FOOD SECURITY: A STRATEGY FOR POVERTY ALLEVIATION IN NIGERIA

ABSTRACT

Nigeria faces a severe and multifaceted poverty crisis, with a significant portion of its population lacking access to basic necessities such as food, employment, healthcare, education, and clean water. The country's poverty rate has reached alarming proportions, positioning it among the world's most impoverished nations, despite its abundant human and natural resources. Hunger and famine are among the most severe manifestations of poverty in Nigeria, and while the government at various levels has implemented initiatives to ensure food security and lift millions out of poverty, the challenges of hunger and low living standards remain widespread throughout the nation. This paper examined the impact of food security on poverty alleviation in Nigeria utilizing annual data from 1990 to 2022. The paper employed the Autoregressive Distributed lag technique of analysis with the findings noting that agricultural output significantly and positively affects poverty alleviation in the short run with the long-run impact being insignificant. Human development index insignificantly and positively impacts on poverty alleviation in the short and long run in Nigeria. Gross national income per capita negatively and insignificantly affected poverty alleviation in Nigeria in both periods. Inflation positively and insignificantly affected poverty alleviation in Nigeria. Labour participation rate significantly affected poverty alleviation in the short run positively with such an impact being insignificant in the long run. Policymakers should focus on improving agricultural productivity, ensuring equitable distribution of economic gains, controlling inflation, and creating quality employment opportunities, while also addressing the multidimensional nature of poverty through targeted interventions in education and healthcare.

Keywords: Food Security, Poverty, Poverty Alleviation, Poverty Dimension, Autoregressive Distributed Lag

1.0 Introduction

Poverty alleviation represents a significant global challenge, especially in developing regions like Africa. The United Nations Development Programme (2023) highlighted that around 1.1 billion people, or just over 18% of the global population of 6.1 billion across 110 countries, are trapped in acute multidimensional poverty with Sub-Saharan Africa accounted for approximately 534 million individuals, while South Asia has about 389 million, indicating that nearly five out of six impoverished individuals live in these two areas. This dire situation emphasizes the pressing need for targeted interventions in these regions, which collectively encompass a substantial share of the world's impoverished population. The deprivations faced by these individuals span health, education, and living standards, with nearly two-thirds of those experiencing multidimensional poverty residing in middle-income countries (UNPD, 2023; Multidimensional Poverty Peer Network, 2024). Although some nations, like Cambodia and India, have made notable progress—halving their MPI values within just 15 years—advancements remain inconsistent, as many countries continue to struggle with the compounded repercussions of the COVID-19 pandemic and escalating inequalities (GMPI, 2023; UNDP, 2023). In Africa, where rural communities are disproportionately affected by poverty, implementing targeted policies based on national MPIs is crucial for addressing these interconnected deprivations and promoting sustainable development (Amao, Ayantoye & Fanifosi, 2017; Alkire, 2020). Such measures would deepen the understanding of poverty dynamics and guide effective strategies aimed at uplifting communities from poverty.

Poverty in Nigeria remains a pervasive issue, even though the country is rich in natural resources. This challenge manifests in the daily struggles of individuals who lack the means to secure essential needs such as food, clothing, and shelter. Many households are also deprived of access to education, healthcare, clean water, and employment opportunities. As Danaan (2018) points out, the harsh reality of poverty in Nigeria is that a significant portion of the population lives far below acceptable living standards, lacking basic necessities. World Bank (2022) further highlights that poverty is especially acute in rural areas, where deteriorating infrastructure forces

women and children to walk long distances for water and firewood, students study in makeshift conditions under trees, and health centers are poorly equipped. The cycle of poverty in these areas is exacerbated by natural disasters, economic instability, and crime (Nnamonu, Ejimonye & Omaliko, 2021).

Poverty in Nigeria is multifaceted, encompassing joblessness, overwhelming debt, economic dependence, restricted freedoms, and the inability to meet basic needs or acquire assets (Anibueze, 2018; Eberechiibekwe, 2022). It is estimated that about 70% of Nigerians live in poverty, with income inequality widening from a Gini coefficient of 0.429 in 2004 to 0.4471 in 2010, and 35.1 in 2019 (Anyaegbu *et al.*, 2019; World Bank, 2019). The unemployment rate was alarmingly high at 54% in 2012 and further increased to 37.7% in 2022, maternal mortality rates remain elevated, and the average life expectancy at birth is 52 years reflecting the multifaceted dimension of poverty in Nigeria (Egole, 2023).

