

PUBLIC HEALTH EXPENDITURE AND INCOME INEQUALITY IN NIGERIA: AN APPLICATION OF THE ARDL MODEL

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Abstract

This study used the autoregressive distributed lag/Bounds test model to investigate the effect of public health expenditure on income inequality in Nigeria. Annual time series data from the World Income Inequality Database (WIID), World Development Indicators (WDI), and Central Bank of Nigeria (CBN) were used for the period 1980 and 2019. The results revealed that nine independent variables have positive, and four variables have negative and significant impacts on income inequality. The variables with positive impact include current-year variables for total public expenditure, urbanization, and real gross domestic product, one-year lag for public recurrent and public capital expenditures on health, one to three-year lag of public expenditure as well as the third-year lag of real gross domestic product. On the other hand, current period variables for public recurrent and public capital expenditures on health and first and second-year lags of real gross domestic product have a negative impact on income inequality. The results also showed that the long and short-run trends of income inequality are positive and significant. The study recommended the close monitoring of government health expenditure and doubling the efforts to grow the economy given that increased gross domestic product reduces income inequality.

Keywords: Public Health Expenditure, Income inequality, Autoregressive Distributed Lag Model

JEL Classification: I00, I18, D63

1. INTRODUCTION

The rising incidence of income inequality is among the greatest challenges confronting many countries, especially in the developing world. Income inequality is expected to be the most significant threat to the global economy in the near future (World Economic Forum as cited in "The Week", 2017a). Currently, 84.6 percent of the world's wealth is held by 8.1 percent of its population who represent 71 percent of the wealthiest persons globally (Global inequality, 2015). The incidence of inequality is especially high in the African continent and is reflected in the simultaneous increase in the number of poor persons, defined to include individuals living on less than \$1.25 a day, from 411.3 million

in 2010 to 415.8 million in 2015. Also, the number of wealthy persons, defined to include persons with personal fortunes of more than \$ 1 million has increased to 160,000 persons during the same period which is a two-fold increase in the number of wealthy persons at the turn of the century (Anderson and Sedghi, 2015).

There are different dimensions to the problem of inequality. These include wealth inequality which refers to differences between individuals with respect to their holding of different types of wealth such as housing equity, pensions, savings, and other assets; income inequality which refers to differences between individuals with respect to their after-tax disposable income; political inequality which deals with differences between individuals with respect to civic responsibilities and legal protection of a right; inequality with respect to opportunities which includes the differences between individuals with respect to their access to life choices and opportunities and also inequality with respect to the treatment of membership in society (Mount, 2008; "The Week", 2017). Another dimension of inequality is health inequality which can be defined as the differences in health status or in the distribution of health resources between different population groups, arising from the socio-economic situations they are found. Inequality in healthcare provision could result in income inequality and poverty. These challenges can be minimized with the proper combination of public policies and strong institutional arrangements (WHO, 2017). The problem associated with income inequality is that it inhibits economic growth, leads to increased incidence of criminal activities, and a decline in the health of the impoverished citizens of a country due to their increased level of stress and lack of access to good medical care and proper nutrition (Birdsong, 2015; Equality Trust, 2017).

One of the primary means through which governments, the world over, have attempted to address the issue of inequality and reduce its negative impact is through fiscal policy. This is based on the effectiveness of fiscal policy in the redistribution of income. In Nigeria, government spending in the health and educational sectors, transfer payments, and other social security measures has been the main means through which the redistribution of income has been pursued. In Nigeria, public spending has been on the increase since the country attained political independence in 1960. The increase in government expenditure has been driven by the increased revenue from the exports of crude oil as well as the increased need to provide public goods such as communication facilities, education, roads, and health care (Sevitenyi, 2012).

Government spending on the development of health infrastructures such as hospitals and medical laboratories, as well as health sensitization programs and the subsidization of health care services, has increased over the years. This is reflected in the increase in the recurrent expenditure on the sector from 0.08 billion Naira in 1981 to 257.72 billion Naira in 2015, and the increase in the capital expenditure on social and community services – which also includes health expenditures for the provision of primary health care centres from 1.3 billion Naira in 1981 to 82.98 billion Naira in 2015 (Central Bank of Nigeria, 2016).

