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EXAMINING THE RELATIONSHIP AMONG UNEMPLOYMENT, INCOME INEQUALITY, AND POVERTY IN NIGERIA

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ABSTRACT

Across nations, reducing income inequality and unemployment remains central to poverty alleviation. This study investigates the dynamic, nonlinear relationships among unemployment, income inequality, and poverty in Nigeria from 1985 to 2023 using the Nonlinear Autoregressive Distributed Lag (NARDL) model. The results reveal a significant asymmetric effect of unemployment and income inequality on poverty in Nigeria, which is that increases in unemployment and income inequality elevate poverty more sharply than equivalent decreases alleviate it. This finding highlights the persistent and compounding impact of labor-market conditions and distributional disparities on poverty levels in Nigeria. The study concludes that effective poverty reduction requires coordinated policy strategies aimed at lowering unemployment and narrowing income gaps. Accordingly, it recommends targeted interventions to address structural labor-market weaknesses and inequality, given their disproportionate influence on poverty dynamics.

Keywords: poverty, unemployment, income inequality, NARDL model, asymmetric effects

JEL Classification: E24,

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1. Introduction

All over the world, countries try as much as possible to reduce the level of income inequality and unemployment to bridge the gap of a high level of poverty. Income inequality and unemployment are more paramount in Less Developed Countries (LDCs) than in developed countries. Therefore, poverty remains one of the most persistent development challenges confronting Nigeria, despite the country's abundant natural and human resources (Alaye, 2024). Over the past decades, the prevalence of poverty has fluctuated but remained widespread, affecting both urban and rural populations. Scholars and policymakers increasingly recognize that poverty does not occur in isolation; instead, it is shaped by a complex interplay of socioeconomic factors. Among these, unemployment and income inequality are frequently identified as key determinants influencing both the depth and incidence of poverty (Clementi, 2024). Available data shows that the poverty rate in Nigeria stood at a level of 53.5 % in 2009, which is unchanged since 2003 (World Data Atlas 2010). Also, in the recent poverty report by World Bank (2020) indicated that the poverty rate in Nigeria stood at level of 51% in 2018 and 54.2 in 2020 this increase is according to report is due to COVID-19 pandemic in the world which obstruct to reach the 2030 target of (3%) three percent global poverty by SDG.

Also, information from the National Bureau of Statistics - NBS (2019) showed that (40.1 %) one percent of the total population in Nigeria was classified as poor. In other words, on average, 4 out of 10 individuals in Nigeria have real per capita expenditures below 137,430 Naira per year. This translates to over 82.9 million Nigerians who are considered poor by national standards (NBS 2019).

Poverty rates in Nigeria increased from (27.2 %) per cent in 1980 to 42.7 per cent in 2004 and further to 65.6 per cent in 2010. While the 27.2 per cent for 1980 equals 17.7 million persons, in 2010, 112.5million persons were found poor in absolute terms, and also the unemployment rate increased from 2.3 per cent in 1980 to 18.1 per cent in 2000. This, however, dropped to 11.8 in 2004 but rose to 21.1 in 2010 and about 25% in 2012 (Central Bank of Nigeria, 2013; UNDP, 2009; 2013).

According to World Bank (2011) of the World Bank, Human Development Index (HDI) in 2011 puts Nigeria at 156th position among 177 countries as compared to the 151st position in 2002, Nigeria's human poverty index (HPI) for 2009 was only 36.2% placing Nigeria at the 114th position and among the 7th poorest nations in the world while the ratio of the richest 10 per cent to the poorest 10 per cent was 16.3 with Gini index from 42.9 in 2004 to 44.7 in 2010 (National Bureau of Statistics - NBS, 2012; UNDP, 2013). Yet the country ranks 6th and 7th as an oil producer and exporter, and ranks 10th as the most populous country in the world with a real GDP growth rate of 7.0 in 2009, which grew to 8.0 in 2010, which, however, dropped to 6.3 in 2013. Also, the level of unemployment rate was 7.81% in 2015, and from there it was 12.48%, 13.72%, and 14.17% in 2016, 2018, and 2020, respectively.

In addition, the scale of inequality is quite extreme. Oxfam (2017) particularly noted that the paradox of growth in Nigeria is such that as the country gets richer, only a few benefit, while the majority continue to suffer from poverty and deprivation. Now dubbed the poverty capital of the world, recent data, according to Quartz Africa (2018), reveals that approximately 86.9 million Nigerians now live in extreme poverty, representing nearly 50% of its estimated 180 million population- Nigeria is multi-dimensionally poor. Furthermore, the Oxfam (2019) report of ranking of African nations by their commitment to tackling inequality ranked Nigeria as the 45th out of 45 countries, stating that Nigeria has the unenviable distinction of being at the bottom of the African ranking, as well as its global ranking for two years running. Government indifference to inequality in the country portends a serious challenge. These aspects may have acted as a counterweight to income growth so that the net effect on poverty depends on whether income growth or the offsetting factors dominate.

