Impact of Public Debt on Poverty in Nigeria: A Vector Autoregressive Analysis

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

This study examined the impact of public debt on poverty in Nigeria for the period 1985 to 2021. The study regressed poverty against public debt in a vector error correction model using the Johansen approach. The study found a long-run relationship between public debt and poverty in Nigeria. The effect of public debt on poverty in Nigeria was found to be positive and permanent, becoming more pronounced with time. The study recommends the government's deliberate effort in restraining continuous unsustainable public borrowing while also determining the maximum threshold at which debt servicing becomes poverty-reinforcing.

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1. INTRODUCTION

Like every other economic unit, the government needs sustainable financing to fund its expenditure. More government expenditure is believed to be a positive factor for economic growth [1]. However, due to the uneven distribution of wealth, many developing countries often suffer financial limitations in terms of the amount of revenue that they generate. To keep pace with the necessity of government spending despite limited revenue, public borrowing is often considered the last resort [2].

On one hand, economic theory recognizes public debt as a form of deficit financing which is a veritable tool for accelerating economic growth. On the other hand, public debt is believed to be associated with negative economic consequences [3]. Persistent debt servicing constitutes financial outflows that may hinder economic growth and its indices such as poverty.

The public debt profile in Nigeria has been quite alarming in especially within the last 2 years. According to the Debt Management Office, DMO [4] the high public debt profile in Nigeria is driven by borrowings by the Federal Government and sub-nationals. According to DMO, by the 4th quarter of 2022, the total public debt stock comprises domestic debt of N26.92 trillion and external debt of N17.5 trillion. This places the total public debt outstanding in Nigeria at N44.06 trillion, comprising 38% federally owing debt stock.

As a result of the high profile of public debt in Nigeria, huge sums of money are spent on debt servicing every year. The World Bank [5] reported that Nigeria spent $9.6 billion to service foreign debts in 12 years, from 2010 to 2021. Between 1985 and 2021, debt servicing by the Federal Government of Nigeria alone increased from N1.6 billion in 1985 to N3.1 trillion in 2021. This has averaged over 15% of the total federally generated revenue in Nigeria during this period. Unsurprisingly, the amount of debt servicing in Nigeria has increased consistently each year from 1985 to 2021.

The huge amount of money spent on debt servicing each year, due to the high debt profile in Nigeria, has posed negative implications for poverty alleviation and economic growth in the country. When the debt profile is high, large sums of money are spent yearly on debt servicing. This denies the economy the chance of using those funds to support domestic spending. This limits the ability of the economy to generate income and reduce poverty. Consequently, the inability of the economy to grow is limited. Put differently, debt servicing is a leakage to the economy as such expenditure does not create value. The amount of money spent on debt repayment is, therefore, a loss and can be seen as an opportunity cost for poverty reduction and economic growth. The concurrent presence of high debt profile and incidence of poverty in Nigeria has become a matter of economic concern. With the ever-increasing public debt in Nigeria, the economy is likely to be negatively affected in the long run. This long-term fear is compounded by the high incidence of poverty in the country. It is, therefore, worthy of empirical exhibition to examine the effect of public debt on poverty in Nigeria.

2. LITERATURE REVIEW

The subject matters of public debt and poverty have been widely researched in Nigeria. Empirical literature has examined the links between these two economic variables and other economic phenomena under different circumstances. To this end, this section of this study does not carry out a holistic review of all the literature involving public debt and poverty in Nigeria (i.e., reviewing the links between public debt and poverty and other macroeconomic variables as might have been documented in literature). Instead, the section attempts a review of the studies that have explored the relationship between public debt and poverty in Nigeria. Studies of this sort are scarce in empirical literature.

