INTERNATIONAL JOURNAL OF ACADEMIC RESEARCH IN ECONOMICS & MANAGEMENT SCIENCES

OPEN ACCESS JOURNAL

Vol 14, Issue 3, (2025) E-ISSN: 2226-3624

Impact of Government Expenditure on Poverty Eradication in West African Countries: A Panel Cointegration Approach

Rayyanu Abdulkarim Kaita, Nor Asmat Binti Ismail*, Alshuaibi Maan Homod

School of Social Sciences, Universiti Sains Malaysia

*Corresponding Author Email: norasmat@usm.my

DOI Link: http://dx.doi.org/10.6007/IJAREMS/v14-i3/26818

Published Online: 30 September 2025

Abstract

While a debate is still ongoing in literature across the globe on the nexus between Government expenditure and economic development, the impact of government spending on poverty eradication remains partially explored. This study examined the effect of government expenditure on poverty alleviation in West African countries. The study utilized Panel Data for a period of 30 years, and a panel ARDL Cointegration approach was employed in analyzing the Data. The overall findings revealed that, government expenditure has a positive and significant effect on poverty alleviation in West African countries over the period of the study. The findings also revealed the existence of a long run relationship between government expenditure and poverty alleviation. The study recommended maximum government intervention through fiscal policy measures (Government Expenditure) to support the success of poverty alleviation programs in West African countries as a veritable tool of poverty eradication.

Keywords: Government Expenditure, Government Intervention, Poverty Eradication

Introduction

West African sub-region is among the regions that suffer from high rate of poverty. According to the United Nation Report in 2017, many countries in this region have a tendency of being unable to reduce the extreme poverty rate to below 3% by 2030. There is a huge potential in Africa to make significant strides to reduce extreme poverty in the coming decades, but more realistic targets are needed. Over the past 20 years, there has been a remarkable progress in reducing poverty. However, Africa contains the largest remaining share of global extreme poverty (United Nation, 2017) because, approximately, about 400 million Africans are still living below poverty line. Hence, eliminating poverty lies at the heart of post 2015 Development Agenda as well as the African Union's long-term vision entitled; Agenda 2063. However, the goals to reduce extreme poverty to below 3% in every African country by 2030 does not account for the extremely diverse starting point across the continent.

According to a report on socio-economic impact of COVID-19 published by Economic Community of West African States (ECOWAS, 2022), the extreme poverty in West Africa increased by nearly 3 % in 2020. Meanwhile, the report completed in partnership with the West Africa Sub-Regional Office for the United Nations Economic Commissions for Africa (UNECA) and the United Nations World Food Programs (WFP) revealed that, the proportion of people in the region living with less than $1.9 a day increased from 2.3% in 2020 to 2.90 in 2021. The debt burdens of countries in the region also increased in the context of slow economic recovery, shrinking fiscal and weak resource mobilization.

The study also highlighted the effects of the preventive measures which include among others the closure of borders, movement restrictions and supply chains disruptions. Such measures disrupted the income- generating activities in the sub-region and consequently, exacerbated food prices hike in the markets which affected the disposable income of the people in the sub-region. The most affected people are those who rely solely on unstable income sources such as small traders, street vendors and casual workers. This unfortunate economic situation has adversely affected the food security and nutritional situation of the populace in the sub-region. The report also revealed that, more than 25 million people in West Africa were unable to meet their basic food needs in the region in 2022. This situation was most severe in conflict affected areas such as the Lake Chad Basin, Liptako-Gourma and the Sahel Region which forced people to sell their assets and livelihoods to meet their food needs.

Therefore, the COVID-19 pandemic was said to have annihilated the benefits and achievements recorded by ECOWAS and its member states in the fight against poverty, food insecurity and malnutrition. Since the outbreak of the pandemic, ECOWAS in anticipation of its negative effects on the economic and social wellbeing of the people in their member states, has put in place various economic and financial measures to respond to the increasing needs caused by the pandemic in the region. The table below depicts the picture of poverty situation in West African countries from 2007 to 2021.

Table **Error! No text of specified style in document.**.1
Average Poverty Rates in West African Countries (2010-2019 & 2020-2024)

	2010-2019	**2020-2024**
Benin	35.40	27.12
Burkina Faso	39.67	29.78
Cape Verde	28.23	19.16
Côte d'Ivoire	45.16	36.60
Gambia	55.59	39.80
Ghana	26.10	16.31
Guinea	54.01	46.41
Guinea-Bissau	57.09	47.12
Liberia	46.68	32.23
Mali	31.34	19.26
Niger	45.52	33.41
Nigeria	13.52	26.74
Senegal	51.75	49.37
Sierra Leone	60.58	38.47
Togo	59.25	40.15

Note: % poverty can be seen as number living below $1.90 poverty line per day.
Source: Authors' Computation WDI, 2023.

A careful glance of the table above, it portrays the average poverty rate across ECOWAS countries for a period of 15 years computed for ten and five years respectively (2010-2019 and 2020-2024). The data from the table reveals that, the poverty rate is highest in Sierra Leone with the rate of 60. 58% between 2007-2016. However, Nigeria recorded a relatively lowest poverty rate for the period with 13.52%. Togo on the other hand, has a poverty rate of 59.25 %, Guinea Bissau 57.09%, Gambia 55.59%, Guinea 54.01 % while Ghana 26.10% Mali 31.34%, Benin 35.40 %, Burkina Faso 39.67%. Cote d'Ivoire 45.16% and Niger 45.52%.

However, the trend in poverty rates across West African countries from 2017-2021 demonstrates that, Senegal has appeared to have the highest poverty rates over the period with the rate of 49.37 %. Meanwhile, Ghana happened to be the country with lowest poverty rate for the period in the region with a rate of 16.31 %. Guinea Bissau has a poverty rate of 47.12%, Guinea 46.41%, Togo 40.15%, Gambia 39.80%, Sierra Leone 38.47%, Cote d'Ivoire 36.60% and Niger 33.1%. Cape Verde on the other hand recorded a poverty rate of 19.16%, Mali 19.26 %, Nigeria 26.74 % and Benin with 27.12%.