Currently, 86.9 million Nigerians are living in extreme poverty, representing nearly half of the country's estimated 200 million people which according to Nnamonu *et al* (2021) has earned Nigeria the unfortunate title of the "poverty capital of the world" which is however arguable. Adamu (2020) emphasizes the threat of hunger and poverty, noting that 70% of the population subsists on less than $1 per day. Similarly, Oyekale, Ayegbokiki and Adebayo (2017) reported that 70% of Nigerians live on less than a dollar per day, with food insecurity affecting 79% of low-income urban households and 71% of those in rural areas. Rex (2019) argues that poverty is a significant social issue, with its eradication being a priority for development policies at various governmental levels in Nigeria.

Food security, which means having consistent access to affordable, safe, and nutritionally adequate food, is a luxury many Nigerian households cannot afford. As per Nnamonu *et al*. (2021), when households cannot secure nutritious food regularly, they face food insecurity, which leads to hunger, malnutrition, and rising crime rates. Rika (2020) underscores that food insecurity at the household level is often caused by inadequate food availability, poor distribution, and insufficient purchasing power. The scarcity of food supplies and the increasing

prices of available food have pushed many Nigerians further into hunger and poverty. Therefore, this paper examines the impact of food security on poverty alleviation in Nigeria. The paper is subdivided into an introduction, literature review, methodology, results, discussion of findings and conclusion.

2.0 Literature Review

Conceptual Clarification

Food Security

Food security is a multi-dimensional issue that encompasses the availability, access, utilization, and stability of food resources, all of which are crucial for fostering a healthy and productive society. Food security as described by Nnamonu, Ejimonye and Omaliko (2021) is fundamentally about ensuring that all households have consistent access to adequate, safe, affordable, and nutritious food at all times. Rika (2020) defines food security to encompass not just the quantity of food but also its nutritional quality, which is essential for generating the energy required for life. A secure food environment enhances calorie intake, helping individuals maintain a minimum acceptable weight and height. Nwozor, Olanrewaju, and Ake (2019) emphasize food security as the availability and sufficiency of food supplies that support continuous consumption and accessibility for vulnerable populations, enabling them to live active and healthy lives. The absence of famine, starvation, and malnutrition serves as a clear indicator of food security. According to Hyacinth (2020), food security exists when individuals and households have reliable access to sufficient, nutritious, and safe food necessary for a healthy lifestyle. This concept extends to the idea of unlimited access and utilization of food that meets dietary requirements for a productive life. Nzabuheraheza and Nyiramugwera (2017) reinforce this perspective, defining food security as the state of having dependable access to enough affordable, nutritious food for households at all times. Akinyetun (2018) further elaborates that food security is characterized by the physical and economic accessibility of adequate food for all household members, ensuring that families are not at risk of losing this access. Drawing from the perspective of food security, this paper defines food security as not just

the availability of food items but also the conditions that enable households to acquire and make more available which enhances their quality of life.

Poverty

Poverty reflects the multidimensional complexities human state of mind which is reflected in the ability to meet the basic needs of life. Accordingly, Bal, Abdullahi, Jamila and Anas (2022) define poverty describing it as a multidimensional condition that extends beyond mere financial deprivation noting the lack of essential services and opportunities that are crucial for individuals to live fulfilling lives. This highlights the importance of having adequate food supplies and the ability of vulnerable populations to access necessary resources for maintaining a healthy and active lifestyle. Rika (2020) conceptualizes poverty as a state characterized by insufficient nutrition, which prevents individuals from generating the energy required for daily living. This definition establishes a clear connection between food security and poverty, suggesting that inadequate access to nutritious food is a fundamental aspect of the poverty experience. Damtie, Berlie and Gessese (2022) define poverty as a situation where individuals and households lack access to sufficient, nutritious, and safe food, which is essential for sustaining a healthy lifestyle. This definition underscores the critical role of food security as a component of poverty, framing it as a significant barrier to achieving overall well-being. Akinyetun (2023) offers a perspective on poverty that focuses on both physical and economic access to adequate food for all household members. This definition posits that poverty is characterized by the risk of losing access to necessary resources, emphasizing the importance of stability and reliability in food access as vital to combating poverty. Nzabuheraheza and Nyiramugwera (2017) define poverty as the state of having reliable access to a sufficient quantity of affordable, nutritious food at all times. This definition reflects the significance of consistent availability and affordability of food as fundamental to understanding the broader concept of poverty. This paper describes poverty as severe conditions which affect all spheres of households' living standards negatively as reflected in the inability to acquire the basic needs of life.

