Sarcouncil Journal of Entrepreneurship and Business Management

ISSN(Online): 2945-3720

Volume- 05| Issue- 04| 2026

Research Article **Received:** 15-03-2026 | **Accepted:** 10-04-2026 | **Published:** 25-04-2026

Consumer Price Indices: Implications on Nigeria's Poverty Level

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Abstract: Following the economic reasoning that the purchasing of a country's currency is related to the people's poverty level, this study is conducted to ascertain how consumer price indices in Nigeria impacted on the country's poverty level within the data sample of Q12003-Q42023. Indicators of consumer price indices adopted are food, education, housing and health price indices while poverty level is measured by poverty rate. The primary source of the employed quarterly data are the statistical documents of Nigeria's apex bank (CBN) and Word Development Indicators (WDI). Applying the estimation processes of the Lagged Autoregressive Distributive (ARDL) mechanism, the outcomes established that; the price indices of food, education and housing exhibited short and long runs substantial incremental effects on Nigeria's poverty rate, but health price index contributed insignificantly positive influence on the country's rate of poverty in the near and long terms. Thus, this necessitates emphasizing that rising general price indices exacerbated Nigeria's poverty rate during the sampled data period. Based the study outcomes and conclusion, it is necessarily highlighted that government should ensure effective food production and security policies for sustainable food supply; underscore affordable and accessible quality education by strengthening actions and innovative financing for cost moderated inclusive education; implement affordable housing policies and subsidized primary healthcare services, as these steps would moderate the associated price indices and weaken poverty level in the country.

Keywords: Poverty Rate, Consumer Price Indices, Purchasing power, Nigeria, ARDL.

INTRODUCTION

One of the greatest challenges of the developed and developing economies today is the high level of poverty, which has sustained rising trend for years. Poverty as a universal problem which bothers both the developed and the developing economies around the world is fundamental in the Sustainable Development Goals (SDGs). It particularly exerts severe negative consequences in sub-Saharan Africa (Addae-Korankye 2014). Poverty is fundamentally conceptualized a multidimensional phenomenon with different elements including inadequate material income, inadequate standard of living, hunger, undernutrition, disease, poor access to educational and health services, increasing mortality and morbidity, homelessness, inappropriate housing, insecure environments, and social exclusion and discrimination (Ogbeide, Nwamaka & Agu, 2015). According to statistics presented globally, over 900 million people still live below $1.25 per day of subsistence (United Nations Development Programme, 2022). However, the continued Nigeria's poverty concern has for decades drawn the attention of the global society, government and non-government organizations, and academicians. The poverty levels in Nigeria are endemic, and chronic, and has engulfed a significant portion of the country's population, with state of living conditions significantly declined in the last ten years; as real disposable incomes have been unfavourable and level of malnutrition increased (Uma & Eboh, 2013).

Rising rate of poverty in any economy do not occur independently. A significant causal factor in Nigeria is inflation as manifested in the trends of consumer price indices. It is an indispensable macroeconomic health indicator capable of causing changes, transformation and redirection of the growth pattern of a country's economy (Miftahu & Rosni, 2017). Consumer price index serves as a fundamental economic indicator which measures the average price changes of a basket of consumable goods and services over time (World Bank, 2023). As a primary gauge of inflation, consumer price index fluctuations have profound implications for poverty levels, particularly among low-income households that devote a disproportionate portion of earnings on basic necessities like food, housing, and healthcare (Ravallion, 2016). Hence, when consumer price indices rise faster than wages, the real purchasing power of vulnerable populations declines, pushing more individuals below the poverty line. This relationship creates an "inflation-poverty trap" where price increases for essential commodities force poor households to sacrifice nutrition, education, and healthcare for survival (Nwadike,

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DOI-https://doi.org/10.5281/zenodo.19772107

Njoku & Badmos, 2020). Furthermore, Yakubu, Zoramawa and Shember (2024) noted that consumer price indices directly impact household purchasing power, particularly for population earning low-income who spend significant portion of their pay on basic needs. Intensifying consumer price indices often leads to increased living costs, exacerbating poverty by reducing real income and limiting access to basic necessities. According to Oranefo (2022), one of the most direct impacts of inflation on the poverty level is its effect on purchasing power. Continuous price increase wears down real market value of money, suggesting, a particular amount of money buys fewer goods and services with passage of time; thereby having profound consequences for consumers' standard of living, particularly those on fixed incomes or with limited ability to adjust their wages or salaries in response to exacerbating price conditions.