Although, SDG1 (Elimination of Poverty in all its form) may likely be attained by the year 2030 as its global rate fell from approximately 30% in 1990 to 12% in 2015 (United Nations, 2017). However, in terms of absolute population figures, the extreme rate of poverty may not be eliminated as it only decreased from 1.27 billion in 1990 to 0.75 billion in 2015. The highest reduction was recorded in countries in East Asia, South Asia, Europe and America where as West African region revealed a different picture as the rate of poverty kept increasing as depicted in the table above and, is projected to be more by 2030 (United Nations, 2019).
Therefore, in response to the alarming socio-economic challenges facing many countries of the globe, in September 2015, nations of the world met at the United Nation in New York and adopted the Sustainable Development Goals which has been the successor framework to the earlier Millennium Development Goals (MDGs) which were agreed by governments in 2000 and came to an end in 2015 (World Bank, 2017). MDGs concentrated largely, though not exclusively, on social outcomes, while key development priorities such as infrastructure and energy were not included in the list. The recent Sustainable Development Goals came at a right time though it was not exclusively meant for African nations, it is a global development agenda, but it contains the required policy framework to address the multi-dimensional obstacles of development in Africa at large since SDGs provide opportunities for developing countries. The Sustainable Development Goals (SDGs) were made up of 17 goals and 169 targets. The spirit and agenda of the SDGs are commendable as they mainly combine efforts to eradicate poverty which has been the major disease of African nations and increase their development potentials.

Meanwhile, to ensure that SDGs yield the desired outcome particularly in less developed nations, focus should be on integration among the substantive goals and targets (United Nation, 2017). Vital as this may be, there is a need for similar attention to be devoted to obtaining a system view and integrated approach to the means of implementation dispersed in an imbalance way through all the goals. Moreover, as a framework, the SDGs as a successor to MDGs extended the MDGs in many ways particularly by seeking to profoundly link the

social, economic and environmental aspects of the goals. This in turn, implies linking across time and ensuring that the short-term achievement of improved human well-being does not occur at the cost of undermining well-being in the long term by damaging the underpinning social and environmental capital on which global life support system depends. However, the UN's categorization of means of implementations of the SDGs indicators will require an unprecedented amount of data to be produced and analyzed. Without quantified targets and monitoring, it will be very impossible to determine whether sufficient progress is being made. This is the problem for most African countries (Allen et al., 2018).

The SDGs also place greater demand on the scientific community than did the MDGs, which they replaced. Addressing climate change, renewable energy, health, food and water provision requires coordinated global monitoring and modelling of many factors- social, economic and environmental (Apaba, 2017). African nations may struggle to provide coordinated monitoring due to the dearth of personnel skilled to undertake this task. There is no doubt that implementation pose for national statistical system in such countries. It is for this reason that collaboration with international and scientific agencies will be required to help devise metrics, establish monitoring mechanisms, evaluate progress and verify data.

In African continent, a number of factors have been identified as major determinants of the success of both MDGs and the current SDGs in propelling economic and social development of the continent (Babatunde, 2018). Among the factors, finance has been cited as the major factor. This is because, achieving success in a program as huge as the SDGs requires a massive amount of financial investment. Therefore, it is against this that, this study intends to examine the impact of government expenditure on poverty alleviation in West African Countries.

Literature Review

Keynesian Theory of Government Expenditure

Keynes (1936) advocated the role of government expenditure in the determination of the level of income (economic growth) and its distribution. In developing countries, government expenditure policy not only accelerates economic growth and promotes employment opportunities, it also plays a useful role in improving the quality of education; good health, poverty reduction and inequalities which are the bases for policy of sustainable development goals GDSs). Keynesian theory is a macroeconomic theory of total spending in the economy and its effects on various macroeconomic variables such as output, employment, education, health, poverty and inequalities. Keynesian economics was developed during the 1930s as a reaction to the Great Depression.

Based on his theory, Keynes advocated for the increased government expenditures and low taxes to stimulate demand and pull the global economy out of the depression. Subsequently, Keynesian economics was used to refer to the concept that optimal economic performance could be achieved and economic slumps prevented by influencing aggregate demand through active stabilization and economic intervention policies by the government. According to Keynes, government expenditure which is an effective and efficient fiscal policy tool is indispensable to achieve positive outcome in the country's macroeconomic environment. Therefore, this theory is strongly advocating the role of government expenditure in attaining sustainable social and economic development of which sustainable development goals focus.

Musgrave Theory of Public Expenditure

The Musgrave (1969) theory postulated that, at low levels of per capita income, demand for public services tends to be very low. This is so because, according to him, such income is devoted to satisfying primary needs. Also, when per capita income starts to rise above these levels of low-income level, the demand for services supplied by the public sector such as education, health and poverty reduction starts to rise, thereby forcing government to increase expenditure on them. Consequently, at high levels of per capita income, the rate of public sector growth tends to fall as the more basic wants are being satisfied. This theory specifically relates government expenditure and human capital development by spending on health and education which are core to human capital development.

Musgrave (1959) and Rostow (1960) put forward a development model under the causes of the growth in public expenditure. They argue that public expenditure is a prerequisite of economic development and its distribution. The public sector initially provides economic infrastructures such as roads, railways, water supply and sanitation. As economic growth takes place, the balance of public investment shifts towards human capital development through increase in government expenditure (spending) on education, health, poverty reduction and other welfare services. Economists have different perceptions along the ideological lines of Wagner's hypothesis and Keynesian theory and the argument remained whether government expenditure promotes growth or impedes economic growth. Wagner stressed that causality runs from national income to government expenditure while Keynes opined that causality runs from government expenditure to national income. The principal view between scholars as well as public policymakers however, is that, government can contribute significantly to increasing the level of economic growth. This is in line with the Keynesian theory of public expenditure. The attainment of these policy objectives however depends to a great extent on the ability of the government to allocate its resources efficiently through its expenditure and the prevailing conditions like corruption. It is in the light of this that Rose-Ackerman (1978) and Chetywynd, Chetywnd and Spector (2003) propounded theories of corruption, namely economic transmission theory and the governance theory of corruption (Lambsdorff, 2007).

These theories explain the consequences of corruptions on policies and programs designed to achieve national development. Keynesian theory stresses the role of government expenditure on economic growth and by extension, the attainment of sustainable social and economic development. However, countries in Africa have the highest rate of corruption in the world which off course is the main reason why the impact of government expenditure on economic development remain extremely low. In many instances funds were budgeted for various developmental projects in many countries in Africa particularly West African sub region, but due to high incidences of corruption, the funds were pocketed by some corrupt government officials.

Government Expenditure and Poverty Alleviation

The relationship between government spending and poverty reduction has continued to generate series of debate among scholars. Some scholars argue that increase in government spending on socioeconomic and physical infrastructures encourages economic growth and reduces poverty (Enyim, 2013; Osundina, Ebere & Osundina, 2014). These include: expenditure on infrastructure such as roads, communications and power. Sameti & Karami

(2004) noted that, there are some government forms of benefits the poor receives from expenditures on employment and welfare programs. The indirect effects arise when government investments in rural infrastructure, agricultural research and health and education of rural people stimulate agricultural and nonagricultural growth thereby, leading to greater employment and income earning opportunities for the poor and to cheaper food. This study employed system of equation within the framework of panel system GMM to assess effects of government spending and money supply on poverty in Africa.

