Government social spending and poverty reduction in Nigeria

Chukwudi Emmanuel Edeh *, Maryrose Chinwe Ezaegu and Nicholas Attamah

Department of Economics, Faculty of Social Sciences and Humanities, Enugu State University of Science and Technology, Agbani, Nigeria.

Abstract

The study examined the impact of government social spending on poverty reduction in Nigeria for the period 1981-2020 with time series data obtained from the Central Bank of Nigeria Statistical Bulletin. Poverty (household consumption expenditure) was specified as a function of social capital Spending, social recurrent Spending, Inflation rate, and Unemployment. The Augmented Dickey-Fuller unit root test shows that all the time series data were stationary at first difference (I(1)). The result of the Johansen cointegration proves evidence of long run relationship among the variables. The result of the Fully Modified OLS indicates that: government capital spending on social goods and services has significant impact on poverty reduction in Nigeria; government recurrent spending on social goods and services has significant impact on poverty reduction in Nigeria. The Granger causality result shows that there is a uni-directional causality relationship running from government capital spending on social goods to poverty reduction. There is a uni-directional causality relationship running from government recurrent spending on social goods to poverty reduction. This implies that social government spendings has the potency of reducing poverty if resources are effectively monitored and productively spent for the purpose they are meant for. Based on these findings, the study recommends that government should establish an agency that should ensure adequate monitoring and implementation of government social expenditure in Nigeria.

Keywords: Government Social Spending; (FMOLS); Poverty Reduction

1. Introduction

Poverty is a global phenomenon, and every country bears the share of its attendant consequences. In Nigeria, despite strong economic growth in the past, the number of absolute poor in 2004, rose from 54.7 per cent to 60.9 per cent in 2010 (NBS 2012, Apera, Daniel, Balogun, Mohammed, Lawal, Abdullahi, and Nongo, 2021). By 2019, figures show that Nigeria had 40.1 per cent, equivalent to 82.9 million Nigerians (Apera, et al 2021 citing UNDP 2019). Life expectancy stood at 53.5 in 2016, and 54.8 in 2019 (Apera, et al 2021 citing UNDP 2020). Similarly, human development index rose from 0.482 in 2010 to 0.539 in 2019. UNDP (2009) Report cited in Holmes, Akinrimisi, Morgan, & Buck (2012) reveals that approximately 20 per cent of Nigerians own 65 per cent of the national income. The gini coefficient was 35.1 per cent as of 2019 (Apera, et. al., 2021).

Nigerian government has taken various steps to address poverty since the past five decades. The abysmal performance of past social protection interventions was a source of concern to the government of Nigeria, and of course Nigerians in general. In spite of the availability of abundance of resources and statistical records of increasing Gross Domestic Products, economic well-being of poor citizens remains very low. It also implies that, the plethora of social protection programs implemented in the past failed to achieve their desired results, hence, leaving the preponderance of Nigerians under the poverty line (Victor, 2018).
Empirical Studies in this area has shown conflicting findings on the impact of government spending on social and community services on poverty reduction in Nigeria. While, the study by Nenbee, Aleogho, Vite and Otovwe (2021); Ibrahim and Umar (2021); Yahaya (2019); Omoderu (2019); and Ubong and Ub-Abai (2018) focused on overall and sectoral government spending and poverty reduction, the study by Fashanu, Kasali and Olowe (2022) investigated the relative impacts of types of government social spending to reduction of income poverty in Nigeria. Results obtained from these studies are clearly conflicting. The current researcher attributes these differences to the inadequacy of the methodologies used for data analysis. Many of these studies used Ordinary Least Squares, Error correction models and Autoregressive Distributed Lagged modeling. These techniques do not control for endogeneity in their modelling. Technically, endogeneity occurs when a predictor variable (x) in a regression model is correlated with the error term (e) in the model. This issue of endogeneity could be addressed using the technique of Fully Modified Ordinary Least Squares. The present researcher argues that reconciling this controversy in literature will be addressed using this new technique, hence the need for the present study. Also, the study questions the outcome of the causality relationship between government social spending and poverty reduction in Nigeria.

The work is organized in five sections. The introduction serves as the first part of the study, while the literature review served as the second part. Methodology forms the third section of the study. Results and discussions formed the fourth part of the study. The final part of the is the conclusion and recommendations.