However, despite the increase in government spending over the years, the commitment to reducing inequality (CRI) index for Nigeria which measures the efforts of 157 countries to reduce inequality and promote broad-based sustainable development had been unacceptably dismal with Nigeria ranked in the last position (see Table 1) This makes the goal of attaining a socially acceptable level of income distribution through the reduction in the level of inequality still elusive. This is also reflected in the country's human development index of 0.534 (a rank of 158 globally) in 2018 which places the country behind countries such as Angola with an index of 0.574 (ranked 149), Cameroon (score of 0.563, ranked 150) and Ghana with a score of 0.596, ranked 143 (UNDP, 2020). An estimated 40.1 percent of the country's population live on less than \$ 2 per day which translates to about 82.9 million poor Nigerians (NBS, 2019).

The Gini index for the country increased from 51.9 to 54.3 between 1996 and 2015 (WDI, 2019). The existence of such high levels of inequality and poverty raises questions as to the impact of government spending on the redistribution of income, especially with regard to its health expenditure which is meant to ensure social and economic inclusion through the provision of pro-poor services. (Jianu, 2018; Doumbia and Kinda, 2019) The existing studies in Nigeria are majorly on the impact of government health expenditure and health status or economic growth. However, Bhattacharjee and Subramanian (2015) examined the link between income inequality and health expenditure under public and private health regimes but for OECD countries. Therefore, this study focuses on the impact of health expenditure on income inequality in Nigeria. It examines the relative effectiveness of recurrent and capital public health expenditure on income inequality in Nigeria.

The rest of the paper is organized into four sections thus: section two x-rays related literature, section three deals with the methodology, and sections four and five outlined the empirical results and conclusion respectively.

Table 1: Commitment to Reducing Inequality Rank For Selected West Africa Countries (157 Countries)

Country	Commitment to reducing inequality	Health, education and social protection expenditure	Progressive structure and incidence of tax	Labour market policies to address inequality
South Africa	31	34	3	65
Namibia	32	27	29	56
Algeria	80	94	69	86
Senegal	112	103	85	122
Ghana	114	130	28	120
The Gambia	122	120	93	125
Cote d'Ivoire	123	109	115	129
Liberia	124	113	120	127
Togo	125	121	59	134
Nigeria	157	157	104	133

Source: Oxfam, 2019

2. LITERATURE REVIEW

Theoretical Review

The state-centered theory of inequality highlights the direct link between government expenditure and income distribution. This theory emphasizes the need for government spending in reducing inequality in the distribution of income in the state. It posits that government should enact policies that are aimed at the equitable distribution of goods and wages in the state so as to prevent the exploitation of workers and consequently reduce inequality (Fritz & Menocal, 2007; Bell and Hindmoor 2009). This theory has been criticized based on the fact that state-centred development leads to exploitation by small groups of leaders, state capture, corruption, and a situation where public policy benefits fewer people may lead back to even greater inequality (Fritz & Menocal 2007, Kuy, 2013)

Conversely, market-oriented theories of inequality believe that better economic consequences will ensue when individual economic agents are allowed unhindered to make their own economic decisions, devoid of any governmental bottlenecks. This approach rules in favor of free markets and limited government regulation (Kohli and Jaworski, 1990; Narver and Slater, 1990). The emphasis of this approach are incentives that tend to maximise resource use and enforce corrective behaviour. They believe that low wages result in job switches, the development of new skills, and innovation, which will over time reduce inequality and improved the condition of poor workers. According to these theorists, equilibrating demand and supply brings about regulated prices and wages which act in tandem to hold down inequality.

The third strand of theory related to inequality is the functional approach to inequality which believe that inequality in itself may be good for society as it plays a functional role in societal cohesion and improved efficiency. Also known as Davis-Moore hypothesis, put forward by Davis and Moore (1945), they believe that unequal distribution of rewards tends to be purposeful in the economy and the unequal structure of society is a result of inherent inequality in the functional importance of individual endeavours. This approach has been criticized based on the economy's inability to identify functional jobs and the unfair and irrational social stratification in the economy (Hauhart, 2003)

Empirical Literature

Some researchers have examined the empirical nexus between public expenditure and income inequality. For instance, the study by Doumbia and Kinda (2019) examined the workability of using public education and health expenditure to reduce income inequality using data on spending for 83 countries across all income groups. The findings of the paper show that reallocating spending toward social protection and infrastructure is associated with reduced income inequality, particularly when it is financed through cuts in defense spending.