Several studies examined the country specific impact of government spending on poverty and found that increased spending reduces poverty (Chude, Chude, Anah & Chukwunulu, 2019; d'Orey, Duvendack & Esposito, 2018; Oriavwote & Ukawe, 2018; Edrees, Azali, Hassan & Nor, 2015; Asghar, Hussain & Rehman, 2012; Rashid & Sara, 2010). Sunday (2021) conducted a study on the role of sustainable finance in the achievement of Sustainable Development Goals in Nigeria: A Focus on Education and poverty. Correlational Research Concept was adopted as the sole research method by reviewing secondary sources of data available. The findings showed that Finance has a positive and significant effect on the quality of education in Nigeria both in the short and long run. Moreover, government finance was found to have a negative but significant impact on poverty alleviation in the long run. This negative relationship between government finance and poverty alleviation in Nigeria, though is not consistent with the apriori expectation, but may be possible if the funds allocated in favor of the poverty alleviation programs have not been judiciously utilized. There are many instances that have been reported in Nigeria where huge amount of money has been budgeted to implement diverse poverty alleviation programs in the country but have been diverted to the pockets of some corrupt public officials. This perhaps may be the reason for the negative relationship reported above.

Andreas and Toniades (2020) Investigated the Impact of government expenditure on poverty alleviation: An adjusted multidimensional poverty approach. The Study developed an adjusted Multidimensional Poverty Framework (MPF) that includes 15 indicators that span across key poverty aspects related to income, basic needs, health, education and the environment. The study employed the use of an econometric model that examined the Impact of government expenditure on poverty alleviation of 150 countries over the period 1980 – 2015. The result indicated that government expenditure through government responsive budgeting has a positive and significant effect on poverty reduction in the sampled countries. The study recommended government intervention via expansionary fiscal policy measures in attaining poverty alleviation sustainable development goal.

Chude, Anah and Chukwunulu (2019) examined the relationship between government expenditure, economic growth and poverty reduction in Nigeria covering 1980 to 2013. Using unit root tests, bound test co-integration approach and error correction techniques within an ARDL framework which yields more robust estimates. The study found that government spending affects economic growth positively and significantly. Meanwhile, the findings from the study also showed that government expenditure has significant short run impact on poverty reduction in Nigeria over the period covered by the study. Disaggregating government expenditure based on sectors, Omodero and Omodero (2019) studied the effect of public expenditure by sector on poverty elimination covering 2000 to 2017. The study employed ordinary least squares technique and the result revealed that government

expenditure on building and construction, agriculture, education and health had no significant impact on poverty alleviation in Nigeria which was attributed to low-level of government spending on these key sectors of the economy.

Bright (2016) also investigated the impact of government expenditure on poverty reduction in Ghana between 1960 to 2013 using the Johansen test (JH), Vector Error Correction (VECM) test and the Ordinary Least Square (OLS). The study found that poverty incidence as a proxy of poverty has a positive relationship with government expenditure. This signifies that, poverty is not declining with increase in government expenditure. The contrary view has been attributed to the non-stationary estimation of poverty variable using ordinary least squares technique.

Rashid and Sara (2010) examined the relationship between fiscal deficits on between government expenditure and poverty and found that there exist a short run and long run relationship between poverty and government expenditure. In a similar vein, Enyim (2013) examined the relationship between government spending and poverty reduction in Nigeria from 1980 to 2009 using Ordinary Least Square (OLS) technique and household consumption expenditure per capita was used as an indicator of povert. The study found that government spending has significant negative impact on poverty in Nigeria. Omari and Muturi (2016) also examined the impact of government expenditure by sectors on poverty level in Kenya covering 1964 to 2010. The study used Vector Autoregressive model, Co-integration analysis and error correction mechanism after ascertaining the presence of co-integration. The study found that agriculture sector and health sector expenditures have a positive and significant effect on poverty level while infrastructure sector expenditure has a negative and significant effect on poverty level. However, the effect of education sector expenditure on poverty level was not significant.

Dahmardeh and Tabar (2013) examined the relationship between government spending and poverty in Sistan and Baluchestan Province of Iran using a household consumption expenditure per capita and poverty headcount ratio as indicators of poverty. The study examined the effects of government spending on poverty reduction from 1978 to 2008 using Autoregressive Distributed Lag (ARDL) method. The study also found a significant impact of government spending on reducing poverty in the country. As shown in the results, constructive expenditures have positive effect on poverty reduction Sistan and Baluchestan Province of Iran. Fan, Hazell and Thorat (1998) in another dimension examined the causes of the decline in rural poverty in India and quantify the effectiveness of government expenditures on poverty reduction covering 1970 to 1993. The author employed household consumption expenditure per capita as a proxy of poverty rate. The study used simultaneous equation system and the findings revealed that government spending has significant impact on poverty reduction over the period covered by the study.

Using panel data, Anderson, d'Orey, Duvendack and Esposito (2018) also examined the relationship between government spending and poverty alleviation on low- and middle-income countries using 19 countries. Employing multiple regression, the study found that, the relationship between government spending and poverty is negative for countries in Sub-Saharan Africa, though less negative than Eastern European countries and Central Asian countries. Shahrier and Lian (2018) also studied the impact of monetary and fiscal policies on

poverty line and income distribution of the bottom 20 percentile to the top 20 percentile using Financial Computable General Equilibrium (FCGE) model. The study found that expansionary fiscal policy or increase in government spending is more effective than the expansionary monetary policy in narrowing the income distribution and improving the income of the bottom 20% of the population in the short run while monetary policy that aimed at low inflation and stable aggregate demand would permanently improve poverty incidence in the long-run.

Methodology

This study utilized annual panel data covering the period of thirty years (1991-2020) for sixteen (16) West African Countries. The countries are: Benin, Burkina Faso, Cape Verde, Côte d'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra Leone, and Togo. The selection of the period and the set of countries is based on the availability of data. All the data were sourced from the World Development Indicators (WDI, 2022). The major variable of interest is government expenditure (GEX) serving as a predictor of poverty alleviation. in the case of dependent variable, Households final consumption expenditure per capita used as a proxy of poverty. In addition, to capture the effect of other variables on the dependent variable (s), four different variables are included as control variables. These are: (i) GDP per capita growth rate, (ii) Population growth rate, (iii) Inflation. These variables are explained in table 3.1 below:

Table 3.1
(Continued)

Variables	Definition	Source
General Government Expenditure	General government expenditure is operationally defined as all payments that include all government current expenditures for purchases of goods and services (including compensation of employees). It also includes most expenditures on national defense and security, but excludes government military expenditures that are part of government capital formation (World Bank, 2022).	(World Development Indicators of World Bank Data Base, 2022)
Households' Final Consumption Expenditure Per Capita (Poverty)	Households' Final Consumption Expenditure per capita is operationally defined as the average expenditure incurred by all households of the country for personal consumption for a period of one year (World Bank, 2022). This indicator tells how much the people of a particular country spend on the consumption of goods and services which is also determined by the level of personal income of the households. This will indicate the income base of the people in the economy.	(World Development Indicators of World Bank Data Base, 2022).

