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Fiscal Policy and Poverty Reduction in Nigeria: ARDL Approach

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Abstract

The ebbing state of fiscal policy and unwarranted poverty situation in the developing countries has continued to generate strong debates in the literature. Some strands of the literature have argued that the expenditure side of fiscal policy possesses elements that could reduce poverty significantly. Based on these existing arguments in the literature, this current study specifically investigated the extent to which the poor people benefit from government spending on education, agricultural sectors, health and the level of public debt. The autoregressive Distribution Lag method of estimation was considered to establish the result. Data on poverty headcount, government expenditure on health, government expenditure on agriculture, government expenditure on education and public debt were gathered from the World Bank Development Indicator and Central Bank of Nigeria Statistical Bulletin. The study revealed that fiscal policy has a significant impact on poverty reduction and long-run relationships existed between them. However, the result revealed that government spending on agriculture; education, health and public debt have no significant impact on poverty reduction in the long run. The result revealed that there is no significant relationship between government expenditure on health and poverty reduction in Nigeria. Therefore, the study concluded that fiscal policy has a significant impact on poverty reduction in Nigeria for the period under review.

Keywords: Fiscal Policy, Poverty, Government Expenditure on Health, Agricultural, Public Debt.

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1. Introduction

In the broad economist context, fiscal policy is the planning in which the government influence the circular flow or pattern of revenue and expenditure to specifically achieve resources optimal utilisation and, price stability that promote national welfare (Fashola, 2010). It is an avenue where a nation adjusts its spending to control productivity in a given country. (Oseni & Onakoya, 2012). More so, the economists have emphasised that fiscal policy is an instrument to generate an inclusive growth that optimises poverty reduction strategies which depend on each country characteristics. Meanwhile, the debate over the connection that exists between fiscal system and poverty reduction has been documented in the previous literatures undertaken in the developed countries. The economists have argued that the assumptions to use fiscal policy for poverty reduction objectives could be achieved through different channels. For instance, during the great depression in 1930, the United State adopted Keynes theory to use fiscal measure, such as increase in government spending for economy stabilisation which in turn enhance social outcomes and subsequently reduce poverty.

In the literature, poverty issues were related to the absent of Human Development Index (HDI), which measure three dimensions as postulated by United Nation such as life expectation, learning achievement and standard of living measurement by income in terms of purchasing power parity. Recently, Dada and Fanowopo (2020) opine that poverty is multifaceted and largely covers the low levels of income, education and health. Regrettably, developing countries like Nigeria are still facing with high poverty rate despite the reduction experienced in developed

countries. Weigh against other notable countries with a significant increase in poverty reduction, the magnitude of rate of poverty across state in Nigeria is on the increase involving the period between 1990 and 2000 that accentuated to the oil shock, weakling term of trade, extended debt profile and macroeconomic instability. Also, the wave of economy fragility due to economic recession, conflict and insecurity further worsening the poverty reduction efforts in the recent years. In the recent evidence, it has been observed that Nigeria still struggling to attain and actualize the mission of reducing people living with poverty to 50% in the 2020. For instance, the people living wage on $1.90 per day and $ 3.10 per day are still not less than 90 million out of 200million people in Nigeria (World Bank, 2018; Maku and Alimi, 2018).

While some previous studies exclusively concentrated on the causes of poverty, this study examined the strategies to reduce the prevalence of poverty by employing fiscal policy tools in Nigeria. Despite the growing empirical research on the associationship that links fiscal policies to the rate at which poverty has been reduced, yet, quite a few questions still remain unsettled in the literature. Addison, Roe and Smith (2006) opined that poverty reduction may not advance very well if macroeconomic framework such as monetary and fiscal policies are not properly managed. This connotes that poverty reduction strategy will be destabilised when government expenditures mismanaged, and public debt and budget deficit are not successfully managed. In light of the above problem and gaps, it was investigated in this current study the fiscal policy impact on poverty reduction in Nigeria. In addition, this study determines the relationship between spending on education, health, security and Nigeria's poverty decline.

