



## RESEARCH ARTICLE

**Government Expenditure on Primary Welfare Sector and Economic Growth of Nigeria:  
A Correlation Analysis****<sup>1</sup>Nduche, Ekene Chinyelu, <sup>2</sup>Inyama, Oliver Ike & <sup>3</sup>Ugwuanyi, Uche B.**<sup>1,2,3</sup>Department of Accountancy, Enugu State University of Science and Technology**\*Corresponding Author: Nduche, E. C. | Department of Accountancy, Enugu State University of Science and Technology****ABSTRACT**

The study analysed the relationship between government expenditure on primary welfare sector and economic growth of Nigeria. The specific objectives of the study are to ascertain the relationship between Government Expenditure on Education (GEE), Government Expenditure on agriculture (GEA) and Government Expenditure on Road Construction (GERC) with Gross Domestic Products (GDP) in Nigeria. Time series data from 2010 to 2021 were extracted from the Central Bank of Nigeria Statistical Bulletins and also Nigeria Budget Office. The data were analysed using Pearson's Correlation Analysis. Findings from the study suggest that GEE significant of 0.000 and correlation coefficient of 0.924 showed that GEE positively and very strongly relates with GDP of Nigeria; GEA positively and strongly relates with GDP in Nigeria with a significant value of 0.002 and a Pearson correlation coefficient of 0.791 while the relationship between GERC and GDP is positive, but weak having a significant value of 0.051 and correlation coefficient of 0.574. The implication of these findings is that GDP of the country grows with increase in primary welfare sector expenditure. The study recommends that the Federal Government of Nigeria should improve educational and agricultural sector of the economy and grow the country's GDP by allocating more funds to the sectors during its annual budgets for quality education, improve food supply, food security and promote the nation's export. It was finally recommended that the government should vote more funds for road construction and monitor the effective and efficient use of the fund. Good road network will ease transportation and bring down cost of production per unit and ultimately grow the country's gross domestic products.

Keywords: Government Expenditure; Primary Welfare Sector; Economic Growth of Nigeria; Correlation Analysis

**Introduction**

The provision of enabling environment for the economy to operate, while maintaining law and order and protecting the nation from external hostilities, is one of the primary responsibilities of government to its citizens. Thus, the enabling environment is the protection of life and property and provision of certain goods considered to involve huge financial outlay and which the private sector could not conveniently produce. The provision of these public goods such as defence, water, power, education, roads, agriculture and health are crucial for the welfare of the citizens and economic development of a nation. Increased government expenditure on socio-economic and physical infrastructure would raise the productivity of labour with the attendant effect on growth of national output (Nworji & Oluwalaiye, 2021). Olasunkanmi (2021) maintains that the low level of social services and meagre infrastructural facilities available in Nigeria limit to a great extent the role of private sector in the development endeavours. Babatunde (2018) described expenditure on primary welfare sector as public expenditures such as healthcare delivery, transportation, education and food security, others are water, sanitation and agriculture. Infrastructure level affects the developmental ratings of a nation and contributes to the score of the nation's economic growth. Niloy, Emranul and Denise (2003) stated that increase in government spending can be an effective tool to stimulate aggregate demand for a stagnant economy and to bring about crowd-in effects on private sector however Raheem, Ayana and Fashedemi (2014) argued that the government

spending on primary welfare infrastructure in Nigeria seems to be a waste of scarce resources and to the detriment of the taxpayers because the growth in the economy does not physically depict infrastructural development. It is in view of this that this study adopted Government expenditure on education, Government Expenditure on Agriculture and Government Expenditure on Road Construction to examine their relationship with economic growth of Nigeria.

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Azi and Shikdima (2021) defined education as the process of facilitating learning, or the acquisition of knowledge, skills, values, beliefs, and habits. It can take place in formal or informal settings and any experience that has a formative effect on the way one thinks, feels, or acts may be considered educational. Improving the educational standard of people is not only a goal for a better quality of life but to impact positively on the economic development of a country. Food and Agriculture Organization (2016) stated that government agricultural expenditure is the allocation on the agricultural sector which is aimed to boost agricultural productivity and output, thereby inciting economic growth. Africa Development Bank (2014) described road construction expenditure as all construction costs that includes the operation, maintenance and construction of highways, streets, roads, sidewalks, bridges, lights, road signs and other related structures. International Monetary Fuds (2020) described gross domestic products (GDP) as goods and services produced for sale in a country which also include some non-market production, such as, education or services provided by the government. An alternative concept, gross national product (GNP), counts all the output of the nationals of a country whether they are resident in the country or not.

### **Statement of the Problem**

Over the years there have been a consistent increase in budget for Education, Agriculture and road construction, is it expected that the cumulative effect of the expenditure on these primary welfare sector will generate a corresponding influence on the economic development of Nigeria. Increase in Government Expenditure on education is expected to generate knowledgeable and skilled labour force which are key determinants for business and economic growth; Agriculture provides healthy, sustainable and inclusive food system which are critical to achieve economic growth, government expenditure on road construction is expected to provide road for more accessibility of raw material, target market, exports, assessing of business opportunities and reducing the cost of production.

Nigeria annual expenditure estimates in the last few decades were characterized with continuous increase in total government spending both in primary welfare sector and in other sectors of the economy to the extent that the country's total annual budget have graduated from millions, to billions and now to trillions of naira. For instance, the Nigeria Total Appropriation Bill in 2022 is N17.126 trillion, in 2021 it was N13.588 trillion, in 2020 it was N10.805 trillion and so on. These government expenditures on primary welfare and other services or sectors would be expected to generate a corresponding growth trend in the economy; however, this was not the case. It is no gain saying that an average Nigeria cannot afford good education, good food, good health facilities and no good road facilities either. The relationship between the huge yearly allocation and economic welfare of the citizen is still a puzzle.