2. Literature review

Generally, government expenditure refers to all government expenses, federal, state and/or local, on consumption, investment and transfers. Government social spending, on the contrary, refers to those spendings made for the provision of social services to redistribute resources across households. It includes expenses on education and health services, capital transfers and social transfers. (Igor, 2016).

Spending on education, health, social and community services, play a vital role on a path to sustainable economic growth. Education and health are crucial in human and economic development as these vital sectors could support the production and as well motivate the highly needed manpower which could aids the country’s economic growth and development (Nwodo and Ukaegbu 2017). The direction of an economy can be achieved through government spending on social and community services. Okoro (2013) sees social spending as those expenditure made by government to provide social goods and services. On the same vein, Udoffia and Godson (2016) describes it as those spendings made by the government towards the provision of public goods and services.

The meaning of poverty is widely contested in literature, but in the broadest sense, it is seen as the unavailability, or inability of people to attain a socially acceptable standard of living, or not having sufficient resources to acquire basic desires. Extreme or absolute are terms used in describing poverty in literature. This arises when people are faced with conditions of serious lack of basic human needs: food, safe drinking water, sanitation facilities, health, shelter, education and access to information (United Nations 1995). Poverty may also be measured using a set of poverty indicators, which would comprise a direct definition of poverty (and in some instances, the set of poverty indicators are then combined to create an index).

This study is underpinned by the Wagner theory of expenditure. The earliest known work on the long run tendency of public expenditure is accredited to Adolph Wagner (1835 – 1917). The stance of this theory is that different levels of government are faced with increasing fiscal responsibilities and this makes it imperatives for them to increase their spendings over time, both intensively and extensively. Such spendings by the government is as a result of: the expanding nature of the traditional functions of the state; growth in scope of performing certain functions like defense, justice, law and order, maintenance of state increasing welfare activities; increasing need to provide and expand the spheres of public goods and those necessitating increase in public investments and enterprises, and; provision of social and community services. The above views implies that there exists a functional relationship between poverty reduction (through economic growth) and growth of government spending on social services.

There are empirical studies that have explored the relationship between government social spending and poverty reduction. Okulegu, (2013) investigated the government spending-poverty reduction for the period 1980-2009. With the use of Ordinary Least Squares regression technique, findings show that public spending has significant impact on reduction of poverty in Nigeria. Sunkanmi and Abayomi (2014) examined government expenditure-poverty level nexus in Nigeria using the technique of Vector Error Correction Modeling (VECM). Findings show that education spending by government towards reduction of poverty are significant in stimulating growth and reducing the poverty level.
Odior (2014) explored the link between government expenditure on education and poverty reduction in Nigeria using an integrated sequential dynamic computable general equilibrium (CGE) model. The experiment indicates achieving the MDG target of reducing poverty through education expenditure is not realistic, however, re-allocating government expenditure to education sector could improve economic growth and reduce poverty. Osundina and Osundina (2014) examined government spending on infrastructure-poverty reduction relationship in Nigeria. Time series data of 43 years were employed. Augmented Dickey Fuller unit root test showed that the variables were stationary at first difference I(1). Vector Error Correction model result shows that government spending on building and construction has a positive and significant effect on poverty reduction in Nigeria, while government spending on health has a negative and significant effect on reduction of poverty. Government expenditures on education and health were insignificantly negative and positive respectively.

Owuru and Farayibi (2016) explored the impact of fiscal policy in addressing poverty in Nigeria for the period 1980-2011, using the technique of ARDL/ECM model. Findings reveals that government capital expenditures in Nigeria does not lead to reduction of the level of poverty in Nigeria. The study by Oriawwo and Ukawe (2018) sought to determine if government spending reduces poverty level in Nigeria for the period 1980-2016. The techniques of Error Correction Model and Granger Causality analysis were used for the data analysis. Findings reveal that one period lag of government expenditure on health has a positive and negative impact on per capita income. Government education spending has a significant and positive impact on the reduction of poverty. However, No causality relationship exists between government spending on health, education and reduction of poverty. A bi-directional causality relationship however exists between government spending on education and reduction of poverty.

Edeh, Obi and Obi (2018) examined the impact of education spending on poverty eradication in Nigeria using time series data for the period of 1999 – 2017, using the technique of Ordinary Least Regression analysis. Finding reveals that education expenditure has no significant impact on poverty reduction over the period under study. Ubong and Ubi-Abai (2018) examined the effect of government expenditure on poverty in Nigeria using the technique of Auto-regressive Distributed Lag (ARDL) Findings indicate a negative relationship between recurrent government spending on social and community services and poverty rate. Government expenditure has a positive effect on poverty rate in Nigeria. There was a positive relationship between government capital expenditure on administration and poverty. The relationship between capital expenditure on economic, social and community services and poverty was negative. Causality results indicates a unidirectional causality from poverty incidence to recurrent expenditures on social and community services, economic services, and transfers respectively. Bi-directional causality relationship exists between capital expenditure and poverty.