Theoretical Framework

The study is anchored on the multidimensional poverty theory propounded by Alkire and Foster (2011). This theory emerged as a response to the limitations of traditional income-based measures of poverty, emphasizing that poverty is a complex phenomenon that cannot be fully captured by monetary metrics alone. The core assumption of MPT is that poverty encompasses various deprivations across multiple dimensions, including health, education, living standards, and access to basic services, rather than solely focusing on income levels. Food security directly intersects with several dimensions of poverty. For instance, inadequate access to nutritious food leads to poor health outcomes, which affects individuals' ability to work and learn, thereby impacting their educational and economic opportunities.

The theory is relevant to this paper due to its emphasis on the analysis of initiatives that alleviate poverty across various dimensions. The theory emphasizes that improving agricultural productivity enhances food availability and quality, leading to better health outcomes (reducing health deprivation) and potentially increasing income through better market access (addressing economic deprivation). Additionally, food security programs that include education on nutrition improve knowledge and practices, thereby enhancing educational outcomes. Therefore, the theory provides a comprehensive framework for understanding the interplay between food security and poverty alleviation, highlighting the need for holistic approaches that address the various facets of poverty in Nigeria.

Empirical Review

Amankwah and Gwatidzo (2024) conducted a study utilizing nationally representative household survey data and the multinomial endogenous switching regression (MESR) method to investigate the effects of adopting improved seeds and inorganic fertilizers on productivity, food security, and poverty reduction in rural Zimbabwe. Findings demonstrated that the successful adoption of these agricultural technologies is influenced by several factors, including the household's ownership of farming equipment, the education level of the household heads, the presence of wage earners within the household, access to irrigation, and the availability of government

extension services. The MESR results further revealed that both the adoption of improved seeds and the use of inorganic fertilizers—individually and in combination—enhance productivity and improve the welfare of farming households. Notably, while the technologies may have a negative impact on food consumption, households that utilize both improved seeds and fertilizers together tend to experience greater food security and consume a more varied diet.

Umar, Rotimi and Kolawole (2023) explored the nexus concerning agricultural productivity and poverty reduction in Nigeria from 1981 to 2020. The study adopted the Auto Regressive Distributed Lag Model (ARDL). The survey found that an increase in agricultural output had a positive impact on per capita income, ultimately leading to a reduction in poverty levels. Wudil, *et al* (2023) uncovered the key factors influencing food security at the household level among rice farmers participating in the Kano River Irrigation Project in Nigeria. By analyzing data using the Household Food Security Index and Logit Regression Model, the study revealed that while 72.6% of households participating in the irrigation project were food secure, this number dropped to just 65.4% among non-beneficiaries. Moreover, the depth and severity of food insecurity was significantly higher in non-beneficiary households, with 17% and 8% respectively, compared to 11% and 4% in beneficiary households. Factors such as extension contact, farm size, rice output, and educational attainment were found to have a positive impact, enabling households to achieve greater food security.

Munonye *et al* (2023) analyzed the food security and poverty status of rural household farmers in Ikwo, Ebonyi State, Nigeria. Employing a multistage sampling technique on 75 farming households, using structured questionnaires, data were analyzed using descriptive and inferential statistics, including the Radimer/Cornell questionnaire for food insecurity and the Foster-Greer-Thorbecke model and logistic regression. Findings unveiled that 74.7% of households were food secure, while 21.3% experienced poverty. The study found that household income significantly influenced food security, indicating that increased income leads to improved food access and security. Food insecurity was linked to poorer health outcomes, which exacerbated poverty

cycles. Households facing food insecurity reported higher incidences of malnutrition and related health issues, impacting their economic productivity.