Research Question

- a) What is the dynamic relationship among unemployment, income inequality, and poverty in Nigeria from 1985 to 2023?

Objective of the Study

- b) To examine the dynamic relationship among unemployment, income inequality, and poverty in Nigeria over the period 1985–2023.

2.0 Literature Review

2.1 Theoretical Literature

The basis of this study is based on the unemployment theory of poverty. The paramount importance assigned to unemployment as a primary source of poverty under the liberal view is based on the logic that if individuals do not receive labour income, they are more likely to be poor. This sensitivity of poverty to unemployment can actually be amplified if poor individuals tend to experience discontinuous, short employment spells throughout the lifetime; if poor people who enrol in a job fail to retain it, no matter their pay, they will likely return to poverty when exiting employment given that the amount of accumulated savings is likely to be insufficient for maintaining the standard of living above the poverty line (Aassve et al, 2005). In some pension and social security systems, they are also likely to face poverty in retirement due to gaps in entitlements (Pemberton et al 2017).

Hence, the steadiness of employment is a central feature in preventing poverty persistence, not least because it also enables individuals to envisage better career prospects that allow higher expected future income,

thereby facilitating borrowing (leading to longer-term consumption-saving decisions) and investment in one's own skills and knowledge (human capital) as well as social capital (Ulimwengu, 2008). In terms of Sen (1993, 1999), it influences the ability to transform assets into entitlements. It underlines the importance of distinguishing between transitory (short-term) and persistent (lifelong) poverty.

2.2 Empirical Literature

In an attempt to establish the nature of the relationship among poverty, income inequality, and unemployment, numerous scholars have carried out serious research to establish the nature of their relationship, both theoretically and empirically both developed and developing countries. For example, Gado (2025). The impact of unemployment on income inequality in Nigeria, and he found that unemployment significantly worsens income inequality in Nigeria and argues that only comprehensive reforms spanning education, vocational training, economic diversification, gender equity, and social protection can effectively address their interconnected impacts and promote inclusive development. While Okafor (2024) explored the complex interplay between poverty, inequality, and unemployment in Nigeria, his findings show that poverty, inequality, and unemployment in Nigeria are tightly interconnected, with poverty and unemployment mutually reinforcing each other, inequality driving unemployment, and unemployment contributing less strongly to inequality highlighting the need for integrated, comprehensive policies that address all three issues simultaneously. Also, Dahal et al (2024) examined the impact of income inequality, political stability, inflation rate, and economic growth on poverty in Nepal, and they found that in Nepal, income inequality and political stability significantly influence poverty, while inflation and economic growth do not highlighting the need for policies that prioritize reducing inequality and strengthening political stability to effectively alleviate poverty.

Muhammad et al (2018) found that an increase in development expenditure causes a decrease in poverty and unemployment, but inequality increases due to capitalism. They also establish a negative relationship between military expenditure inequality and unemployment. Foreign direct investment decreases inequality and unemployment. Results also show that political stability is responsible for increasing poverty and unemployment in Pakistan. While Siyan et al. (2016) empirically studied the implication of unemployment on the poverty level in Nigeria from 1980 to 2104 by using the VEC model, Johansen co-integration technique, and Granger causality with thus revealed the existence of a long-run positive relationship between poverty and unemployment and bi-directional Granger causality between poverty and unemployment. Again, Omojolaibi and Omojolaibi (2014) used the ECM technique in examining the relationship between economic growth, poverty, and unemployment in Nigeria, using data from 1970 to 2010, and they found the presence of a robust proportionate relationship between poverty and unemployment. In the same vein, Egunjobi and Adenike (2014) studied the nexus between economic

growth, poverty, and unemployment in Nigeria with the use of a 31-year data set ranging from 1970 to 2000, which thus revealed the existence of a robust positive relationship between poverty and unemployment. Similarly, Osinubi (2005) studied the nexus between economic growth, poverty, and unemployment in Nigeria with the use of a 31-year data set ranging from 1970 to 2000, which thus revealed the existence of a strong positive relationship between poverty and unemployment. In the same manner, Aiyedogbon & Ohwofasa (2012) discovered the existence of a robust positive relationship between poverty and unemployment in their study on poverty and youth unemployment in Nigeria from 1987 to 2011, with the use of the Ordinary Least Squares (OLS) estimation technique. Akwara et al. (2021) examine the relationship between unemployment, poverty, and insecurity in Nigeria. The study discovered that unemployment causes poverty, while poverty causes insecurity. In contrast to the above findings, Ogbeide & Agu (2015) investigate the causal relationship between poverty and inequality in Nigeria with the use of Granger causality and time series data from 1980 to 2010, which thus revealed the absence of Granger causality running from unemployment to poverty, and the existence of one-way causality from poverty to unemployment.