The study conducted by Megbowon, Aderoju and Sanusi (2020) in Nigeria using ARDL estimation techniques revealed that fiscal federalism, such as government expenditure reduces poverty and the long–run relationship that existed between government expenditure and poverty rate for both federal government and state level were significant for policy implementation. Also, the study by Chude, Chude and Anah (2019) consider ARDL, and the result corroborates that poverty in Nigeria could be completely eradicated with public expenditure on various sectors and subsequently enhance economic growth. The research work of Ubong and Dominic (2019) used ARDL and revealed that the use of fiscal policy tools poses major significance on the reduction of poverty in Nigeria on the long-run, however, in the short-run effect was not significant. Owuru and Farayibi (2016) used autoregressive distributed lag framework with ECM and affirmed that the expended of funds on capital activities, recurrent activities and budget deficit have long-run relationship with poverty reduction and ECM shows that the error purported in the model was removed in the long-run.

2. Methodology

The study employed yearly data, which was collated through the Central Bank of Nigeria Statistical Bulletin from 1988 to 2019. For this study, an ex post facto research design was adopted. The analytical techniques such as descriptive statistics, unit root analysis, cointegration analysis using Autoregressive Distributed Lag (ARDL) approach. Fiscal policy is categorised into two such as revenue and expenditure. However, in this study, we relied on the government expenditure side and disaggregated it into expenditure on education, health and the agricultural sector. More so, the study allows for the influence of public debt as a control variable based on using contracted debt as a nation for investment purposes. This is meant to aid other independent variables considered in this study. Also, poverty headcount at $3.20 was considered a dependent variable.

Model Specification

In testing for the already stated hypothesis, the following model was adopted Y = dependent variableβ_1 – β_4 = coefficient of independent variables.

X = independent variables

$Y = X_1 + X_2 + X_3 \text{-----} \beta_n X_n + \mu$ (1)

Functional relationship as follows:

PI = *f* (GEH, GES, GEA, GEE, PUD) (2)

Econometric model is given as:

$PI = \beta_0 + \beta_1 GEH + \beta_2 GES + \beta_3 GEA + \beta_4 GEE + \beta_5 PUD + \mu$ (3)

Where,

PI = Poverty Index (Poverty Head count at $1.95 per day)

GEH= Expenditure on Health

GEA = Expenditure on Agricultural

GEE = Expenditure on Education

PUD = Public Debt

β_1 , β_4 = coefficient of independent variables

μ = error term

A Priori Expectation

It is expected that government expenditure on health, agricultural sector, education to have a significant impact on poverty incidence. Also, the study assumed that government expenditure on education, the agricultural sector and health have a negative sign to reduce poverty incidence.

$\delta >< 0$,

$GEH < 0$,

$GES < 0$,

$GEA < 0$,

$GEE < 0$.

Where δ = constant parameter.

3. Data Analysis, Result and Discussion of Findings

Table 1: Result of Unit Root Test at First Difference (Group Unit Root)

Method	**Statistics**	**Prob...**	
ADF	48.8424	0.0000	**Stationary**
PP	73.9741	0.0000	**Stationary**
Levin, Lin & Chu t	-3.79731	0.0001	**Stationary**

The test of stationarity in the data was carried out through group unit root test it was revealed that all the data were not significant at level but were significant at first difference. This is indicated that data are free from the presence of the unit root test in the first difference as shown in table 1, the probability level of the ADF test is less than 5% level of significance.