A study that focused on the effect of government expenditure in reducing health inequality is that by Baker et al (2018) the authors were concerned with infant mortality in a panel of 48 low- and medium-income countries between 1993 and 2013. The result of the study was that a one percentage point increase in total government expenditure brought about a decrease in the slope of inequality by 2.468.

Another study that used the health route to investigate the impact of government health expenditure on inequality is that of Barofsky and Younger (2019) for Ghana. They use cross-sectional data for 2012/13 to assess the distributional effect of government health on three dimensions namely, average cost of provision, health outcomes as well as willingness-to-pay for service, and how they impact the overall welfare of citizens. Their health outcome dimension was found to be more plausible as the marginal effect of government health expenditures was found to be more impactful in reducing inequality than the average cost of provision and willingness to pay for services.

In another related study, Ugo (1999) examined the relationship between income inequality and growth using a panel of income distribution data that covered the 48 states of the US for the period of 1920-1995. The study established a negative relationship between income inequality and economic growth during the study period. Similarly, Wahiba and Wariemni, (2014) examined the relationship between income inequality and economic growth in Tunisia over the period 1984-2011. The study could not establish a significant relationship between income inequality and economic growth. A study by Brueckner and Lederman (2015) assessed the effects of income inequality on economic growth within the period of 1970-2010 in a panel of 104 countries. The results revealed that increases in the level of income inequality lead to a decrease in GDP per capita growth. An increase in the percentage point of the Gini coefficient reduces GDP per capita by approximately 1.1% over a period of five years making the long-run effects larger and amounting to about 4.5%.

However, other researchers have attempted to specifically investigate the nexus between health expenditure and income inequality. Bhattacharjee, Shin, and Subramanian (2015) examined the link between income inequality and health expenditure under public and private health regimes from 1980-2011 using a two-period overlapping generation model and a panel co-integration technique. The result revealed that rich countries will exhibit high-income growth and low-income inequality under the public regime while poor countries will end up in a vicious cycle of poor health and low income. Makinen (2000) examined the distribution of service use and health expenditures in eight countries summarizing the inequalities that exist in the health sector. The study adopted the use of household data which divided the population into quintiles estimated using consumption expenditures. The study reveals that richer groups have a higher probability of obtaining health care when sick, being attended to by a doctor and given medications than the poorer groups. The study also shows that the richer groups spend more in absolute terms on health care. However, richer households do not consistently devote a higher percentage of their consumption expenditure to healthcare. The analysis further indicates

that the perception of inequality may lead to misguided decisions therefore, it is imperative to measure inequality to inform policymaking. Aboubacar and Xu (2017) examined the relationship between public health expenditure and economic growth in Sub-Saharan Africa using the General Method Moments (GMM) technique. The results show a positive significant impact of health expenditure on the economic growth of the region. Furthermore, the results reveal that healthcare is a necessity and not a luxury in the region hence the need to develop effective and efficient healthcare programs, increase expenditure on health and create a better environment for foreign direct investment into the region in order to enhance economic growth.

Further attempts have also been made to examine inequality as it affects the growth of the economy. For instance, Deurzen, Oorschot, and Ingen (2014) examined inequality in household wealth and two health outcomes: anaemia and child mortality in low and middle-income countries. The study revealed that higher inequality is positively related to a larger health gap between the rich and the poor. In addition, Laabas and Limam (2004) examined the impact of public policies on the distribution of income (Gini coefficient), poverty, and economic growth in the Arab region using the Least Squares method (OLS, 2SLS, 3SLS). They found that public policy has an indirect impact on poverty via its impact on the average expenditure and the distribution of income and that public policy was rather more effective at reducing poverty than policies aimed at improving average consumption and growth. Government expenditure, transfers, and monetary were found to have a positive impact on poverty, while government budget and transfers had a significant impact on income distribution and poverty.