In Nigeria, Ekpo and Udo [6] examined "the relationship between debt, growth and poverty in Nigeria for the period 1970 – 2011. The study utilized a simultaneous equations model with which it was able to show that public debt had a negative impact on growth and poverty reduction". A similar study was carried out by Oyedele, Emerah and Ogege [7] who utilized "cointegration and regression analysis to investigate into the impact of external debt and

debt servicing on poverty reduction in Nigeria between 1980 and 2010. The results indicated a causative relation of both external debt and debt servicing with poverty in Nigeria". Taiwo (2017), "who studied the impact of public debt on economic growth in Nigeria while exploring time-series data from 1986 to 2014, revealed that external debt stock has an insignificant negative relationship with real gross domestic product (RGDP) in Nigeria".

Between 1970 and 2010, Egbetunde (2012) examined "the causal nexus between public debt and economic growth in Nigeria using a Vector Autoregressive (VAR) model. A long-run relationship and a bi-directional causality were found between public debt and economic growth. It was concluded that public debt and economic growth have long-run relationship, and they are positively related if the government is sincere with the loan obtained and use it for the development of the economy rather than channeling the funds to their personal benefit".

Elom-Obed, Idenyi, Oge and Anoke [8] empirically analyzed "the relationship between public debt and economic growth in Nigeria from 1980-2015. Vector Error Correction Model (VECM) approach of econometric data analysis was adopted. The results of the study indicated that external debt has a significant negative impact on economic growth within the period under study. It was therefore recommended that Government should reduce external debt and the ones obtained should be strictly used for purposes intended to ensure a positive effect".

Bajram [9] studied "the level of public debt and its impact on economic growth in Albania. The purpose of this study was to find the relationship between public debt and GDP per capita using secondary data. Using the least-squares method it was found that total public debt has a positive impact on GDP growth per capita, while there is a negative relationship between external public debt and GDP per capita".

Abdullahi, & Adamu [10], investigated "the role of institutional quality in public debt, the incidence of poverty relationship. Using the Generalized Method of Moment (GMM) approach on a sample of 42 Sub-Saharan African (SSA) countries, the link between public debt and the incidence of poverty was examined over the period 2011 to 2019. The findings of this study revealed that the relationship between public debt and household final consumption

expenditure per capita was negative, and this shows that public debt accumulation is one of the leading causes of poverty in SSA".

Elsewhere, Alzahrani [11] examined "government debt influence on macroeconomic indicators in G7 and ASEAN Countries. In his findings, government debt remains a perilous economic policy issue, which principally affects countries whether they are developed or still developing". In Tanzania, Nuhu [12] evaluated "the impact of public debt on economic growth and poverty during the period from 2000 to 2018 and found the correlation between the public debt and poverty was negative". Mbang [2] determined "the contribution of external public debt on poverty reduction in Cameroon using data from 1990 to 2015. The results obtained from the estimates of an ARDL model revealed a direct and significant effect of public external debt on poverty in Cameroon".

Asif, Naeem-ur-Rehman and Kamran [13], investigated "the effectiveness of external debt in determining socio-economic development in Pakistan during the period 1973 to 2013 using time series and using Ordinary Least Square (OLS) and Augmented Engel-Granger (AEG) test. The results from AEG test revealed that there was co-integration and long run bond between external debt and poverty. Growing external debt services had unfavourable impacts on poverty level and income inequality".

Ashraf, Akhtar, Hafeez-ul-Rehman and Awan [14] carried out "research primarily to evaluate the relationship between external debt and poverty in Pakistan. Time series data from 1981 to 2015 was used. The dataset was collected from the World Bank of World Development Indicators (WDI) data of Pakistan and various editions of the Economic Survey of Pakistan. Applying the Johansen Co integration technique, the result revealed that, a long-run relationship existed between the poverty headcount ratio and all other explanatory variables. They suggested that government should reduce the burden of foreign debts and spend this money on development projects of the country".

A study by Akram (2016) examined "the consequences of public debt for economic growth and poverty regarding selected South Asian countries, for the period 1975–2010. An empirical model was developed to incorporate the role of public debt into growth equations. It was also extended to incorporate the effects of

debt on poverty, which was estimated using standard panel data estimation methodologies. It was found that although public debt had a negative impact on economic growth, neither public external debt nor external debt servicing had a significant relationship with income inequality, suggesting that public external debt is as good/bad for the poor as it is for the rich".