Similarly, Reinstadler and Ray (2010) argue that the regional unemployment rate can have a direct and indirect impact on poverty. The first one is straightforward: a higher aggregate unemployment rate increases the likelihood of individual unemployment. The second effect is an indirect effect through the negative impact of the unemployment rate on the wage bargaining power of the employed, who are at higher risk (since they face higher competition) of being fired or receiving a lower wage when the aggregate regional unemployment rate rises. Importantly, they find that the aggregate factors, such as regional employment, are significant even after controlling for the main individual characteristics influencing the likelihood of being poor.

From the aforementioned literature, linear models explain the dynamic interaction among the variables, such as Vector Error Correction Models, OLS estimation, Granger causality, Cointegration, as well as VAR, among others, but none of them looked into the asymmetric relationship among the variables, as nowadays most of the time series data exhibit nonlinear behavior. Therefore, this paper seeks to fill this gap by exploring the asymmetric relationship among the variables using the Nonlinear Autoregressive Distributed Lag (NARDL) model.

3.0 Methodology

Sources of Data

The data for this study are mainly secondary time series data sourced from World Development Indicators (WDI) (2023). The data covers the period from 1985 to 2023

Model Specification

The model of this study can be specified in its functional form as

$$PV = f(INC, UN) \quad (1)$$

Where,

PV = Poverty Rate

INC= income inequality proxy by GINI index

UN= unemployment rate

f= functional form of the equation

Econometric Model

Shin and Yu (2011) has introduced nonlinear autoregressive distributed lag (NARDL) model to capture the long-run effect of the positive and negative impacts of the independent variables on the dependent variable in a relationship and thus, it provides a room for examining positive and negative impact where the short-run and long-run nonlinearities are introduced via positive and negative partial sum decomposition of the explanatory variables. The NARDL approach to cointegration is statistically helpful in solving the issue of non-normality by capturing the presence of asymmetries embedded in the time series data (Shin and Yu, 2011). Nonetheless, it allows one to simultaneously test the short-run and long-run nonlinearities through positive and negative partial sum decomposition of the predetermined explanatory variables (Ahmed *et al.*, 2014). Its introduction is a good development to the existing related techniques, as the technique provides a flexible dynamic parametric framework for modeling long-run and short-run asymmetries (Bayramoglu and Yildirim, 2017). Moreover, it captures the asymmetries in the dynamic adjustment just like the TAR or M-TAR models. Furthermore, the NARDL model is statistically analogous to the traditional ARDL as it allows regressors of mixed order of integration, namely $I(0)$ and $I(1)$, to be used in the regression.

The idea of the NARDL technique can be represented by the simple ordinary least squares (OLS). However, this paper builds on Hassan (2017) and uses the stepwise least squares (SLS) estimation technique for two reasons:

- a) It is statistically advantageous as it allows for purging of the insignificant coefficients while estimating the model, thereby improving the overall statistical performance/robustness of the model.
- b) The paper chose to use the stepwise least squares (SLS) over other econometric techniques of estimation because it allows one to decompose the observations on a variable into positive and negative changes, which is unachievable under other estimation techniques. The long-run linear relationship between the variables under investigation, namely poverty, income inequality, and unemployment, takes the following form:

$$PV_t = \delta_0 + \delta_1 INC_t + \delta_2 UN_t + \varepsilon_t \quad 2$$

To capture the possible asymmetric effects of the independent variables on the dependent variable, the NARDL technique decomposes the partial changes (increase or decrease) in each variable into four parts, namely the partial sum of positive and negative changes in income inequality, denoted as INC^+ and INC^- , the partial sum of positive and negative changes in unemployment is denoted as UN^+ and UN^- . All of these changes are to be included as regressors in the model (Hassan, 2017).

Hence, following Shin *et al.* (2014) and Shahbaz (2017), the nonlinear long-run model is:

$$PV_t = \delta_0 + \delta_1 INC_t^+ + \delta_2 INC_t^- + \delta_3 UN_t^+ + \delta_4 UN_t^- + \varepsilon_t \quad 3$$

Clearly, this is now a five-variable OLS model, and following Shin *et al.* (2014) and Shahbaz (2017), the final specification of the NARDL model takes the following form:

$$\begin{aligned} \Delta PV_t = & \delta_0 + \rho PV_{t-1} + \theta^+ INC_{t-1}^+ + \theta^- INC_{t-1}^- + \varphi^+ UN_{t-1}^+ + \varphi^- UN_{t-1}^- + \sum_{i=1}^{p=i} \phi_i \Delta PV_{t-i} \\ & + \sum_{i=1}^{q=i} \pi_i^+ \Delta INC_{t-i}^+ + \sum_{i=1}^{q=i} \pi_i^- \Delta INC_{t-i}^- + \sum_{i=1}^{r=i} \omega_i^+ \Delta UN_{t-i}^+ + \sum_{i=1}^{r=i} \omega_i^- \Delta UN_{t-i}^- + \mu_t \end{aligned} \quad 4$$

where Δ is the first difference operator, δ_0 is the intercept, ρ , θ , and φ are the long run coefficients ϕ , π , and ω are the short run coefficients denoting positive and negative changes of the variables

under study. The summation $\sum$ implies that, like the ARDL technique, the NARDL also allows for the inclusion of different variables into the model up to a certain number of lags, while μ_t the error term is assumed to be an i.i.d. process. It is noteworthy that the short-run analysis seeks to examine the immediate impact of changes in the exogenous variables, namely income inequality and unemployment, on the dependent variable, namely poverty, while the long-run analysis sets out to analyze the opposite.

