



# Asymmetric Effects of Fiscal Policy on Economic Development in Nigeria

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**Abstract:** The impact of fiscal policy on Nigeria's economic development is increasingly important due to the country's economic volatility, dependence on oil exports, and vulnerability to external shocks. The paper investigates the asymmetric effects of basic fiscal policy instruments on economic development in Nigeria between 1981 and 2022) by employing a Non-linear ARDL (NARDL) technique. The study reveals that government expenditure shocks in Nigeria can positively impact unemployment, stimulate economic activity, and reduce poverty, while negative shocks can lead to economic decline. However, long-term effects may diminish due to inefficiencies, corruption, and economic growth. The study also shows a negative correlation between government expenditure shocks and the Human Development Index, indicating suboptimal public spending efficiency. It also highlights a positive relationship between revenue shocks and HDI, suggesting that increased revenue can improve human development outcomes. It is recommended that Nigeria can enhance youth employment, entrepreneurship, smallholder farming, microfinance institutions, and infrastructure development through various programs like the National Social Investment Programme.

**Keywords:** Asymmetric Effects, Fiscal Policy, Economic Development, NARDL and Nigeria.

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## INTRODUCTION

Fiscal policy has gained attention for regulating economies, but divergent views exist on which approach is better for smooth economic operation, as they impact employment and price stability in some countries amidst globalization. The feasibility of either monetary policy or fiscal policy in achieving economic stabilization is really a contending issue. The debate on the most suitable fiscal and monetary policies for controlling the economy in the face of globalization has been dominated by various

schools of thought, with fiscal policy showing little short-term stabilization role (Obademi, 2018). This is not unconnected with the evidence that it gives priority to maintaining price stability over time. Fiscal policy is fundamental in driving economic development in Mexico, Indonesia, Nigeria, and Turkey because it has been argued in literature that it can influence macroeconomic stability (Batra and Mahmood, 2018), infrastructure investment (Esfahani and Ramirez, 2023), human capital development (Psacharopoulos and Patrinos, 2018), poverty reduction (Banerjee, 2015) and inclusive growth (Aghion, 2019). Also, sound fiscal management, including prudent spending, revenue mobilization, and debt sustainability, stabilizes the economy and creates an investment-friendly environment towards achieving the desired level of economic development (Banerjee, 2015).

Fiscal policy also supports human capital development through investments in education, healthcare and social protection programmes which are pertinent to attain a certain level economic development among the emerging economies (Esfahani and Ramirez, 2023), hence the fiscal policy-economic development nexus. Fiscal policy significantly drives economic development in MINT countries by promoting economic stability, infrastructure investment, human capital development, mitigating against unemployment, poverty reduction, and as well improving peoples' welfare. Also, fiscal policy is a key mechanism used by governments to stimulate economic activity, investment and economic development. MINT countries are characterized by similar rapid urbanization, technological advancements and shifts in global trade patterns. Analyzing the efficacy of fiscal policy measures in promoting economic development has significant policy implications. A significant shift in government expenditure and taxation policy in developed countries led to a budget deficit and negatively impacts the balanced budget (Köktaş and Günel, 2022). Emerging economies face debt problems due to budget deficits, which can result in stiff borrowing requirements, higher interest rates, and external debt crises. Rule-based economic policies aim to prevent excessive budget deficits by controlling public expenditures and revenues

Though, Nigeria is the largest economy in Africa with a GDP of US\$506.6 billion in the year 2023 but greater proportion of the population of this country still live below the poverty line (IMF, 2023). The government as well as non-governmental organisations in Nigeria has undertaken several initiatives to drastically lessen the rate of poverty in the country at large. It was found out by Ogwumike, (2021) that erstwhile poverty reduction measures put in place in Nigeria primarily focus primarily on growth, basic necessities and development strategies of rural areas. The growth approach in the first instance is assumed to lay emphasis on rapid economic development through

proper policy management, while the basic necessities approach encompasses on fundamental requirements and needs for the poor.

The impact of fiscal policy on Nigeria's economic development is increasingly important due to the country's economic volatility, dependence on oil exports and vulnerability to external shocks. Fiscal policy, including government spending and taxation decisions, is used to stimulate growth, reduce unemployment, and stabilize macroeconomic conditions. However, the effectiveness of fiscal policy in Nigeria exhibits asymmetric effects, meaning it does not produce the same outcomes depending on the economy's expansion or recession. This is due to structural vulnerabilities, inflationary pressures, and external dependencies while the effects of fiscal policies are especially sensitive to the economic environment, with external shocks and monetary dynamics playing a critical role (Adebisi, 2020).

Empirical studies have shown that fiscal policy in Nigeria has a significant impact on economic development, particularly in relation to the country's oil dependency and socioeconomic challenges. In periods of economic contraction, such as the 2008 global financial crisis and the 2016 recession, fiscal stimulus can boost aggregate demand and stimulate economic growth (Akinlo, 2017). Public expenditure, such as infrastructure investments and social transfers, helps cushion the negative effects of global oil price shocks and contributes to faster recovery (Folawewo and Olalekan, 2018). However, during economic booms, fiscal policy in Nigeria often produces more limited benefits and may contribute to economic overheating, inflation, and public debt accumulation. This is due to Nigeria's heavily reliant economy on oil exports, which can lead to excessive demand and inflation and fiscal policy during periods of strong growth can contribute to a crowding out effect, where government spending reduces private investment, failing to promote long-term growth (Folawewo and Olalekan, 2018).

As said earlier, Nigeria's fiscal policy is heavily influenced by its oil dependence, making it vulnerable to external shocks like fluctuations in global oil prices (Köktaş and Günel, 2022). Oil price cycles shape the effectiveness of fiscal policy, with declines leading to revenue shortfalls and high prices causing macroeconomic instability (Ogwumike, 2021). The country's heavy reliance on oil exports exacerbates the asymmetric effects of fiscal interventions while the effectiveness of fiscal policy is also influenced by the coordination between monetary and fiscal policies ((Banerjee, 2015). Also, inflationary pressures can result from loose fiscal policies during economic expansion, while inadequate recovery can occur during recessions.

Nigeria's fiscal policy has a more positive impact during economic recessions than during economic booms. For instance, during recessions, the government can stimulate economic activity through increased public spending or tax cuts, while during

periods of low private consumption and investment, fiscal stimulus has a stronger positive effect on GDP growth and the country's heavy reliance on oil exports makes it susceptible to oil price fluctuations, which affect government revenues and fiscal policy effectiveness (Ogun, 2020). However, during economic booms, the asymmetric effects of fiscal policy can diminish effectiveness or lead to negative outcomes such as inflationary pressures, currency depreciation, and increased public debt (Odusola and Ogundipe, 2020). The crowding out effect occurs during economic booms, where high government spending financed by oil revenues results in the crowding out of private investment, preventing fiscal expansion from generating anticipated long-term growth.

Nigeria's economy is sensitive to global oil price fluctuations, making fiscal policy effectiveness asymmetric. High oil prices lead to increased government revenues, while low prices cause revenue shortfalls and fiscal constraints while fiscal policy effectiveness is strongly linked to oil price shocks, with high oil prices enabling fiscal expansion and public sector employment ((Obademi, 2018). However, during boom periods, the economy becomes susceptible to inflation and debt accumulation and structural imbalances in the Nigerian economy also affect the effectiveness of fiscal policy interventions. Thus, the emergence of complex theoretical models of economic circumstances has led to an increasing dissatisfaction with the approximations of linear systems. Therefore, separating the effects of positive and negative fiscal policy shocks is essential for investigating the asymmetric impact of fiscal policy on development indicators, especially in Nigeria.

## **LITERATURE REVIEW**

The escalation of the global financial crisis, particularly in the year 2008, is presumed to have conferred significant adverse effect on Mexico; the effect is assumed to have two main shocks of sizeable magnitude (Köktaş and Günel, 2022). Mexico's exports have decreased due to the global economic downturn, particularly the US recession, and high risk aversion among foreign investors has hindered access to international financial markets. Thus, the policy regarding the global deleveraging process needs to be revisited to pave way for prospective foreign investors to access international financial marker.

The two main instruments that the government uses to control an economy are monetary and fiscal policies. Musa, Asare, and Gulumbe (2019) examined the effectiveness of monetary-fiscal policies in Nigeria's economy. They found that despite government revenue impacting growth, the unprecedented rise in general prices continues to eat deep into the economy. It is evidently clear from the result that the impact fiscal policy can confer on the economy rests on entirely on the dominating

monetary policy instrument at the moment. Similarly, there is no doubt that every expenditure decision of government is considerably premised on the available revenue – which is subject to the role of certain monetary policy instrument(s) in the economy. The study suggests a coordinated approach between fiscal and monetary policies for Nigeria's economic development, recognizing the dominant influence of these policies on economic activity dynamics.