In the case of Nigeria, most of the studies have been a general examination of public expenditure and either poverty, health status, productivity, or economic growth. One such study is that of Riman (2010) which investigated the causal relationship between government health expenditure, poverty, and health status in Nigeria. The study adopted the use of the Granger causality test and the vector error correction model. It found that a strong bi-directional relationship exists between life expectancy and poverty in Nigeria while a long-run relationship exists between poverty and health status. However, there was no significant long-run relationship between health status and government health expenditure. In another study, Amaghionyeodiwe (2009) examined the impact of healthcare spending on the health status of the poor using the OLS method of estimation. The study reveals that although the components of healthcare spending in Nigeria have increased, the health status of the average Nigerian and the conditions of health infrastructure have not improved appreciably. The study also reveals that the poor have significantly worse health status than the non-poor or the rich and the poor are more strongly affected by public spending on health care relative to the rich. Also, Bakare and Sanmi (2011) investigated the relationship between public health spending and economic growth in Nigeria using the ordinary least squares method of multiple regression analysis. The study revealed that there is a positive relationship between healthcare spending and economic growth. They further propose that closer attention should be paid to the healthcare sector through an increase in the yearly budgetary allocation to the sector. In

a similar study, Oluwatoyin, Adegboye and Fagbeminiyi (2014) examined the impacts of public health spending on health outcomes in Nigeria within the period of 1979-2012 using the Vector Error Correction Model (VECM) econometric technique. The study found that public spending on health has a significant relationship with health outcomes in Nigeria.

Eneji and Onabe (2013) examined the relationship between healthcare expenditure, health status and national productivity in Nigeria. The study revealed that healthcare expenditure has gross implications for the welfare of citizens especially due to the global financial crisis in 2008 which affected developing countries that are import dependent for health and other basic necessities. The study further reveals that low levels of nutrition reduce productivity by damaging both physical and mental health beginning from conception. The study by Osahon and Osarobo (2011) assessed the relationship between income inequality (distribution), poverty, and growth in Nigeria using the co-integration technique and error correction mechanism. The findings from the study reveal that the twin issues of poverty and income inequality seem contradictory.

Incidentally, not so much has been done to specifically examine the effect of public health expenditure on income inequality in Nigeria. Given that government expenditure is expected to mitigate the challenges of inequality as specified in the state-centered theory of inequality (Fritz & Menocal, 2007; Bell and Hindmoor 2009), it becomes expedient and motivational to examine if this is applicable in Nigeria. The output of this study will guide the formulation of strategic policy for reducing the income inequality gap. Civil society organizations (CSOs) can also use the resulting output as an instrument for policy advocacy.

3. METHODOLOGY

Research Design, Scope and Data

This study is an econometric analysis based on the ex-post facto research design. The choice of this design is informed by the nature and timing of the relationships being studied. The study tested the relevant variables for the possible occurrence of unit root using a unit root test with a structural break (Dickey Fuller Mint t-test). According to Perron (1989) unit root tests with a structural break are highly recommended in the face of a possible correlation between structural change and unit root. The use of this unit root test is therefore desirable in dealing with variables with a possible positive correlation between them and structural change such as government expenditure in Nigeria.

The study also applied the Auto-Regressive Lag (ARDL) model, which is useful in circumstances in which there is a mixture of variables that are stationary at level and at first difference (Pesaran et al., 2001), but is however not suitable for data that are integrated of the second order i.e I(2). This makes it possible to combine data are different levels of integration which is a common feature of time series data. Other advantages of the ARDL include its flexibility in analysing short-run and long of study variables and insensitivity to sample size of not less than 30 observations and its ability to accommodate past values of the endogenous variable as its determinants. The relationship between

these variables was examined for the period 1980 to 2019. The description and sources of data for this study are presented in Table 2.

Table 2: Variable Description and Sources

S/N	Variable	Label	Description	Source of Data
1.	Inequality	INEQ	Inequality refers to the disparity in the distribution of income, opportunities and status among members of a group or individuals in the society.	WIID
5.	Gross Domestic Product	GDP	This is the monetary value of all goods and services produced in a country at a specific time period i.e one year	World Bank
6.	Urbanization Rate	URB	This is the projected average rate of change in the size of the urban population over a given period of time.	World Bank
2.	Public recurrent health expenditure	PREX	This refers to the payments by the governments on wages, salaries, interest payments, subsidies and transfers in the health sector.	CBN
3.	Total public expenditure	PEXP	This includes all government consumption, investments, and transfer payments.	CBN
4.	Public capital health expenditure	PCEX	This includes expenditure on the construction of hospitals, healthcare centers, etc.	CBN

Sources: Authors compilation from Literature review, 2020 *World Income Inequality Database