Omodero (2019) explored the impact of government sectoral expenditure on poverty reduction for the period 2000 to 2017. The study employed Ordinary Least Square technique for data analysis. The regression result indicates that government expenditure on agriculture, building and construction, education and health are insufficient to poverty reduction. Yahaya (2019) examined the relationship between total and specific sectoral expenditures on the level of poverty in Nigeria using time series data from 1965 to 2014, using (OLS) multiple regression technique. Finding indicates a significant negative relationship between poverty trend and education, health and agriculture expenditures in Nigeria.

Adegboyo (2020) studied the impact of government spending on poverty reduction in Nigeria between 1981 and 2017 using Auto-Regressive Distributed Lag (ARDL) estimation technique. Findings reveal that recurrent spendings on economic services, social, community and transfers lead to poverty reduction, while transfers, capital expenditure and administrative increases the level of poverty. Ibrahim and Umar (2021) examined the impact of public spending on poverty reduction in Nigeria using time series data from 1980-2019. Vector Autoregressive (VAR) model technique was used to achieve the objectives of this study. Result shows that GDP and private investment have positive effects on poverty while inflation has negative impact on poverty.

Nenbee, Aleogho, Vite and Otovwe (2021) examined the role of government spending to reduce poverty in Nigeria between 1980 and 2017 using the Error Correction Model technique for data analysis. Result indicates that government capital expenditure is positively related to per capita income after one-year lag period. Government recurrent expenditure has a negative and significant impact on per capita income after a one-year lag period. Primary school enrolment rate has a positive and insignificant impact on poverty after three-year lag period. Nursini, Fachry and Nurbayani (2022) analyzed the influence of government expenditure on productive sectors on the reduction of poverty both directly and indirectly through economic growth in 24 cities in Indonesia for the period 2015-2020, using panel data analysis. Results show that government spendings on education and health, directly and indirectly, affect all poverty indicators. During the Covid-19 pandemic, government spending on health and education were very effective in reducing poverty. Fashanu, Kasali and Olowe (2022) examined the relative effectiveness of different components of
government social expenditure in reducing income poverty in Nigeria using Autoregressive Distributed Lag (ARDL) model technique for the period from 1981 to 2020. Result shows that while capital transfer and social transfer have potentials for poverty reduction in Nigeria, increased government on government social expenditure increase the level of poverty.

3. Methodology

The study adopted the Ex-Post-Facto research design. The study employed secondary annual time series for the period 1981-2020. The preliminary test of the time series data was done using the Augmented Dickey-Fuller unit root test and the Johansen and Juselius (1990) cointegration to test for long run relationship among the variables. This is to eliminate seasonal influences and errors in the time series variables. The method applied in this study is the Augmented Dickey fuller Unit root test. The ADF equation is stated below:

$$\Delta y_t = \delta y_{t-1} + \alpha_1 \sum_{i=1}^{p} \alpha_i \Delta y_{t-i} + \mu_t$$  \hspace{1cm} (1)

The technique of Fully Modified Ordinary Least Squares (FMOLS) was adopted for the study. The FMOLS uses a semi-parametric approach in estimating the long-run parameters (Adom, Amakye, Barnor, & Quartey, 2015; Priyankar (2018). FMOLS yields consistent parameters even when the sample is of small sample. It overcomes the problems of endogeneity, omitted variable bias, measurement errors, serial correlation, and allows for the heterogeneity in the long-run parameters (Aghola, 2013; Priyankar (2018). FMOLS estimates a single cointegrating relationship which is having a combination of I(1) variables (Bashier & Siam, 2014).