Monetary and fiscal policies have gained attention for regulating economies, but divergent views exist on which approach is better for smooth economic operation, as they impact employment and price stability in some countries amidst globalization. The feasibility of either monetary policy or fiscal policy in achieving economic stabilization is really a contending issue. The debate on the most suitable fiscal and monetary policies for controlling the economy in the face of globalization has been dominated by various schools of thought, with fiscal policy showing little short-term stabilization role (Obademi, 2018). This is not unconnected with the evidence that it gives priority to maintaining price stability over time.

Fiscal policy is a financial tool employed to correct series of economic disturbances and restore the economy to its steady state. Sequel to the above, Ehinmilorin, Bamidele-Sadiq, Udonwa, and Ekpeno, (2021) investigate the impact of fiscal policy on the rate of poverty in Nigeria. The results show that both tax and non-tax revenue of government are found to have impacted significantly the level of poverty on one side. On the other side, recurrent expenditure component is seen to have contributed immensely to poverty reduction in Nigeria than capital expenditure component. The need to augment expenditure provision for general administration cannot be overemphasized as it is shown from the result that it has poverty reducing effect. Much emphasis is therefore on capital expenditure for its leading role in poverty reduction strategy due to its long-term strides in infrastructural development that would engender income generation and job creation opportunities.

The government as well as non-governmental organisations in Nigeria has undertaken several initiatives to drastically lessen the rate of poverty in the country at large. It was found out by Ogwumike, (2021) that erstwhile poverty reduction measures put in place in Nigeria primarily focus primarily on growth, basic necessities and development strategies of rural areas. The growth approach in the first instance is assumed to lay emphasis on rapid economic development through proper policy management, while the basic necessities approach encompasses on fundamental requirements and needs for the poor.

The country's poverty reduction measures, categorized into pre-SAP, SAP, and democratic eras, include numerous programs and policies. However, the level of

poverty remains high, indicating inefficiency or structural defects in the policies. It is germane to emphasise that the study fails to recognize that poverty reduction cannot only be achieved in isolation without having a sizeable number of gainfully employed individuals who are hitherto unemployed. The government's intervention and active participation in an economy is crucial for efficient resource allocation, benefiting the aggregate economy. This is as a result of market failure in which the forces of demand and supply are quite insufficient and ineffective in achieving macroeconomic objectives. One of the most essential instruments employed to influence macroeconomic performance in Nigeria is fiscal policy.

The poor pay more taxes but receive fewer public benefits, despite efforts to allocate expenditure towards welfare. However, reforming tax systems is lacking, focusing on revenue-based income redistribution. The emphasis of the study is only on tax revenue component without considering the significant impact the non-tax revenue can have in this regard. Also, expenditure, which is primarily an injection into economy and which many scholars have proved to have many impact on poverty reduction in the economy, is fundamentally neglected. Summarily, it is established from the findings that, relying solely on economic development as a parameter for assessing the poverty level in Indonesia, is quite misleading as there exist other prominent determinants of poverty in the economy. Meanwhile, if economic development variable is reinforced or complemented by certain fiscal policy instruments, the impact on poverty reduction may be felt and bring about useful policy recommendations.

## METHODOLOGY

The study examines the asymmetric impact of fiscal policy on Nigeria's economic development variables, separating positive and negative shock effects, using modified work of Afandi, Wahyuni, and Sriyana, (2019) and the baseline models for the study are

Model 1: Unemployment

$$UNE_t = \alpha_0 + \alpha_1 f_t + \alpha_2 POP_t + \alpha_3 INT_t + \varepsilon_{1t} \quad (1a)$$

Where,  $UNE_t$  is the unemployment, total (% of total labour force) and  $f_t$  implies fiscal policy variables comprising expenditure ( $EXP_t$ ) revenue ( $REV_t$ ) and debt ( $DBT_t$ ).

$$\text{That is, } f_t = \alpha_{11} EXP_t + \alpha_{12} REV_t + \alpha_{13} DBT_t$$

Model 2: Poverty

$$POV_t = \beta_0 + \beta_1 f_t + \beta_2 POP_t + \beta_3 INF_t + \varepsilon_{2t} \quad (1b)$$

Where,  $POV_t$  is poverty rate (measured by multi-dimensional poverty index)

Model 3: Human Development Index (HDI)

$$HDI_t = \varphi_1 + \beta_1 f_t + \varphi_2 POP_t + \varphi_3 INF_t + \varepsilon_{3t} \quad (1c)$$

Where,  $HDI_t$  is the Human Development Index (HDI) – ranges from 0 to 1- which measures a country's performance in national human development, with higher values indicating better outcomes.

The paper uses the Non-linear Autoregressive Distributed Lag (NARDL) model to examine the asymmetric impact of fiscal policy instruments on economic development. The model captures potential short- and long-run asymmetries, allowing for separate analysis of the effects of positive and negative changes on dependent variables as

$$f_t^+ = \sum_{i=1}^p \Delta f_t^+ = \sum_{i=1}^p \text{Max}(\Delta f_t^+, 0) \quad (2a)$$

$$f_t^- = \sum_{i=1}^p \Delta f_t^- = \sum_{i=1}^p \text{Min}(\Delta f_t^-, 0) \quad (2b)$$

It is assumed that the effects of  $f_t > 0$  (positive) could be different from the effects of  $f_t < 0$  (negative). Thus, asymmetric cointegration becomes

Model 1: Unemployment

$$UNE_t = \alpha_0 + \alpha_1^+ f_t^+ + \alpha_2^- f_t^- + \alpha_3 POP_t + \alpha_4 INT_t + \varepsilon_{1t} \quad (3a)$$

Model 2: Poverty

$$POV_t = \beta_0 + \beta_1^+ f_t^+ + \beta_2^- f_t^- + \beta_3 POP_t + \beta_4 INT_t + \varepsilon_{2t} \quad (3b)$$

Model 3: Human Development Index (HDI)

$$H_t = \varphi_1 + \varphi_1^+ f_t^+ + \varphi_2^- f_t^- + \varphi_3 POP_t + \varphi_4 INF_t + \varepsilon_{3t} \quad (3c)$$

Then, by incorporating the economic development variables used in this study, equations 3a to c become

Model 1: Unemployment

$$\begin{aligned} \Delta UNE_t = & \alpha_0 + \sum_{i=1}^{p_1} \alpha_{1i} \Delta UNE_{t-1} + \sum_{i=0}^{p_2} \alpha_{2i}^+ \Delta f_{t-1}^+ + \sum_{i=0}^{p_3} \alpha_{3i}^- \Delta f_{t-1}^- \\ & + \sum_{i=0}^{p_4} \alpha_{4i} \Delta POP_{t-1} + \sum_{i=0}^{p_5} \alpha_{5i} \Delta INT_{t-1} + \rho_0 UNE_{t-1} + \rho_1^+ f_{t-1}^+ + \rho_2^- f_{t-1}^- + \rho_3 POP_t \\ & + \rho_4 INT_t + \varepsilon_{1t} \end{aligned} \quad (4a)$$

Model 2: Poverty

$$\begin{aligned} \Delta POV_t = & \alpha_0 + \sum_{i=1}^{P_1} \alpha_{1i} \Delta POV_{t-1} + \sum_{i=0}^{P_2} \alpha_{2i}^+ \Delta f_{t-1}^+ + \sum_{i=0}^{P_3} \alpha_{3i}^- \Delta f_{t-1}^- \\ & + \sum_{i=0}^{P_4} \alpha_{4i} \Delta POP_{t-1} + \sum_{i=0}^{P_5} \alpha_{5i} \Delta INF_{t-1} + \rho_0 POV_{t-1} + \rho_1^+ f_{t-1}^+ + \rho_2^- f_{t-1}^- + \rho_3 POP_t \\ & + \rho_4 INT_t + \varepsilon_{2t} \end{aligned} \quad (4b)$$

Model 3: Human Development Index (HDI)

$$\begin{aligned} \Delta HDI_t = & \alpha_0 + \sum_{i=1}^{P_1} \alpha_{1i} \Delta HDI_{t-1} + \sum_{i=0}^{P_2} \alpha_{2i}^+ \Delta f_{t-1}^+ + \sum_{i=0}^{P_3} \alpha_{3i}^- \Delta f_{t-1}^- \\ & + \sum_{i=0}^{P_4} \alpha_{4i} \Delta POP_{t-1} + \sum_{i=0}^{P_5} \alpha_{5i} \Delta INF_{t-1} + \rho_0 HDI_{t-1} + \rho_1^+ f_{t-1}^+ + \rho_2^- f_{t-1}^- + \rho_3 POP_t \\ & + \rho_4 INT_t + \varepsilon_{3t} \end{aligned} \quad (4c)$$

Where,  $\alpha_1 - \alpha_4$  are short run coefficients estimated and  $\rho_1 - \alpha_3$  are estimable long run coefficients. After estimating equations 4a to c, then, the following assumptions were tested for the purpose of this analysis.