Farooq, Aurangzaib, Faheem, Gardezi and Zakariya [15], employed "a modern set of econometrics approaches to resolve the cross-sectional dependency (CSD) and heterogeneity influence of debt on energy poverty (EP) alleviation and also explore the moderating role of institutional quality (IQ) from 2000 to 2017 in developing countries of Organization of Islamic Cooperation (OIC)". They employed dynamic common correlated effect estimator introduced by Chudik and Pesaran (2015) that was suitable in the case of cross-sectional dependence and slope heterogeneity. Long-run outcomes of the study disclosed a nonlinear association between public debt and EP alleviation [16,17].

Most of the studies relating to public debt and poverty were built on theoretical foundations which proposed that debt below a certain (established) threshold can promote economic growth while debt well above this threshold could retard growth. Their findings also seemed to align with this line of thought. Specifically, Ekpo and Udo [6] built their study on the traditional neo-classical growth theory. The theory believes that given the existence of savings – investment gap, particularly in poor countries, that external borrowing could help fill the gap and provide the necessary resources needed for growth and development purposes. Being an indicator of growth and development, the traditional neo-classical theory implies that public lending provides resources for ending poverty. However, the opponents of this view have argued that external debt beyond a certain (established) threshold could affect growth adversely. In essence, large debt burden has the likelihood to slow down growth by hindering investment and productivity growth. Similar to the traditional neo-classical theory, another theoretical exposition linking debt to poor growth in developing countries is the dependency theory. The dependency theory states that international economic exchanges and unequal power relationships between rich and poor nations are harmful to the poor nations of the world. The theory adds that high levels of debt and interest repayment (debt servicing) could unfavorably affect the economic and social conditions of poor nations.

2.1 Study Methodology and Model Specification

This study builds its model from the traditional neo-classical theory which considers poverty as a function of public debt, through the growth-slowing tendency that accompanied high public debt profile. This implies that the level of poverty in any given country depends on the amount of public debt stock. Also, the dependency theory postulates a parallel relationship between debt servicing and poverty. To this end, the relation of public debt and debt servicing with poverty can be expressed in the following mathematical function:

$$NPI = f(PUBDEBT, DEBTSERV) \qquad (1)$$

Where NPI is the national poverty index (used as a proxy for poverty), PUBDEBT is the public debt outstanding, and DEBTSERV is the amount of money committed to debt servicing. These data were obtained from the World Bank's World Development Indicators.

To control for the model, federal revenue, debt-to-revenue ratio and gross national income per capita were introduced in the model. The implicit form of the model estimated in this study is, thus, expressed below.

$$NPI = f(PUBDEBT, FEDREV, DEBT2REV, \\ DEBTSERV, GNIP) \qquad (2)$$

Stochastically, the model is stated as follows:

$$NPI_t = \beta_0 + \beta_1 PUBDEBT_t + \beta_2 FEDREV_t + \\ \beta_3 DEBT2REV_t + \beta_4 DEBTSERV_t + \beta_5 GNIP_t + \\ \varepsilon_t \qquad (3)$$

Where *t* is the period under consideration, β_0 - β_5 are parameter estimates and ε_t is the error term in time *t*.

The model was estimated using the Johansen approach. This requires that series are integrated of order one and there is at least one cointegrating relationship. As it is seen later in the study, the series were all integrated of order one and there is at least one cointegrating relationship. To this end, the relationship between public debt and poverty in Nigeria was examined using the Vector Error Correction Mechanism (VECM).

3. RESULTS AND DISCUSSION

The results of the investigations in this study are presented in this section. The data series considered in this study include poverty represented by national poverty index (NPI), public debt (PUBDEBT), Federal revenue (FEDREV), debt to revenue ratio (DEBT2REV), debt servicing (DEBTSERV) and gross national income per capita (GNIP). First, pre-estimation analysis is presented to ascertain the level of stationarity of the series under study. In addition, VAR optimal lag selection is carried out in order to identify the parsimonious model for the study. On the theoretical basis of a suspected case of feedback mechanism, the relationship between public debt and poverty in Nigeria is explored in this study with the aid of a vector autoregressive model (VAR). Proceeding the results in this section are discussions of the results based on economic theory and justifications based on institutional occurrences in Nigeria.

