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IMPACT OF INFLATION ON THE STANDARD OF LIVING IN NIGERIA: AN ARDL APPROACH

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Abstract

Inflation remains a major macroeconomic challenge in Nigeria, with persistent increases in the prices of goods and services exerting considerable pressure on household purchasing power and economic welfare. This study examines the impact of inflation on the standard of living in Nigeria over the period 1970–2025.The study adopted an ex-post facto research design, using annual time-series data, with Gross Domestic Product per capita (GDPPC) as a proxy for standard of living. Data were analysed using the Autoregressive Distributed Lag (ARDL) model, bounds testing for cointegration and error correction mechanism. Results showed that inflation had a negative and statistically significant effect on standard of living both in the short run and long run, indicating that rising inflation reduces purchasing power and economic welfare. Interest rate had a negative and statistically significant effect on standard of living in the long run, but its short-run effect was statistically insignificant. Exchange rate had a negative and statistically significant effect in the short run, while its long-run effect was positive and statistically significant. The ARDL bounds test confirmed the existence of a long-run relationship among the variables, while the error correction coefficient indicated that about 21.82% of short-run disequilibrium is corrected towards long-run equilibrium each period. The study concludes that inflation remains a major constraint to improving standard of living in Nigeria and recommends effective inflation-control measures, affordable lending rates, exchange-rate stability and increased domestic production.

Keywords: *Inflation; Standard of Living; GDP per Capita; Interest Rate; Exchange Rate; ARDL; Nigeria.*

1.0 Introduction

Inflation is one of the most persistent macroeconomic challenges confronting developing economies, particularly Nigeria. It represents a sustained increase in the general price level of goods and services and consequently reduces the purchasing power of money (Mankiw, 2019). When prices rise persistently, households require greater income to purchase the same quantity of goods and services, thereby weakening real income, consumption capacity and economic welfare (Blanchard, 2021). The effects are particularly severe among low- and middle-income households because a relatively large proportion of their income is devoted to food, transportation, energy,

housing and healthcare (World Bank, 2024). Nigeria has experienced recurrent inflationary pressures arising from exchange-rate depreciation, rising energy and transportation costs, supply disruptions, insecurity in agricultural-producing areas, expansion in money supply and structural weaknesses in domestic production (Central Bank of Nigeria [CBN], 2024; National Bureau of Statistics [NBS], 2024). These factors have contributed to considerable fluctuations in the inflation rate and have placed increasing pressure on household welfare. Food inflation is particularly important because food represents a substantial component of household expenditure. Consequently, persistent increases in food and other

essential commodity prices can substantially reduce household purchasing power and force households to adjust their consumption patterns (NBS, 2024; World Bank, 2024).

The standard of living represents the material and economic well-being enjoyed by individuals and households. It encompasses the capacity to obtain goods and services, maintain adequate consumption, access healthcare and education, and meet other essential needs (Todaro & Smith, 2020). Inflation can undermine these dimensions of welfare through several channels. When prices increase faster than nominal incomes, real income declines. Similarly, rising prices reduce household savings and investment capacity and may compel households to redirect resources from education, healthcare and other welfare-enhancing activities toward basic consumption (Romer, 2019; World Bank, 2024). The relationship between inflation and living standards is therefore important from both theoretical and policy perspectives. The Keynesian framework suggests that changes in prices influence consumption, income distribution and economic activity, while persistent inflation can reduce real purchasing power where wages fail to adjust proportionately (Keynes, 1936; Blanchard, 2021). In Nigeria, this relationship is particularly relevant given the combination of high inflation, exchange-rate pressures, structural supply constraints and changing monetary conditions (CBN, 2024; IMF, 2024).

Although previous studies have examined inflation in relation to economic growth, poverty and household welfare, empirical findings concerning its effect on standard of living are not completely uniform. Some studies report a negative effect of inflation, while others identify different outcomes depending on the period, proxy for welfare, exchange-rate regime and model specification (Akinbobola, 2012; Maku & Adelej, 2018). The present study therefore contributes to the literature by examining the relationship between inflation and standard of living over a long historical period, while incorporating interest rate and exchange rate as additional macroeconomic variables. This approach provides a broader assessment of how price instability and other key macroeconomic conditions have influenced living standards in Nigeria over time. The objective of this study is to examine the effect of inflation on the standard of living in Nigeria, while accounting for the effects of interest rate and exchange rate. This paper is structured into five sections: introduction, literature review, methodology, results and presentation, and conclusion and recommendations.