3.1. Model Specification

The present study mirrors the studies by Igor (2016), Fashanu, Kasali and Olowe (2022) while accounting for Contributions of Government Social Expenditure to Income Poverty Reduction in Brazil and Nigeria respectively. As a deviation from Fashanu, Kasali and Olowe (2022), the present study used household consumption expenditure as a proxy for poverty.

$$POV_t = \alpha_t + \alpha_1 SCSP_t + \alpha_2 SRSP_t + \alpha_3 INF_t + \alpha_4 UNEM_t + \mu_t$$  \hspace{1cm} (2)

Where:

- $POV_t$ = represents household consumption expenditure (measuring poverty level) at time $t$ for country $i$, (Nsiah et al, 2021; Sameti, Esfahani and Haghighi, 2012). The use of household consumption expenditure as a proxy for poverty level has been justified by Akanksha and Mohanty (2010), who reported that to practically measure poverty levels, household consumption expenditure is the most widely used.

- SCSP = Social capital Spending
- SRSP = Social recurrent Spending
- INF = Inflation rate
- UNEM = Unemployment

4. Result and Discussion

4.1. Unit Root test for stationarity of the time series data

The time series in the model are tested for stationarity. The result is shown in Table 1 below

The result of the Augmented Dick-Fuller Unit root test is presented in Table 1 above. Using the probability values of the ADF $t$-statistic, the result shows that all the time series variables are stationary at first difference, I(0). What this means is that all the variables contain unit root at levels. As a result, we go ahead to test to determine if these non-stationary variables co-move in the long run.
### Table 1 Result of ADF Unit Root Test of the Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Level Form</th>
<th>ADF test statistic</th>
<th>Probability</th>
<th>First Difference</th>
<th>ADF test statistic</th>
<th>Probability</th>
<th>Order of integration</th>
</tr>
</thead>
<tbody>
<tr>
<td>LPOV</td>
<td>-0.363482</td>
<td>0.9056</td>
<td>-6.999302</td>
<td>0.0000</td>
<td>I(1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LSCSP</td>
<td>-0.660711</td>
<td>0.8445</td>
<td>-9.641984</td>
<td>0.0000</td>
<td>I(1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LSRSP</td>
<td>-2.277015</td>
<td>0.1847</td>
<td>-8.139590</td>
<td>0.0000</td>
<td>I(1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>INF</td>
<td>-1.317231</td>
<td>0.6106</td>
<td>-6.401778</td>
<td>0.0000</td>
<td>I(1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>UNEM</td>
<td>-0.312609</td>
<td>0.9138</td>
<td>-6.378873</td>
<td>0.0000</td>
<td>I(1)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Source: Author's output of ADF unit root test*

### 4.2. Cointegration Test

The essence of cointegration test is to check if the above non-stationary variables have a long run relationship. The result is presented in the Table 2 below.

### Table 2 Result of Johansen Cointegration Test

<table>
<thead>
<tr>
<th>Series: LPOV LSCSP LSRSP INF UNEM</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Unrestricted Cointegration Rank Test (Trace)</strong></td>
</tr>
<tr>
<td>Hypothesized</td>
</tr>
<tr>
<td>No. of CE(s)</td>
</tr>
<tr>
<td>None *</td>
</tr>
<tr>
<td>At most 1</td>
</tr>
<tr>
<td>At most 2</td>
</tr>
<tr>
<td>At most 3</td>
</tr>
<tr>
<td>At most 4</td>
</tr>
</tbody>
</table>

*Trace test indicates 1 cointegrating eqn(s) at the 0.05 level*
*Source: Author's output of ADF unit root test*

Table 2 presents the result of the Johansen cointegration analysis. A look at the probability column shows that the Trace statistic is statistically significant at the first null hypothesis (None*) where the probability is 0.0043. To corroborate this claim, at that hypothesis, the value of the Trace statistic (81.63) is greater than the 5 per cent critical value (69.82). With these outcomes, we conclude that there is one cointegrating equation. In other words, there is a long run relationship among the variables in the model.

Having ascertained that cointegration exists among the variables, we go ahead to estimate the regression model using the technique of Fully Modified OLS. The result is presented in the Table below.

### Table 3 presents the result of Fully Modified OLS estimates. The coefficient of determination of the model is highly adequate at 0.9556. This means that 95.67 per cent of change in the poverty reduction is explained by changes in the explanatory variables in the model. Individually, there is a positive relationship between social capital spending and poverty. One per cent increase in social capital spending (SCSP) leads to 0.12 per cent increase in poverty (LPOV). This could mean that capital spending on social goods does not lead to poverty reduction significantly at 5 per cent (p(t) - 0.0203). This implies that capital spending on social goods is not productively spent in the bid to reduce poverty in Nigeria.
Table 3 Result of Fully Modified OLS (FMOLS)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>LSCSP</td>
<td>0.124532</td>
<td>0.051166</td>
<td>2.433879</td>
<td>0.0203</td>
</tr>
<tr>
<td>LSRSP</td>
<td>0.033857</td>
<td>0.038667</td>
<td>0.875596</td>
<td>0.3874</td>
</tr>
<tr>
<td>INF</td>
<td>-0.000404</td>
<td>0.001539</td>
<td>-0.262848</td>
<td>0.7943</td>
</tr>
<tr>
<td>UNEM</td>
<td>0.032474</td>
<td>0.005180</td>
<td>6.269387</td>
<td>0.0000</td>
</tr>
<tr>
<td>C</td>
<td>9.064058</td>
<td>0.066517</td>
<td>136.2677</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