- (i) Short-run adjustment asymmetry are inferred if the following  $\Delta f_t^+$  and  $\Delta f_t^-$  take different lag orders respectively;
- (ii) Short run asymmetric impacts are manifested if they occur at the similar lag order  $i$ , the estimate of  $\alpha_{2i}^+$  is different from the estimate of  $\alpha_{3i}^-$ ;
- (iii) Short run cumulative asymmetric effects are established if  $\Sigma \hat{\alpha}_{2i}^+ \neq \Sigma \hat{\alpha}_{3i}^-$
- (iv) Long run asymmetric impact is inferred if the normalized long-run estimates obtained for all the decomposed partial cumulative sums of positive are different from their respective negative changes i.e.  $\frac{\hat{\rho}_1^+}{-\rho_0} \neq \frac{\hat{\rho}_2^-}{-\rho_0}$

The following equations were used for estimating asymmetric dynamic multiplier effects:

$$K_{b^+} = \sum_{j=0}^b \frac{\partial UNE_{t+j}}{\partial F_t^+}, \quad K_{b^-} = \sum_{j=0}^b \frac{\partial UNE_{t+j}}{\partial F_t^-}, \quad b = 1, 2, 3 \dots \dots \dots \quad (5a)$$

$$K_{b^+} = \sum_{j=0}^b \frac{\partial POV_{t+j}}{\partial F_t^+}, \quad K_{b^-} = \sum_{j=0}^b \frac{\partial POV_{t+j}}{\partial F_t^-}, \quad b = 1, 2, 3 \dots \dots \dots \quad (5b)$$

$$K_{b^+} = \sum_{j=0}^b \frac{\partial HDI_{t+j}}{\partial F_t^+}, \quad K_{b^-} = \sum_{j=0}^b \frac{\partial HDI_{t+j}}{\partial F_t^-}, \quad b = 1, 2, 3 \dots \dots \dots \quad (5c)$$

Noting that  $b \rightarrow \infty$ ,  $K_{b^+} \rightarrow \theta_1^+$  and  $K_{b^-} \rightarrow \theta_2^-$

### Data Sources

Annual secondary data on poverty rate, unemployment rate, real interest rate, human development index (HDI), debt-to- GDP ratio, revenue as a percentage of GDP, expenditure as a percentage of GDP, inflation rate and population rate of Nigeria from 1981 to 2022 were used. The data were sourced from the World Development Indicators (WDI, 2023); International Monetary Fund (IMF, 2023), United Nations Development Programme (UNDP, 2023) and World Bank Group, (2023).

### RESULTS AND FINDINGS

The results of asymmetric effects of fiscal policy on economic development for Nigeria are presented in Table 1.

**Table 1: Results of asymmetric effects of fiscal policy on economic development**

<i>Method: Non-Linear ARDL Model</i>								
<i>Model 1a (3, 2, 1, 1)</i>			<i>Model 2a (3, 3, 1, 1)</i>			<i>Model 3a (2, 3, 1, 1)</i>		
<i>Variable</i>	<i>Co-eff.</i>	<i>P-value</i>	<i>Variable</i>	<i>Co-eff.</i>	<i>P-value</i>	<i>Variable</i>	<i>Co-eff.</i>	<i>P-value</i>
<i>Dep. Variable: UNE</i>			<i>Dep. Variable: POV</i>			<i>Dep. Variable: HDI</i>		
<i>Short Run Estimate</i>								
<b>D(EXP<sup>+</sup>)</b>	0.5744	0.0825	<b>D(EXP<sup>+</sup>)</b>	0.0216	0.0084	<b>D(EXP<sup>+</sup>)</b>	-0.1901	0.0969
<b>D(EXP<sup>+</sup> (-1))</b>	-2.2344	0.0227	<b>D(EXP<sup>+</sup> (-1))</b>	-0.0096	0.0044	<b>D(EXP<sup>+</sup> (-1))</b>	-0.0661	0.0835
<b>D(EXP<sup>+</sup> (-2))</b>	-1.4213	0.0159	<b>D(EXP<sup>+</sup> (-2))</b>	-0.0652	0.0242	<b>D(EXP<sup>+</sup> (-2))</b>	-0.0050	0.0487
<b>D(EXP<sup>+</sup> (-3))</b>	-1.7088	0.0421	<b>D(EXP<sup>+</sup> (-3))</b>	-0.0288	0.0114	<b>D(EXP<sup>-</sup>)</b>	0.0133	0.0219

<b>D(EXP<sup>-</sup>)</b>	0.8122	0.1457	<b>D(EXP<sup>-</sup>)</b>	0.0116	0.0192	<b>D(EXP<sup>-</sup></b> <b>(-1))</b>	0.0067	0.0460
<b>D(EXP<sup>-</sup></b> <b>(-1))</b>	-0.2308	0.0691	<b>D(EXP<sup>-</sup></b> <b>(-1))</b>	0.0225	0.0534	<b>D(EXP<sup>-</sup></b> <b>(-2))</b>	0.0097	0.0136
<b>D(EXP<sup>-</sup></b> <b>(-2))</b>	0.7422	0.0366	<b>D(EXP<sup>-</sup></b> <b>(-2))</b>	0.0314	0.0717	<b>D(EXP<sup>-</sup></b> <b>(-3))</b>	0.0025	0.1526
DPOP	0.1092	0.0006	<b>D(EXP<sup>-</sup></b> <b>(-3))</b>	0.0410	0.0096	DPOP	-0.1002	0.0126
DINT	0.0125	0.0526	DPOP	1.2067	0.0016	DINF	-0.2325	0.0906
			DINF	2.8725	0.0026			
<b>Model 1b (3, 2, 1, 1)</b>			<b>Model 2b (3, 2, 1, 1)</b>			<b>Model 3b (3, 3, 1, 1)</b>		
<b>D(REV<sup>+</sup>)</b>	1.7269	0.0827	<b>D(REV<sup>+</sup>)</b>	0.1184	0.0202	<b>D(REV<sup>+</sup>)</b>	-0.0302	0.0352
<b>D(REV<sup>+</sup></b> <b>(-1))</b>	5.0501	0.0538	<b>D(REV<sup>+</sup></b> <b>(-1))</b>	0.0112	0.0338	<b>D(REV<sup>+</sup></b> <b>(-1))</b>	-0.0549	0.0422
<b>D(REV<sup>+</sup></b> <b>(-2))</b>	1.6418	0.0599	<b>D(REV<sup>+</sup></b> <b>(-2))</b>	0.0786	0.0200	<b>D(REV<sup>+</sup></b> <b>(-2))</b>	-0.0093	0.0763
<b>D(REV<sup>+</sup></b> <b>(-3))</b>	2.9273	0.0106	<b>D(REV<sup>+</sup></b> <b>(-3))</b>	0.1524	0.0306	<b>D(REV<sup>+</sup></b> <b>(-3))</b>	-0.0106	0.0420
<b>D(REV<sup>-</sup>)</b>	-1.3018	0.0192	<b>D(REV<sup>-</sup>)</b>	-0.0964	0.0451	<b>D(REV<sup>-</sup>)</b>	0.0209	0.0073
<b>D(REV<sup>-</sup></b> <b>(-1))</b>	3.2460	0.0517	<b>D(REV<sup>-</sup></b> <b>(-1))</b>	-0.0010	0.0911	<b>D(REV<sup>-</sup></b> <b>(-1))</b>	0.0437	0.1699
<b>D(REV<sup>-</sup></b> <b>(-2))</b>	-4.0024	0.0621	<b>D(REV<sup>-</sup></b> <b>(-2))</b>	-0.1601	0.0998	<b>D(REV<sup>-</sup></b> <b>(-2))</b>	-0.0521	0.0550
DPOP	2.1022	0.0116	DPOP	0.1920	0.0236	<b>D(REV<sup>-</sup></b> <b>(-3))</b>	-0.0474	0.0418
DINT	0.2325	0.1526	DINF	0.1205	0.0086	DPOP	-0.1094	0.0009
						DINF	-0.0152	0.0026
<b>Model 1c (2, 3, 1, 1)</b>			<b>Model 2c (3, 3, 1, 1)</b>			<b>Model 3c (3, 2, 3, 1)</b>		
<b>D(DBT<sup>+</sup>)</b>	0.2251	0.0564	<b>D(DBT<sup>+</sup>)</b>	0.0010	0.0596	<b>D(DBT<sup>+</sup>)</b>	0.0025	0.0008
<b>D(DBT<sup>+</sup></b> <b>(-1))</b>	0.9637	0.0465	<b>D(DBT<sup>+</sup></b> <b>(-1))</b>	-0.0176	0.0202	<b>D(DBT<sup>+</sup></b> <b>(-1))</b>	-0.0020	0.0115
<b>D(DBT<sup>+</sup></b> <b>(-2))</b>	0.5250	0.0583	<b>D(DBT<sup>+</sup></b> <b>(-2))</b>	-0.0156	0.0262	<b>D(DBT<sup>+</sup></b> <b>(-2))</b>	-0.0023	0.0005
<b>D(DBT<sup>-</sup>)</b>	-0.5532	0.0827	<b>D(DBT<sup>+</sup></b> <b>(-3))</b>	-0.0177	0.0188	<b>D(DBT<sup>+</sup></b> <b>(-3))</b>	0.0021	0.0292
<b>D(DBT<sup>-</sup></b> <b>(-1))</b>	-0.5511	0.0885	<b>D(DBT<sup>-</sup>)</b>	-0.0155	0.0240	<b>D(DBT<sup>-</sup>)</b>	0.0006	0.0250