Table 2: Regression Analysis

Method: Least Squares					
Variable	**Coefficient**	**Standard. Error**	**t-Statistic**	**Prob.**	**Remark**
C	80.3064	9.167252	8.760139	0.0000	sign.
LGEA	3.625654	1.115778	3.249441	0.0031	sign.
LGEE	1.554304	2.706718	0.574239	0.5706	insign.
LGEH	-4.100022	2.942532	-1.393365	0.1749	insign.
LPUD	-4.048404	1.532056	-2.642465	0.0135	sign.
Included observations: 32					
R-squared	77%	Durbin-Watson stat		0.660598	
Adjusted R-squared	74%				
F-statistic	**23.10931**	**Prob(F-statistic)**	**0.00000**		

In table 2 above, it was shown that the value of R^2 is 77% which indicated that the model was accurately fitted and the Adjusted R^2 (74 %) which also revealed that the model is fit as all the variables employed in the study were good to explain the variation in poverty index. It was further revealed that public debt and government expenditure on agriculture has a considerable consequence on poverty reduction in Nigeria. However, public expenditure on health and education posited an insignificant impact on poverty decline within the period under review. The coefficient of government expenditure on education and agriculture are 1.6% and 3.6%, which indicates that a unit increase in the spending on education and agriculture will increase poverty incidence by 1.6 and 3.6 per cent respectively. In addition, the government expenditure on health and public debt coefficient are -4.1% and -4.04 per cent, which means that every unit increase in government expenditure on health and public debt will reduce poverty incidence by 4.1 and 4.04 per cent respectively if the debts obtained are spent judiciously.

Table 3: ARDL Bound Test: No Long-Run Relationship (H0)

F-statistic	**Lower bound**	**Upper bound**
10.83096	(10%)2.45	3.52
	(5%)2.86	4.01
	(2.50%)3.25	4.49
	(1%)3.74	5.06

In table 3 above, it was revealed from the ARDL bound that f-statistics (10.83096) is greater than both Upper Bound and Lower bound. This is an indication that the variables in the model have a long-run connection and are cointegrated.

Table 4: Autoregressive Distributed Lag Table (Short-run Result)

Variable	*Coefficient*	*Std. Error*	*t-Statistic*	*Prob.*
D(LGEA)	0.159083	0.22421	0.709527	0.4858
D(LGEE)	-0.742037	0.517264	-1.43454	0.1661
D(LGEH)	0.140129	0.579008	0.242016	0.8111
D(LGEH(-1))	0.371705	0.216178	1.719435	0.1002
D(LPUD)	0.249908	0.413447	0.604448	0.552

D(POVR) = 0.159082839483*D(LGEA) -0.742037347165*D(LGEE) + 0.140128952781*D(LGEH) + 0.371704796230*D(LGEH(-1)) + 0.249907584799*D(LPUD) -0.139217662323*(POVR - (4.29236240*LGEA(-1) -5.33005177*LGEE(-1) -4.83874700*LGEH(-1) + 1.79508534*LPUD(-1) + 62.05674472))

In table 4 above, the result shows that every single variable has no considerable consequence on poverty reduction in the short run. However, government expenditure on agriculture, health and public debt has a positive relationship in the short run.

Table 5: Autoregressive Distributed Lag Table (Long-run Result)

-Variable	**Coefficient**	**Std. Error**	**T-Statistic**	**Prob.**
LGEA	4.292362	2.16956	1.978448	0.0611
LGEE	-5.330052	4.276091	-1.246478	0.2263
LGEH	-4.838747	4.023223	-1.202704	0.2425
LPUD	1.795085	3.311295	0.54211	0.5934
C	62.056745	16.135528	3.845969	0.0009
CointEq(-1)	**-0.139218**	**0.040687**	**-3.421669**	**0.0026**

Cointeq = POVR - (4.2924*LGEA -5.3301*LGEE
-4.8387*LGEH + 1.7951
*LPUD + 62.0567)

In table 5 above, the ARDL result shows that expenditure on the agricultural sector, education, health and public debt has no major consequence on poverty reduction in the long period (long-run). However, government expenditure on education and health has a negative relationship with poverty incidence compared to government expenditure on the agricultural sector and public debt with a positive relationship in the long run. It was further revealed that the error that occurs in the short run will be corrected at the speed of adjustment of about 13percent.