Worse still, despite being palpably endowed with vast human and natural resources, Nigeria is still disturbingly and ironically ranked among nations as one of the poorest. According to information provided by the United Nations Development Programme (2022), Nigeria occupied the 161st position in Human Development among 189 countries. As detailed in the report, the Human Development Index for Nigeria stands at 0.539, which is judged as low. In addition, other accessed data indicated that, Nigeria's poverty and unemployment rates respectively recorded 7.2 and 7.8 percent in 2014; and that these rates respectively escalated to 40.1 and 33.3 percent in 2022 (National Bureau of Statistics, 2022). Report published in 2022 by the World Bank also indicates that up to four (4) out of every ten (10) Nigerians earn their living under the national poverty threshold. Numerous Nigerians, especially people resident in the Northern part, are also illiterate and deprived of basic amenities like electricity power, potable water, and healthy environment. Also, their reports included that employed diligence of Nigerians do not guarantee escape from poverty, since considerable portion of the population earn from subsistence small-scale household farm and non-farm enterprises; stating that a meagre 17 percent of the workforce in Nigeria are engaged in jobs insulated against poverty.

Nigeria has had increasing consumer price indices (CPIs), most of which pertain to food, education, housing, and health that have been contributing to the persistently rising level of poverty. There is empirical evidence concerning the relationship that exists between rising inflation in basic commodities and living conditions. As the National Bureau of Statistics reported, Nigeria's price inflation rose to be 28.9% in 2023, and food price reached 35.4% which is the highest in decades. This inflationary trend has disproportionately affected low-income households, which spend over 60% of their income on food alone (National Bureau of Statistics, 2023). The food price index has been particularly devastating, as rising costs of staples like rice, maize, and cooking oil have forced families to reduce meal portions, skip meals, or rely on cheaper, less nutritious alternatives, leading to increased malnutrition and food insecurity. The food price index has also contributed to poverty, with school fees, textbooks, and transportation costs rising by 25% annually, pushing many children out of education and perpetuating intergenerational poverty (UNICEF, 2023).

The housing price index further compounds Nigeria's poverty crisis, with urban rents and construction costs increasing by 18% year-on-year. Low-income earners, especially in cities like Lagos and Abuja, now spend up to 50% of their earnings on housing, leaving little for other necessities. Additionally, the health price index has surged due to rising costs of medicines, hospital bills, and health insurance, with out-of-pocket health expenditures pushing 5 million Nigerians into extreme poverty annually. The combined effect of these indices has led to about 40% increase in Nigeria's poverty headcount ratio between 2020 and 2023, with over 95 million Nigerians now living below the poverty line (National Bureau of Statistics, 2023). This suggests that inflation in critical sectors is not just an economic issue but culminates in crisis, eroding purchasing power and limiting access to basic needs. Despite these alarming trends, there remains a gap in comprehensive statistical analysis examining how each consumer price indices component (food, education, housing, and health) independently and collectively influences poverty level in Nigeria. This therefore motivated the researchers to carry out a study which empirically examines how consumer price indices influence Nigeria's poverty level. Specifically highlighted in the current study is the pattern of impacts food, education, housing and health price indices have had on the country's poverty rate within the sampled period.

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REVIEWED LITERATURE

Theoretical Background

The select theories adopted for guiding this study are discussed as follows:

A. Fiscal Theory of Price Level (FTPL)

This theory was propounded in 1991 by Eric Leeper and later reformulated by some other researchers, among whom are Woodford, Cochrane, and Sims. The theory stipulates the policy rules, stating that price levels are orchestrated by extra-market debt together with her planned current and future taxation and expenditure measures while undermining monetary policy's role. The money velocity (V_t) stated at particular period t as fraction of 'nominal output (the price level Pt multiplied by real output Y_t) to nominal money balances (M_t): $V_t = {}_MPY_t = 01$'. Issue of dissimilarities among monetary policy specifications emanates from the pattern of determining these four economic variables, and which among the four to be employed as exogenous or endogenous. Consequently, in computing the economy's comprehensive equilibrium path, the price level is usually ascertained together with M_t, Y_t, and V_t. P_t has many paths to satisfying equilibrium conditions. This is especially because monetary policy is prescriptive, that is, when it prescribes an exogenous interest rate, the first level of prices is indeterminate and later inflation is vacillated by sunspots and uncertainty under the influence of self-fulfilling expectations. One of the main implications of mutually consistent present and future policies is that fiscal policy changes in the present (i) need to alter the real value of the government liabilities and therefore change future policies; (ii) they need to change the price level in which the money market will only focus on clearing when there is a change in the money supply to the existing demand of the real money balances. The final impact on the price level falls on the precise policies that will be changed (Gordon, and Leeper, 2002). Overall, it can be said that the FTPL has been widely controversial since its inception.