<b>D(DBT<sup>-</sup>-2))</b>	-0.3210	0.0165	<b>D(DBT<sup>-</sup>(-1))</b>	0.0030	0.0924	<b>D(DBT<sup>-</sup>(-1))</b>	0.0021	0.0214
<b>D(DBT<sup>-</sup>(-3))</b>	-0.1542	0.3001	<b>D(DBT<sup>-</sup>-2))</b>	-0.0016	0.0239	<b>D(DBT<sup>-</sup>-2))</b>	0.0003	0.0816
DPOP	1.1032	0.0004	<b>D(DBT<sup>-</sup>(-3))</b>	0.0010	0.0596	DPOP	2.0221	0.0008
DINT	0.1099	0.0046	DPOP	2.1056	0.0400	DINF	-0.1087	0.0226
			DINF	0.1562	0.0040			
Long Run Estimate								
<b>EXP<sup>+</sup></b>	0.2881	0.0889	<b>EXP<sup>+</sup></b>	-0.0393	0.0701	<b>EXP<sup>+</sup></b>	-0.0101	0.0574
<b>EXP<sup>-</sup></b>	0.1943	0.0501	<b>EXP<sup>-</sup></b>	0.0233	0.0150	<b>EXP<sup>-</sup></b>	-0.0033	0.0315
<b>REV<sup>+</sup></b>	-1.8044	0.0225	<b>REV<sup>+</sup></b>	-0.0102	0.0352	<b>REV<sup>+</sup></b>	0.0029	0.0410
<b>REV<sup>-</sup></b>	-3.0262	0.0235	<b>REV<sup>-</sup></b>	-0.0360	0.0259	<b>REV<sup>-</sup></b>	0.0045	0.0878
<b>DBT<sup>+</sup></b>	-0.0821	0.0786	<b>DBT<sup>+</sup></b>	0.0063	0.0232	<b>DBT<sup>+</sup></b>	0.0018	0.0001
<b>DBT<sup>-</sup></b>	-0.0612	0.0858	<b>DBT<sup>-</sup></b>	0.0017	0.0214	<b>DBT<sup>-</sup></b>	0.0007	0.0003
POP	-6.5927	0.0968	POP	-0.0415	0.0617	POP	-0.2152	0.0252
INT	0.1929	0.0036	INF	0.1099	0.0776	INF	-1.1002	0.0042
C	6.7797	0.0053	C	4.0458	0.0325	C	1.3785	0.0153

Source: Author's estimations

Results from Table 1 for Model 1 show that the signs of  $D(EXP^+)$  coefficients are mostly negative at different magnitudes. This shows that the effects of a positive shock to government expenditure on unemployment in Nigeria vary in the short run. These effects were found to be statistically significant. Also, the cumulative effects of the positive shocks to government expenditure on unemployment in Nigeria were found to be negative in the short run. Again, the signs of  $D(EXP^-)$  coefficients are varied with dissimilar magnitudes and are statistically significant at different levels. The cumulative effects of the negative shocks to the government expenditure on unemployment are positive.

Furthermore, the results show that the effect of a positive shock to government revenue  $\{D(REV^+)\}$  on unemployment in Nigeria was found to be positive. All these effects were found to be statistically significant. Also, the cumulative effects of the positive shocks to the government revenue on unemployment appeared to be positive in

the short run. Again, the coefficients of  $D(REV^-)$  are different in signs but with different magnitudes and statistically significant at different levels. The cumulative effects of the negative shocks to the government revenue on unemployment were found to be positive in the short run.

The third fiscal variable in the model is debt-to-GDP ratio (DBT), it is revealed that the estimates the signs of  $D(DBT^+)$  coefficients are all positive with different magnitudes. This shows that, in the short run, the effects of positive shocks to government debt on unemployment in Nigeria were found to be positive and these effects are statistically significant. Also, the cumulative effects of the positive shocks to the government debt on unemployment appeared positive in the short run. Again, the coefficients of  $D(DBT^-)$  are all negative and with different magnitudes and statistically significant at different levels. The cumulative effects of the negative shocks to the government revenue on unemployment were found to be positive in the short run. It is also shown that population growth rates (DPOP) and interest rate (DINT) confer significant positive relationship on unemployment in each of the three models in the short run.

Moreover, the results of the long run estimates indicate a positive relationship between shocks to government expenditure and unemployment in Nigeria. The results reveal that both the positive and negative shocks to government expenditure confer a significant positive non-linear impact on unemployment. This implies that a positive shock to government expenditure can enhance economic activity through increased demand, infrastructure investment and job creation. While a negative shock to unemployment can result in an unexpected decline in unemployment rates due to increased hiring, enhanced economic conditions and or effective government policies. This is in line with the Keynesian economics which suggests that increased government expenditure boosts aggregate demand, leading to increased production and employment in Nigeria.

On the contrary, the results of the long run estimates indicate a significant negative relationship between shocks to government revenue and unemployment in Indonesia. It is revealed that both positive and negative shocks to government revenue confer a significant negative non-linear impact on unemployment. It could be inferred that positive revenue shocks, such as increased tax receipts or super-normal profit by state-owned enterprise, can stimulate aggregate demand and economic activity, leading to job creation and reduced unemployment. This is supported by the Keynesian economics which suggests that reductions in government revenue can enhance aggregate demand, exacerbating unemployment levels.

The estimates of long run analysis of debt-to-GDP ratio point out a significant negative relationship between shocks to debt and unemployment. It is shown that

both positive and negative shocks to public debt confer a significant negative non-linear impact on unemployment in Nigeria. This implies that positive shocks from debt can arise from expansionary fiscal policies, which soar up spending or diminish taxes to stimulate economic activity. These policies can initially reduce unemployment by creating jobs through public projects or indirectly by boosting demand. However, the negative non-linear impact suggests that further increases may have diminishing returns due to concerns about fiscal sustainability, potential crowding out of private investment, or inflationary pressures. Also, excessive reliance on debt-financed stimulus without corresponding increases in productivity or revenue generation can lead to long-term economic imbalances, undermining employment prospects in Nigeria. The results are in consonance with the conclusion of Reinhart and Rogoff, (2020) which suggest a nonlinear relationship between public debt levels and economic development, with positive effects on growth when debt levels are low and negative when they increase.

Again, population growth rate (POP) showed an estimated co-efficient of -6.5927. This implies that a 1% increase in population growth rate leads to 6.5927% fall in unemployment rate in Nigeria. The co-efficient is statistically significant at 1% level. This implies that an increase in population growth can lead to a decrease in unemployment. It also indicates that a growing population can also create more employment opportunities, entrepreneurship and innovation. This can result in increased investment and job creation, as well as economies of scale and agglomeration effects, attracting businesses and industries to invest in Nigeria. This is in line with the Neo-classical theory which assumes that population growth can contribute to economic development by providing a larger pool of workers, but it assumes full employment in the long run. On the contrary, the positive relationship between interest rate and unemployment indicate that the higher the rate of interest the lower the level of investment and the higher the rate of unemployment and vice versa.

In Model 2 Table 1, it is quite apparent that the coefficients of  $D(EXP^+)$  are mostly negative but at diverse magnitudes. This shows that, in the short run, the effects of positive shocks to government expenditure on poverty in Nigeria are negative. Also, the cumulative effects of the positive shocks to government expenditure on poverty level in Indonesia are negative in the short run. Conversely, the signs of  $D(EXP^-)$  coefficients are all positive with different magnitudes. The cumulative effects of the negative shocks to the government expenditure on poverty rate are found to be negative in the short run.