3.1 Unit Root Test

To ascertain whether the series have unit root problem, Augmented Dichey-Fuller (ADF) test was applied to that effect. Results of the unit root test are thus presented in Table 1.

Table 1 indicates that all the series achieved stationarity at first difference levels are all integrated of order one. This suggests that the series under consideration in the study have unit root problems. This warranted the test for cointegration and subsequent estimation of the model using the vector error correction mechanism. The parsimonious model was estimated at the optimal lag of 2 as selected by Schwartz information criterion (SC).

3.2 Analysis of VAR Estimates

3.2.1 Cointegration test

Following the same-level integration of the series under study, the Johansen test of cointegration was employed to determine the existence or otherwise of a long-run relationship between public debt and poverty in Nigeria. The cointegration test results are summarized in Table 2.

The results of the Johansen cointegration test presented in Table 2 indicate 1 cointegrating equation at the 0.05 level. This means that there is a long-run association between public debt

and poverty in Nigeria. This further means that the effect of public debt on poverty in Nigeria in the short run is different from the impact in the long run.

3.2.2 VAR Impulse-responses

The coefficients of VAR estimates are usually not interpreted. This is due to the difficulty associated with interpreting a large number of lags. It is, therefore, a common practice and more convenient to analyze the impulse-responses and forecast error variance decompositions. The impulse-response functions assess the reactions of variables to unexpected changes in other variables in the vector autoregressive model. In this study, the responses of poverty to impulses in all the variables under study are analyzed. In addition, the section analyzes the responses of public debt to shock in poverty in Nigeria. Results of the impulse-responses are expressed in Figs. 1-6.

A positive shock in poverty in Nigeria will have a positive and permanent effect on itself. The effect will be highest in the first and second years (2.9%) and lowest in the 10th year (2.6%). The response of poverty to its own shock will be permanent because the response line diverges from zero throughout the forecast period.

Poverty will not respond to a one-time positive shock in public debt in the first year. However, from the second year to the tenth, the response of poverty to the shock in public debt will be negative at an average of -0.9% each year. The negative response will be permanent as the response line diverges from 0 after the tenth year. Increase in public debt will reduce poverty in Nigeria because a tool for fiscal expansion which if used well will lead to economic growth and consequently improve the standard of living. Such occurrence will increase income and take many people out of extreme poverty.

Though a shock in the federal revenue will not affect poverty in the first year, poverty is likely to respond to the shock positively during the subsequent years and in a permanent fashion. This is quite unexpected as revenue is considered a positive factor for economic growth and development. However, poverty may increase due to increase in government revenue if the increase in government revenue is ascribed to increased taxation. High taxation is detrimental to economic growth and consequently increases poverty.

**Table 1. Results of unit root test using ADF**

Series	Level Statistic	Level Prob	1st Diff Statistic	1st Diff Prob	O(I)	Remarks
NPI	-0.010612	0.3408	-5.830952	0.0000***	I(1)	Stationary at 1st diff.
PUBDEBT	3.685911	0.9998	-3.469921	0.0010***	I(1)	Stationary at 1st diff.
FEDREV	3.190144	0.9994	-4.670552	0.0000***	I(1)	Stationary at 1st diff.
DEBT2REV	-1.051856	0.2588	-6.781411	0.0000***	I(1)	Stationary at 1st diff.
DEBTSERV	2.733293	0.9977	-2.344763	0.0209	I(1)	Stationary at 1st diff.
GNIP	2.189095	0.9919	-3.962528	0.0003***	I(1)	Stationary at 1st diff.