Tochukwu, Olanipekun, Omoyele and Aderemi (2022) investigated the connection relating to agriculture, food security, and poverty reduction in Nigeria from 1990 to 2019, employing a Cointegration and Granger Causality approach. The outcome revealed the existence of a long-run equilibrium relationship among agricultural value added, food production index, and GDP per capita in Nigeria. A unidirectional causality flows from the food production index to poverty reduction in Nigeria. A one-way causality flows from poverty reduction to agricultural value added in the country.

Nnamonu, Ejimonye and Omaliko (2021) investigated the connection concerning food security and poverty reduction in Nigeria. Using qualitative analysis of existing literature, it was discovered that food security plays a significant role in reducing poverty in various ways. Its most substantial impacts include generating income, creating employment opportunities, and enhancing the overall welfare and living standards of the Nigerian population.

In Awka North local government area, Olive, Obianefo and Beauty (2020) evaluated the food security and poverty status of cassava processors in Nigeria. The study applied logistic regression techniques of analysis. The study found that the average household size was 9 people, which can put a strain on resources. However, the processors' resilience shone through as they maintained an average monthly income of 126.52 USD and an average monthly expenditure of 91.91 USD, with 71.5% of their income dedicated to food consumption. Findings also disclosed that the majority (89.59%) of processors are food secure, attributed to an average processing output of 26.02 tons per month. The food security line was set at 61.28 USD, while the poverty line stood at 84.45 USD. The poverty incidence, depth, and severity were 0.098, 0.055, and 0.03, respectively, indicating that while poverty exists, it is not widespread. The study also identified key factors that contribute to food security among the processors, including sex, age, farm size, household size, contact with agricultural officers, and cooperative membership.

Gassner *et al* (2019) explored how agricultural output and food production influence the reduction of poverty in Nigeria. The study analyzes data collected between 2009 and 2019, employing regression analysis to present its findings. The results indicate that the food production index plays a significant and positive role in alleviating poverty, whereas agricultural output appears to have an insignificant negative effect on poverty reduction.

Ayodeji and Oladokun (2018) examined the effect of agricultural productivity on poverty reduction in Nigeria from 2000 to 2016. Utilizing the Johansen cointegration test and regression analysis outcomes unveiled that there exists a long-run relationship between agricultural productivity and poverty reduction in Nigeria. Agriculture budget allocation and commercial banks' credit to agriculture did not lead to poverty and hunger reduction in Nigeria. However, microfinance banks credit to agriculture and the food production index contributed positively to poverty and hunger reduction in Nigeria.

Beshir (2018) investigated the effects of irrigation on poverty alleviation and the factors influencing water resource usage in South Wollo, Ethiopia. The study employed a logistic robust regression model to analyze the data. The findings revealed that participation in irrigation programs and the daily calorie intake of households were significantly affected by several factors, including the size of the farm, availability of labor, access to extension services, and the age and size of the household. The intervention from the irrigation program resulted in a statistically significant difference in daily calorie intake and livestock holdings between participating and non-participating households. Additionally, the logistic regression analysis indicated that the irrigation program improved food security for households in the region. The multiple linear regression results further showed that households with larger farm sizes, regular contact with agricultural extension agents, and available labor were less likely to experience food insecurity. Conversely, older household heads and larger family sizes were associated with a higher likelihood of food insecurity.

3.0 Methodology

Secondary data was utilized to investigate how food security impacts on poverty alleviation in Nigeria. The analysis was drawn on yearly data collected from the Central Bank of Nigeria and World Bank indicators covering the period from 1990 to 2022. In line with the objective of the study, a model was constructed based on a multidimensional poverty theoretical framework. Autoregressive Distributed Lag (ARDL) model was used to explore both the short-term and long-term dynamics of these variables. Sakanko and Akims (2021) affirmed that the approach is employed to derive credible and strong findings regarding the short-term and long-term impacts of food security and poverty alleviation in Nigeria, as well as to conduct a bounds test for cointegration. To validate the results, a series of tests, including unit root tests, cointegration assessments, and lag length criteria evaluations were conducted. Diagnostic tests for autocorrelation, heteroscedasticity, and model specification were also carried out to mitigate the risk of spurious regression. The functional model is specified accordingly to capture these relationships effectively.