GDP Per Capita Growth (annual %)	Gross Domestic Product refers to the monetary value of final goods and services produced in a country over a period of time usually in a year by the residents of the country irrespective of their nationality (World Bank, 2022). GDP per capita is gross domestic product divided by midyear population. The justification for the inclusion of this variable as control variable is because of its role in achieving SDGs. Empirical evidences have shown that, achievement of most of the SDGs are transmitted through economic growth process.	(World Development Indicators of World Bank Data Base, 2022)
Population Growth Rate	Population Growth Rate refers to the annual average rate of change of population size, for a given country, territory, or geographic area, during a specified period (World Bank, 2022). It expresses the ratio between the annual increase in the population size and the total population for that year, usually multiplied by 100. The idea behind the inclusion of this control variable is its significant influence in determining economic development. There are theories that argue a positive impact of population on economic and social development (such as Malthusian Theory) and contrary to this, the theories that opine the negative impact of population size and growth on economic development.	(World Development Indicators of World Bank Data Base, 2022)
Inflation	Inflation as measured by the consumer price index reflects the annual percentage change in the cost to the average consumer of acquiring a basket of goods and services that may be fixed or changed at specified intervals, such as yearly (World Bank, 2022). This variable also is controlled in the model because of its role in the economy as macroeconomic variable.	(World Development Indicators of World Bank Data Base, 2022)

Model Specification

Impact of government expenditure on Poverty Eradication:

$$POVERTY_{i,t} = \alpha_0 + \alpha_1 G\_GEX_t + \alpha_2 GDP_t + \alpha_3 INF_t + \alpha_4 POP_t + \varepsilon_{i,t} \quad (3.1)$$

In equation (4.2), Poverty is the dependent variable proxied by household's final consumption expenditure per capita, α_0 is the intercept; α_1, α_2, α_3 and α_4 are the elasticity measure of the General Government Expenditure (G_GEX). Gross Domestic Product (GDP), Inflation Rate (INF) proxied by consumer price index and Population Growth rate (POP) are the control variables in the model. The justification for the inclusion of GDP as control variable stems from the fact that, it is believed that, economic growth measured in terms of GDP growth is directly related to poverty reduction.in other words, a high rate of GDP growth can more often than not help to lessen poverty. GDP growth therefore, has a close relationship with the poverty levels in the country. For inflation as control variable in the above poverty model, economic theories stresses that, high inflation rate intensifies the problem of poverty. If the lower income people in the state who already live a hand- mouth life pay more for essential goods and services, the cost of living will be costlier to them which will consequently affect their standard of living. Inflation also lowers the real minimum wage around the world, meaning that, it decreases the value of minimum wage which in turn, lowers the standard of living. Population growth rate was also included in the model based on the justification that,

there is a proposition that poverty particularly in developing economies is linked with their high population size. More people mean more demand for social and economic goods and services. If the resources in the country is not adequate enough to take care of the growing population, this will lead to problems like low level of educational access, unemployment, poverty etc. $\varepsilon_{i,t}$ is the error term(s).

Result and Discussion

This section contains the results and discussion on findings of the study; the impact of government expenditure on Poverty eradication in West African countries. The analyses started with some preliminary tests on the properties of the data. These include: graphical plots of the variables used in the study, summary of descriptive statistics, correlation analysis, unit root tests, cointegration tests and Hausman (1978) tests. On the basis of the above, Panel Autoregressive Distributed Lag (PARDL) technique developed by Pessaran et al. (2001) was employed to estimate both the short-run and long-run parameters. Moreover, to ensure the fitness of the models and to enable the result to be relevant for policy recommendations, residuals diagnostic and model stability tests were carried out.

PMG/Panel ARDL Models Estimation Results and Discussion of Findings

The pooled mean group (PMG) estimator of the panel ARDL was employed in the estimation of the long-run and short-run coefficients in the model.

Impact of Government Expenditure on Poverty Alleviation

Table 4.1 presented the PMG estimation results for model-1. The results of the panel-A: long-run analysis showed that the general government final consumption expenditure (G_GEX) is statistically significant and possess a positive long-term impact on the proxy of poverty eradication (i.e.: household's final consumption expenditure per capita) at 10% significance level. Specifically, an increase in general government final consumption expenditure by 1% will bring about an increase in household's final consumption expenditure per capita by 0.026%. an increase in household's final consumption expenditure per capita as a proxy of poverty means that, a common man income per head used to spend on consumable goods and services increases with increase in government expenditure. This is an indication of an increase in purchasing power of a common man in the economy and hence, signifies a bit decline in the level of poverty. The finding therefore, implies that government expenditure contributes significantly in achieving the first sustainable development goal (poverty eradication) in West African countries. This finding is in line with previous studies (Apergis & Payne 2012) and (Apergis & Payne 2011). The authors also found that government expenditure has positive and significant impact on poverty eradication.

Table 4.1
PMG estimations of ARDL results for the model

Panel A: Long Run Equation: Dependent variable is Poverty				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
G_GEX	0.026	0.015	1.802	0.073
GDP	0.583	0.075	7.730	0.000
INFLATION	-0.070	0.039	-1.805	0.072
POPULATION	-1.106	1.026	-1.078	0.282
Panel B: Short Run Equation: Dependent variable is Δ Poverty				
ECT_{t-1}	-0.784	0.106	-7.415	0.000
Δ(G_GEX)	0.053	0.021	2.557	0.011
Δ(GDP)	0.035	0.149	0.232	0.816
Δ(INFLATION)	0.088	0.167	0.527	0.598
Δ(POPULATION)	-7.376	18.909	-0.390	0.697
C	-1.336	0.732	-1.827	0.069
@TREND	-0.784	0.106	-7.415	0.000

Note: The lag selected by Akaike info criterion is (1, 1, 1, 1, 1) and Δ is the difference operator
Source: Researcher's computation (2025)

The results in table 4.1 further revealed that, the impact of government expenditure on poverty eradication in West African countries is transmitted through economic growth as represented by (GDP) per capita. The result showed that holding other factors constant, economic growth proxied by Gross Domestic Product (GDP) per capita has a positive and significant impact on household's final consumption expenditure per capita in the long-run. Specifically, the coefficient (0.583) indicates that, on average, a 1% increase in GDP per capita leads to an increase in household's final consumption expenditure per capita by 0.583%. Thus, increasing economic growth is associated with high household's final consumption expenditure per capita and poverty reduction in the sampled countries. This finding conforms with the hypothesis of the study that government expenditure contributes to poverty eradication. The results also lend an empirical support to Keynesian theory of government intervention through government expenditure. However, the finding revealed that, the inflation and population growth rates have negative impact on household's final consumption expenditure. This infers that, when inflation and population growth rate increase, the household's final consumption expenditure decreases and vice-versa.