*Source:researcher's Computations using Eviews 10. *** indicate significance at 1%, 5% and 10%*

Table 2. Johansen cointegration test

Hypothesized No. of CE(s)	Trace Statistic	Prob.	Max-Eigen Statistic	Prob.
				0.0157
None *	97.91940	0.0034	40.73404	0.0157
At most 1	57.18536	0.0854	22.27627	0.3629
At most 2	34.90909	0.1534	17.74764	0.2898
At most 3	17.16145	0.3011	12.40697	0.2685
At most 4	4.754479	0.6022	4.725670	0.5168
At most 5	0.028809	0.8896	0.028809	0.8896

* denotes rejection of the hypothesis at the 0.05 level, Source: Researcher's Computations using Eviews 10
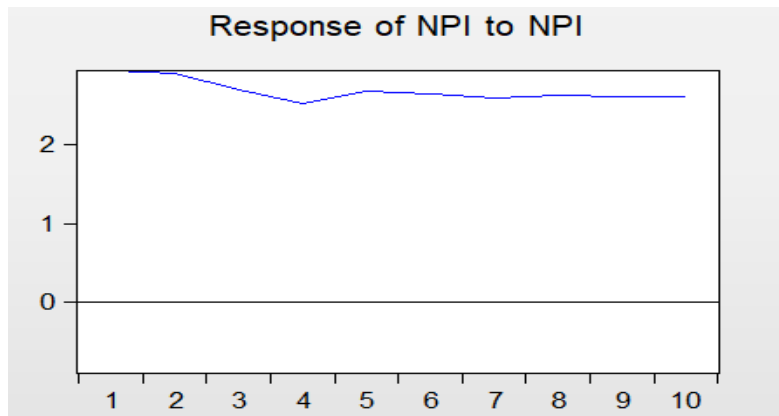
Fig. 1. Response of poverty to own shock
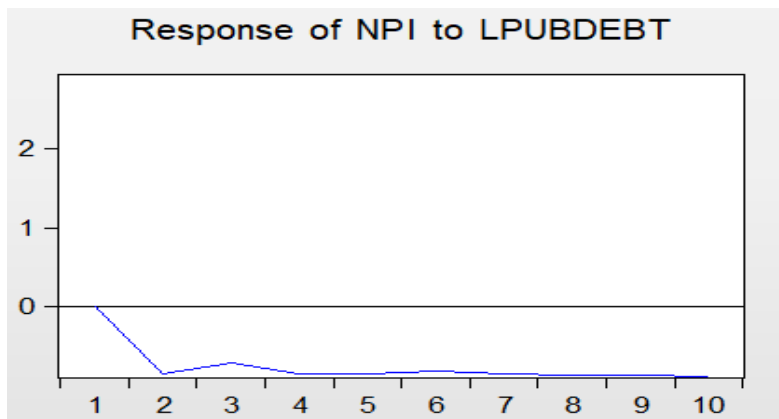
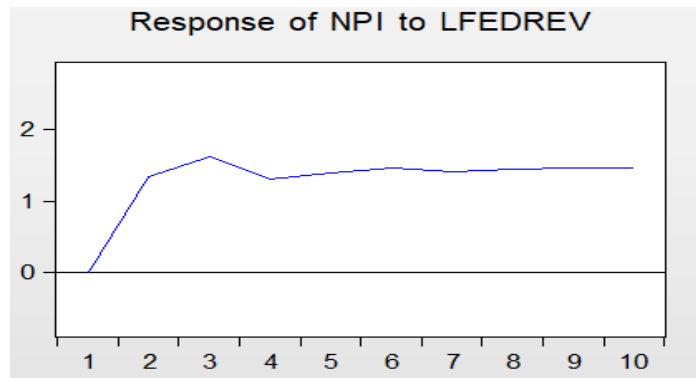**Fig. 2. Response of poverty to shock in public debt**

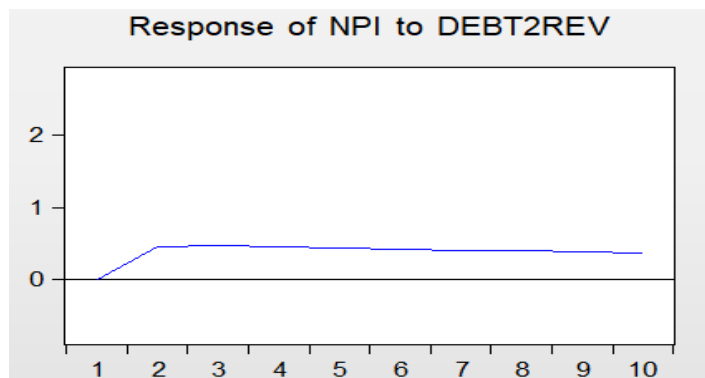**Fig. 3. Response of poverty to shock in federal revenue**