Before estimating the nonlinear autoregressive distributed lag (NARDL) model, the first thing to do is to conduct the linearity test as well as the unit root with break to ensure that none of the variables is I(2). Therefore, the BDS test developed by Brock, Dechert and Scheinkman (1987) and later published as Brock, Dechert, Scheinkman and LeBaron, 1996) were employed to test for the linearity or other wise of the variables based on the, null hypothesis of linear model as against the alternative hypothesis of non-linear when the P-value is less than 5% level of significance. The tests were carried out based on the 6 dimensions in each variable, but for easy interpretation of this research work, 2 dimensions are used in each variable. While the ADF unit root test with break was used to ascertain the break period for each of the variables.

The next step involves testing the asymmetric cointegration. Shin *et al.* (2014) demonstrate that Pesaran *et al.* (2001) tests for cointegration, which is embedded in the ARDL approach, are equally applicable to NARDL. They recommend that in applying the F test, the two partial sum variables be treated as a single variable so that the critical value of the F test stays at a conservatively high level (Mohsen *et al.*, 2017). The null hypothesis of no cointegration is rejected if the joint null hypothesis, i.e., $\rho = \theta^+ = \theta^- = \varphi^+ = \varphi^- = 0$ of the long coefficients is rejected. It is noteworthy that Narayan (2005) critical values were used because the sample size is 35, which is less than 100.

In both the short-run and long-run statistical tests for non-linearity, the null hypothesis test for equality between the positive and negative coefficients is rejected if the p -value of the F -statistic is significant. However, if the null hypothesis is rejected, then there is evidence of a long-run asymmetric/non-linear effect; otherwise, there isn't. Moreover, one should note that following the bounds testing approach, the NARDL model can be estimated irrespective of whether the variables are I(0), I(1), or a mixture of the two (Mansor, 2015; Bayramoglu and Yildirim, 2017). Shahbaz

(2017) shows that when asymmetry is detected in the NARDL model (either in the short run, or long run, or both), the asymmetric responses to positive and negative shocks (i.e., positive or

negative variations of the independent variables) are respectively captured by the dynamic multipliers associated with unit changes in INC_t^+ , INC_t^- , UN_t^+ and UN_t^- . However, if no asymmetry is detected either in the short run, in the long run, or in both, the need for estimating the asymmetric responses is obviated (Shahbaz, 2017).

Hence, following Shahbaz (2017), the asymmetric dynamic multiplier effects in this case can be measured by the following equations:

$$m_h^+ = \sum_{j=0}^h \frac{\partial PV_{t+j}}{\partial INC_t^+}, m_h^- = \sum_{j=0}^h \frac{\partial PV_{t+j}}{\partial INC_t^-}, m_h^+ = \sum_{j=0}^h \frac{\partial PV_{t+j}}{\partial UN_t^+}, m_h^- = \sum_{j=0}^h \frac{\partial PV_{t+j}}{\partial UN_t^-} \text{ for } h = 0, 1, 2, \dots$$

where, if $h \rightarrow \infty$, then for long run $m_h^+ \rightarrow L_{mi^+}$ and $m_h^- \rightarrow L_{mi^-}$.

Nevertheless, it is worth noting that the asymmetric response of poverty to positive and negative shocks to income inequality and unemployment is shown by the dynamic multipliers. These multipliers show the dynamic adjustments from the initial to the new equilibrium among the variables in the system due to variations (Shahbaz, 2017)

4. Result and Discussion

4.1 Result

Nonlinearity Test

The natural starting point of the time series data is the examination of linearity or otherwise of the series, to give us the appropriate model to be applied. Table 1 presents the nonlinearity Test using the Brock-Dechert-Scheinkman (BDS) Nonlinearity Test. The result shows that the variables are nonlinear, which paved the way to use the nonlinear model.

Table 1 BDS Nonlinearity Test

Variables	Dimension	BDS Statistic	Std. Error	z-Statistic	Prob.
PV	2	0.100149	0.008105	12.35592	0.0000
UN	2	0.141041	0.026592	5.303839	0.0000
INC	2	0.154117	0.014904	10.34058	0.0000

Source: Authors' Computation, 2025, using Eviews 13

Unit Root with Break Tests

Since the series are nonlinear, the ADF unit root test with break at level and first difference with trend and intercept was employed to find the appropriate break time. The results in Table 2 reveal that the variables under study were not stationary at the level but are stationary at first difference with a break in the year 2012 for poverty, 2015 for unemployment, and 1998 for income inequality.