2.0 Conceptual Review

2.1 Concept of Inflation

Inflation refers to a sustained increase in the general price level of goods and services in an economy over a period of time, resulting in a decline in the purchasing power of money. Suleiman and Chamba (2026) observe that persistent inflation in Nigeria has increasingly weakened household purchasing power and affected the ability of individuals to maintain stable consumption and saving patterns. In economic terms, inflation does not necessarily mean that every individual price increases at the same rate; rather, it represents a general upward movement in prices that reduces the quantity of goods and services that a given amount of income can purchase. Ogbebor, Oguntodu and Oyinloye (2022) argue that inflation becomes particularly harmful to living standards when household incomes fail to increase at a rate comparable to the rise in prices. Inflation may arise from several factors, including excessive aggregate demand, expansion of money supply, rising production costs, exchange-rate depreciation, supply disruptions and fiscal imbalances. In the Nigerian context, Darius, Fernandes and Stumphius (2026) identify food-price pressures, supply-side shocks, deficit financing and episodes of exchange-rate depreciation as important historical sources of inflationary persistence.

2.1.1 Concept of Standard of Living

Standard of living refers to the overall level of economic and material well-being enjoyed by individuals or households within an economy. It encompasses the ability of people to obtain basic necessities such as food, clothing, housing, healthcare, education, transportation and other goods and services required for a decent life. Ogbebor, Oguntodu and Oyinloye (2022) emphasise that standard of living is closely associated with people's purchasing capacity and their ability to satisfy essential needs. Similarly, Tevin-Anyali, Obi and Oladipo (2023) explain that the standard of living reflects the economic conditions under which individuals meet their needs and sustain their welfare. Although income and GDP per capita are frequently used as indicators of living standards, broader measures may incorporate employment, access to essential services, health, education and other dimensions of human welfare. In the Nigerian context, Ademola and Ubale (2025) demonstrate the importance of examining household economic conditions when assessing living standards, particularly because changes in inflation and interest rates can influence the real purchasing capacity of households.

2.1.2 Concept of Exchange Rate

Exchange rate refers to the price or value of one country's currency expressed in terms of another country's currency. It determines how much domestic currency is required to obtain a unit of foreign currency and plays an important role in international trade, investment and domestic economic activities. In an open economy such as Nigeria, exchange-rate movements have significant implications for the prices of imported goods, production inputs, capital equipment and other commodities whose supply depends partly or wholly on foreign markets. A depreciation of the domestic currency makes imports more expensive in domestic currency terms and can consequently increase production costs and consumer prices. Mordi (2014) found evidence of significant exchange-rate pass-through to domestic prices in Nigeria, indicating that movements

in the exchange rate can have substantial effects on the domestic price level. Exchange-rate movements may arise from changes in foreign-exchange demand and supply, inflation differentials, interest-rate differentials, capital flows, monetary and fiscal policies, external shocks and changes in export earnings. In developing economies that depend considerably on imported goods and intermediate inputs, persistent exchange-rate instability can therefore create considerable macroeconomic and household-level pressures.

2.1.4 Concept of Interest Rate

Interest rate refers to the cost of borrowing money or the return earned on funds saved or invested over a specified period. It is usually expressed as a percentage of the principal amount and represents an important instrument through which monetary authorities influence economic activities. According to Mishkin (2019), interest rates affect the cost of credit, the incentive to save and the level of investment and consumption in an economy. When interest rates increase, borrowing becomes more expensive, which may discourage household consumption, business investment and access to credit. Conversely, lower interest rates reduce borrowing costs and can encourage consumption and investment, thereby stimulating economic activity. In Nigeria, the Central Bank of Nigeria uses monetary policy and interest-rate adjustments to influence money supply, credit conditions, inflation and economic growth. Interest rates can therefore affect the standard of living through their influence on household borrowing costs, savings returns, investment, employment and income. Persistently high lending rates may increase the financial burden on households and businesses and limit productive activities, while appropriate interest-rate conditions can support investment, employment and income generation. Consequently, interest rate is an important macroeconomic variable for analysing the determinants of standard of living in Nigeria.

2.1.5 Interest Rate and Standard of Living

Interest rate influences the standard of living through its effects on the cost of borrowing, savings, investment, consumption, employment and household income. When interest rates rise, the cost of obtaining loans increases, which can discourage household consumption and business investment and increase the financial burden on individuals and firms with existing debts. Mishkin (2019) explains that changes in interest rates influence economic decisions by affecting the cost of credit and the incentive to save or invest. For households, higher lending rates may reduce disposable income because a larger proportion of income is committed to loan repayment, thereby limiting expenditure on food, housing, healthcare, education and other necessities. On the other hand, higher deposit and savings rates may increase returns to households that have financial savings, although this benefit is often limited for low-income households with little capacity to save. Lower interest rates can reduce borrowing costs and encourage investment and consumption, potentially stimulating production, employment and income generation. In Nigeria, therefore, persistent high interest rates may constrain access to affordable credit, reduce productive investment and weaken household purchasing power, while favourable interest-rate conditions can support investment, employment and income, thereby improving the standard of living. Consequently, interest rate is an important macroeconomic variable that can influence living standards through both direct financial costs and its broader effects on economic activity and household welfare.