Some of the criticisms include that the FTPL addresses the negative of the value of government debt, that there is no ruling rationale as to why the value of debt and the value of money are equal, and that households expecting a government default would be able to trade government debt with a discount without necessarily influencing the value of money. The criticism is especially severe when the central bank follows a monetary policy that precludes monetization of government debt however; the criticism does not hold when the monetary policy of the apex bank allows the unlimited monetization of debt, just as in the case of an interest-rate peg. In the given case, the central bank promises to purchase and sell any arbitrary quantity of money and one-period government debt at a given price thus, promising money in exchange, but leaving it open indefinitely to create money as a result, a government default on a nominal debt is eliminated. In this situation, the FTPL is effectively a form of a commodity-money standard, along with the other types of government liabilities forwarded on the present value of future government surpluses (Cochrane, 2001).

b. Monetarists' Inflation Theory

This is an explanatory exposition by the monetarists' family of economists that universally is identified with Milton Friedman as the nucleic exponent. This broad economic philosophy captioned 'the quantity theory of money (QTM)', emphasized that trajectory of price level as measure of economic stability is centrally dependent on money quantity circulating in the economy: that alteration of the economy's volume of money liquidity transmits to direct and proportional variation in consumers' price indices (inflation). Emphasis on the Irving Fisher's equation of exchange, the QTM is highlighted as popularly specified:

$$MV = PQ \quad (2.1)$$

Where the identities' definitions are: M as the economy's aggregate Money Supply, V as the circulating money Velocity, P defines the going mean Level of Price, while Q defines transactions Volume.

The monetarists postulation stress on inflation as an offshoot of excessive upward variation of the economy's circulating amount of money, which devalues the real market value of money; stating its influence on the goods and services' price status with consequential slow real changes in growth driving output activities with effect on poverty. The proponents assert that goods and services' as well as resources' price indices (inflation) influence the trajectory of investments, exports, and capital accumulation in no small dimension, and consequently, implicate on an economy's long-run growth dynamics. Deducing from their presentation, it is understandable that they emphasize mainly on long-run, relative to short-run dynamics.

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Related Empirical Review

George-anokwuru and Inimino (2025) studied how inflation impacts Nigeria's income inequality for the data period 1985 to 2022. Applying the bounds Autoregressive Distributed Lag (ARDL) estimation process, the empirical outcome established a long-run relationship among the indicators, highlighting long and short-runs' positively notable implications of inflation and unemployment rates on income inequality in the country. Using yearly data from 1998 to 2017 Ogbebor, Oguntodu, and Oyinloye (2020) investigated how standard of living in Nigeria is impacted by the country's inflation rate. From the applied Auto-Regressive Distributed Lag (ARDL) specification, the outcomes highlighted long-term correlation between inflation and standard of living, suggesting inversely significant inflationary influence standard of living during the study period. In a related Nigerian study, Adeyemi-Tijani (2025) by estimating with ARDL found inflation as exerted negatively insignificant influence on food price whereas exchange rate greatly contributes to the food price escalation thus interfering with Food Security. Agricultural output is found to play a mitigating role in food price inflation, although its effect is not statistically significant. The relationship between food price inflation and poverty is complex, with higher food price inflation unexpectedly correlating with reduced poverty levels, possibly due to specific economic activities benefiting certain income groups. About how inflation affects Nigerians' standard of living over 1985 to 2023, Tubotamuno and Oladosu (2024) empirically established using the ARDL specification that consumer and commodity price indices significantly undermined long term and short terms per capita gross domestic product while the borrowing rate of interest is as expected insignificantly unfriendly for the caused variable in the period sampled.

More so, in analyzing the implication of price inflation on Jigawa state's living standard by employing questionnaire raised data over 2014 to 2016, Gagarawa and Mehrotra (2017) established that inflation plays notable and negative role in determining the standard of living of primary school teachers in the State. By researching the inflationary trend in Nigeria to evaluate how it affects the economy development, Idris and Bakar (2017) employed descriptive charts to demonstrate the trend of inflation and growth in the GDP; thus, improving clarification about inflationary impact in Nigeria's desired economic growth. It is concluded that the Nigeria's inflationary trend constitute hindrance to sustainable growth and development.