Following the multidimensional poverty theory, poverty is not only determined by accessibility and availability of food items but also by other factors that lead to the deprivation of a stable state of welfare of an individual. In view of this, the model for this study is expressed as;

$$POVA_t = f(AO, HDI, GNIPC, INF, LPR) \quad (1)$$

The functional form of Equation 1 is further stated as;

$$POVA_t - \beta_0 + \beta_1 AO + \beta_2 HDI + \beta_3 GNIPC + \beta_4 INF + \beta_5 LPR + \varepsilon - - - - - - - - (2)$$

Where; POVA is poverty alleviation, AO is agricultural output, HDI represents human development index, GNIPC is the gross national income per capita, INF is inflation, LPR labour participation rate, β_0 represents the constant while $\beta_1 - \beta_5$ are the estimated parameters and ε is the error term.

Theoretically, AO, HDI, GNIPC and LPR are expected to have a positive effect on poverty alleviation in Nigeria while INF is anticipated to inversely affect poverty alleviation.

4.0 Results

The outcomes of the analysis procedures are detailed in this segment of the study.

Table 1 Descriptive Statistics

	POVA	AO	HDI	GNIPC	INF	LPR
Mean	61.60439	8.420147	0.482682	8.230460	18.08394	58.61756
Std. Dev.	10.02235	1.775149	0.034769	0.247910	16.10837	2.629477
Skewness	-0.408814	-0.637007	0.508687	-0.061949	2.199414	-0.843082
Kurtosis	2.009353	2.305357	1.862273	1.326304	6.827892	1.858845
Jarque-Bera	2.268609	2.895255	3.203025	3.872839	46.75335	5.699903
Probability	0.321646	0.235127	0.201591	0.144219	0.000000	0.057847
Observations	33	33	33	33	33	33

Source: Author's Computation (2024)

The outcome of the study from the descriptive statistics demonstrates that the average poverty rate (POVA) is approximately 61.60%, indicating a significant level of poverty within the population studied with a standard deviation of 10.02%. The average agricultural output (AO) is 8.42, which may suggest a moderate level of agricultural productivity with a standard deviation of 1.77. The average HDI of 0.482 indicates a low level of human development, as values below 0.550 typically classify Nigeria as having low human development. The average GNIPC of 8.23 suggests a relatively low-income level corresponding to 0.24, which could correlate with the high poverty rate. The average inflation rate (INF) of 18.08% indicates high inflation which has a standard deviation of 16.1%, which can erode purchasing power and exacerbate poverty. The average labor participation rate (LPR) of 58.62% suggests that a little over half of the population is engaged in the labor force which has a standard deviation of 2.62. The kurtosis values suggest that the distributions of POVA, AO, HDI, and GNIPC are relatively flat compared to a normal distribution (kurtosis < 3), while the inflation rate has a high kurtosis, indicating a sharper peak and heavier tails, suggesting extreme values. The probability values associated with the Jarque-Bera test indicate that for POVA, AO, HDI, and GNIPC, the null hypothesis of normality cannot be rejected ($p > 0.05$). However, for INF ($p < 0.0001$), the null hypothesis is rejected, indicating that the inflation data is not normally distributed. The descriptive analysis was followed by a stationarity test as indicated in Table 2.

Table 2 Results of unit root tests

Variable	ADF	ADF	Order

	@ Level	@ First Difference	of Integration
POVA	-2.014293{0.2795}	-6.062086 {0.0000}*	I(1)
AO	-3.509889 {0.0142}	-3.441881 {0.0168}*	I(0)
HDI	-1.220699{0.9976}	-3.629201 {0.0108}*	I(1)
GNIPC	-0.319393 {0.9111}	-3.801454 {0.0071}*	I(1)
INF	-2.156236 {0.2254}	-4.302192 {0.0021}*	I(1)
LPR	-1.114134 {0.6875}	-3.965113 {0.0048}*	I(1)

Source: Author's Computation (2024)

The ADF test statistics and their corresponding p-values are reported for each variable at the level and first difference. The outcome revealed that AO, the ADF statistic is significant at the 5% level (p-value < 0.05), indicating that AO is stationary at level and integrated of order zero, I(0). For the remaining variables (POVA, HDI, GNIPC, INF, and LPR), the ADF statistics are not significant at the 5% level, suggesting that they are non-stationary at level. However, these variables attained stationarity at integrated of order one, I(1), as they require differencing once to achieve stationarity. The estimation of the bound test and other diagnostics results are tabulated in Table 3.