Table 2 Unit Root Test with Break

ADF Unit Root Test with Break at Level			
Variables	T statistic	Probability	Time Break
PV	-4.580073	0.1077	2011
INC	-1.848453	0.6593	2015
UN	-4.695298	0.0782	2005
ADF Unit Root Test with Break at First Difference			
PV	-7.659692	< 0.01	2012
INC	-17.17309	< 0.01	2015
UN	-6.367658	< 0.01	1998

Source: Authors' Computation, 2025, using Eviews 13

Model Estimation

The result of the BDS nonlinearity test justified the use of the NARDL model proposed by Shin et al. (2014) to explore the nonlinear and asymmetric association among the selected variables. The results obtained in the table 3 reveal the evidence of an asymmetric link among the variables under study in Nigeria.

Table 3 Symmetry Tests

Null hypothesis: Coefficient is Symmetric			
Variable	Statistic	Value	Probability
INC	F-statistic	4.120799	0.0475
	Chi-square	4.120799	0.0173
UN	F-statistic	5.516877	0.0231
	Chi-square	5.516877	0.0126

Source: Authors' Computation, 2025, using Eviews 13

Nonlinear Autoregressive Distributed Lag (NARDL) Bounds Test

In order to examine the cointegration, the bounds test for cointegration was applied, where the calculated F-statistic was used to test for the joint significance of the computed coefficients of the specified lagged variables and was compared with the upper and lower bounds asymptotic critical values of the F-statistic

proposed by Narayan (2005). The null hypothesis of no cointegration can be rejected if the calculated F -statistic is greater than the upper critical bound, $I(1)$, and lower critical bound, $I(0)$, at 1%, 5%, and 10%, respectively, and the result is presented in Table 4 below

Table 4: Bound Test Result

Unrestricted intercept and no trend	Narayan's Critical Values		
	1%	5%	10%
Lower Bound	4.093	2.947	2.46
Lower Bound	5.532	4.088	3.46
F-statistic	10.83897 (K=4)		

Note: *Denotes rejection of the null hypothesis at 1% significance level

Source: Authors' Computation, 2025, using Eviews 13

From Table 4, the F -statistic of the test is greater than the upper critical values of Narayan (2005) table at 1% level, i.e., $10.83897 > 5.532$. Hence, the null hypothesis (H_0) of no cointegration can be rejected, and it can be inferred that there is asymmetric cointegration among poverty, income inequality, and unemployment in Nigeria.

Partial Short Run and Partial Long Run Coefficients

Since evidence of an asymmetric relationship has been found, the next step is to estimate the long-run and short-run asymmetric impact of income inequality and unemployment on poverty in Nigeria, and this is reported in Table 5.

Table 5: Partial Long Run and Short Run Coefficients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	36.12927	9.464153	3.817486	0.0006
INC ⁺	5.258673	0.964958	5.449640	0.0000
INC ⁻	-2.180098	0.834665	-2.611944	0.0133
UN ⁺	5.734011	2.167265	2.645736	0.0123
UN ⁻	26.17185	41.13410	0.636257	0.5289
$\Delta PV(-1)$	-0.612842	0.148992	-4.113243	0.0003
ΔINC^+	3.222735	0.813780	3.960205	0.0004
ΔINC^-	-1.336055	0.615350	-2.171212	0.0377
ΔUN^+	3.514042	1.369295	2.566314	0.0153
ΔUN^-	16.03921	26.13712	0.613656	0.5439

Source: Authors' Computation, 2025 using Eviews 13

An examination of Table 5 shows that the impact of positive and negative income inequality on poverty is asymmetric in both the short run and long run. Also, the positive unemployment is asymmetric in both short run and long run, while, the negative unemployment is symmetric in both short run and long run. From the results, the coefficient of positive long run impact of income inequality on poverty in Nigeria shows that a 1% increase in income inequality induces a 5% increase in poverty is statistically significant at 1% level of significance while the coefficient of negative long run impact of income inequality on poverty is 2% and is statistically significant. This implies that an increase in income inequality has a significant impact on poverty. Also, a decrease in the income inequality may induces decrease in poverty and is statistically significant. This implies that poverty responds more to positive changes in income inequality than to negative changes.

Similarly, the coefficient of positive long-run impact of unemployment on poverty shows that a 1% increase in unemployment results in a 5% increase in poverty in the country. This suggests a direct relationship between unemployment and poverty. The coefficient of the negative long-run impact of unemployment on poverty is statistically insignificant. Furthermore, it can be observed that in the short run, a 1% positive change in income inequality induces a 3% increase in poverty, while a negative change induces a 1% decrease in poverty in Nigeria, and all are statistically significant at 1% level. It further shows that, in the short run, a 1% increase in unemployment may induces 3% increase in poverty at 5% level of significance, while the coefficient of the negative short-run impact of unemployment on poverty is statistically insignificant.

Asymmetric Adjustment Paths

The asymmetric adjustments from an initial long-run equilibrium to a new long-run equilibrium after a negative or positive unit shock affecting the poverty can be learned from the cumulative dynamic multiplier effects graph, as shown by Figures 1 and 2 below.