Looking at the short-run analysis, the findings of PMG estimation showed that government expenditure has positive and significant impact on poverty eradication. The coefficient (0.053) infers that, on overage, if government expenditure increases by 1%, household's final consumption expenditure will increase by 0.053% and vice-versa. Consequently, the short-term findings align with the long-term results. In both time frames, government expenditure demonstrates a positive and statistically significant impact on household final consumption expenditure. In simpler terms, government spending has a favorable effect on advancing the first sustainable development goal (SDGs) related to poverty eradication in the sampled nations.

The short-run results of other control variables are very different as compared to the long-run coefficients. Most of the estimated coefficients are statistically insignificant even at the 10% significance level. However, the coefficient of the error correction term lagged by one period (ECTt-1) is negative and statistically significant at 1% and therefore, meets our expectation. The adjustment from the short run to the long run is taking place as suggested by the negative and statistically significant one-lagged Error Correction Terms (ECTt-1). The coefficient (-0.784) implies that 78.4% of substantial portion of the deviations from the equilibrium path is adjusted in one year.

Conclusion

The objective of this study is to examine the effect of government spending on poverty eradication in West Africa. Applying the PMG/PARDL (Pooled Mean Group/Panel ARDL) methodology, the long-run result revealed a statistically significant and positive correlation between general government final consumption expenditure and household's final consumption expenditure per capita which serves as a proxy of poverty eradication. This finding suggests that government expenditure plays a vital role in poverty eradication in West African countries. The study's result aligns with previous research conducted by (Apergis and Payne in 2011 and 2012; Oriavwote & Ukawe, 2018). These authors found that, government spending has a positive and significant impact on poverty eradication. The consistency of these findings across different studies strengthens the credibility of the results.

Moreover, the short-run analysis produced similar results confirming the positive and significant effect of government expenditure on poverty eradication. In both the long-run and short-run, government expenditure showed a positive influence on household consumption expenditure, indicating its role in promoting poverty alleviation in West African countries. These findings are significant as they underscore the importance of government intervention through expenditure policies in addressing poverty challenges in the region.

Therefore, this study in line with its findings and the methodology adopted, reiterates the positive effects of government expenditure in the process of poverty alleviation as being debated currently in literature across the globe.

In terms of contribution of the study, the study will sufficiently contribute to existing knowledge in theory and methodology. In terms of theory, the study will contribute to the existing body of knowledge as it improves on the existing theories on government expenditure- economic development nexus. The study will also corroborate the existing theories in relation to the nexus between government expenditure and the sampled sustainable development goals in this study. The study also contributes methodologically by improving on the existing estimation techniques adopted by previous studies by applying a Panel Cointegration approach to estimate the models formulated. In terms of policy, the findings from the study will help governments and policy makers towards designing a better sustainable development policy and will provide a feedback and insight to policy makers to improve on the current SDGs policies in West African sub region. The research will also provide policy recommendations on the identified gaps from the previous studies on the relationship between government expenditure and Sustainable Development Goals, and hence, the study will add to the existing body of literature on the subject matter of the study.

However, in relation to the motivation of the study not until recently, research on government expenditure as it affects Sustainable Development Goals did not draw the attention of researchers and policy makers (Smith, 2017). However, to the best of the researcher's knowledge, there are no or limited studies so far conducted to investigate the impact of government expenditure on Sustainable Development Goals: A study of education, Health, Gender equality and Poverty eradication using Panel Cointegration Approach. While, a lot of works exist on public expenditure and Sustainable Development Goals (example Alinska, 2018; Hege and Brimont, 2018; Khaijamang, 2018; Martin and Walker, 2015; Traub and Shah, 2015), these studies do not effectively relate to West Africa. This is an empirical gap which this study will fill.

Also, the few studies that studied government expenditure and Sustainable Development in West Africa incorrectly used real gross domestic product (RGDP) as a proxy variable to capture Sustainable Development (example Apata, 2017; Babatunde, 2018; Dibie, 2018). RGDP does not adequately capture the economic and social dimension of development, it is just a mere measure of economic growth. These studies ignored the social dimension of Sustainable Development, which is a very important misspecification gap in literature. This study therefore, will address this gap by decomposing Sustainable Development in to economic and social dimensions.

In terms of methodology, previous studies employed first-generation panel data estimation which is modelled on cross-sectional independence hypothesis. The first-generation panel data estimation does not address the potential issue of cross-sectional dependence that can arise from macroeconomic linkages, unaccounted residual interdependence and unobserved common factors. considering the present wave of globalization and economic integration in the world, such hypothesis is unrealistic, thus the findings of prior studies are hardly reliable for policy formulation. To address this gap, the study employed second-generation analysis to explore the cross-sectional dependence between the variables in the models specified.

Moreover, the study will sufficiently contribute to existing knowledge in theory and methodology. In terms of theory, the study will contribute to the existing body of knowledge as it will improve on the existing theories on government expenditure- economic development nexus. The study will also corroborate the existing theories in relation to the nexus between government expenditure and the sampled sustainable development goals in this study. The study is also significant methodologically by improving on the existing estimation techniques adopted by previous studies by applying a Panel Cointegration approach to estimate the models formulated which to the best of the researcher's knowledge, there are currently few studies on it. In terms of policy, the findings from the study will help governments and policy makers towards designing a better sustainable development policy and will provide a feedback and insight to policy makers to improve on the current SDGs policies in West African sub region.

The research will also provide policy recommendations on the identified gaps from the previous studies on the relationship between government expenditure and Sustainable Development Goals, and hence, the study will add to the existing body of literature on the subject matter of the study. Lastly, the research will be of utmost importance in broadening the awareness of academicians and researchers, Students and all interested individuals and

organizations on the nature and form of the relationship between government expenditure and SDGs in West Africa.

References

Adigun, G.T., Awoyemi, T.T., & Omonana, B.T. (2011). Estimating economic growth and inequality elasticity of poverty in rural Nigeria. *International Journal of Agricultural Economics and Rural Development*, *4*(1), 25-35

Afonso, A., & Alves, J. (2017). Reconsidering Wagner's law: Evidence from the functions of the government. *Applied Economics Letters, 24*(5), 346-350.