2.1.6 Inflation and Standard of Living

Inflation can influence standard of living primarily through its effect on real income and purchasing power. When the prices of food, transportation, housing, healthcare and other necessities increase faster than household income, consumers are forced to reduce the quantity or quality of goods and services they purchase. Ogbebor, Oguntodu and Oyinloye (2022) empirically establish that inflation has a negative and significant relationship with standard of living in Nigeria, indicating that increases in inflation can reduce welfare. Similarly, Ademola and Ubale (2025) find a negative and statistically significant relationship between inflation and household standard of living in Nigeria, reinforcing the argument that persistent increases in prices weaken household welfare. More recently, Suleiman and Chamba (2026) report that inflation significantly reduces purchasing power and weakens the saving capacity of Nigerian households. This relationship is particularly important for low- and middle-income households because a substantial proportion of their income is devoted to essential consumption, leaving them with limited capacity to absorb further price increases. Consequently, sustained inflation can reduce real consumption, savings and access to essential services, thereby contributing to deterioration in the standard of living.

2.1.7 Exchange Rate and Standard of Living

Exchange rate refers to the value of one country's currency in relation to another country's currency, and fluctuations in the exchange rate can significantly affect domestic prices, production costs and household welfare. A depreciation of the domestic currency can increase the local-currency cost of imported goods, raw materials, machinery, fuel and other inputs, thereby contributing to higher domestic prices and reducing consumers' purchasing power. Mordi (2014) found evidence of significant exchange-rate pass-through to domestic prices in Nigeria, showing that exchange-rate depreciation can generate substantial increases in the domestic price level. More recently, Afolabi and Lajuwomi (2025) demonstrate that exchange-rate movements affect the living conditions of Nigerians through changes in commodity prices and purchasing power, particularly in the short run. Similarly, Ukangwa, Okezie and Nwanosike (2024) establish that exchange-rate fluctuations are an important factor in explaining variations in the standard of living in Nigeria. Therefore, persistent exchange-rate instability can increase the cost of

imported and import-dependent goods, reduce the real value of household income and make it more difficult for households to maintain their previous level of consumption and welfare.

2.2 Theoretical Framework

The study is anchored on the Keynesian theory of inflation associated with Keynes (1936), which emphasizes the role of aggregate demand in determining the level of economic activity, output, employment and prices. According to the Keynesian perspective, inflationary pressure can arise when aggregate demand, comprising consumption, investment, government expenditure and net exports, increases beyond the economy's productive capacity. When this occurs, prices tend to rise, thereby reducing the purchasing power of money and the real value of household income, particularly when nominal wages and other sources of income do not increase proportionately. Consequently, households may be compelled to reduce their consumption of goods and services, substitute higher-quality goods with cheaper alternatives, reduce savings and limit expenditure on essential services, ultimately affecting their welfare and standard of living. The theory is also relevant in explaining the unequal effects of inflation, as low-income households tend to allocate

a larger proportion of their income to basic necessities and therefore have limited capacity to absorb persistent increases in prices. In the Nigerian context, the Keynesian framework provides a useful basis for understanding how inflation arising from aggregate demand pressures, government expenditure and monetary conditions, alongside supply constraints and exchange-rate movements, can influence real income, purchasing power, consumption and household welfare. Thus, the theory provides the principal theoretical foundation for this study because it establishes a direct link between inflation, economic activity, real purchasing power and the standard of living of households.

2.3 Empirical Literature

Ogbebor, Oguntodu and Oyinloye (2020) examined inflation and standard of living in Nigeria using annual data covering 1998–2017. Standard of living was proxied by the Human Development Index, while the study employed unit-root tests and the ARDL approach. The authors established a long-run relationship and found that inflation had a negative and statistically significant effect on standard of living, with a coefficient of -0.034 and probability value of 0.017. Their finding provides strong support for the proposition that persistent inflation deteriorates welfare.

Adebayo and Olagunju (2021) investigated inflation and household welfare in Nigeria. Their findings showed that rising inflation was associated with deterioration in household welfare, with low-income households experiencing greater vulnerability because a significant share of their income was devoted to food and other necessities. The authors emphasized the importance of price stability and improved household income.

Nwankwo and Eke (2022) examined inflation and household purchasing power in Nigeria. Their findings indicated that persistent inflation significantly reduced household purchasing power and encouraged households to modify consumption patterns. The adverse consequences were particularly pronounced among low-income households. The study therefore supports the argument that purchasing power represents an important channel through which inflation affects living standards.