Applying 1991 to 2023 yearly data with vector autoregression (VAR) as estimation technique, Yakubu, Zoramawa, and Shember (2024) highlighted existence of short and long terms equilibrium in their study on how inflation and unemployment are related with Nigeria's rate of poverty and human development index. Investigating the effects of rising food prices on poverty in Nigeria, Minot and Martin (2023) in their study revealed that elevated inflation intensifies poverty by diminishing the purchasing power of households, thereby complicating their ability to secure essential goods. This observation holds especially for households with limited financial resources, which allocate greater share of income for basic food consumption. In their reexamination of Nigeria's rate of inflation on poverty, Isiaka and Olayiwola (2022) utilized 1981 to 2020 yearly data series in a multiple linear regression and interactive analyses specification. The estimation outcome indicated concurrent rise between consistent price increase and Nigeria's poverty experience, which however is significantly moderated by lending rate interaction with inflation in Nigeria. As empirical evidence from Nigeria using 2000-2018 monthly data, Nwadike, Njoku and Badmos (2020) reported from the distributed lag autoregressive analysis a negatively significant correlation at the study period between inflation and poverty. In similar diagnosis, Danlami, Hidthiir, and Hassan (2020) employed the mechanism of Toda Yamamoto causality on annual data of 1980-2016, and established that two-way causal connection between inflation and poverty existed.

Olufemi-Phillips, Igwe, Ofodile, Eyo-Udo and Toromade (2024) utilized econometric modelling to examine how prices inflation impact food security and accessibility of Nigerian economy. As evident, its results demonstrated a significant correlation between increasing inflation and elevated food prices, with a disproportionate impact on low-income households and vulnerable groups. The investigation highlighted the importance of comprehending the wider effects of inflation on food accessibility, particularly in areas where food security is a significant concern. Obiora, Ezeh, George, Orjiakor, Anigbogu, Nwabude and Omologbe (2023) performed an estimation to ascertain how inflation affects food security in Nigeria. The findings indicate that

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tackling these challenges necessitates a multifaceted approach involving policy measures aimed at stabilizing inflation, boosting agricultural productivity, upgrading infrastructure, fortifying safety nets, and enhancing governance and policy execution.

Adopting an autoregressive distributed lag specification on sample of 1980-2018, Olugbenga and Oluwabunmi (2020) also discussed how the inflation rate affects the future of growth of the Nigerian economy, thus revealing that inflation and real exchange rates had reasonable negative effect on the economy's growth numbers, with no causal evidence of inflation and degree of openness to GDP. In related research, Adaramola and Dada (2020) discovered that inflation and real exchange rate had detrimental effects, as interest rate and money supply appeared positive on the Nigeria's growth trajectory. However, causality estimation highlighted unidirectional effects from interest rate, exchange rate, government consumption expenditures to GDP; but no causation from inflation and the level of openness to GDP. About how inflation affects Nigeria's growth and unemployment in era 1981 to 2018, utilizing the lagged Auto-Regression Distributed (ARDL) framework, Ahmadu and Alfred (2020) reported no long-run 'economic growth, unemployment, inflation rate' evidence of relationship; as short-run positively significant relationship of growth and unemployment with inflation rate was indicated. Ogu, Adagiri, and Abdulsalam (2020) using sample of 1999 to 2017 and the Ordinary Least Squares (OLS) estimation process, highlighted inflation to have positively but insignificantly influenced growth while interest rate had detrimentally significant effect on the regressand. Idris and Suleiman (2019) measured how inflation affects economic performance of Nigeria and the estimated data using vector error correction mechanism on 1980-2017 yearly series indicated long-run correlation and that the inflation rate and interest rate had long-run negative impact on economic growth over the period sampled. Applying the method of Ordinary Least Squares on 1986-2015 data, Anidiobu, Okolie, and Oleka (2018) investigated how Nigeria's yearly inflation dynamics affects her growth trajectory, thereby highlighting that INFR insignificantly enhanced RGDP across the years of study. Enejoh and Tsauni (2017) in measuring how inflation influenced growth performance in Nigeria based on ARDL process for sample data of 1970 to 2016. The estimated outcome suggested inflation had positive short and the long runs growth effects.

METHODOLOGY

The ex-post facto research design is applied. The technique aims at gathering existing information that will aid the researcher test hypotheses or answer research questions. Moreover, ex-post facto is another research design that is normally employed in studies for which the research process is initiated after the phenomenon has taken place, and the researcher does not interfere with or manipulate the situation. In justification, pre-existing quarterly data covering twenty-one years (2003Q1 to 2023Q4) were utilized. These statistics have been obtained from the statistical bulletin of Nigeria's apex bank (CBN), the bureau of statistics of the Nation (NBS) and the World development indicator's (WDI) source for 2024.