African Development Bank (2012). *African Development Report*: *Towards green growth in Africa.* African Development Bank, Tunis-Belvedere, Tunisia.

Afzal, M., & Abbas, Q. (2010). Wagner's law in Pakistan: Another look. *Journal of Economics and International Finance, 2*(1), 12-19.

Ahmed, R., & Hasan, J. (2016). Public Health Expenditure, Governance and Health Outcomes in Malaysia, *Journal Ekonomic Malaysia, 50*(1), 29. http://dx.doi.org/10.17576/JEM-2016-5001-03.

Akinci, F. H., Samer, S., & Akhmedjonov, A. (2015). Examining the Impact of Health Care Expenditures on Health Outcomes in the Middle East and North Africa. *Journal of Healthcare Financing, 41*(1).

Anderson, E., Orey, M.A., Duvendack, M., & Esposito, L. (2018). Does Government Spending Affect Income Poverty? A Meta-regression Analysis. *World Development, 103*, 60–71.

Andreas, A., & Toniades, S. A. (2020). Financial Crises and the Attainment of SDGs: An adjusted Multi-Dimensional Poverty Approach. *International Journal of Management, Economics and Social Sciences, 6*(4), 38-60.

Angela, S., & Mica, U. (2019). Impact of public spending on education and health in Nigeria. *International Journal of public finance and Fiscal Policy, 2*(4), 89-128.

Anyanwu, J. C., & Erhijakpor, A.O. (2007). Health Expenditures and Health Outcomes in Africa. *African Development Bank (AFDB) Working Paper*, *1*(91), 15-16. http://www.afdb.org/

Apata, T. G. (2017). Exploration of public spending and gross domestic product's growth in agricultural sector: Comparative analysis of Nigerian and Malaysian agricultural sector. *African Journal of Economic and Sustainable Development, 6*(3), 119-137.

Arin, K., Chmelarova, V., Feess, E., & Wohlschlegel, A. (2011). Why are corrupt countries less successful in consolidating their budgets? *Journal of Public Economics, 95*(7–8), 521–530.

Asghar, N., Hussain, Z., & Rehman, H. U. (2012). The impact of government spending on poverty reduction: Evidence from Pakistan 1972 to 2008. *African Journal of Business Management*, *6*(3), 845-853.

Assefa, L. S., Morrin, G. A., Michael, D. R., & Stephen, T. (2017). Monitoring universal health coverage within the sustainable development goals: Development and baseline data for an index of essential health services. *The Lancet Global Health, 6*(2), e152-e168.

Atkins, J. P., & Mazzi, S. (1999). *Small states: A composite vulnerability index*: *Advisory Board to the Joint Commonwealth Secretariat/World Bank Task Force on Small States*. World Bank, Washington DC.

Aust, F., Obafemi, F., Ukanwu, U., & Ayodele, O. (2020). Impact of government expenditure on economic development in Nigeria: A disaggregated analysis. *Asian Journal of Economics and Empirical Research, 4*(2), 123-145.

Babatunde, S. A. (2018). Government spending on infrastructure and economic growth in Nigeria. *Economic Research- Ekonomskaistraživanja, 31*(1), 997-1014.

Baltagi, B. (2008). *Econometric analysis of panel data*. John Wiley & Sons.

Banerjee, A., & Carrion-i-Silvestre, J. L. (2006). *Cointegration in panel data with breaks and cross-section dependence* [ECB Working Paper, No. 591, European Central Bank (ECB), Frankfurt].

Barenberg, A. J., Basu, D., & Soylu, C. (2017). The effect of public health expenditure on infant mortality: evidence from a panel of Indian states, 1983–1984 to 2011–2012. *The Journal of Development Studies*, *53*(10), 1765-1784.

Basu, P. M., & Solu, K. (2015). Public Spending and sustainable development goals nexus in Nigeria. *African Journal of Economic and Sustainable Development, 2*(3), 215-253.

Binuyo, B.O. (2014). Effect of poverty reduction programs on economic development: evidence from Nigeria. *Arabian Journal of Business and Management Review*, *4*(1), 26-37.

Boachie, M. K., & Ramu, K. (2015). Public Health Expenditure and Health status in Ghana. *Munich Personal RePEc Archive (MPRA) Paper,* (66371). https://mpra.ub.uni-muenchen.de/66371/

Bright, J. N. (2016). Modelling government expenditure-poverty nexus for Ghana. *Munich Personal RePEc Archive (MPRA) Paper No. 75727,* 1-12.

Carrion-i-Silvestre, J., Del Barrio-Castro, T., & López-Bazo, E. (2005). Breaking the panels: an application to the GDP per capita. *The Econometrics Journal, 8*(2), 159-175.

Castaneda, G., Chavez, F., & Guerrero, O. (2018). How Do Governments Determine Policy Priorities? Studying Development Strategies through Networked Spillovers. *Journal of Economic Behavior & Organization, 154*(335), 361.

Chen, S. (2004). Government spending and economic growth nexus: Evidence from Nigeria. *Economic Research-Review, 31*(1), 897-921.

Chletsos, M., & Kollias, C. (1997). Testing Wagner's law using disaggregated public expenditure data in the case of Greece. *Applied Economics, 29*(3), 371-377.

Chude, N. P., Chude, D. I., Anah, S. A., & Chukwunulu, J. I. (2019). The relationship between government expenditure, economic growth and poverty reduction in Nigeria. *IOSR Journal of Economics and Finance (IOSR-JEF), 10*(2), 01-08.

Chukwunulu, S. (2014). Impact government expenditure on economic development: evidence from Nigeria. *International Journal of Business and finance Review*, *2*(3), 56-87.

Collier, P., & Gunning, J.W. (1999). Explaining African Economic Performance. *Journal of Economic Literature, 37*(1), 64-111.

Cristóbal, J., Ehrenstein, M., Domínguez-Ramos, A., Galán-Martín, Á., Pozo, C., Margallo, M., & Guillén-Gosálbez, G. (2021). Unraveling the links between public spending and Sustainable Development Goals: Insights from data envelopment analysis. *Science of the Total Environment*, *786*, 147459.

Dahmardeh, N., & Tabar, M. (2013). Government expenditures and its impact on poverty reduction (Empirical from Sistan and Baluchestan, Province of Iran). *International Journal of Academic Research in Economics and Management Sciences, 2*(1), 251-260.

Dibie, R. (2018). *Public management and sustainable development in Nigeria: Military–bureaucracy relationship*. London, Routledge.