Table 6: Diagnostic Test

Diagnostic Test	**F-Statistics**	**Prob.**
Normality Test	2.127051	0.34524
Heteroscedacity Test	0.914973	0.4579
Autocorrelation Test	1.440683	0.1387

Table 6 above revealed a diagnostics test carried out to validate the model and free from disturbances. It was shown that data were normally distributed as the probability for Jaque bera is not statistically significant. Also, there is no presence of serial autocorrelation as the p-value is more than a 5% level of significance.

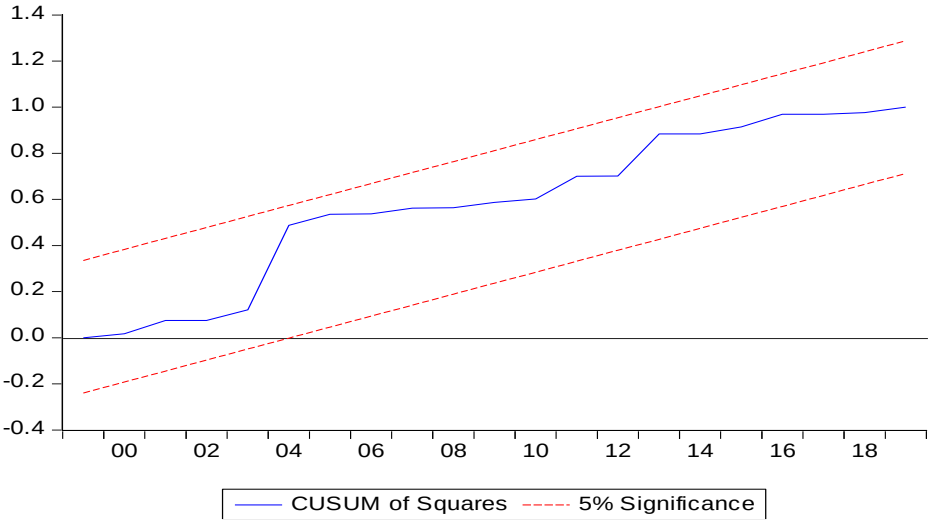

Figure 1 indicated the stability test of the model since the CUSUM of squares line falls within 0.05 level of significance and 0.01. Then we concluded that the model was stable for policy implementation.

4. Conclusion

This research investigated the connections linking fiscal policy to poverty reduction in Nigeria covering 32 years between 1988 and 2019. An ARDL technique was considered in the study to establish the relationship that existed in the model. This research revealed that fiscal policies on the expenditure side, such as government spending on agriculture, health and education have a long-run relationship with poverty reduction in Nigeria. The assumption that the agricultural sector is a bedrock of any developing economy was validated in this study as government spending on the agricultural sector posited a noteworthy influence on poverty decline in Nigeria. Regrettably, the spending on education and health revealed an insignificant impact on poverty reduction in Nigeria. This is against the assumption demonstrated in the previous studies on the importance of learning and good health as the remedy for the accumulated unemployment rate and poverty. It was further discovered that debt contracted by the government have a significant impact on poverty reduction in Nigeria and still maintain a positive relationship over the period under review, but in the long run, the significant effect of public debt was overturned. The study corroborates that in the process of reducing poverty, fiscal policy posed a considerable influence and there was the existence of a positive and future relationship in the model.

References

Aku, P. S., Ibrahim, M., J. & Bulus, Y., D (1997). Perspective on Poverty Alleviation Strategies in Nigeria. *In Proceedings of the Nigeria Economic Society Annual Conference on Poverty Alleviation in Nigeria 1997. Ibadan: NES:* 41-54

Alimi, O. Y. & Alese, J. O. (2017). Comparative analysis of investment funding in the Nigerian oil and agricultural sector. *International Journal of Economics and Accounting*, 8(1), 67-82.

Benneth, O., (2007). Fiscal policy and poverty reduction: some policy options for Nigeria, *African Economic Research Consortium*, research Paper 164.

Bhatia, H.L (2009) Public Finance. New Delhi: Vikas Publishing House PVT Ltd.