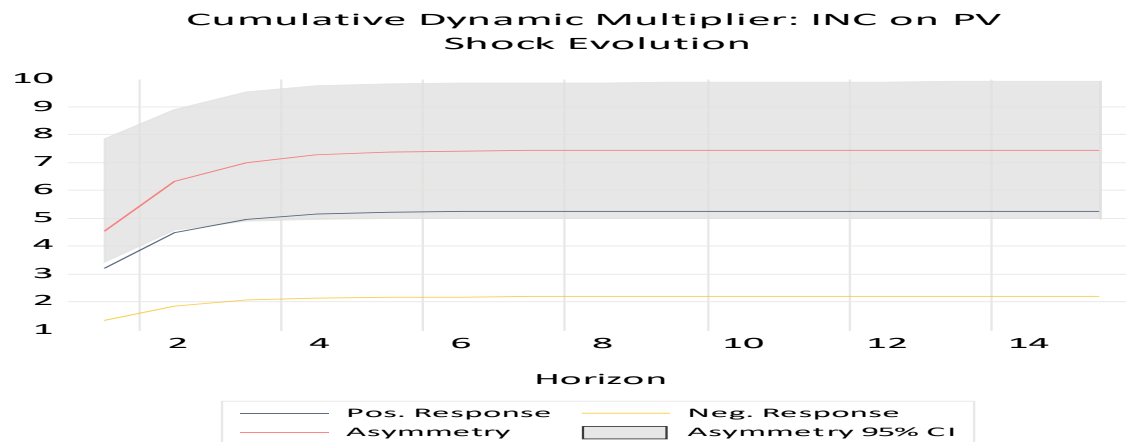


Figure 1: Dynamic Multiplier of INC and PV

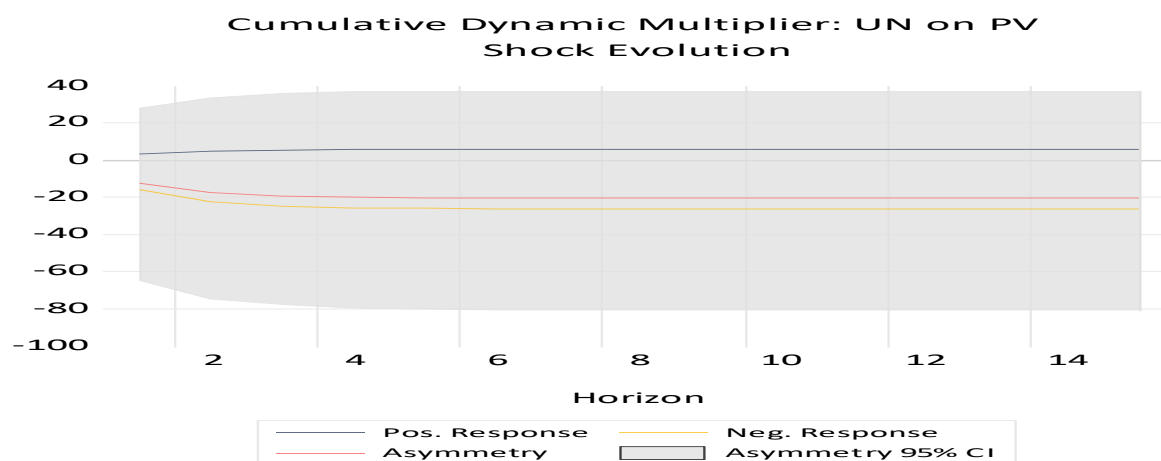


Figure 2: Dynamic Multiplier of UN and PV

Source: Authors' Computation, 2025, using Eviews 13

Therefore, Figures 1 and 2 depict the dynamic multipliers with long-run (LR) and short-run (SR) asymmetries. The black (dotted) line shows positive/negative impact, while the red line shows asymmetry and confidence interval (upper and lower) bounds. Figure 1 shows that the pattern of adjustment to both positive and negative shocks stemming from income inequality is significant. It shows that a one-unit positive shock to / increase in income inequality induces a rise in poverty in the short term. On the other hand, a one-unit negative shock to / decrease in income inequality causes a decline in poverty in the short run. However, Figure 2 shows that the pattern of adjustment to both positive and negative shocks stemming from unemployment is significant. It shows that a one-unit positive shock to / increase in unemployment level, induces a rise in poverty in the short-run.

Dynamic Stability of the Model

The cumulative sum of recursive residuals (CUSUM) and cumulative sum of squares of recursive residuals (CUSUMSQ) tests were employed to test the dynamic stability of the model and, hence, to test whether the estimated coefficients of the NARDL model are stable in the long run. The test is presented in Figures 3 and 4 below.