Dollar, O., & Gatti, G. (1991). Impact of government expenditure in reducing the gender gap in education and politics: Evidence from Nigeria. *Economics of Governance.*

Duvendack, B.O., Esposito, P. (2018). Effect of health expenditure on health sustainable development goal: evidence from Ghana. *Arabian Journal of Business and Management Review*, *4*(1), 26-37.

Ebong, F., Ogwumike, F., Udongwo, U., & Ayodele, O. (2016). Impact of government expenditure on economic growth in Nigeria: A disaggregated analysis. *Asian Journal of Economics and Empirical Research, 3*(1), 113-121.

Economic Community of West African States (2022): Annual Working Paper.

Edrees, A., Azali, M., Hassan, A., & Nor, N. M. (2015). The Impact of Government Spending, Trade, Foreign Aid and Foreign Direct Investment on Poverty Reduction in Africa: GMM Estimation. *International Journal of Economics & Management Sciences, 5*(1), 1-6.

Emara, G., & Noha, P. (2010). The nexus between public spending and economic development: a cointegration analysis. *International Journal of public finance and Fiscal Policy, 2*(4), 89-128.

Enyim, O. B. (2013). Government spending and poverty reduction in Nigerian's economic growth. *International Journal of Social Sciences and Humanities Reviews*, *4*(1), 103 – 115.

Evans, O., & Kelikume, I. (2019). The impact of poverty, unemployment, inequality, corruption and poor governance on Niger Delta militancy, boko haram terrorism and Fulani herdsmen attacks in Nigeria. *International Journal of Management, Economics and Social Sciences, 8*(2), 58-80.

Fan, S. R., Hazel, G. A., & Thorat, T. (1998). Monitoring general health coverage within the sustainable development goals: Development and baseline data for an index of essential health services. *The Lancet Global Health, 6*(2), e152-e168.

Farayibi, A., & Owuru, J. (2016). *Linkage between Fiscal Policy and Poverty Reduction in Nigeria*. Available at SSRN 2856545.

Ferrant, M., & Kollev, P. (2010). The relationship between government sustainable finance and economic growth. *International Journal of finance and management, 4*(2), 94-123.

Forsythe, A., Dawud, M., Hussain, A., & Nor, N. M. (2003). The Impact of Government Spending on Poverty Reduction in Africa: GMM Estimation Technique. *International Journal of Economics, 3*(2), 45-66.

Funashima, Y. (2017). Wagner's law versus displacement effect. *Applied Economics, 49*(7), 619-634.

Golding, N., Burstein, R., Longbottom, J. B., Fullman, N. O., Zimmerman, A., & Dwyer-Lindgren, L. (2017). Mapping under-5 and neonatal mortality in Africa, 2000-15: A baseline analysis for the sustainable development goals. *The Lancet, 390*(10108), 2171-2182.

Goshit, G.G. (2014). *Impact of Indirect monetary instruments on Macroeconomic Performance in Nigeria (1986-2012)* (Unpublished PhD Thesis). Department of Economics, University of Jos, Nigeria.

Gould, F. (1983). The growth of public expenditures: Theory and evidence from six advanced democracies. In C.E. Taylor (Ed.), *Why governments grow: Measuring public sector size* (pp.217-239). New Delhi: Sage Publications.

Gujarati, D. N. (2003). *Basic Econometrics* (4th Ed). Singapura: McGraw-Hill.

Halicioǧlu, F. (2003). Testing Wagner's law for Turkey, 1960-2000. *Review of Middle East Economics and Finance, 1*(2): 129-140.

Hardin, G. (1968). The tragedy of the commons. *Science, 162*(3859), 1243-1248.

Hege, E., & Brimont, L. (2018). *Integrating SDGs into national budgetary processes.* Studies, (05/18). IDDRI, Paris, France.

Henrekson, M. (1993). Wagner's law-a spurious relationship? *Public Finance, 46*(3), 406-415.

Hogan, D. R., Stevens, G. A., Hosseinpoor, A. R., & Boerma, T. (2018). Monitoring universal health coverage within the sustainable development goals: Development and baseline data for an index of essential health services. *The Lancet Global Health, 6*(2), e152-e168.

Hook, E. (1962). The expansion of the public sector-study of the development of public civilian expenditures in Sweden during the years 1913-58. P*ublic Finance, 17,* 289–312.

Hotchkiss, J.L. (2009). *Decomposing changes in the aggregate labor force participation rate* (Working Paper 2009-06). Federal Reserve Bank of Atlanta.

Im, K.S, Pesaran, M.H., & Shin, Y. (2003). Testing for Unit Roots in Heterogeneous Panels, *Journal of Econometrics, 115*(1), 53-74.

International Monetary Fund (2004). *International Financial Statistics Yearbook,* International Monetary Fund, Washington, D.C. USA.

International Monetary Fund (2018). *World Economic Outlook: Challenges to Steady Growth.* International Monetary Fund, Washington, D.C. USA.

International Monetary Fund (2018). *IMF Direction of Trade Statistics.* [online]. Available at: http://doi.org/10.5257/imf/dots/2019-08 [Accssed 6 March 2019].

International Monetary Fund (2019). *IMF Direction of Trade Statistics Database.* International Monetary Fund, Washington, D.C. USA.

Izquierdo, A., Pessino, C., & Vuletin, G. (2018). *Better Spending for Better Lives: How Latin America and the Caribbean Can Do More with Less*. Inter-American Development Bank.

Jeroen, J. K., Neil, R. E., & Juan, J D. (1992). The power of cointegration tests. *Oxford Bulletin of Economics and Statistics*, *54*(3), 325-348.

Jorge, M., & Cristobal, O. (2021). Financing the sustainable development goals: Lessons from government spending on the MDGs (Research report). Development Finance International Oxfam International.

Kalam, M. A., & Aziz, N. (2009). Growth of government expenditure in Bangladesh: An empirical enquiry into the validity of Wagner's law. *Global Economy Journal, 9(2), 185-162.*

Karin, S., Hanssen, O., & Tessa, T. (2017). Financing transformative health systems towards achievement of the health Sustainable Development Goals: a model for projected resource needs in 67 low-income and middle-income countries. *The Lancet Global Health*, *5*(9), e875-e887.

Keho, Y. (2016). Testing Wagner's law in the presence of structural changes: New evidence from six African countries (1960-2013). *International Journal of Economics and Financial Issues, 6*(1), 1-6.

Kroll, C. (2015). Sustainable Development Goals: Are the rich countries ready? *Sustainable Governance Indicators, SDSN and Bertelsmann Stiftung, September 2015.*

Kumar, S., Kumar, N., & Vivekadhish, S. (2016). Millennium Development Goals (MDGS) to Sustainable Development Goals (SDGS): Addressing unfinished agenda and strengthening sustainable development and partnership. *Indian Journal of Community Medicine, 41*(1), 1-4.