Similarly, the results show that the estimates the signs of  $D(REV^+)$  coefficients are all positive and with different magnitudes. This shows that, in the short run, the effect of positive shocks to government revenue on poverty level in Nigeria was found to be

positive. All these effects were found to be statistically significant. Then, the cumulative effects of the positive shocks to the government revenue on poverty appeared positive in the short run. Again, the signs of  $D(REV^-)$  coefficients are all negative but with different magnitudes and statistically significant at different levels. The cumulative effects of the negative shocks to the government revenue on poverty are found to be positive in the short run.

Again, the coefficients of  $D(DBT^+)$  are negative with different magnitudes. This shows that, in the short run, the effects of positive shocks to government debt on poverty in Nigeria were found to be negative and these effects are statistically significant. Also, the cumulative effects of the positive shocks to the government debt on poverty were found to be negative in the short run. Again, the signs of  $D(DBT^-)$  coefficients are mostly negative and with different magnitudes and statistically significant at different levels. The cumulative effects of the negative shocks to the government debt on poverty in Nigeria were found to be positive in the short run. It is equally revealed that population growth rates (DPOP) and inflation rate (DINF) confer significant positive relationship on poverty level in each of the three models in the short run.

Contrary to the short run estimates, the results of the long run estimates depict that a positive shock to government expenditure confers a negative non-linear impact on poverty while a negative shock to government expenditure confers a positive non-linear impact on poverty level in Nigeria. The results imply that in Nigeria, a positive shock to government expenditure can initially lead to poverty reduction through increased spending on social programs and infrastructure development. However, this may diminish over time due to factors like inefficiencies, corruption, and infrastructure inefficiency. Beyond a certain threshold, excessive spending could exacerbate poverty levels, leading to inflationary pressures, fiscal deficits, and macroeconomic instability. Conversely, a negative shock to government expenditure could exacerbate poverty levels by reducing access to essential social programs and public services. In the long run, reduced government expenditure could become less severe or even positive, if fiscal consolidation measures lead to improved macroeconomic stability, reduced inflation, and increased investor confidence. Over the long term, communities and individuals may adapt to changes in government expenditure patterns, finding alternative income sources or social support. The results are in consonant with the findings of **Saraireh, (2020) which** show that public spending and poverty rate are interrelated; and that any increase in public expenditure decreases the poverty rate in the long run.

Again, the results of the long run estimates indicate a significant positive relationship between shocks to government revenue and poverty in Nigeria. It is revealed that both positive and negative shocks to government revenue confer a significant positive non-

linear impact on poverty level. The implication of the results is that the association between government revenue shocks and poverty in Nigeria is not insignificant, with both positive and negative shocks having a non-linear impact. Positive shocks provide the government with additional resources to invest in social programs, infrastructure, and poverty alleviation initiatives. However, in the long run, the impact may diminish due to inefficiencies, corruption, or failure to generate sustainable economic growth. Negative shocks may lead to inflation, fiscal mismanagement, and economic distortions. Nigeria, heavily reliant on government revenue, should diversify revenue sources, improve fiscal management, invest in human capital, and strengthen social safety nets to mitigate economic shocks and promote inclusive growth. The results are in line with findings of Musa, Asare, and Gulumbe, (2019) which found out that despite government revenue impacting growth, the unprecedented rise in general prices continues to eat deep into the economy.

The results of the long run estimates of debt-to-GDP ratio indicate a significant positive relationship between shocks to government debt and poverty in Nigeria. The results reveal that both positive and negative shocks to government debt confer a significant positive non-linear impact on poverty level. The results imply that positive shocks can provide the Nigeria's government with additional funds to invest in poverty alleviation programmes, social services and infrastructure development. However, in the long run, the impact may diminish due to debt sustainability concerns. Also, potential negative effects may include macroeconomic instability, inflationary pressures, and reduced investor confidence. Again, negative shocks may lead to austerity measures, spending cuts, and reduced investment in social programmes and in the long run, the negative impact may persist. In the same vein, the positive relationship between inflation rate and poverty level indicate that the higher the rate of inflation the lower the peoples purchasing power and the higher the rate of poverty and vice versa. These support the findings of Boskin, (2020) which conclude that increases in the debt-to-GDP ratio and high inflation rate may result in greater taxes and decreased future earnings and low standard of living as well as rise in poverty rate.

In Model 3 Table 1, it is glaringly clear that the coefficients of  $D(EXP^+)$  are all negative but at different magnitudes. This shows that, in the short run, the effects of positive shocks to government expenditure on HDI in Nigeria are negative. Also, the cumulative effects of the positive shocks to government expenditure on HDI in Nigeria are negative in the short run. Also, the signs of  $D(EXP^-)$  coefficients are all positive with different magnitudes. The cumulative effects of the negative shocks to the government expenditure on HDI are found to be negative in the short run.

Moreover, the signs of the coefficients  $D(REV^+)$  are all negative with different magnitudes while the cumulative effects of the positive shocks to the government revenue on HDI in Nigeria were found to be negative in the short run. Again, the signs of  $D(REV^-)$  coefficients are both positive and negative but with different magnitudes and statistically significant at different levels. The cumulative effects of the negative shocks to the government revenue on HDI were found to be negative in the short run.

The results for the estimates of the signs of  $D(DBT^+)$  coefficients are both positive and negative with different magnitudes. Also, the cumulative effects of the positive shocks to the government debt on HDI appeared positive in the short run. Again, the coefficients of  $D(DBT^-)$  are all positive and with different magnitudes and statistically significant at different levels. The cumulative effects of the negative shocks to the government debt on HDI in Nigeria were found to be positive in the short run. Again, population growth rates (DPOP) and inflation rate (DINT) confer significant negative relationship on HDI in each of the three models in the short run.

Again, the results of the long run estimates indicate significant negative relationship between shocks to government expenditure and HDI in Nigeria. The results reveal that both positive and negative shocks to government expenditure confer a significant negative non-linear impact on HDI in Nigeria. The study reveals a negative relationship between government spending shocks and the Human Development Index (HDI), indicating suboptimal effectiveness and efficiency of public spending in Nigeria. The non-linear impact suggests that the impact of government expenditure shocks on HDI is not uniform across all levels of expenditure changes. The findings emphasize the importance of fiscal sustainability and prudent fiscal management in Nigeria. The results are in line with findings of Farayibi and Owuru, (2022) long-term impact of ineffective public spending can undermine economic performance if it is not optimally utilized.

Also, the results of the long run estimates indicate a significant positive relationship between shocks to government revenue and HDI in Nigeria. The results reveal that both positive and negative shocks to government revenue confer a significant positive non-linear impact on HDI in Nigeria. The study reveals a positive relationship between government revenue shocks and the Human Development Index (HDI), suggesting that increased revenue can positively impact human development outcomes in Nigeria. Higher government revenue allows states to allocate resources to essential public services, such as education, healthcare, infrastructure, and social welfare programmes, towards fostering economic growth, improving quality of life, and addressing social inequalities. The study emphasizes the importance of implementing policies that enhance revenue mobilization and fiscal capacity, such as broadening the tax base and

diversifying revenue sources. It also emphasizes the need for sustainable fiscal policies to maintain macroeconomic stability. Overall, the study underscores the importance of government revenue mobilization and fiscal policy in promoting human development outcomes in Nigeria. The results are in line with findings of the work of Adekola and Asaleye, (2020) which highlight the crucial role of stable fiscal policies in enhancing economic development in Nigeria.