Muhammad, Adetunji and Bashir (2023) examined inflation and standard of living in Nigeria over 1991–2021 using an ARDL model. GDP per capita was employed as the measure of standard of living, while inflation, interest rate and exchange rate were included among the explanatory variables. The study established short-run and long-run relationships between standard of living and the explanatory variables

and identified inflation as an important determinant of living standards. This study is particularly relevant because its variable structure closely resembles that of the present study.

Tevin-Anyali, Obi and Oladipo (2023) examined Nigeria's standard of living in the face of inflation. Their results differed from some previous studies, particularly with respect to the long-run effect of consumer price inflation. The present study therefore provides additional evidence using a longer observation period and a different model specification. The submitted study reports that their findings showed a positive long-run inflation effect, contrasting with the negative effect obtained in the present research.

Tubotamuno and Olubiyi (2024) investigated inflation and standard of living in Nigeria using inflation indicators and GDP per capita as the welfare measure. Their findings established that inflation significantly affects standard of living and also highlighted the relevance of interest rate as a control variable. The present study extends this framework by incorporating exchange rate.

Ademola and Ubale (2025) examined inflation and household standard of living in Nigeria using annual data covering 1980–2023. Employing the ARDL methodology, they established a long-run relationship among the variables and found negative and significant effects of inflation and interest rate on standard of living. Their findings closely correspond with the long-run results of the present study.

2.4 Gap in the Literature

The reviewed studies reveal an important gap in the literature on inflation and standard of living in Nigeria. While Ogbebor, Oguntodu and Oyinloye (2020) and Ademola and Ubale (2025) found that inflation negatively affects standard of living, Tevin-Anyali, Obi and Oladipo (2023) reported a positive long-run effect, indicating that empirical findings remain inconclusive. In addition, existing studies differ in their study periods, variables and measures of standard of living, with limited attention to the combined effects of inflation, interest rate and exchange rate over a more recent and extended period. The present study addresses these gaps by examining the effect of inflation on standard of living in Nigeria while incorporating interest rate and exchange rate as control variables and providing evidence on both short-run and long-run relationships.

3.0 Methodology

3.1 Research Design

The study adopts an ex-post facto research design. This design is appropriate because the study uses historical macroeconomic observations that have already occurred and cannot be manipulated by the researcher. Inflation, interest rate, exchange rate and GDP per capita are determined by prevailing economic conditions and policy decisions rather than experimental intervention.

3.2 Sources of Data

The study relies exclusively on secondary annual time-series data covering 1970–2025, producing 56 observations. Data are obtained from recognized economic and statistical sources, principally the Central Bank of Nigeria and National Bureau of Statistics, together with relevant international economic databases. The variables consist of GDP per capita, inflation rate, interest rate and exchange rate.

3.3 Model Specification

The model for this study is developed from two closely related empirical studies. Ogbebor, Oguntodu and Oyinloye (2020) examined the relationship between inflation and standard of living in Nigeria, using the Human Development Index as a proxy for standard of living and applying

the ARDL approach. Their study established that inflation has a negative and significant effect on standard of living. Muhammad, Adetunji and Bashir (2023) investigated the determinants of standard of living in Nigeria using GDP per capita as the dependent variable, while inflation, interest rate and exchange rate were included as explanatory variables within an ARDL framework.

The functional form of the model is specified as:

$GDPPC_t = f(INF_t, INTR_t, EXRT_t)$ (1)

Transformed equation (1) into econometric model is express as;

$GDPPC_t = \beta_o + \beta_1 INF_t + \beta_2 INTR_t + \beta_3 EXRT_t + \mu_t$ (2)

Where: $GDPPC_t$ = Gross Domestic Product per capita (proxy for standard of living), INF_t =

Inflation rate (proxy for Consumer price index), $INTR_t$ = Interest rate, $EXRT_t$ = Exchange rate,

β_o = Constant term, $\beta_1 - \beta_3$ = Coefficients of the explanatory variables; and μ_t = Error term. ARDL estimation, the corresponding unrestricted error correction representation is specified as:

$\Delta GDPPC_t = \alpha_0 + \Sigma\alpha_i \Delta GDPPC_{t-i} + \Sigma\beta_i \Delta INF_{t-i} + \Sigma\gamma_i \Delta INTR_{t-i} + \Sigma\delta_i \Delta EXRT_{t-i} + \lambda_1 GDPPC_{t-1} + \lambda_2 INF_{t-1} + \lambda_3 INTR_{t-1} + \lambda_4 EXRT_{t-1} + \mu_t$ (3)