Fig. 4. Response of poverty to shock in debt to revenue ratio
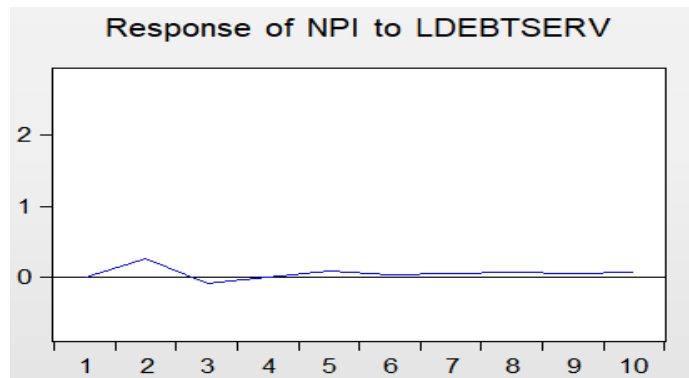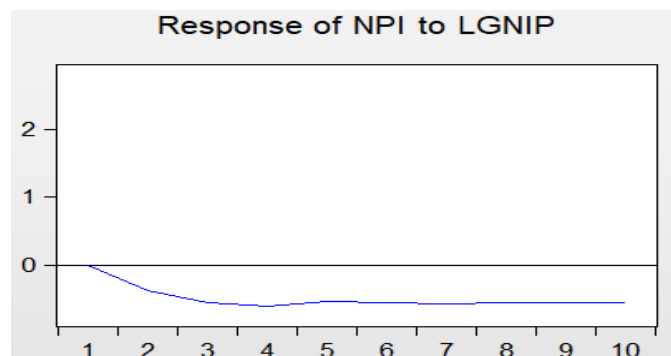

Fig. 5. Response of poverty to shock in debt servicing

Fig. 6. Response of poverty to shock in per capita income

Table 3a. Variance decomposition of poverty

Period	S.E.	NPI	LPUBDEBT	LFEDREV	DEBT2REV	LDEBTSERV	LGNIP
1	2.941367	100.0000	0.000000	0.000000	0.000000	0.000000	0.000000
2	4.490299	85.27023	3.639646	9.061834	1.012453	0.324279	0.691554
3	5.578125	78.74938	3.976537	14.27173	1.367314	0.231819	1.403222
4	6.366064	76.21505	4.857688	15.19581	1.556344	0.178033	1.997078
5	7.133127	74.83311	5.284400	15.96468	1.618216	0.158506	2.141089
6	7.826320	73.65480	5.489416	16.81313	1.634634	0.133313	2.274705
7	8.443779	72.81468	5.744896	17.28287	1.637513	0.117294	2.402752
8	9.028534	72.19035	5.946240	17.66246	1.623602	0.108147	2.469199
9	9.579131	71.65174	6.102621	18.02346	1.601655	0.099833	2.520693
10	10.09653	71.20019	6.254209	18.30988	1.576893	0.093644	2.565191

Source: Computations using Eviews 10

Table 3b. Variance decomposition of public debt

Period	S.E.	NPI	LPUBDEBT	LFEDREV	DEBT2REV	LDEBTSERV	LGNIP
1	0.222933	2.959368	97.04063	0.000000	0.000000	0.000000	0.000000
2	0.391283	1.132612	88.42631	8.089597	0.238148	0.146888	1.966445
3	0.533449	1.723462	82.14828	12.24897	1.014420	0.314431	2.550428
4	0.667730	2.740023	80.48806	11.64068	1.930789	0.270427	2.930013
5	0.794859	2.908127	78.68854	11.83739	2.850785	0.200469	3.514690
6	0.916169	3.127844	76.83756	12.27064	3.742169	0.167699	3.854082
7	1.033311	3.379348	75.46786	12.38187	4.575889	0.137322	4.057709
8	1.146756	3.526793	74.25313	12.52931	5.350396	0.111949	4.228431
9	1.256883	3.652746	73.13603	12.70444	6.069745	0.093207	4.343828
10	1.364143	3.769743	72.16280	12.83314	6.734784	0.079485	4.420055