Model Specification

The model for the study is anchored on the state-centered theory of inequality. This theory provides the justification for the introduction of government expenditure as a determinant of inequality as it highlights the direct link between government expenditure and income distribution by positing that government spending is the best means of reducing inequality in the distribution of income in the society. In view of the foregoing, the study model is specified as follows:

$$INEQ = \beta_0 + \beta_1 PREX_t + \beta_2 GDP_t + \beta_3 PCEX_t + \beta_4 PEXP_t + \beta_5 URB_t + U_t. \quad (1)$$

Where:

- INEQ = Inequality
- PREX = Public recurrent health expenditure (federal)
- PEXP = Total public expenditure
- PCEX = Public capital health expenditure (federal)
- GDP = Gross Domestic Product
- URB = Urbanization rate

Table 4: Dickey Fuller Min-T Unit Root Test Result

Variable	5% Critical Value	Level	1st difference	Break date	Order of Integration
INEQ	-4.7157	-4.22141	-9.1811**	2002	I (1)
PREX	-4.7157	-5.19783*		2002	I (0)
RGDP	-4.7157	-2.23421	-10.347**	2008	I (1)
PEXP	-4.7157	-3.15144	-7.4553**	2007	I (1)
URB	-4.7157	-5.98231*		2003	I (0)
PCEX	-4.7157	-4.01666	-8.3879**	2007	II(1)

Source: Authors analysis of data, 2020

The bounds test result is presented in Table 5, which is a necessary condition for proceeding with empirical estimation of the model. The result indicates the rejection of the null hypothesis as there exist a long-run relationship between the study variables at all levels of significance i.e 10%, 5%, 2.5% and 1% since the F-statistics (15.93626) is greater than the values for both the upper and lower bounds; thus there is cointegration in the model.

Table 5: Ardl/Bounds Test Result with Ineq as Dependent Variable

Test Statistic	Value	k
F-statistic	15.93626	6
Critical Value Bounds		
Significance	I0 Bound	I1 Bound
10%	3.01	4.02
5%	3.39	4.48
2.5%	3.78	5.01
1%	4.23	5.61

Source: Authors` computation, 2020.

Analysis of Long-Run Relationship

The long run and short run results are presented and interpreted and are suitable for policy inference since it is revealed that there is cointegration among the variables. The analysis using the E-View automatically generates a lag length of 2, 2, 1, 2, 2, 1 while applying the Akaike information criterion. The long-run ARDL results, presented in table 5, show that the estimated long-run coefficients of public recurrent health expenditure, real gross domestic product, total public expenditure and public capital expenditure on health were all positive and significant. The positive and significant relationship between government health expenditure and income inequality in this study is contrary to the findings by Laabas and Limam (2004) which found that government expenditure and transfers have insignificant relationship with income distribution and poverty in Arab countries. This implies that health expenditure had a positive and significant effect on income inequality in Nigeria, however public recurrent health expenditure had a higher

impact (0.22) when compared with capital expenditure (0.09) and total public expenditure (0.00022). The positive relationship between public health expenditure and income inequality in Nigeria in this study can be attributed to the rising trend in both government health expenditure and rising level of inequality in the country. The increased government capital health expenditure in the country is beneficial only to a few individuals at the higher echelon of government and a few of their cronies (in the form of huge government contracts) without a trickle-down effect to the majority of workforce and the populace. Conversely, recurrent public expenditure exerts a greater impact a wider base and the spread to majority of the people since wages and salaries take a greater percentage of the recurrent expenditure in this sector. On the other hand, the long-run coefficients of long run trend, urbanization as well as the constant term were negative but statistically significant.

Table 6: Long-Run Ardl Results with Ineq Dependent Variable

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(PREX)	0.22944	0.0147	15.6066	0.0000
D(RGDP)	0.45174	0.083559	5.406261	0.0010
D(PEXP)	0.00022	4.4E-05	4.96357	0.0011
D(URB)	-0.01641	0.00107	-15.3121	0.0000
D(PCEX)	0.09539	0.02479	3.84825	0.0049
C	-0.18821	0.01984	-9.47816	0.0000
@TREND	-0.00162	0.00014	12.0012	0.0000

Source: Authors` computation, 2020.

Short-Run Results

The short-run results of the ARDL model are given in Table 7. The results reveal that the estimated coefficient of the error correction term has a negative sign and is statistically significant. In view of this, the estimated coefficient implies that the model has a moderately slow speed of adjustment of 0.48341 ranging from its short run disequilibrium to its long-run equilibrium positions. The estimated coefficient of the trend of the inequality has a positive sign and is statistically significant.