Model Specification

To underpin this study, the theoretical framework adopted is the 'Fiscal Theory of Price Level' which poses that fiscal discipline is a crucial measure for stabilizing prices and preventing inflation-induced poverty. According to the theory, without credible fiscal backing, rising consumer price index can disproportionately hurt the poor by worsening inequality and poverty level. Furthermore, the model for this study is specified by the modifying the work of Adeyemi-Tijani (2025). This referred study used food price inflation and poverty rate in their work. The modified model for the current study is presented in tripartite forms as can be seen below:

First, the functional form model is:

$$PVR = f((FPI, TPI, HPI, HTI) \quad (3.1)$$

Mathematically, equation (3.1) is re-specified to include the constant and parameter terms as follows:

$$PVR_t = \beta_0 + \beta_1 FPI_t + \beta_2 TPI_t + \beta_3 HPI_t + \beta_4 HTI_t \quad (3.2)$$

For reason of presenting an inexact relationship, equation (3.2) specified in econometric form by introducing the disturbance factor as evident below:

$$PVR_t = \beta_0 + \beta_1 FPI_t + \beta_2 EPI_t + \beta_3 HPI_t + \beta_4 HTI_t + \mu_t \quad (3.3)$$

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Method of Data Analysis

Applied in this study is the Autoregressive Distributed Lag (ARDL) analytical process given that all the employed indicator variables appeared in mixed stability of no unit root at levels [I(0)] and at first difference [I(1)] as established by the unit root diagnosis being facilitated by Econometric Views (E-Views) 13 statistical package. The ARDL model is expressed as:

$$\Delta(PVR_t) = \beta_0 + \beta_{1i}\Delta(PVR_{t-i}) + \beta_{2i}\Delta(FPI_{t-i}) + \beta_{3i}\Delta(TPI_{t-i}) + \beta_{4i}\Delta(HPI_{t-i}) + \beta_{5i}\Delta(HTI_{t-i}) + \sum_{t=1}^{p}\delta_{1i}\Delta(PVR_{t-i}) + \sum_{t=1}^{q}\delta_{2i}\Delta(FPI_{t-i}) + \sum_{t=1}^{p}\delta_{3i}\Delta(TPI_{t-i}) + \sum_{t=1}^{q}\delta_{4i}\Delta(HPI_{t-i}) + \sum_{t=1}^{q}\delta_{5i}\Delta(HTI_{t-i}) + \lambda ECMT_{t-i} + \varepsilon_{ti} \quad (3.4)$$

Where: PVR, FPI, EPI, HPI, and HTI are respective notations of Poverty Rate, Food Price Index, Education Price Index, Housing Price Index, and Health Price Index, $\boldsymbol{\beta_0}$ = The intercept/constant variable, $\boldsymbol{\beta_1}$ = Coefficient of food price index, $\boldsymbol{\beta_2}$ = Coefficient of education price index, $\boldsymbol{\beta_3}$ = Coefficient of housing price index, $\boldsymbol{\beta_4}$ = Coefficient of health price index, $\boldsymbol{\mu_t}$ = Disturbance term at time t.

ESTIMATES' RESULTS AND DISCUSSION

Unit Roots' Diagnoses

The estimates' outcomes are scheduled below in Table 1:

Table 1: Unit Root Analyses Outcomes

Augmented Dickey-Fuller						
Variables	**Analyses @ Level**	**0.05 Critical Values**	**1st Diff. Analyses**	**0.05 Critical Value**	**I(d.)**	**Stability @**
PVR	-1.951823	-2.896779	-10.92562	-2.897223	I(1)	1st Difference
FPI	-0.446550	-2.898623	-5.419347	-2.898623	I(1)	1st Difference
EPI	-5.197916	-2.897223	-	-	I(0)	Level
HPI	-3.744601	-2.898145	-	-	I(0)	Level
HTI	- 4.526119	-2.898145	-	-	I(0)	Level