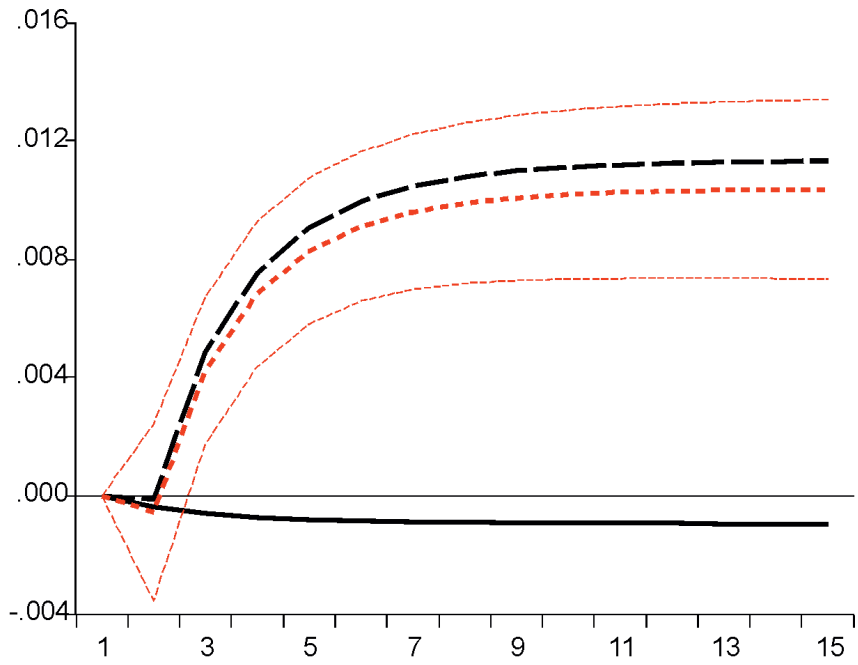
In the same vein, the results of the long run estimates indicate a significant positive relationship between shocks to public debt and HDI in Nigeria. The results reveal that both positive and negative shocks to public debt confer a significant positive non-linear impact on HDI in Nigeria. The study reveals a positive relationship between public debt shocks and the Human Development Index (HDI), suggesting that public debt can be used as a financing tool for investments in human capital, infrastructure, and social services. The study emphasizes the importance of prioritizing investments in key sectors that directly impact human development outcomes. The findings suggest that Nigeria can harness the positive impact of public debt on HDI and accelerate progress towards sustainable development goals. The findings are supported by the conclusion of the work of Nasa, (2019) that higher debt-to-GDP ratios lead to lower long-term growth rates, while lower ratios promote economic development, signifying a positive association between debt and economic development. Also, the negative relationship between inflation rate and HDI indicate that inflation can negatively impact life expectancy by increasing healthcare costs and leading to malnutrition, especially in food prices, which can be less accessible to the poor masses

### **Dynamic Multiplier Graphs of NARDL Estimates of Model 1 (For Nigeria)**

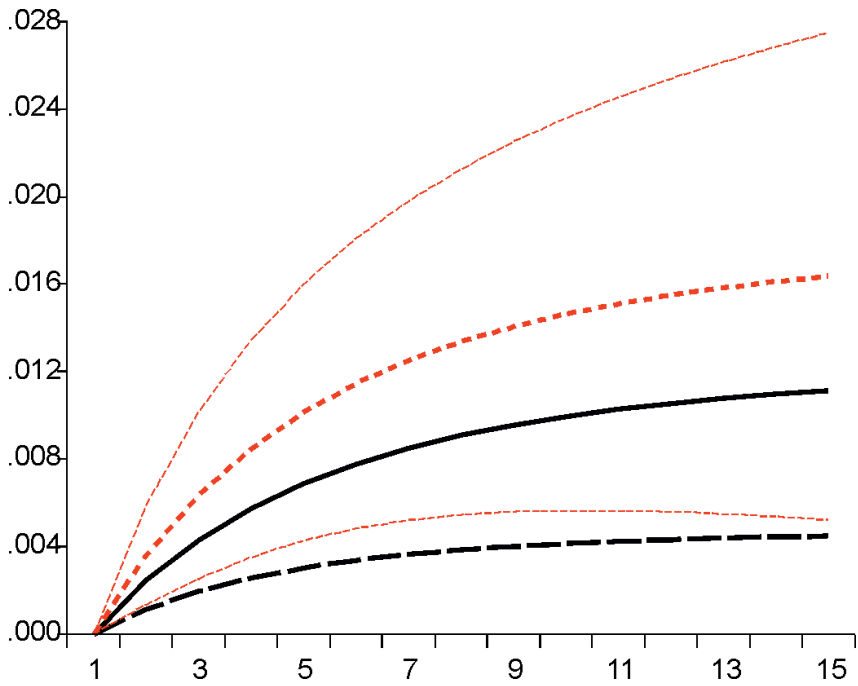
The Dynamic Multiplier graphs of NARDL estimates of the three threshold variables in Model 1 are presented in the Figure 1.

From Figure 4.10a (i), the study reveals asymmetric relationship between Nigeria's unemployment adjustment and negative and positive shocks of expenditure (EXP), indicating an asymmetry between unemployment and government expenditure. The results imply that increasing government spending may not be enough to reduce unemployment rates and as a result structural barriers to job creation in Nigeria that cannot be addressed solely through fiscal policy measures.

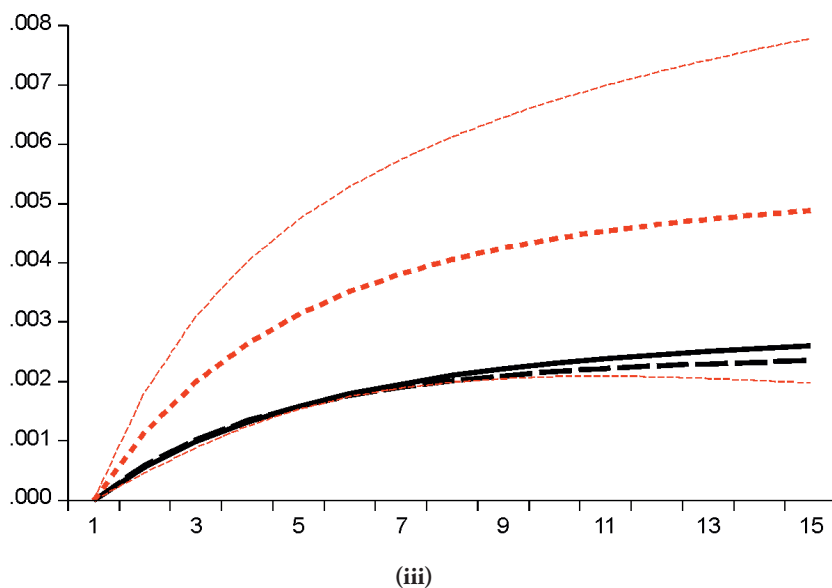
On the contrary, from Figure 4.10a (ii), the results reveal that Nigeria's unemployment rate (UNE) indicates no evidence of asymmetry in the relationship with government revenue. The results show that a stable relationship between government revenue and unemployment supports fiscal sustainability by providing a reliable source of funding for unemployment benefits and social safety nets. This relationship can also



(i)



(ii)



**Figure 1: Dynamic Multiplier Graphs of NARDL Estimates of Fiscal Policy Instruments of Model 1 (For Nigeria)**

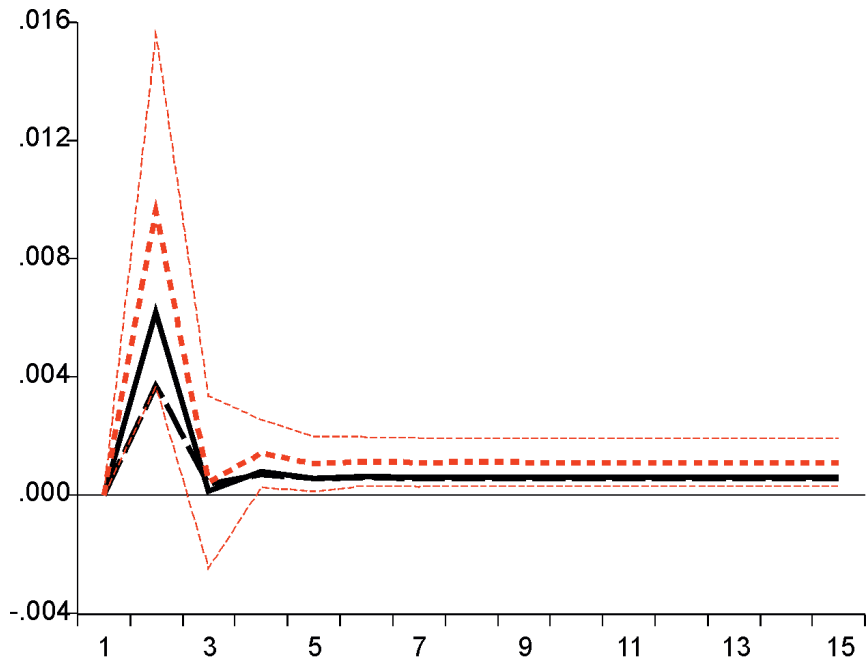
*Source:* Author's graphical illustration

boost investor confidence in Nigeria's economic stability, as it reduces uncertainty and enhances investment opportunities