Table 7: Short-Run Ardl Results with Ineq as Dependent Variable

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(INEQ(-1))	0.002286	0.027854	0.082073	0.9366
D(PREX)	0.015073	0.003198	4.713157	0.0015
D(PREX(-1))	0.045832	0.013023	3.519416	0.0079
D(RGDP)	0.006905	0.002401	2.876191	0.0206
D(PEXP)	0.498756	0.164877	3.025016	0.0192
D(PEXP(-1))	-0.784143	0.200730	-3.906454	0.0059
D(PCEX)	0.003278	0.001329	2.466887	0.0389
D(PCEX(-1))	0.034740	0.007416	4.684208	0.0016
D(URB)	0.019666	0.004876	4.033589	0.0038
D(@TREND))	0.003452	0.000528	6.542117	0.0002

CointEq(-1)	-0.483415	0.461288	-4.65023	0.0009
R-squared	0.953247	F-statistic	6.205401	DW stat
Adj R-squared	0.799632	Prob(F-stat)	0.009469	1.89769

Source: Authors' computation, 2019.

The result also reveal that the estimated coefficient of the current year public recurrent health expenditure (PREX), real gross domestic product (RGDP), total health expenditure (PEXP), capital health expenditure (PCEX), urbanization (URB) as well as one year lag of recurrent health expenditure (PREX(-1)) and capital health expenditure (PCEX(-1)) are positive and statistically significant. On the other hand, the one lag of the total health expenditure (PEXP (-1)) was negative and statistically significant.

Diagnostic Test

Table 4: Serial Correlation and Heteroscedasticity Test Result

Test	F-Stat	Prob.
Heteroskedasticity Test: Breusch-Pagan-Godfrey	0.758832	0.6233
Breusch-Godfrey Serial Correlation LM Test	0.567532	0.54371

Source: Authors' compilation 2022.

Breusch-Godfrey and Breusch-Pagan Godfrey tests for heteroscedasticity and serial correlation, respectively, showed that the model does not exhibit autocorrelation and that the null hypothesis that there is no constant variance was rejected.

4. CONCLUSION AND RECOMMENDATIONS

The twin issues of public expenditure and income inequality have been receiving a lot of attention from development experts and economists. The heightened attention on measures to reduce inequality is because of increased international attention at global development and the quest to achieve United Nations Sustainable development goals (SDGs). In Nigeria the need for reduced income inequality is predicated on the need to ensure that the country is out of the income disparity and poverty trap and engender overall growth and development. In the backdrop of the above, this study attempted to highlight the need for reduced income inequality by investigating the impact of public recurrent and capital expenditures on income inequality in Nigeria.

The results revealed that nine independent variables have positive, and four variables have negative and significant impacts on income inequality. The variables with positive impact include current year variables for total public expenditure, urbanization and real gross domestic product, one-year lag for public recurrent and public capital expenditures on health, one to three-year lag of public expenditure as well as third year lag of real gross domestic product. On the other hand, current period variables for public recurrent and public capital expenditures on health and first- and second-year lags of real gross domestic product have negative impact on income inequality. The results also revealed that the estimated coefficients of public recurrent health expenditure for the first-year lag

were small which indicates that its impact though significant is minimal. The results showed that the long and short run trends of income inequality are positive and significant.

However, as before, the small size of the estimated coefficient implies that the country may achieve the benefits of reduced income inequality via public recurrent and capital expenditures in the long run than through first year lag of public recurrent and capital expenditures in the short run with much larger coefficients. Arising from these findings, the study recommends that public health expenditure should be done to benefit the majority and not a few to enhance its beneficial effect in reducing income inequality. Secondly, efforts to grow the economy should be doubled given that increased gross domestic product reduces income inequality. Lastly, institutions involved in ensuring fiscal discipline and value for money in public financial management in Nigeria should be strengthened with supportive legal framework to function effectively.

5. Limitations and suggestion for further studies

The focus of this study was on the effect of public health expenditure on income inequality in Nigeria and did not examine poverty dimensions of public expenditure. Income inequality breeds poverty and other social and economic vices. Further research on these relationships may be beneficial to public authorities, research institutions and community actors.

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