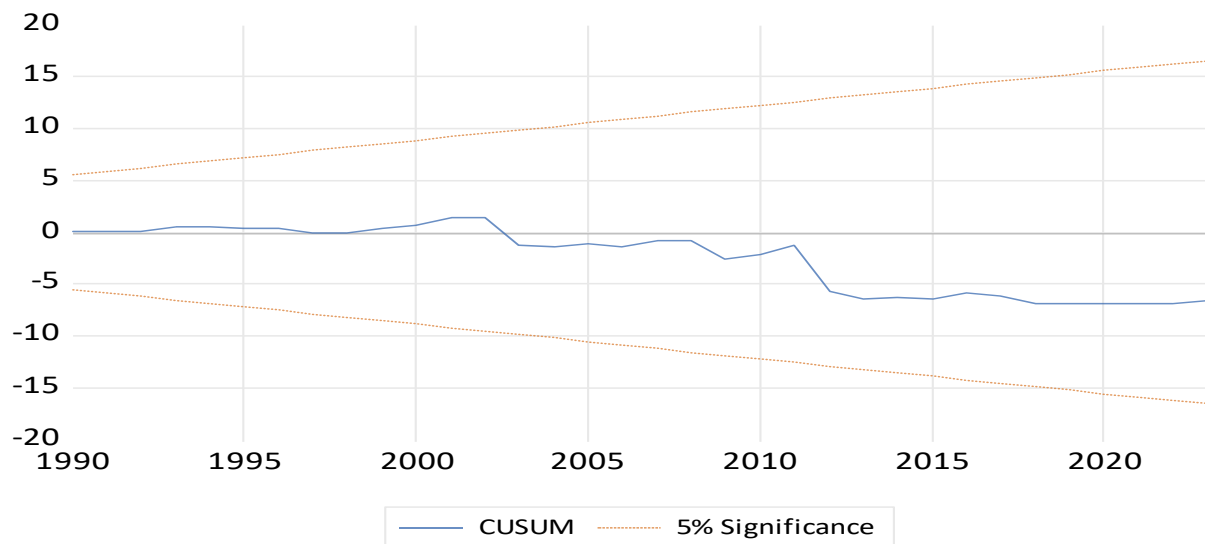


Figure 3 CUSUM stability Test

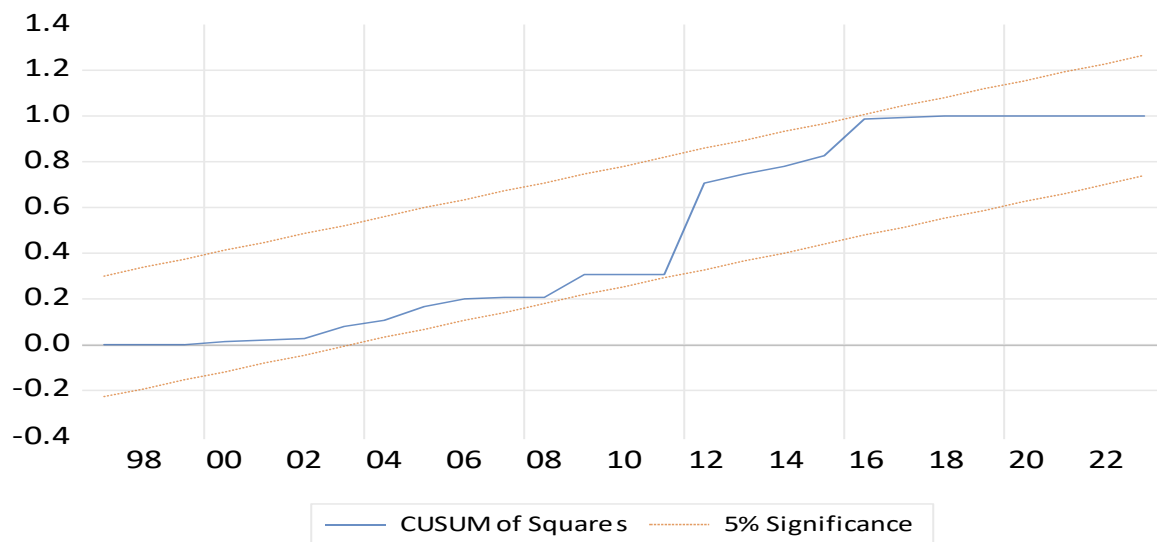


Figure 4: CUSUM of Squares Stability Test

Source: Authors' Computation, 2025, using Eviews 13

From figures 3 and 4, the CUSUM and CUSUMSQ stability tests indicate that the ARDL model falls within the critical boundaries at 5% level of significance, which shows that the coefficients of the model are stable, given the fact that the distribution of the residual is within the transverse lines, as none is outside the lines.

4.2 Discussion of the Findings

This study examined the relationship among unemployment, income inequality, and poverty in Nigeria from 1985 to 2023 using the Nonlinear Autoregressive Distributed Lag (NARDL) model. The analysis revealed several important insights that contribute to the understanding of poverty dynamics in Nigeria.