Central Bank of Nigeria Economic and Financial Review (2011).

Chirag, A. N. B. (2010). Investigating the performance of monetary policy on manufacturing Sector in Nigeria. *Arabian Journal of Business and Management Review*, 2(1), 12-25.

Chude, N. P., Chude, D. I., & Anah, S., A. (2019). The relationship between government expenditure, economic growth and poverty reduction in Nigeria. *International Journal of Developing and Emerging Economies,*7(2), 1-10.

Chukwuemeka, G., E. (2017). The effect of social spending on reducing poverty. *International Journal of Social Economics* 44(5), 620-632.

Encyclopedia Americana (2018) *Poverty*. 22 Connecticut: Grolier inc. 495 – 495.

Eze, O., R. & Ogiji, F., O. (2013). Impact of fiscal policy on the manufacturing sector output in Nigeria: An Error Correction Analysis. *International Journal of Business and Management Review (IJBMR)*, 1, 35-55.

Fashola P., A. (2010). The impact of fiscal policy on the Nigerian Economy. *International Review of Social Sciences and Humanities*, 4(1), 142-150.

Fashola, M., S. (2000). Does fiscal deficit determine the size of external debt in Nigeria? *Journal of Economics and International Finance*. 3(10), 580-585.

Geoff, I. (2012). Business operators question monetary policy thrust of 2013 budget. The Guardian Newspaper. Sunday 21st October, 2012.

Geoff, I., J. (2012). Meta-analysis of the Effect of Fiscal Policy on Long-Run Growth. *European Journal of Political Economy*, 20, 91-124.

Holtz-Eakin D., Rosen H., S. & Tilly S. (2009)., 35(2), Intertemporal Analysis of State and Local Government Spending: Theory and Tests, *Journal of Urban Economics* 159-174.

Ijaiya, G., T. (2002) The Role of the informal sector in minimizing poverty in ilorin metropolis. *Unpublished Ph.D Thesis. Department of Economics, Usmanu Dan Fodiyo University, Sokoto, Nigeria*.

Ijaiya, K. O., Gafar, I, Mukaila, A, Raji, A. B., & Michael, A., A. (2011) Economic growth and poverty reduction in Nigeria. *International journal of Business and social science*, 2 (15), 96-112.

Ijishar, V. U., Joseph, F. & Godoo, M. (2016). The relationship between external debt and growth in Nigeria, *International Journal of Economic and Management Science*, 6:360.

Maku, O. E. & Alimi, O. Y. (2018). Fiscal policy tools, employment generation and sustainable development in Nigeria. *Acta Universitatis Danubius*, 14(3), 186-199.

Mark, H. and Asmaa, E. (2009). What is fiscal policy? Back to basic. Online publication, www.google.com

Medee, P., N. & Nembee, S., G. (2011). Econometric analysis of the impact of fiscal policy variables on Nigeria's economic growth (1970-2009). *International Journal of Economic Development Research and Investment*, 2(1), 171-183.

Megbowon, E., Aderoju, S., Sanusi, G. (2020). Effectiveness of fiscal federalism for poverty reduction in Nigeria: An Analysis of Federal and State Governments' Expenditures. CBNEconomic and Financial Review. 39(4), 45-71.

Nagayaju, D.A. (2003). The impact of fiscal policy on poverty in ethiopia: A Computable General Equilibrium Micro simulation Analysis. *Ethiopian Journal of Economics*. 23(1), 56-78.

Olawunmi, O. & Tajudeen, A. (2007). Fiscal policy and Nigerian economic growth. *Journal of Research in National Development,* 5(2), 69-87.

Oseni, I., O. & Olomola, P., A. (2011). Analysis of convergence of fiscal variables in sub-saharan african countries (1981-2007): A Stochastic Technique, *Journal of Economics and Behavioral Studies*, 3(4), 235-248.