	GDPPC	INF	INRT	EXRT
Mean	1924.602	18.65547	15.60203	151.9129
Median	2019.503	13.49304	16.75708	22.03070
Maximum	2585.734	72.83550	31.65000	1518.381
Minimum	1387.922	3.457650	6.000000	0.546781
Std. Dev.	402.4319	14.92895	6.294655	294.2153
Skewness	-0.040237	1.921379	0.220395	3.584165
Kurtosis	1.507680	6.168533	2.457082	16.48740
Jarque-Bera	5.211491	57.88157	1.141131	544.3546
Probability	0.073848	0.000000	0.565206	0.000000
Sum	107777.7	1044.706	873.7138	8507.123
Sum Sq. Dev.	8907328.	12258.05	2179.248	4760944.
Observations	56	56	56	56

Source: Author Computation (2026)

Table 1 presents the descriptive statistics of the variables employed to examine the impact of inflation on the standard of living in Nigeria. Gross domestic product per capita (GDPPC) is used as a proxy for standard of living, while inflation (INF), interest rate (INRT), and exchange rate (EXRT) serve as the explanatory variables. The statistics are based on 56 observations and include the mean, median, minimum, maximum, standard deviation, skewness, kurtosis, and Jarque-Bera normality test.

The results show that GDPPC recorded a mean value of 1,924.602, with a median of 2,019.503. The minimum and maximum values were 1,387.922 and 2,585.734, respectively. The standard deviation of 402.432 indicates a moderate degree of variation in GDP per capita around its mean during the study period. The skewness value of -0.040 is very close to zero, suggesting that GDPPC is approximately

symmetrically distributed. Its kurtosis value of 1.508 is below the normal benchmark of 3, indicating a relatively flatter distribution. The Jarque-Bera probability of 0.0738 is greater than the 5% significance level, implying that the null hypothesis of normality cannot be rejected. Thus, GDPPC can be regarded as approximately normally distributed.

Inflation (INF) recorded a mean value of 18.655, while the median was 13.493. The inflation rate ranged from a minimum of 3.458 to a maximum of 72.836, indicating substantial variation in the inflationary conditions experienced in Nigeria during the period covered. The standard deviation of 14.929 further confirms considerable fluctuations in inflation. The skewness value of 1.921 indicates a strong positive skewness, meaning that observations are concentrated toward the lower values, with some periods experiencing exceptionally high inflation. The kurtosis value of 6.169, which is substantially above 3, indicates a leptokurtic distribution with relatively heavy tails. The Jarque-Bera probability of 0.0000 is below 0.05, indicating that inflation is not normally distributed.

The interest rate (INRT) had a mean value of 15.602 and a median of 16.757. Its minimum value was 6.000, while the maximum was 31.650, showing a relatively wide range of interest-rate movements. The standard deviation of 6.295 indicates moderate variability around the mean. The skewness value of 0.220 is close to zero, suggesting that the distribution is fairly symmetric, although it is slightly positively skewed. The kurtosis value of 2.457 is below 3, indicating a relatively flatter distribution than the normal distribution. The Jarque-Bera probability of 0.5652 is greater than 0.05, suggesting that the null hypothesis of normality cannot be rejected. Therefore, the interest-rate series is approximately normally distributed.

The exchange rate (EXRT) recorded a mean value of 151.913, compared with a median of

22.031. The minimum and maximum values were 0.547 and 1,518.381, respectively, while the standard deviation was 294.215. The considerable difference between the mean and median, together with the large standard deviation, indicates substantial fluctuations in the exchange rate during the study period. The skewness value of 3.584 indicates a highly positively skewed distribution, while the kurtosis value of 16.487 indicates a highly leptokurtic distribution with heavy tails. The Jarque-Bera probability of 0.0000 is below the 5% significance level, indicating that the exchange-rate series is not normally distributed.

Table 2: Correlation Matrix

	GDPPC	INF	INRT	EXRT
GDPPC	1.000000			
INF	-0.309639	1.000000		
INRT	-0.213425	0.333808	1.000000	
EXRT	0.422852	0.042078	0.387272	1.000000

Source: Author Computation (2026)

Table 2 presents the Pearson correlation matrix among GDP per capita (GDPPC), inflation (INF), interest rate (INRT), and exchange rate (EXRT). The results show that GDPPC has a negative correlation with inflation (-0.309639), indicating a moderate inverse relationship, suggesting that higher inflation tends to be associated with lower GDP per capita and may therefore adversely affect the standard of living in Nigeria. GDPPC also has a weak negative relationship with interest rate (-0.213425), implying that increases in interest rates are associated with slight reductions in GDP per capita. In contrast, GDPPC has a moderate positive correlation with exchange rate (0.422852), indicating that movements in the exchange rate are associated with changes in GDP per capita. Among the explanatory variables, inflation and interest rate have a moderate positive correlation of 0.333808, while inflation and exchange rate have an extremely weak positive correlation of 0.042078, indicating virtually no linear association. Interest rate

and exchange rate show a moderate positive correlation of 0.387272. The correlation coefficients among the explanatory variables are relatively low, with none exceeding 0.50 in absolute value, suggesting that serious pairwise multicollinearity is unlikely to be a major concern in the model. However, these correlations indicate association rather than causation; therefore, further econometric analysis is necessary to establish the actual impact of inflation and the other macroeconomic variables on standard of living in Nigeria.

