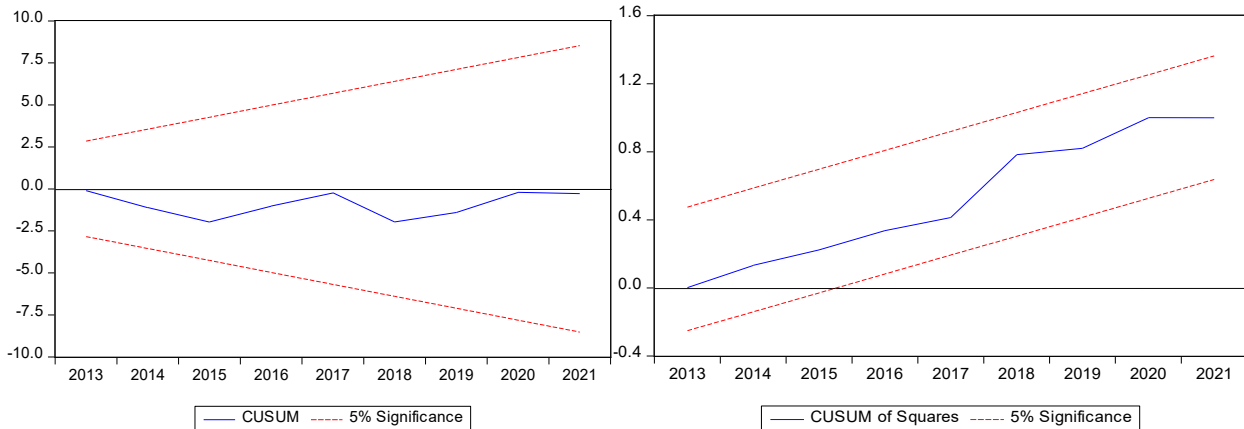
Table 6: Result for Diagnostic Test

Tests	Value	Prob.	Decision
Normality	0.239241	0.88725	Residuals are normal
Serial correlation	4.142796	0.0650	No Serial correlation
Heteroscedasticity	1.844750	0.1692	No heteroskedasticity
Ramsey RESET	0.140828	0.7172	Model is well specified

Source: Author's Computation using E- view, (2025)

The residual normality test measures normality of the residuals of the dependent variable (inflation rate). From the table 6 above, the probability that the residuals were normal is 0.9 is more than 0.05, suggesting that the null hypothesis cannot be rejected. This means that the residuals were normal. Similarly, the Residual Serial Correlation LM Tests shows that there was no serial correlation, no heteroscedasticity (that is, the model is homoscedastic) and the model is reliable; the Ramsey regression specification error test (RESET) determined that the model is well specified and does not require additional independent variable to explain cost of living in Nigeria under the study period.

Figure 2: Cusum and Cusum of squares tests



Source: Author’s Computation using E- view, (2025)

The stability of the parameters of the model were investigated using the plots of the cumulative sum of recursive residuals (CUSUM) and cumulative sum of squares of recursive residual (CUSUMSQ) as shown above. The CUSUM and CUSUMSQ in figures stayed within the 5% critical line, indicating the constancy and stability of the regression estimates throughout the period covered by this research study.

Table 7: Granger Causality Result

Null Hypothesis:	Obs	F-Statistic	Prob.
LNIMP does not Granger Cause INFR	39	2.07863	0.1407
INFR does not Granger Cause LNIMP		0.90905	0.4125
LNEXP01 does not Granger Cause INFR	39	2.21691	0.1245
INFR does not Granger Cause LNEXP01		0.21986	0.8038
LNGEXP does not Granger Cause INFR	39	2.36205	0.1095
INFR does not Granger Cause LNGEXP		0.43633	0.6500
INT does not Granger Cause INFR	39	0.60326	0.5528
INFR does not Granger Cause INT		1.56146	0.2245
EXCH does not Granger Cause INFR	39	1.90601	0.1642

INFR does not Granger Cause EXCH	0.69536	0.5059
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Source: Author's Computation using E- view, (2025)

From table 7 above, the results indicated that the null hypothesis of no Granger causality among the variables cannot be rejected at both 5% and 10% significance levels respectively. This means that there was no statistical evidence of a causal relationship running from import, export, government expenditure, interest rate and exchange rate to inflation rate in Nigeria under the study period. The results indicated that changes in import, export, government expenditure, interest rate and exchange rate do not lead to significant change in inflation rate. This development of causality indicated that the variables influence inflation. These results have displayed important implications for understanding inflation and the factors that influence it in Nigeria.