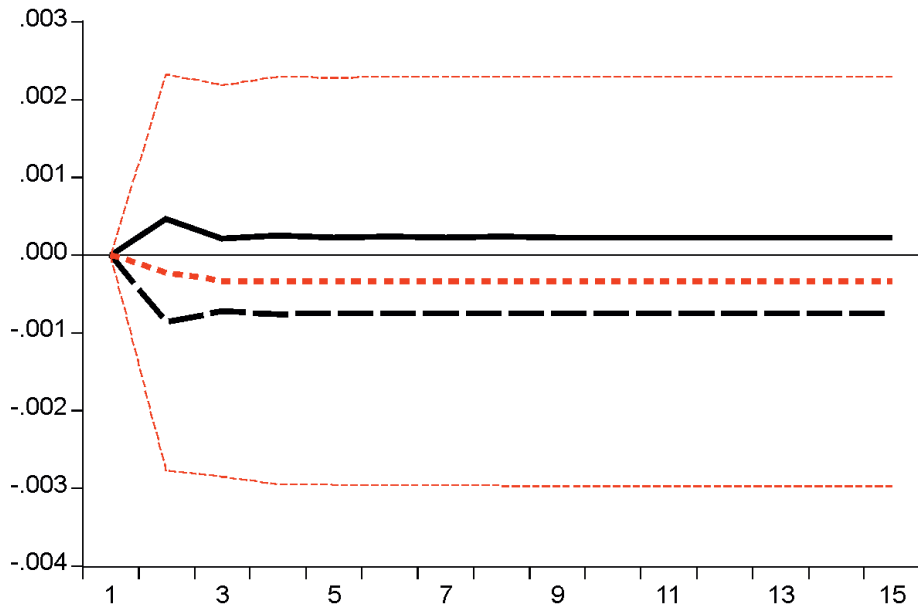
Similarly, the results of asymmetric unemployment adjustment to positive and negative debt – to – GDP (DBT) shocks is shown in Figure 4.10a (iii) by the DBT-negative and positive shocks. The study reveals that in Nigeria, the relationship between debt-to-GDP and unemployment rate is not asymmetric in both short and long terms, indicating a consistent response to shocks. The results imply a stable and predictable relationship, allowing policymakers to make informed decisions on fiscal and employment policies. This also allows for better debt management without concerns about direct unemployment impacts. Also, the absence of asymmetry implies fiscal sustainability in Nigeria, meaning that changes in the debt-to-GDP ratio do not have disproportionate effects on unemployment in the largest economy in Africa.

### **Dynamic Multiplier Graphs of NARDL Estimates of Model 2 (For Nigeria)**

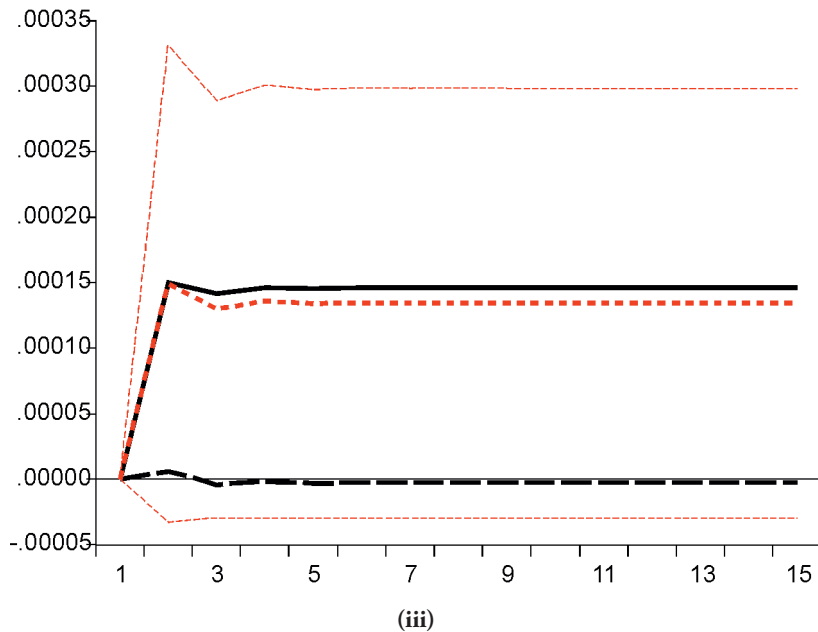
The Dynamic Multiplier graphs of NARDL estimates of the three threshold variables in Model 2 are presented in the Figure 2.



(i)



(ii)



**Figure 2: Dynamic Multiplier Graphs of NARDL Estimates of Fiscal Policy Instruments of Model 2 (For Nigeria)**

Source: Author's graphical illustration

Figure 2 reveals asymmetric relationship between Nigeria's poverty rate adjustment and expenditure shocks, showing that POV responds proportionally to both short and long-term shocks from EXP. This indicates that there is no evidence of asymmetry in both short- and long run relationships between government expenditure and poverty rate in Nigeria. The lack of evidence linking government expenditure and poverty rates in Nigeria suggests that changes in government spending may not have disproportionate effects on poverty rates. This implies that policymakers may need to explore alternative strategies, such as targeted social programmes, investments in education and healthcare, and structural reforms to promote economic development programmes. It also indicates that changes in government expenditure in Nigeria may not significantly impact fiscal sustainability, but policymakers must ensure long-term fiscal sustainability objectives are met.

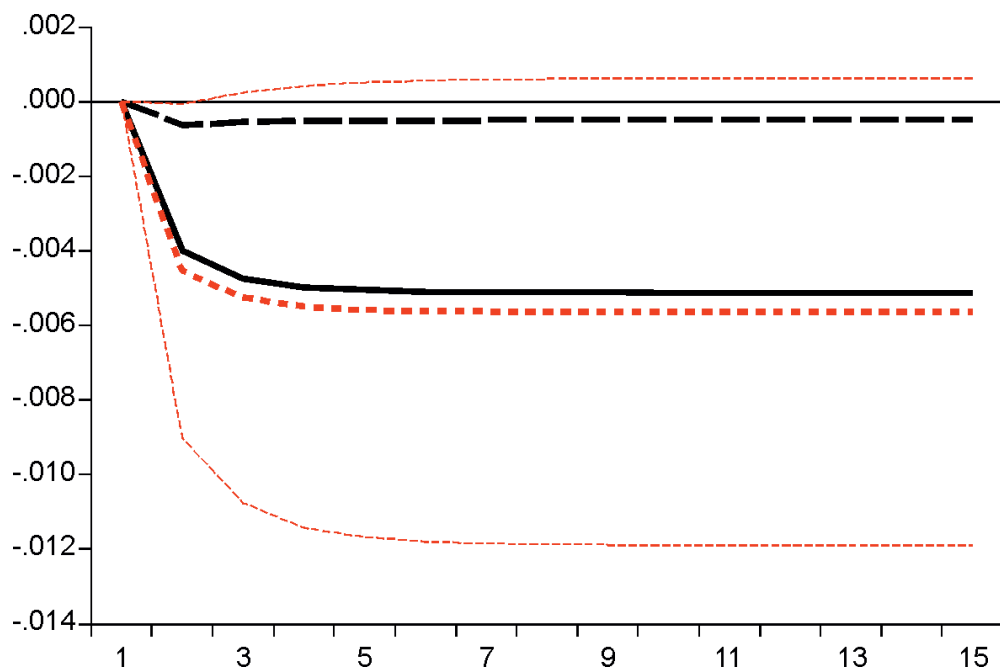
On the contrary, Figure 2 (ii) shows asymmetry between poverty rate and government revenue in Nigeria, with positive REV components negatively impacting POV and negative components positively impacting POV in both short and long run. The asymmetry between Nigeria's poverty rate and government revenue implies that merely increasing revenue may not be enough to alleviate poverty. It also raises concerns