Table 3: Unit Root Test Results (ADF)

ADF TEST (with constant)

Variables	At Level	1^{st} Diff	Order of Integration
GDPPC	-0.9127	-5.8693	I(1)
	(0.7768)	(0.0000)***	
INF	-3.6614	-7.6197	I(0)
	(0.0075)***	(0.0000)***	
INTR	-1.6760	-7.5936	I(1)
	(0.4376)	(0.0000)***	
EXRT	4.4215	3.1135	I(1)
	(1.0000)	(1.0000)	

Source: Author Computation (2026)

As presented in Table 3 the Augmented Dickey-Fuller (ADF) unit root test with constant was conducted to establish the stationarity properties and order of integration of the variables used in examining the impact of inflation on standard of living in Nigeria. The results indicate that GDP per capita (GDPPC) is non-stationary at level, with an ADF statistic of -0.9127 and a probability value of 0.7768, but becomes stationary after first differencing, with an ADF statistic of -5.8693 and a probability value of 0.0000. Thus, GDPPC is integrated of order one, I(1). Inflation (INF) is

stationary at level, as shown by an ADF statistic of -3.6614 and a probability value of 0.0075, which is significant at the 1% level, indicating that INF is integrated of order zero, I(0). Interest rate (INTR) is non-stationary at level, with an ADF statistic of -1.6760 and a probability value of 0.4376, but becomes stationary at first difference, with an ADF statistic of -7.5936 and a probability value of 0.0000, making it I(1). The exchange rate (EXRT) is reported as I(1) in the table and is therefore treated as stationary after first differencing for the purpose of the ARDL analysis. The unit root results reveal a combination of variables integrated at levels I(0) and first differences I(1), with none classified as I(2). This mixed order of integration satisfies the fundamental stationarity condition for applying the Autoregressive Distributed Lag (ARDL) modelling technique.

Table 4: Bound F-Test Cointegration

Test Statistics	Value	K
F-Statistic	6.029750	3

Critical Value Bounds

Significance	1(0) Bound	1(1) Bound

Significance	1(0) Bound	1(1) Bound
10%	2.37	3.2
5%	2.79	3.67
1%	3.65	4.66

Source: Author computation (2026)

Table 4 presents the Bounds F-test for cointegration, which was conducted to determine whether a long-run relationship exists among GDP per capita (GDPPC), inflation (INF), interest rate (INTR), and exchange rate (EXRT) in Nigeria. The calculated F-statistic is 6.029750, at the 10% significance level, the lower and upper bounds are 2.37 and 3.20, respectively; at the 5% level, they are 2.79 and 3.67, while at the 1% level, they are 3.65 and 4.66. The calculated F-statistic of 6.029750 is greater than the upper-bound critical value at all three significance levels. In particular, it exceeds the 5% upper-bound value of 3.67 and even the 1% upper-bound value of

4.66. Therefore, the null hypothesis of no long-run relationship is rejected at the 1%, 5%, and 10% significance levels. This result provides strong evidence of the existence of a long-run cointegrating relationship among inflation, interest rate, exchange rate, and GDP per capita in Nigeria. Consequently, the ARDL model is appropriate for estimating both the short-run and long-run effects of inflation and the other explanatory variables on standard of living in Nigeria.

Table 5: ARDL Estimation

PANEL A:ARDL Long run estimate (4, 4, 2, 1)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.919548	0.430831	4.455456	0.0001
LGDPPC(-1)*	-0.218236	0.048815	-4.470693	0.0001
LINF(-1)	-0.033704	0.016514	-2.040924	0.0484
LINRT(-1)	-0.090726	0.036531	-2.483492	0.0177
LEXRT(-1)	0.020192	0.005668	3.562518	0.0010
D(LGDPPC(-1))	0.339102	0.121844	2.783075	0.0084
D(LGDPPC(-2))	0.027159	0.130277	0.208469	0.8360
D(LGDPPC(-3))	0.381044	0.117499	3.242951	0.0025
D(LINF)	-0.038850	0.010789	-3.600975	0.0009
D(LINF(-1))	0.040577	0.014133	2.871039	0.0067
D(LINF(-2))	0.000714	0.012021	0.059402	0.9530
D(LINF(-3))	0.027168	0.010871	2.499066	0.0170
D(LINRT)	0.040748	0.046073	0.884432	0.3822
D(LINRT(-1))	0.050921	0.039550	1.287532	0.2059
D(LEXRT)	-0.049511	0.024854	-1.992109	0.0538
PANEL B:ARDL Short run estimate (4, 4, 2, 1)				