Source: *Authors' Computation, 2026.*

The estimation outcomes as presented in Table 1 are the stationarity characters evident in the employed quantitative indicators. As clearly scheduled, the poverty rate (PVR) and food price index (FPI) are both not stable at level because the associated test statistics, which are respectively '−1.951823 and 0.446550' fall short of the 0.05 critical benchmarks in absolute terms. However, after first differencing, they become stationary, as indicated by their higher negative test statistics (−10.92562 and -5.419347) compared with the critical values. This means that poverty rate (PVR) and food price index (FPI) got integrated of first order [I(1)], implying their long-run trends need to be differenced once before use in regression analysis to avoid spurious results. Conversely, the education price index (EPI), housing price index (HPI), and health price index (HTI) are level stationary as the respective ADF estimate values at levels (-5.197916, -3.744601, and - 4.526119) are by ignoring the negative signs greater relative to the 0.05 conventional test benchmarks. These variables are integrated of order zero, such as I(0); which suggest no presence of unit root elements, thus, may be used in their level form and not necessarily differenced. The occurrence of I(0) and I(1) stabilities is the basis for applying the Autoregressive Distributed Lag (ARDL) mechanism in subsequent analysis, as it accommodates regressors of mixed [I(0) and I(1)] levels of stability. In line with this, the results are supportive of the suitability of the ARDL bounds testing used for ascertaining the long and short terms dynamic implications amongst the adopted set of key variables' indicators.

Cointegration Estimate's Results

This set of estimation outcomes on the basis of Bounds ARDL's cointegration diagnosis is tabulated in Table 2:

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Table 2: ARDL's Bounds Test Outcomes

Significant Level	**Critical Bounds' Values**		**Hypothesis**	**F-Statistic**
	I(0) Bound	**I(1) Bound**		
10%	2.2	3.09	**H0:** Long run association does not exist	
5%	2.56	3.49		4.800432
2.5%	2.88	3.87		
1%	3.29	4.37		
F_{PVR}(PVR/FPI, EPI, HPI, HTI)			K = 4	

Source: *Authors' Computation, 2026.*

Table 2 shows the result of the bounds cointegration test that determines a long-run equilibrium existence amongst the variables; poverty rate (PVR), indices of food price (FPI), education price (EPI), housing price (HPI), and health price (HTI). The calculated F -statistic of 4.800432 at the 0.05 level of significance compares with the upper bound critical value of 3.49 established that the rejection of no long-run relationship null hypothesis in favour of long run stability existence alternative hypothesis. Thus, poverty rate and the chosen consumer price indices (food, education, housing, and health) seem to be cointegrated. This is to say that these variables co-move within time irrespective of the short-term fluctuations, implying that changes in price indices have long-term effects on poverty dynamics. This finding has strong policy implications. The existence of a cointegrating relationship means that government interventions targeting price stabilization in food, education, health, and housing sectors will have enduring impacts on poverty reduction. It also highlights the structural interdependence between cost-of living indicators and poverty levels, suggesting that policies aimed solely at short-run relief may be insufficient without addressing long-run price stability. Thus, the result provides a robust justification for adopting comprehensive and sustainable anti-poverty strategies that integrate price management with welfare and development policies.

Dynamic ARDL Estimates' Outcomes

Table 3 scheduled and reported the systematic analyses outcomes from the long and short runs' Autoregressive Distributed Lag model study of how consumer price indices influenced Nigeria's poverty level.

Table 3: The Dynamic Model Analyses Outcomes

Regressand = *PVR*				
Long-Run ARDL Estimates				
Variables' Initials	**Coefficients**	**Std. Errors**	**t-Statistics**	**Probs.**
FPI	0.062115	0.016285	3.814247	0.0003
EPI	0.500284	0.191786	2.608554	0.0112
HPI	0.657298	0.294813	2.229545	0.0291
HTI	0.225824	0.294028	0.768036	0.4451
C	90.63860	59.36422	1.526822	0.1314
Short-Run ARDL Estimates				
D(FPI)	0.657564	0.076209	8.628417	0.0000
D(EPI)	0.026461	0.009337	2.834044	0.0060
D(EPI(-1))	-0.227896	0.153359	-1.486030	0.1419
D(EPI(-2))	-0.204013	0.137976	-1.478607	0.1439
D(EPI(-3))	-0.214813	0.128393	-1.673092	0.0989
D(HPI)	1.264701	0.392991	3.218140	0.0020
D(HPI(-1))	1.945815	0.424278	4.586174	0.0000
D(HTI)	0.008799	0.137639	0.063929	0.9492
CointEq(-1)*	-0.391900	0.070478	-5.560614	0.0000
Adjusted R^2 = 0.632271		D-W stat = 2.179485		

Source: *Authors' Computation, 2026.*

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The long and short runs' outcomes provided how price indices of food, education, housing, and health impacted Nigeria's poverty rate (PVR). Starting with the food price index (FPI), its coefficient in short-run is 0.657564, with $p < 0.05$ suggests highly exacerbating effect, showing that immediate increases in food prices sharply raise poverty levels, likely due to the large share of food in household expenditure. In the long run, similar food price index result is found with evidence as 0.062115, and $p < 0.05$, suggesting persistent food price increases contribute to worsening poverty, though the effect size is relatively smaller than it appeared in the short run. This means food price shocks are felt most intensely in the short term but still exert structural impacts over time.