Source: Computations using Eviews 10

Increased debt-to-revenue ratio is likely to affect poverty positively and for a very long time. A high debt-to-revenue ratio signifies that public debt makes up a greater proportion of government funds. This is also a sign for long-term indebtedness. These situations are likely to inhibit growth and enhance poverty in the long run.

Except for the third year, a positive shock in debt servicing in Nigeria will lead to a permanent increase in poverty each year throughout the forecast horizon. Debt servicing inhibits growth by diverting investible funds to repayment of debts. The funds used for debt servicing therefore add no economic value. This in turn accelerates poverty. This is especially possible where borrowed funds are not used judiciously.

Conventionally, increase Income have positive impact on poverty reduction. As a result, a positive shock in the income per capita will cause poverty reduction in Nigeria on a permanent basis. Conversely, increase in income per capita may not necessarily reduced poverty in reality especially where income disparity is too wide, the income per capita may not truly reflect the true nature of income level in that given economy. This may be the case in Nigeria as the gap between the haves and the have-not is too wide.

3.2.3 Forecast error variance decompositions

In a Vector Autoregressive system, the forecast error variance decomposition examines the contribution of a unit shock to each of the variables on the forecast error variance of a particular variable. This includes all series because the actual series is influenced by its own error variance and the error variance of the other series in the multivariate model. Based on the focus of this study, however, this subsection presents only the variance decompositions of poverty (NPI) and public debt (PUBDEBT). The Variance decompositions are presented in Tables 3a and 3b.

From Table 3a, the forecast error variance of poverty incidence in Nigeria in the first period of the forecast horizon is explained by its own unit shock. In the second period however, a unit shock in public debt is able to explain about 3.64% the forecast error variance of poverty incidence. The contribution of public debt to the forecast error variance of poverty in Nigeria appears to improve over time. Despite, public debt shows to be strong predictor of poverty in

Nigeria, public debt will not be encouraged since it has a detrimental long run effect of draining the revenue meant for development going into debt servicing which in away may impact negatively on welfare of Nigeria. Thus the study suggests other revenue source other public debt for the smooth running of the economy such as entrepreneur innovation.

Federal revenue seems to be the strongest contributor to the variations in poverty in Nigeria over the forecast horizon. Despite not being active in the first year, federal revenue will contribute to 9.06% of the changes in the second year. This contribution would increase over time to 18.31% in the tenth year. This result is not theoretical plausible because increase in revenue would rather reduce poverty. However, this may because if the revenue is sourced taxation. High tax may crowned-out investment and in way increase poverty. Again, if the revenue is not properly channel into productive venture, it will not positive impact on poverty reduction.

Table 3b shows that a unit shock in poverty is likely to have an immediate impact on the forecast error variance of public debt in Nigeria. This is because in the first period, a unit shock in poverty accounts for about 2.96% of the forecast error variance of public debt in Nigeria. The contributions of unit shocks in federal revenue, debt-to-revenue ratio and per capita income to the forecast error variance of public debt in Nigeria will also increase over time.

From the results above, it is clear that there is a feedback mechanism between public debt and poverty in Nigeria. Public debt affects poverty in Nigeria in the short run and log run. On the other hand, poverty incidence is a better determinant of population growth in the short-run, the impact of which is felt immediately. These results confirm the impulse-response results earlier stated in the study.