R-squared: 0.955623
Mean dependent var: 9.905655
Adjusted R-squared: 0.950402
S.D. dependent var: 0.592491
S.E. of regression: 0.131589
Long-run variance: 0.021589

Source: Author’s Eviews output of Fully Modified OLS Model

In the same vein, Recurrent spending is positively linked with poverty reduction. One per cent increase in recurrent spending on social goods and services (SRSP) leads to 0.03 per cent increase in poverty. This spending does not lead to poverty reduction. However, the impact of this spending is not statistically significant at 5 per cent with the probability value at (P(t)= 0.3874). The relationship between inflation and poverty is negative. Increasing inflation rate (INF) leads to fall in poverty level. This is against economic expectations. This is why the outcome is not statistically significant at 5 per cent (P(t) = 0.7943). One per cent increase in inflation rate leads to 0.0004 per cent decline in poverty level.

An observed positive relationship between unemployment (UNEM) and poverty (LP$OV$) meets a priori expectations. One per cent increase in unemployment leads to 0.03 per cent increase in poverty level. This outcome is statistically significant at 5 per cent with the probability value given as (P(t) = 0.0000).

The causality relationship between social capital spending and social recurrent spending by government is presented in Table 4.6 below.

Table 4 Result of the Granger Causality Test

<table>
<thead>
<tr>
<th>Pairwise Granger Causality Tests</th>
<th>Obs</th>
<th>F-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>LSCSP does not Granger Cause LPOV</td>
<td>38</td>
<td>6.49921</td>
<td>0.0042</td>
</tr>
<tr>
<td>LPOV does not Granger Cause LSCSP</td>
<td></td>
<td>0.02279</td>
<td>0.9775</td>
</tr>
<tr>
<td>LSRSP does not Granger Cause LPOV</td>
<td>38</td>
<td>9.92438</td>
<td>0.0004</td>
</tr>
<tr>
<td>LPOV does not Granger Cause LSRSP</td>
<td></td>
<td>0.38110</td>
<td>0.6861</td>
</tr>
</tbody>
</table>

Source: Author’s Eviews output of Granger Causality Test

Table 4 presents the result of the causality analysis. The result shows that the probability values of F-statistics for the pairs of hypotheses in the table are both less than 0.05 in their first null hypotheses. This implies that there is a unidirectional causality relationship between social capital spending and social recurrent spending and poverty reduction. What this means is that both spending has the potency of changing poverty is well altered.

5. Conclusion

Studies abound on the impact of government expenditure on economic growth in Nigeria, however, studies on the impact of government social spending on poverty reduction in Nigeria are few and conflicting in their findings due to
observed loopholes inherent in various techniques of estimation used by these researchers. To correct and reconcile these differences, the technique of Fully Modified OLS which corrects endogeneity and serial correlation problems was employed. The study concludes that capital spending on social goods and community has not been reducing poverty over the period under study. Recurrent spending on social goods and community services does not impact poverty reduction significantly. This outcome is reinforced by the uni-directional causality relationship running from social capital and social recurrent spendings by government on poverty over the period under study. This implies that social government spendings has the potency of reducing poverty if resources are effectively monitored and productively spent for the purpose they are meant for. Government should establish an agency that should ensure adequate monitoring and implementation of government social expenditure in Nigeria.

**Compliance with ethical standards**

*Disclosure of conflict of interest*

No conflict of interest to be disclosed.

**References**


Victor V. D. (2018). Analysing Poverty in Nigeria through Theoretical Lenses. Journal of Sustainable Development, 11, (1); Published by Canadian Center of Science and Education


[31] Victor V. D. (2018). Analysing Poverty in Nigeria through Theoretical Lenses. Journal of Sustainable Development, 11, (1); Published by Canadian Center of Science and Education