5.0 Conclusion

This research has investigated the determinants of inflation in the Nigerian economy from 1981 to 2023. While Inflation (INFR) is used as a dependent variable, Total export (EXP), total import (IMP), government expenditure (GEXP), exchange rate (EXCH) and interest rate (INT) represented independent variables. The Augmented Dickey-Fuller unit root test showed interest rate was stationary at level denoted as I (0) while LNINFR, LNIMP (Natural Log of Import), LNEXP (Natural Log of Export), LNGEXP (Natural Log of Government Expenditure) and EXCH (Exchange Rate) were stationary after first-order difference denoted as I(1). The ARDL Bounds Test results showed a long-run co-integration between dependent and independent variables with a Pesaran test statistic of 18.2.

The short-run regression output revealed that a 1% increase in import will reduce inflation rate by 35.4% in the short run (import and inflation were inversely related in the short run) while a 1% increase in export would lead to a 29.2% increase in the short run (export and inflation were directly related in the short run). A 1% increase in government expenditure would result to 75.7% decrease in inflation rate (government expenditure and inflation were inversely related in the short run). 1% increase in interest rate would result to 1% decrease in inflation (interest rate and inflation were inversely proportional in the short run). A 1% increase in exchange rate would result to 0.3% decrease in inflation rate in the short run (exchange rate and inflation were insignificantly and inversely related in the short run). The long-run regression results showed that import, government

expenditure and interest rates were having negative figures, while export and exchange rates were having the positive figures in Nigeria under the study period. A 1% increase in import would result to reduction of inflation by 19% in the long run (import and inflation were inversely related in the long run). A 1% increase in export would result to 61.1% increase in the long run (export and inflation were directly related in the long run). A 1% increase in government expenditure resulted to 13.6% decrease in inflation (government expenditure and inflation were inversely related in the long run). Similarly, a 1% increase in interest rates would result to 1.5% decrease in the long run (interest rate and inflation were relatively and inversely related in the long run). while a 1% increase in exchange rate would result to 0.02% increase in inflation rate (exchange rate has no impact on inflation in the long run in Nigeria)

The residual normality test revealed no serial correlation and heteroscedasticity. The CUSUM and CUSUMSQ signified constant and stable regression estimates. There is bi-directional causal relationship between IMP, EXP, GEXP, INT and EXCH to INFR respectively.

The research assessed the significant relationship between inflation and explanatory variables in Nigeria from 1981 to 2023 using ARDL technique. The results of the regression indicated import and inflation were inversely related in both short and long run periods but had negative impact while in the same periods, export and inflation were directly associated and had positive impact. The outcome of the regression revealed long-run co-integration between the dependent and independent variables. Conclusively, inflation has a negative impact on import in Nigeria under the study period.

The research study displays following policy recommendations from its findings:

- i. The government should ensure that monetary policy of the central bank is on the same page as the fiscal policy of the federal ministry of finance. For example, if the government reduces expenditure through fiscal measure, the apex bank should try to tighten monetary policy to help control inflation to a target.
- ii. Interest rate should be used by government as tool to control inflation; thus, when the economy is in inflationary pressure, the government can raise interest rates to slow down the economic activities and bring inflation to a target

- iii. The Policy of Border closure should at all-time put the poor citizens into consideration as the poor constitute 70% of the entire population; such kind of policy should be in favour of, and consideration of, the poor masses in order to avert the hardship inflation after it.

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