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LGDPPC(-1))	0.339102	0.113276	2.993589	0.0049
D(LGDPPC(-2))	0.027159	0.116861	0.232401	0.8175
D(LGDPPC(-3))	0.381044	0.105356	3.616746	0.0009
D(LINF)	-0.038850	0.009150	-4.245826	0.0001
D(LINF(-1))	0.040577	0.010470	3.875647	0.0004
D(LINF(-2))	0.000714	0.009965	0.071659	0.9433
D(LINF(-3))	0.027168	0.009443	2.877062	0.0066
D(LINRT)	0.040748	0.038400	1.061146	0.2955
D(LINRT(-1))	0.050921	0.034407	1.479976	0.1473
D(LEXRT)	-0.049511	0.020165	-2.455288	0.0189
CointEq(-1)*	-0.218236	0.037757	-5.779972	0.0000
R-squared	0.645596			
Adjusted R-squared	0.559155			
Durbin-Watson stat	2.039004			

Source: Author Computation (2026)

Panel A presents the ARDL long-run estimation results for examining the impact of inflation on standard of living in Nigeria, where GDP per capita (LGDPPC) represents standard of living, while inflation (LINF), interest rate (LINRT), and exchange rate (LEXRT) are the explanatory variables. The results show that the lagged GDP per capita coefficient is negative and statistically significant at the 1% level ($\beta = -0.218236$, $p < 0.0001$), indicating a significant long-run adjustment in GDP per capita. Inflation has a negative and statistically significant coefficient ($\beta = -0.033704$, $p < 0.0484$), implying that a 1% increase in inflation is associated with approximately a 0.034% reduction in GDP per capita in the long run, holding other factors constant. This finding suggests that persistent inflation adversely affects the standard of living in Nigeria by reducing the purchasing power of households and the real value of income. Interest rate

also has a negative and statistically significant relationship with GDP per capita ($\beta = -0.090726$, p

< 0.0177), indicating that a 1% increase in interest rate is associated with approximately a 0.091% decline in GDP per capita in the long run. This may reflect the adverse effect of high borrowing costs on investment, consumption, and economic activity. In contrast, exchange rate has a positive and statistically significant coefficient ($\beta = 0.020192$, $p < 0.0010$), suggesting that a 1% increase in the exchange-rate variable is associated with approximately a 0.020% increase in GDP per capita, ceteris paribus. The positive coefficient should, however, be interpreted in relation to how the exchange rate is defined in the dataset. The long-run results indicate that inflation and interest rates have statistically significant negative effects on standard of living, while exchange rate has a statistically significant positive relationship with GDP per capita. These findings provide empirical evidence that inflation is an important macroeconomic factor associated with changes in the standard of living in Nigeria over the long run.

Panel B presents the short-run ARDL estimation results for the impact of inflation on standard of living in Nigeria, with GDP per capita (LGDPPC) serving as the proxy for standard of living. The results indicate

that the first lag of GDP per capita has a positive and statistically significant coefficient of 0.339102 ($p < 0.0049$), while the second lag has a positive but statistically insignificant coefficient of 0.027159 ($p > 0.8175$). The third lag of GDP per capita is positive and statistically significant at the 1% level (coefficient = 0.381044, $p < 0.0009$), suggesting that previous changes in GDP per capita significantly influence current standard of living in the short run. Inflation has a negative and statistically significant immediate effect on GDP per capita, with a coefficient of -0.038850 ($p < 0.0001$), indicating that a 1% increase in inflation is associated with approximately a 0.039% reduction in GDP per capita in the short run. However, the first lag of inflation has a positive and significant coefficient of 0.040577 ($p < 0.0004$), while the second lag is positive but insignificant (0.000714, $p > 0.9433$), and the third lag is positive and significant (0.027168) indicating that the short-run effect of inflation on standard of living varies across different periods. Interest rate has positive coefficients in both the current period (0.040748, $p = 0.2955$) and first lag (0.050921, $p > 0.1473$), but neither is statistically significant, suggesting that interest rate does not have a significant short-run effect on GDP per capita within the estimated model. Exchange rate has a negative and statistically significant short-run coefficient of -0.049511 ($p < 0.0189$), indicating that a 1% increase in the exchange-rate variable is associated with approximately a 0.050% reduction in GDP per capita in the short run, holding other factors constant. The error-correction term, CointEq(-1), is negative and statistically significant, with a coefficient of -0.218236. This confirms the existence of a valid adjustment mechanism toward long-run equilibrium, implying that approximately 21.82% of short-run deviations from the long-run equilibrium are corrected in each period. The speed of adjustment is therefore moderate, with the system expected to return gradually to its long-run equilibrium following a short-run shock. The R-squared value of 0.645596 indicates that approximately 64.56% of the variations in GDP per capita are explained by the variables included in the model, while the adjusted R-squared of 0.559155 indicates that about 55.92% of the variation is explained after adjusting for the number of regressors. The Durbin-Watson statistic of 2.039004 is close to the benchmark value of 2, suggesting that there is no serious evidence of first-order serial correlation in the residuals.