Firstly, the results indicate the presence of asymmetric effects, meaning that increases in unemployment and income inequality exert a stronger and more persistent impact on poverty than equivalent decreases in these variables alleviate it. This finding is particularly significant because it suggests that negative shocks (such as rising unemployment rates or widening income disparities) have long-lasting and compounding effects on poverty levels. In practical terms, this implies that periods of economic stress disproportionately affect the poor, and reductions in unemployment or inequality do not produce equally great improvements in living standards. The asymmetric nature of these relationships underscores the importance of proactive and sustained policy interventions rather than reactive measures that only address poverty after it has escalated.

Secondly, the study confirms that both unemployment and income inequality are significant determinants of poverty in Nigeria. High unemployment reduces household income and limits the capacity of families to meet basic needs, thereby increasing vulnerability to poverty. This is particularly relevant in Nigeria, where youth unemployment and underemployment have been persistently high, resulting in widespread economic insecurity. Similarly, income inequality exacerbates poverty by concentrating resources among a small portion of the population and limiting equitable access to education, healthcare, and other essential services. When wealth and opportunities are unevenly distributed, even periods of economic growth may fail to improve the welfare of the majority, perpetuating cycles of deprivation.

The findings also highlight that poverty in Nigeria is not merely a result of low income but rather a consequence of structural and systemic socioeconomic distortions. Structural weaknesses in the labor market, including limited job creation, skill mismatches, and informal employment dominance, restrict people's ability to earn sustainable incomes. Concurrently, the widening gap between rich and poor, regional disparities, and unequal access to resources amplify vulnerability to poverty. This indicates that poverty reduction strategies that focus solely on increasing income without addressing inequality and labor market deficiencies are unlikely to achieve lasting impact.

Moreover, the evidence from this study suggests that poverty reduction in Nigeria requires a dual approach. Policies must simultaneously address unemployment and income inequality to mitigate their compounding effects. For example, promoting inclusive economic growth, investing in education and vocational training, and strengthening social protection programs can reduce vulnerability while fostering more equitable

wealth distribution. Without such coordinated interventions, negative shocks in unemployment or inequality are likely to persist and deepen the poverty trap.

Finally, the study's findings are consistent with findings Okafor (2024), Muhammad et al (2018), Siyan et al. (2016) Akwara et al. (2021) for Nigeria, and Dahal, et al (2024) for Nepal among others, evidence that unemployment and income inequality are critical drivers of poverty, particularly in developing economies where social safety nets are weak, and economic structures are fragile. The asymmetric impacts identified in this study emphasize the urgency of proactive, multidimensional, and sustained policy responses to ensure that poverty reduction efforts are effective and resilient to economic fluctuations.

The findings of this study carry important implications for policymakers and development planners. First, the asymmetric nature of the relationships suggests that policy interventions must be proactive rather than reactive. Waiting for unemployment or inequality to worsen before acting may lead to deeper and more persistent poverty levels that are difficult to reverse. Second, the evidence that both unemployment and income inequality significantly influence poverty indicates that poverty-reduction strategies should avoid single-track approaches. Policies that focus solely on poverty alleviation without addressing labor-market outcomes or distributional imbalances are likely to have limited effectiveness.

Furthermore, the long-run effects observed imply that sustained reforms are necessary. Short-term interventions may reduce immediate hardships but will not resolve the structural issues contributing to unemployment and inequality. Efforts must therefore be holistic, integrating labor-market policies with social protection, education, and fiscal reforms. Additionally, regional inequalities within Nigeria suggest the need for geographically targeted interventions to ensure that marginalized areas benefit from national development initiatives.

5. Conclusion and Recommendation

5.1 Conclusion

This study examined the dynamic relationship among unemployment, income inequality, and poverty in Nigeria from 1985 to 2023 using the Nonlinear Autoregressive Distributed Lag (NARDL) model. The findings provide strong evidence of asymmetric relationships among the variables, indicating that increases and decreases in unemployment and income inequality do not exert identical effects on poverty. Specifically, increases in unemployment and income inequality have a stronger and more persistent impact on poverty levels than corresponding decreases.

The results highlight the complex and structural nature of poverty in Nigeria, where labour-market weaknesses and unequal income distribution reinforce each other. High unemployment diminishes household income, constrains access to basic services, and heightens vulnerability to economic shocks, while rising income inequality limits economic opportunities and undermines inclusive growth. The study

therefore concludes that unemployment and income inequality are key and interrelated drivers of poverty in Nigeria, sustaining deprivation and widening socio-economic disparities over time.

5.2 Recommendations

Based on the findings, the study recommends that policymakers adopt integrated strategies aimed at simultaneously reducing unemployment and income inequality to effectively combat poverty in Nigeria. Priority should be given to job-creation policies that target both skilled and unskilled labour through support for entrepreneurship, vocational and technical training, and increased investment in labour-intensive sectors such as agriculture, manufacturing, and infrastructure.

In addition, policies aimed at reducing income inequality should be strengthened, including the adoption of progressive taxation, expansion of social protection and welfare programmes, and ensuring equitable access to quality education and healthcare services. Addressing unemployment and income inequality concurrently will help reduce their compounded effects on poverty and foster a more inclusive, equitable, and resilient socio-economic environment in Nigeria.

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