For the education price index (EPI), its coefficient in short-run outcome is also positively notable effect based on 0.026461, and $p < 0.05$, which indicates rising education price index (EPI) directly increase poverty, possibly by limiting household resources available for other consumption and excluding low-income families from educational opportunities. However, the long-run coefficient (0.500284, $p < 0.05$) is even larger and significant, showing that sustained increases in education price index (EPI) have a stronger poverty-inducing effect over time. This underscores the structural role of affordable education in poverty reduction, as persistent cost barriers entrench intergenerational poverty.

The housing price index (HPI) shows a strong positive short-run effect on poverty (1.264701, $p < 0.05$), meaning immediate increases in health price index (HPI) drastically raise poverty rates, likely due to catastrophic health expenditures faced by households. The long run outcome is similar, with 0.657298 as coefficient, and $p < 0.05$ being also positively significant, though smaller in magnitude than the short-run effect. This suggests that while immediate shocks from rising housing prices heavily impact household welfare, structural increases costs of housing also contribute significantly to sustained poverty levels.

Turning to the health price index (HTI), the short-run initial coefficient (0.008799, $p = 0.9492$) is statistically insignificant, implying that short-term fluctuations in health price index (HTI) do also exacerbate poverty but not prominently. Similarly, in the long run, health price index (HTI) also aggravates poverty but insignificantly with coefficient of 0.225824, and $p = 0.4451$. It is thus, suggestive that, unlike food, education, and housing, changes in health services price may not be a primary driver of poverty dynamics in Nigeria, possibly because households adjust through informal health arrangements.

More so, also established here is negative (-0.391900) coefficient with substantial p-value not as much as 5% for the error-correction notation (CointEq -1). This proves that about 39% of equilibrium is restored yearly in the long-run after short-run distortions. Thus, this outcome suggests that the shocks in poverty that are a result of spiking price indices are not permanent and slowly drift towards the long-run equilibrium. The estimates scheduled in Table 3 also showed 0.632271 as the R-squared adjusted, which defines good fitted model. It suggests that systematic movements of the price indices (FPI, EPI, HPI, HTI), which are the explanatory indicators, explained about 63 percent of the poverty incidence whereas the rest 37 percent is blamable on other factors not reflected in the poverty equation. In general, the findings indicate that food, education and the cost of health are the dominant structural drivers of Nigeria's high poverty incidence. Although, housing costs showed contributory but weak effects, the speed of adjustment suggests that poverty dynamics respond moderately to shocks in the cost-of-living indicators. This emphasizes the importance of price stabilization policies, subsidies, and welfare interventions targeting food, education, and healthcare to achieve long-run poverty reduction.

Post-Estimation Tests

The post-estimate's diagnoses results are displayed in Table 4:

Table 4: Post-Model Estimate's Diagnoses

Tests' Types	**Tests' Methods**	**X^2 Values**	**X^2 Probs.**	**Decisions**
Normality Test	Jarque-Bera Test	1.784164	0.521685	No H_0 Rejection
Serial Correlation Test	Breusch-Godfrey LM Test	0.651052	0.5248	No H_0 Rejection
Heteroscedasticity Test	Breusch-Pagan-Godfrey	1.476912	0.3113	No H_0 Rejection
Functional Form Test	Ramsey RESET	1.203016	0.2332	No H_0 Rejection

Source: *Authors' Computation, 2026.*

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The evidence on the reliability and validity of the ARDL regression model is provided based on the post-estimate's diagnostic tests provided in Table 4. Starting with Jarque Berra normality test, chi-square = 1.784164, and p = 0.521685 which exceeds the 5% significance benchmark, means null hypothesis of normal distribution is not rejected. The residuals are therefore assumed to be normally distributed which forms the basis of validity of statistical inference and hypothesis testing in the model.

The serial correlation diagnosis by the Breusch-Godfrey LM approach produced chi-square value of 0.651052, and p = 0.5248 that exceeds the value of 5%. In this regard, the hypothesis of no rejection of absence of serial correlation is sustained. This result means that the error terms are not correlated serially, this therefore enhanced efficiency in the estimated model's coefficients and protects against the presence of model misspecification due to autocorrelation.