Oseni, I., O. & Onakoya A., B. (2016). Fiscal policy variables-growth effect: hypothesis testing. *American Journal of Business and Management*. 1(3), 100-107.

Oseni, I., O. & Onakoya, A., B. (2016). Empirical analysis of fiscal policy shocks and current account dynamics in Nigeria, *African Research Review*, 7 (28), 228 -251.

Owuru, J., E. & Farayibi, A., O. (2016). Examining the fiscal policy-poverty reduction nexus in Nigeria. *Journal of Economic and Social Research.* 2(1), 33-48.

Oyegoke O., E. (2018). Effects of economic growth on poverty reduction in Nigeria. *IOSR Journal of Economics and Finance*, 9(5), 25-29.

Ozoh, F. O., Uma, K., E. & Odionye, J., C. (2016). The Assessment of the effects of fiscal policy on unemployment and inflation reduction: The Case of Nigeria. *International Journal of Research in Management, Economics and Commerce*, 6(9), 1-10.

Peter, N., M. & Simeon, G., N. (2011). Econometric analysis of the impact of fiscal policy variables on Nigeria's economic growth. *International Journal of Economic Development Research and Investment*, 2(1), 171-183.

Tella, S. A., & Alimi, O. Y. (2016). Grassroots banking, microcredit and poverty reduction in developing countries: the case of Nigeria. A Paper presented at the LAPO Institute Conference on Microfinance, in Benin City, Edo State on 17-18 August, 2016.

Ubong E., U. & Dominic R., E. (2019). Fiscal policy and poverty reduction; the Nigeria perspective. *European Journal of Accounting Auditing Finance Research*, 4(2), 33-48.

World Bank. (2010). *Nigeria: Gross Domestic Product per Capita (Constant LCU).* Retrieved from https://data.worldbank

World Bank. (2017). *Nigeria: Gross Domestic Product per Capita (Constant LCU).* Retrieved from https://data.worldbank.org/indicator/NY.GDP.PCAP.KN?view=chart.

Appendix

Year	POVR	GEE	GEH	GEA	PUD
1988	0	1.46	0.42	0.08	47.03
1989	0	3.01	0.58	0.15	47.05
1990	55.7	2.40	0.50	0.26	84.09
1991	57.4	1.26	0.62	0.21	116.20
1992	59.4	0.29	0.15	0.46	177.96
1993	60.6	8.88	3.87	1.80	273.84
1994	61.3	7.38	2.09	1.18	407.58
1995	60.9	9.75	3.32	1.51	477.73
1996	59.8	11.50	3.02	1.59	419.98
1997	59.3	14.85	3.89	2.06	501.75
1998	59.5	13.59	4.74	2.89	560.83
1999	59.4	43.61	16.64	59.32	794.81
2000	58.9	57.96	15.22	6.34	898.25
2001	57.5	39.88	24.52	7.06	1,016.98
2002	56.4	80.53	40.62	9.99	1,166.00
2003	56.4	64.78	33.27	7.54	1,329.68
2004	53.5	76.53	34.20	11.26	1,370.33
2005	52	82.80	55.66	16.33	1,525.91
2006	50.8	119.02	62.25	17.92	1,753.26
2007	50	150.78	81.91	32.48	2,169.63
2008	49	163.98	98.22	65.40	2,320.31
2009	48.9	137.12	90.20	22.44	3,228.03
2010	47.5	170.80	99.10	28.22	4,551.82
2011	45.3	335.80	231.80	41.20	5,622.84
2012	43.7	348.40	197.90	33.30	6,537.53
2013	43.2	390.42	179.99	39.43	7,118.97
2014	42.1	343.75	195.98	36.70	7,904.02
2015	41.8	325.19	257.70	41.27	8,837.00
2016	41.7	339.28	200.82	36.30	11,058.20
2017	41	403.96	245.19	50.26	12,589.50
2018	40.2	465.30	296.44	53.99	12,774.40
2019	40	593.33	388.37	70.27	14,272.63

Central Bank Nigeria Bulletin, 2019