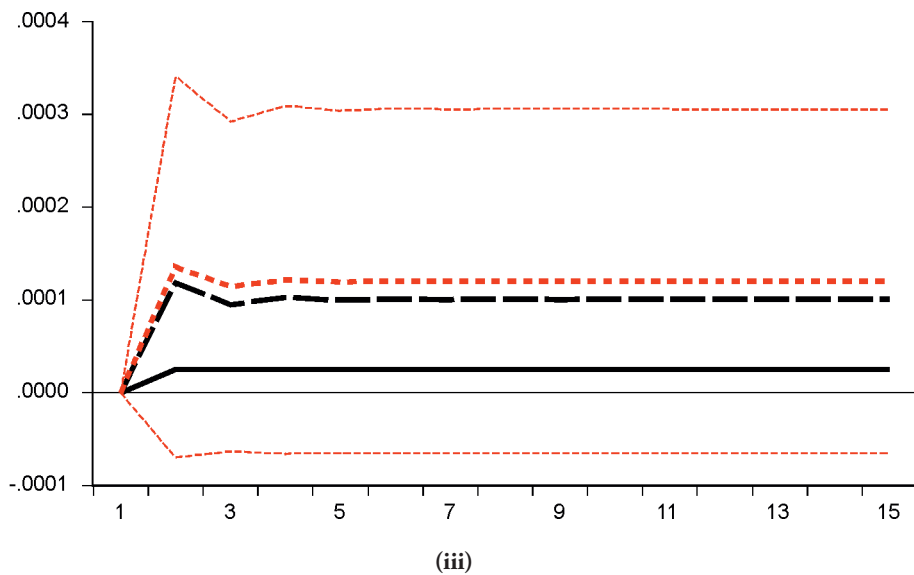
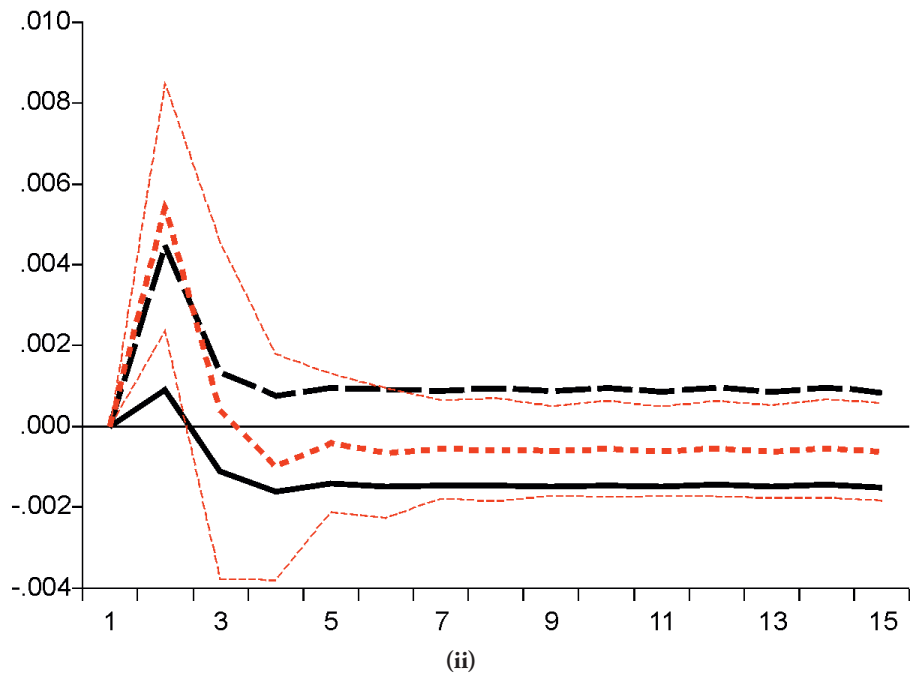
about the sustainability of fiscal policies in relation to poverty reduction efforts and persistent poverty may undermine investor confidence in Nigeria's economic prospects.

In the same vein, the results of asymmetric unemployment adjustment to positive and negative debt-to-GDP (DBT) shocks is shown in Figure 2 (iii) by the DBT-negative and positive shocks. The study shows that Nigeria's debt-to-GDP ratio reacts more to positive shocks in both short and long terms, indicating a stable and predictable fiscal policy in the long run, despite no evidence of asymmetry in the short and long run. This stability allows policymakers to anticipate the effects of changes in debt levels on poverty, facilitating more informed decision-making. However, sustainable debt management is crucial to avoid negative consequences for poverty reduction efforts. Policymakers may need to focus on targeted poverty alleviation strategies by addressing structural factors contributing to poverty in Nigeria.

### **Dynamic Multiplier Graphs of NARDL Estimates of Model 3 (For Nigeria)**

The Dynamic Multiplier graphs of NARDL estimates of the three threshold variables in Model 3 are presented in the Figure 3.





**Figure 3: Dynamic Multiplier Graphs of NARDL Estimates of Fiscal Policy Instruments of Model 3 (For Nigeria)**

Source: Author's graphical illustration

It is indicated from Figure 3 (i) that Nigeria's Human Development Index (HDI) adjusts more significantly to positive shocks from government expenditure (EXP) than negative shocks in both short and long run, indicating no evidence of asymmetry in the relationship between government expenditure and HDI. This suggests that simply increasing government spending may not be sufficient to improve human development outcomes and as result, policymakers may need to re-assess the effectiveness of government expenditure in promoting human development and explore alternative strategies. It equally indicates that prioritizing spending on key sectors like education, healthcare, social welfare, and infrastructure is crucial for enhancing human capital formation and overall well-being in Nigeria. On the contrary, Figure 4.10c (ii) shows asymmetry between the Human Development Index and government revenue in Nigeria, with both positive and negative components of REV negatively impacting HDI, indicating a long-term imbalance in the relationship.

The asymmetry between Nigeria's Human Development Index (HDI) and government revenue suggests that increasing revenue may not necessarily lead to improvements in human development outcomes and prioritizing government revenue towards sectors with the greatest impact on human development is crucial. This raises fiscal sustainability concerns, as it could indicate structural challenges or inefficiencies in public spending and persistent disparities in human development outcomes may exacerbate social inequalities and contribute to social tensions in Nigeria.

Again, the results of asymmetric HDI adjustment to positive and negative debt-to-GDP (DBT) shocks is shown in Figure 3 (iii) by the DBT-negative and positive shocks. The study shows that in Nigeria, the debt-to-GDP ratio (DBT) reacts more to negative shocks than positive shocks, indicating no asymmetry in the relationship between these variables. It implies a stable and predictable relationship, allowing policymakers to anticipate the effects of changes in debt levels on the HDI. This stability also contributes to investor confidence in Nigeria's economic stability, as it reduces uncertainty and enhances investment opportunities. However, structural issues like limited access to education, healthcare, and employment remain significant challenges for human development.

### **Diagnostic Tests for the Non-linear ARDL**

Diagnostic tests were conducted on the Non-linear version of ARDL for the three models to ensure its reliability, and they include residual diagnostic tests of normality, serial correlation, heteroskedascity, and Ramsey RESET test. The results are presented in Table 2

**Table 2: Diagnostic tests results of Non-linear ARDL**

<i>Diagnostic Tests</i>	<i>Model 1</i>		<i>Model 2</i>		<i>Model 3</i>	
Jarque-Bera Test for Normality	0.5463	(0.7609)	0.7659	(0.6818)	0.2289	(0.8829)
Breusch-Godfrey Serial Correlation LM Test	9.3096	(0.1517)	0.8717	(0.4591)	2.4755	(0.2318)
<b>Ramsey RESET Test</b>	6.7830	(0.3700)	0.2391	(0.6380)	8.3972	(0.2200)
Heteroskedasticity Test: Breusch-Pagan-Godfrey	0.2595	(0.9921)	0.6995	(0.7752)	0.5004	(0.8934)

Source: Author's estimation

The Jarque-Bera test for Normality assesses the normality of residuals in regression models for Mexico, ensuring data skewness and kurtosis match a normal distribution. If p-values exceed 0.05, the null hypothesis ( $H_0$ ) is accepted, indicating regression models' reliability. Alternative approaches may be considered for validity. The Breusch-Godfrey Serial Correlation LM Test detects serial correlation in regression model residuals, ensuring accurate regression coefficient estimation. Ramsey's RESET test assesses specification error in regression models, confirming linear specification is adequate. These tests enhance regression analysis reliability, allowing accurate coefficient interpretation, reliable predictions, and confident hypothesis testing. The Breusch-Pagan-Godfrey Heteroskedasticity test confirms the absence of heteroskedasticity in the three models, indicating unbiased and consistent estimators since the test statistic's p-value is greater than a suitable threshold of ( $p < 0.05$ ). Thus, the diagnostic tests on the Non-linear version of ARDL models show no issues with serial correlation, heteroscedasticity and normality.

## CONCLUSION

The study reveals that government expenditure shocks can positively impact unemployment, stimulate economic activity, and lead to job creation, while negative shocks can lead to unexpected declines in economic activity. The findings of the study also shows that both positive and negative government expenditure shocks in Nigeria can reduce poverty, but long-term effects may diminish due to inefficiencies, corruption, and economic growth. Again, the study reveals a negative correlation between government expenditure shocks and the Human Development Index in Nigeria, indicating suboptimal public spending efficiency. Government expenditure shocks in Nigeria have varying impacts on poverty levels. Positive shocks can reduce poverty through increased spending on social programs and infrastructure, but may diminish over time due to inefficiencies. Negative shocks could exacerbate poverty by

reducing access to essential services. Fiscal consolidation measures could reduce reduced expenditure and improve macroeconomic stability. The study equally reveals a negative correlation between government expenditure shocks and the Human Development Index (HDI) in Nigeria, indicating suboptimal public spending efficiency. It also highlights the importance of fiscal sustainability and prudent management. However, it also highlights a positive relationship between revenue shocks and HDI, suggesting that increased revenue can improve human development outcomes.

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