The heteroscedasticity test (using the Breusch-Pagan-Godfrey test), produced chi-square of 1.476912, and a p-value of 0.3113 that surpasses the 5% mark, suggests the null hypothesis of homoscedasticity is not rejected. Therefore, the model is devoid of heteroscedastic, which implies that the variance of the observations of the residuals is across observations constant. This outcome presented efficient coefficient estimates; thus, the result is homoscedastic.

Lastly, the Ramsey RESET test on functional form returned value of chi-square as 1.203016, and p-value as 0.2332, which is in excess of the 5% mark. Thus, the null hypothesis of a properly specified functional form is not rejected, and it means that the model only includes relevant variables. Overall, these diagnostics suggest that the ARDL model is generally robust, stable and suitable for reliable inference and policy prescription.

Discussion of Findings

Regarding the influence of food price index on the country's poverty rate based on the sample utilized, the study's conclusions demonstrated that this regressor exerted significantly exacerbating long and short terms effects on the country's poverty rate. This result is consistent with that of Ogu, Adagiri, and Abdulsalam (2020), who reported inflation to have insignificant undermining effect on Nigeria's economic development. Additionally, the results of the study demonstrated education price index to have had a significant poverty worsening impact in Nigeria over the long and short terms. This finding is consistent as reported by (Nwadike, Njoku, & Badmos, 2020), who discovered a statistically significant inducing correlation from inflation to poverty in Nigeria. Similarly, the study's results on the housing price index's impact on Nigeria's poverty rate demonstrated that it had positive and substantial impact on the country's poverty rate over the terms. The outcome was in line with previous research by Danlami, Hidthiir, and Hassan (2020), which demonstrated a reciprocal causal association between poverty and inflation. Finally, regarding the impact of the health price index on the poverty rate in Nigeria. The study's results demonstrated that this index exerted significantly inducing effects on the country's long and short terms poverty rate. This outcome is consistent with (Ogbebor, Oguntodu, and Oyinloye, 2020), who found that inflation significantly demeaning effect on Nigeria's living standards.

CONCLUDING REMARKS AND POLICY

This reported study highlighted how consumer price indices had influenced Nigeria's poverty level over the adopted sample period. The analytical outcomes indicated that the price index for food, education, housing and health consumption have positive effects on poverty rate. Sequel to the established results, it is critical to highlight that increase in consumer price indices significantly contribute to worsening poverty level in the country.

Attendant to the research outcomes and concluding inference, the researchers essentially emphasize the following policy actions:

1. Emphasize sustainably effective food production and security policies to stabilize food supply and prices. This can be achieved through strategic investments in security mechanisms and large-scale farming infrastructure to spur primary and value chain food production activities which will transmit to moderate food prices, enhance the purchasing power of Naira and mitigate poverty rate in the economy.

2. There is also need to underscore affordable, accessible and quality education by strengthening financing through innovative funding models, such as public-private partnerships (PPPs) and education bonds,

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which will reduce financial burden on households and increase knowledge quality. More so, introducing fee subsidies, tuition waivers and conditional cash transfers (CCTs) for children from poor households, as well as fortifying public investments in Universal Basic (UBE) and technical/vocational educations will suffice; as reduced cost of education will increase literacy rate, acquisition of employability skills, and result in downward cycle of poverty

3. Government should strengthen the National Housing Fund (NHF), implement affordable housing policies and encourage low-cost housing development through tax reliefs to real estate developers. Expanding access to micro-mortgages and subsidized home ownership schemes for low earning households need to be considered. Additionally, rental control and support schemes, such as housing vouchers for the urban poor is also imperative; as actions in these directions will help to improve affordability of housing and relieve poverty pressures related to housing prices, especially in major cities, such as Lagos, Abuja and Port Harcourt.

4. Nigeria should better organize and strengthen the country's National Health Insurance Authority (NHIA) in order to achieve greater coverage for the poor and vulnerable. Expansion of subsidized primary healthcare services in rural and peri-urban areas will reduce reliance on expensive private healthcare providers, and consequently weaken health sector prices and undermine poverty level.

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Source of support: Nil; **Conflict of interest:** Nil.

Cite this article as:
TUBOTAMUNO, B., AKIDI, V. & ORLU, L. “Consumer Price Indices: Implications on Nigeria’s Poverty Level." *Sarcouncil Journal of Entrepreneurship and Business Management* 5.4 (2026): pp 1-11.

Publisher: SARC Publisher