Table 3 Bound Test result

ADRL Bound Test			
F-statistics		Critical Value	
11.29020	Significance level	Lower bounds *I*(0)	Upper bounds *I*(1)
	10%	2.08	3
	5%	2.39	3.38
	2.5%	2.7	3.73
	1%	3.06	4.15

The outcome in Table 3 revealed that since the calculated F-statistic (11.29020) exceeds the upper bound critical value (3.38) at the 5% significance level, the null hypothesis was rejected implying the existence of cointegration among the variables (food security and poverty alleviation) in Nigeria. To ensure the reliability of the estimation results, diagnostic tests were conducted and the results are presented in Table 4.

Table 4 Diagnostics Test Results

Diagnostic Tests		
Test	*F-statistics*	*Probability*

Breusch-Godfrey Serial Correlation LM Test	1.539770	0.2776
Heteroskedasticity Test: Breusch-Pagan-Godfrey	0.252328	0.9952
Ramsey RESET Test	2.097198	0.1790

Source: Author's Computation (2024)

The result of the diagnostics tests demonstrates that all null hypotheses for these tests are accepted for serial correlation, heteroskedasticity and correct model specification. Since the p-values (0.2776, 0.9952 and 0.1790) are greater than the conventional significance level of 0.05, the null hypotheses are retained. This indicates no significant serial correlation, the residuals have constant variance and there are no significant specification errors in the model, meaning the functional form of the model is appropriate. The study proceeded to estimate both the long and short run model and the outcomes are recorded in Tables 5 and 6.

Table 5 Short-run Estimates of the ARDL Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(AO)	19.40963	7.674087	2.529243	0.0447
D(HDI)	309.5734	257.2694	1.203305	0.2742
D(GNIPC)	-47.99030	24.97674	-1.921399	0.1031
D(INF)	0.141893	0.080926	1.753374	0.1301
D(LPR)	2.689357	0.875893	3.070416	0.0219
CointEq(-1)*	-0.300881	0.044048	-6.830834	0.0005

Source: Author's Computation (2024)

The results displayed that the coefficient for D(AO) is 19.40963 with a p-value of 0.0447, indicating statistical significance at the 5% level. This suggests that a one-unit increase in agricultural output is associated with an increase in poverty alleviation by approximately 19.41 units. The coefficient for D(HDI) is 309.5734, but the p-value is 0.2742, indicating that it is not statistically significant at conventional levels. The coefficient for D(GNIPC) is -47.99030 with a p-value of 0.1031, suggesting a negative relationship that is not statistically significant at the 5% level. The coefficient for D(INF) is 0.141893, with a p-value of 0.1301, indicating a positive but not statistically significant relationship. The coefficient for D(LPR) is 2.689357 with a p-value of 0.0219, indicating statistical significance at the 5% level. This result implies that an increase in the labor participation rate is associated with a direct increase in poverty alleviation, highlighting

the importance of labor market engagement in alleviating poverty. The coefficient for the cointegration equation is -0.300881 with a highly significant p-value of 0.0005. This negative coefficient suggests that the model is correcting towards long-run equilibrium, indicating that if the system deviates from equilibrium, it will adjust back over time. This is crucial for understanding the long-term dynamics of poverty alleviation in Nigeria, as it suggests that while short-run fluctuations may occur, there is a tendency for the system to revert to a stable state at the rate of 30.08%.

Table 6 Long-run Estimates of the ARDL Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AO	7.196478	7.966272	0.903368	0.3857
HDI	179.7864	679.6359	0.264533	0.7963
GNIPC	-42.46828	50.45623	-0.841686	0.4179
INF	1.787133	0.947858	1.885444	0.0860
LPR	3.438971	3.033879	1.133523	0.2811
C	41.76016	292.7452	0.142650	0.8891

Source: Author's Computation (2024)

The long-run estimation noted that the coefficient for AO is 7.196478 with a p-value of 0.3857, indicating that it is not statistically significant at conventional levels. The coefficient for HDI is 179.7864, but the p-value is 0.7963, indicating that it is not statistically significant at conventional levels. The coefficient for GNIPC is -42.46828 with a p-value of 0.4179, suggesting a negative relationship that is not statistically significant at the 5% level. The coefficient for INF is 1.787133, with a p-value of 0.0860, indicating a positive relationship that is significant at the 10% level. The coefficient for LPR is 3.438971 with a p-value of 0.2811, indicating that it is not statistically significant at conventional levels. The constant term 41.76016 with a p-value of 0.8891 is not statistically significant, suggesting that other unobserved factors may influence poverty alleviation in Nigeria.