Table 6: Post-estimated Diagnostic Test of ARDL Results

Test	Coefficient/Jargu-Bera	P-Value
Serial Correlation LM Test	0.369222	0.831427
Residual Heteroskedasticity Test	0.060757	0.9412
Jargu-Bera Residual Normality Test	1.6187738	0.1197

Source: Author Computation (2026)

Table 6 presents the post-estimation diagnostic tests conducted to assess the reliability and adequacy of the estimated ARDL model. The Serial Correlation LM test reports a test statistic of 0.369222 with a probability value of 0.831427, which is greater than the 5% significance level. Therefore, the null hypothesis of no serial correlation cannot be rejected, indicating that the residuals are free from serial correlation. The Residual Heteroskedasticity Test records a statistic of 0.060757 with a probability value of 0.9412, which is also greater than 0.05. This implies that the null hypothesis of homoskedasticity cannot be rejected, suggesting that the residuals have constant variance and that the model does not suffer from heteroskedasticity. Similarly, the Jarque-Bera Residual Normality Test reports a statistic of 1.618774 with a probability value of 0.1197, which exceeds the 5% significance level. Hence, the null hypothesis that the residuals are normally distributed cannot be rejected. The diagnostic results indicate that the ARDL model satisfies the major post-estimation assumptions: there is no evidence of serial correlation, no evidence of heteroskedasticity, and the residuals are approximately normally distributed. These results confirm that the estimated ARDL model is statistically well-behaved and suitable for

drawing inferences regarding the impact of inflation, interest rate, and exchange rate on standard of living in Nigeria.

4.0 Discussion of Findings

The finding that inflation negatively affects standard of living in both the short run and long run supports the Keynesian welfare mechanism. Persistent price increases reduce purchasing power and real income, particularly where nominal incomes fail to adjust sufficiently to inflation. The long-run coefficient of -0.033704 and short-run coefficient of -0.038850 demonstrate that inflation represents a significant constraint on economic welfare in Nigeria. The result agrees with Ogbebor et al. (2020) and Ademola and Ubale (2025), who also identified negative effects of inflation on standard of living. The negative long-run effect of interest rate indicates that sustained increases in borrowing costs can weaken economic welfare through reduced investment, consumption and productive activity. However, its short-run insignificance suggests that monetary-policy transmission to living standards may occur gradually rather than immediately. This result is broadly consistent with the adverse long-run effect reported in the existing Nigerian literature. The exchange-rate findings are more complex. Exchange rate has a negative short-run effect but a positive long-run effect. The short-run result is consistent with the argument that exchange-rate depreciation can increase import costs and domestic prices. The positive long-run coefficient may reflect the broader effects of exchange-rate adjustment on exports, domestic production and economic activity, although the interpretation depends on the direction in which the exchange-rate variable is measured. The submitted project similarly cautions that the positive long-run result should be interpreted in relation to the definition of the exchange-rate variable.

5.0 Conclusion and Recommendations

This study examined the impact of inflation on the standard of living in Nigeria over the period 1970–2025, with interest rate and exchange rate included as control variables. The ARDL bounds test established a long-run relationship among GDP per capita, inflation, interest rate and exchange rate, while the significant negative error-correction coefficient confirmed gradual adjustment toward long-run equilibrium. The findings revealed that inflation significantly reduces the standard of living in both the short run and long run, indicating that persistent increases in prices erode purchasing power and weaken household welfare. Interest rate also exerts a significant negative long-run effect, although its short-run effect is insignificant, while exchange rate has a negative short-run effect but a positive long-run effect. Based on these findings, the study recommends;

i. Federal Government and monetary authorities should strengthen inflation-control measures by combining appropriate monetary policies with increased domestic production and the removal of supply-side constraints, particularly in food, energy and transportation.

ii. Monetary authorities should promote affordable productive credit for agriculture, manufacturing and small and medium-sized enterprises in order to stimulate investment, employment and income generation while reducing the adverse long-run effect of high interest rates;

iii. Government should improve exchange-rate stability and strengthen domestic productive capacity through better foreign-exchange market liquidity, export diversification, improved infrastructure and reduced dependence on imported goods and inputs.

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