4. CONCLUSION AND RECOMMENDA-TIONS

The results presented in this study indicate that there is a level of feedback public debt and poverty in Nigeria. Public debt in Nigeria is a strong predictor of poverty reduction. The effect of public debt on poverty in Nigeria becomes increases with time and becomes more noticeable in the long run. Public debt by itself is an expansionary fiscal policy for enhancing

economic growth. However, continuous borrowing has the tendency to impact growth negatively and increase poverty. This is, especially, obtainable when the government does not earn enough revenue to sustain debt servicing while maintaining a high pace of economic growth. The Nigeria government should minimize the amount of debt stock by avoiding additional loans without substantive revenue to service the loans. Similarly, committing huge sums of money to debt servicing is anti-developmental and fuels increase in poverty incidence. The government should determine the maximum threshold for repayment of debts to ensure that debt servicing does not deplete the economy of resources for growth, development and poverty alleviation.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Aluthge C, Jibir A, Abdu M. Impact of government expenditure on economic growth in Nigeria, 1970-2019. CBN Journal of Applied Statistics. 2021;12 (1):139-174.
   DOI: 10.33429/Cjas.12121.6/6
2. Mbang OM. External public debt and poverty reduction in Cameroon. Scholars Journal of Economics, Business and Management. 2021;8(8): 351-363.
3. DeLong JB, Summers LH. Fiscal policy in a depressed economy. Brookings papers on economic activity, Economic Studies Program, The Brookings Institution. 2012;43(1 Spring): 233-297.
4. Debt Management Office of Nigeria. Nigeria's total public debt portfolio as at September 30, 2022. Retrieved January 9, 2023 from
   Available:https://www.dmo.gov.ng/debt-profile/total-public-debts/4123-nigeria-s-total-public-debt-stock-as-at-september-30-2022/file
5. World Bank. World Development Indicators; 2022.
6. Ekpo AH, Udo E. Public debt, growth and poverty reduction in a Failed state: Nigeria, 1970-2011. Paper presented at the American Economic Association and the National Economic Association Conference, January 4-6, San Deigo, California, USA; 2013.
7. Oyedele SO, Emerah AA, Ogege S. External debt, debt servicing and poverty reduction in Nigeria. Journal of Economics and Sustainable Development; 2013.
8. Elom-Obed F, Odo S, Elom O, Anoke C. Public debt and economic growth in Nigeria. Asian Research Journal of Arts & Social Sciences. 2017;4(3):1-16.
   DOI: 10.9734/ARJASS/2017/36095
9. Bajram E. The impact of public debt on economic growth in Albania. The Romanian Economic Journal, Faculty of Economy, Tirana University, Albania; 2020.
10. Abdullahi S, Adamu Y. Public debt and incidence of poverty in sub-saharan Africa, Global Scientific Journals. 2021;9(2):20-32.
    Available:www.globalscientificjournal.com
11. Alzahrani A. The impact of government debt on macroeconomic indicators: Evidence from G7 and ASEAN countries, Eastern Illinois University, USA. 2018;76p.
12. Nuhu AS, Analysis of the impact of public debt on economic growth and poverty in Tanzania. Electronic Research Journal of Social Sciences and Humanities. 2020;2(I).
13. Naeem A. Public debt and pro-poor economic growth evidence from South Asian countries, Economic Research-Ekonomska Istraživanja. 2016;29(1): 746-757.
    DOI: 10.1080/1331677X.2016.1197550
14. Ashraf M, Akhtar M, Awan A. Impact of external debt on poverty in Pakistan, Global Journal of Management, Social Sciences and Humanities. 2020;6(2):251-271.
    DOI: https://orcid.org/0000-0001-5767-6229
15. Farooq F, Aurangzaib FM, Gardezi M, Zakariya B. Dynamic common correlated effects of public debt on energy poverty alleviation in OIC member countries. Pakistan Journal of Commerce and Social Sciences. 2022;16 (4):472-497.

16. Farid AN, Farid K. Growing external debt in Pakistan and its implication for poverty, Journal of Social Sciences and Humanities. 2016;1(1):61-68.

17. Tajudeen E. Public debt and economic growth in Nigeria, American Journal of Economics. 2012;2(6):101-106.
DOI: 10.5923/j.economics.20120206.02