5.0 Discussion of Findings

The result indicating that agricultural output has a positive and significant impact on poverty alleviation in the short run, but an insignificant impact in the long run, suggests that while

immediate improvements in agricultural productivity lead to enhanced food security and higher incomes for farmers, these benefits may not be sustainable over time. This could be linked to structural barriers such as limited access to credit, inadequate infrastructure, and population growth outpacing agricultural advancements, which hinder long-term poverty reduction efforts. The outcome aligns with Amankwah and Gwatidzo (2024); Umar, Rotimi and Kolawole (2023); Wudil, *et al* (2023); Olive, Obianefo and Beauty (2020); Gassner *et al* (2019). Furthermore, Human Development Index has a positive but insignificant impact on poverty alleviation in Nigeria suggesting that improvements in health, education, and living standards do not immediately translate into reduced poverty levels. This insignificance may stem from various factors, including the time lag required for enhancements in education and health to affect economic conditions, as well as the persistence of structural inequalities that limit access to resources and opportunities for marginalized populations. The outcome corroborates with Munonye, Matthew, Olaolu, Onyeneke, Obi, Amadi, Ibrahim, Izuogu and Njoku (2023).

The outcome that gross national income per capita has a negative and insignificant impact on poverty alleviation in Nigeria indicates that increases in national income do not necessarily lead to improvements in the living standards of the poor. This outcome may be attributed to factors such as income inequality, where the benefits of economic growth are not equitably distributed, leaving marginalized communities without significant gains. Additionally, the negative relationship could reflect that rising GNIPC does not address the underlying structural issues, such as lack of access to quality education and healthcare, which are crucial for sustainable poverty reduction. The outcome is consistent with Munonye *et al* (2023). Additionally, the result indicating that inflation has a positive and insignificant impact on poverty alleviation in Nigeria suggests that rising prices do not meaningfully contribute to improving the economic conditions of the poor. This insignificance may arise from the fact that while inflation leads to increased nominal incomes, it often erodes purchasing power, disproportionately affecting low-income households who spend a larger share of their income on essential goods and services.

The finding that the labor participation rate has a positive and significant impact on poverty alleviation in the short run, but a positive and insignificant impact in the long run, suggests that while increased workforce engagement leads to immediate improvements in income and living standards, these benefits may not be sustained over time. This outcome may be attributed to factors such as the quality of employment opportunities, where short-term gains do not translate into long-term economic stability, or the potential for job market saturation, which limits the effectiveness of labor participation as a poverty alleviation strategy. The findings are in line with those of Nnamonu, Ejimonye and Omaliko (2021); Beshir (2018).

6.0 Conclusion, Summary and Recommendations

The study evaluated the impact of food security on poverty alleviation in Nigeria with the outcome revealing that while agricultural output and labor participation rate significantly impact on poverty alleviation in the short run, their long-term effects are insignificant, indicating a need for comprehensive strategies that address underlying structural issues. Additionally, the Human Development Index and Gross National Income Per Capita show positive but insignificant relationships with poverty alleviation, suggesting that improvements in these areas do not immediately translate into reduced poverty levels, primarily due to income inequality and the erosion of purchasing power by inflation. To enhance poverty alleviation efforts, it is recommended that policymakers focus on improving agricultural productivity though irrigation supports and rendering of agricultural extension services like training farmers on best agricultural practices. Ensuring equitable distribution of economic gains through facilitating the equitable distribution of agricultural productivity benefits to smallholder farmers and vulnerable populations by establishing cooperatives or farmer groups to strengthen their bargaining power and market access. The policy makers should implement policies aimed at stabilizing food prices and controlling inflation to protect the purchasing power of low-income households, while also addressing the multidimensional nature of poverty through targeted interventions in education and healthcare such as the community social e-learning networks as well as the financing and

integration of community and primary healthcare prgammes particularly in the rural areas in Nigeria.

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