Levin, A., Lin, C. F., & Chu, C. S. J. (2002). Unit root tests in panel data: Asymptotic and finite sample properties. *Journal of Econometrics*, *108*(1), 1-24.

Lloyd, W. F. (1833). *Two lectures on the checks to population: Delivered before the University of Oxford, in Michaelmas Term 1832*. J H Parker.

Lybeck, J. A. (1988). Comparing government growth rates: The non-institutional vs. the institutional approach. *Contributions to Economic Analysis, 171,* 29-47. Elsevier.

Maddala, G.S., & Wu, S. (1999). A comparative study of unit root tests with panel data and a new simple test. *Oxford Bulletin of Economics and Statistics, 61*(1), 631-652.

Magazzino, C., Giolli, L., & Mele, M. (2015). Wagner's Law and Peacock and Wiseman's displacement effect in European Union countries: A panel data study. *International Journal of Economics and Financial Issues, 5*(3), 812-819.

Magdalena, Z., Iwna, B., & Katarzyna, C. (2020). The Role of Sustainable Finance in achieving Sustainable Development: Does it work? *Journal of Technological and Economic Development, Issues, 27*(1), 45-70.

Mehmood, R., & Sadiq, S. (2010). The relationship between government expenditure and poverty: a cointegration analysis. *Romanian Journal of Fiscal Policy, 1*(1), 29-37.

Mohammadi, H., Cak, M., & Cak, D. (2008). Wagner's hypothesis: new evidence from Turkey using the bounds testing approach. *Journal of Economic Studies, 35*(1).

Moon, H.R., & Perron, B. (2004). Testing for a unit root in panels with dynamic factors. *Journal of Econometrics, 122*(1), 81-126.

Ndeh, E. S., Okafor, J. O., Akpan, G. U., & Olutoye, M. A. (2017). Environmental impacts of crude oil spillages on water in Ibeno local government area of Akwa Ibom state, Nigeria. *Bayero Journal of Pure and Applied Sciences, 10*(1), 315-319.

Neck, R., & Schneider, F. (1988). The growth of the public sector in Austria: An exploratory analysis. *Contributions to Economic Analysis, 171,* 231-263. Elsevier.

Odhiambo, N. M. (2018). Public expenditure and economic growth in Kenya: A multivariate dynamic causal linkage. *Working Paper 24/2018,* 1-20.

Ogwumike, F.O. (2001). Appraisal of poverty and poverty reduction strategies in Nigeria. *CBN Economic and Financial Review*, *39*(4), 45-71.

Omar, L.V., & Muturi, W. (2016). The effect of government sectoral expenditure on poverty level in Kenya. *Global Journal of Social Science and Economics, 16*(2), 1-11.

Omar, O., & Guerrero, G. (2021). Does expenditure in public governance guarantee less corruption? Large non-linearities and complementarities of the rule of law. *Economics of Governance.*

Omodero, C. O., & Omodero, C. O. (2019). Government sectoral expenditure and poverty alleviation in Nigeria. *Research in World Economy*, *10*(1), 80-90.

Oriavwote, V. E., & Ukawe, A. (2018). Government spending and Poverty Reduction in Nigeria. *Journal of Economics and Public Finance, 4*(2), 156-163.

OECD (2016). *Better Policies for Sustainable Development 2016: A New Framework for Policy Coherence*, OECD Publishing, Paris. http://dx.doi.org/10.1787/ 9789264256996-en.

OECD (2016). *Better policies for 2030: An OECD action plan on the Sustainable Development Goals", OECD Week 2016.* www.oecd.org/dac/Better%20 Policies%20for%202030.pdf.

Qaisrani, A., & Maqsood, A. (2014). Exploring New Pathways to gender equality in education: Does ICT Matters? *S3H Working Paper Series.*

Pedroni, P. (1999). Critical value for cointegration tests in heterogeneous panels with multiple regressors. *Oxford Bulletin of Economics and Statistics, 61*(1), 653670.

Pedroni, P. (2004). Panel cointegration: Asymptotic and finite sample properties of pooled time series tests with an application to the PPP hypothesis. *Econometric Theory, 20*(1), 597-625.

Pesaran, M. H. (2004). *General diagnostic tests for cross section dependence in panels* (CESifo *Working Paper* Series No. 1229; IZA Discussion Paper No. 1240). University of Cambridge, UK.

Rashid, M., & Sara, S. (2010). The relationship between government expenditure and poverty: A cointegration analysis. *Romanian Journal of Fiscal Policy (RJFP)*, *1*(1), 29-37.

Ravallion, F., & Chen, S. (2004). The nexus between public spending and economic development: a cointegration analysis. *Journal of management, 2*(4), 111-148.

Sunday, S. (2021). The impact of public expenditure on sustainable development goals in West Africa. *International Journal of Economic and Sustainable Development, 1*(3), 115-143.

Sustainable Development Solutions Network (SDSN) (2015). *2015 index for the SDGs.* http://www.sdgindex.org. Accessed 1 Feb 2018.

Traub, S.K., & Shah, W. (2015). The Impact of public expenditure on poverty level in Kenya. *Global Journal of Social Science and Economics, 16*(2), 1-11.

United Nations Economic Commission for Africa (UNECA) (2014). *Manual for measuring e-government.* UNECA, Addis Ababa. https://hdl.handle.net/10855/22774

United Nations (2015). *Transforming our world: the 2030 Agenda for Sustainable Development*.https://sustainabledevelopment.un.org/post2015/transformingourworl.

United Nations Environmental Program (UNEP) (2016). *The green economy report 2016: Fiscal policies and the SDGs.* UNEP. https://www.unep.org/explore-topics/green-economy/what-we-do/economic-and-trade-policy/green-fiscal-policy

Westerlund, J. (2007). Testing for error correction in panel data. *Oxford Bulletin of Economics and Statistics, 69*(1), 709–748. https://doi.org/10.1111/j.14680084.2007.00477.x

World Bank (2016). *While Poverty in Africa Has Declined, Number of Poor Has Increased.* Retrieved from https://www.worldbank.org/en/region/afr/ publication/ poverty-risingafrica-poverty-report.

World Bank (2017). *World Development Report 2017: Governance and the Law. International Bank for Reconstruction and Development / The World Bank*. Washington, D.C. 38.

World Bank (2010). *Global Economic Prospects*. The World Bank, Washington, D.C. USA.

World Bank (2018). *World development indicators.* [online]. Available at http://www.databank.org/data/ [Accessed 6 March 2019].

World Bank (2019). *Modest growth; Focus on informality: 41st issues of the Russian Economic Report.*The World Bank, Washington, D.C.