There are no infrastructural facilities such as good road networks, good health facilities, educational facilities, good sanitary system and other infrastructures to justify the huge amounts being reported on the country's annual appropriation bills. Thus, the primary welfare infrastructures are not being provided to improve social amenities to raise the welfare of average citizen of the economy yet we always have very high estimated expenditures. Coupled with lack of infrastructure is the stunted growth of the economy. Estimates show that growth in the Nigerian economy has constantly been falling over the years.

These developments suggest that something is wrong with our system of budget and evaluation of usage of the public expenditures to ensure efficiency and effectiveness in public expenditure. The present study was instigated by these developments to examine the relationship between government expenditure on primary welfare sector and economic growth of Nigeria.

### **Review of Related Literature**

#### **Government Expenditure on Primary Welfare Sector**

Babatunde (2018) describes expenditure on primary welfare sector as public expenditures such as healthcare delivery, transportation, education and food security. Others are water, sanitation and agriculture. Infrastructure level affects the developmental ratings of a nation and contributes to the score of the nation's economic growth. Adamu and Hajara (2015) state that government performs two functions defence (security) and provision of public goods. Protection function consists of the creation of rule of law and enforcement of property right, this helps to minimize risk of criminal activities, protect life and property and the nation from external aggression, while provision of social or public goods includes road, education, electricity, water and so on. Okwu (2012) argues that increase in government expenditure on socio-economic and physical infrastructures encourages economic growth. For

example, government expenditure on social services raises the productivity of labour and increase the growth of national output. Similarly, expenditure on economic infrastructures such as road, communication, power and so on reduces production costs.

World Bank (2010) notes that government spend money every year so that the function of government must be maintained. Some of the government expenditure is on economic and social services such as agriculture, construction, transportation education, health, communication and others. These government expenditures are meant to increase the nation's economic growth. For instance, government expenditures on education and health raise the productivity of labour and increases the growth of national output. Education is one of the important factors that determines the quality of labour and is considered an independent factor of production that is indispensable to achieve high and sustainable economic growth rate. Expenditure on infrastructure such as transportation and communication, roads, power and so on, brings about reduction in production costs, which surely increase private sectors investment and profitability of firms and thereby fostering economic growth. Osuji, Ehirim, Ukoha and Anyanwu (2017) opine that in Nigeria, unfortunately, the rising government expenditures on these infrastructures have not translated to meaningful economic growth and development, as Nigeria ranks among the poorest countries in the world. This study in view of this, adopted Government Expenditure on education, Government Expenditure on agriculture and Government Expenditure on Road Construction to examine their relationship with economic growth of Nigeria.

### **Government Expenditure on Education**

Zoran (2015) describes education as the process through which the personalities of individuals change and develop in a positive direction by adopting different content according to the age and needs of individuals. Nnanna (2018) states that education is important for economic growth in any country. The improvement of education needs the investment. The public expenditure on education is an important part of investment in education. Unconducive learning environment in most government schools are massively caused by under-funding of the educational sector. This has led to, poor educational infrastructure, lack of learning materials, and underqualified teachers. Because of these, the Quality of education in Nigeria has been a major cause of concern for the people. Odeleye (2012) asserts that considering the importance of education expenditure on developing the economics of countries, it is noted that spending on education contributes to wealth creation. The argument is that the ability to create, adopt and make better technological and technical progress is combined with the investment in human capital and the efficiency of the education system. Therefore, it is beneficial for countries to invest significantly in these areas in order to train the workforce and develop the necessary skills that help to increase economic growth and ensure the success of a country.

Zouheyr, Mohamed, Abdelli and Saadaoui (2021) opine that Nigerian government has broadly ignored the educational sector. Nigeria has one of the lowest expenditure commitments to education in Africa and by implication the world. Education has an effective role in promoting societies to establish continuous development in order to promote social and economic progress. Other countries of the world are not left out on this, for example, Saudi Arabia up holds the need to develop its educational system. Its commitment to developing educational sectors has been substantial, which is evident from the budget that has been allocated to education. The ratio of education expenditure has been associated with an increase from 105 million riyals in 2010 to 215 million riyals in 2017. In addition, the education expenditure in GDP increased from 16.2% in 2010 to 23% in 2017. UNESCO's benchmark for education is 26 percent of the annual national budget and Nigeria has consistently fallen short of this requirement as it allocated 10.7percent in 2016, 6percent in 2017, 7.1percent in 2018, 5.9percent in 2019, 5.2 percent, 6.7 percent in 2020 and 5.6 in 2021. Government allocation to educational sector is still low.

### **Government Expenditure on Agriculture**

Tenaye (2020) states that agriculture is the prime sector in terms of its contributions to Gross Domestic Product and employment for most developing countries. Moreover, the majority of people existing in poverty globally obtained their income from agriculture and agricultural correlated activities in rural areas. Therefore, government mechanisms must be put in place to propel agricultural growth. Ewubare and Eytipe (2015) notes that the growth and development of any economy, to a large extent depends on the development of its agricultural sector. The five roles of agriculture in the development process were identified as: product contribution, factor contribution, source of employment, foreign exchange contribution and means of technological advancement. Diao, Fan, Kanyarukiga and Yu (2010) assert that cost-effective funding of drivers of agricultural growth like extension services, efficient

credit delivery systems, research and development among others, bring about agricultural growth. However, evidence has shown that in developing countries, public expenditure on agriculture and on the drivers of agricultural growth is too low to bring about meaningful development.

Food and Agriculture Organization (2016) states that government spending in agriculture comprises of expenses on sector policies and programs, construction of flood control, irrigation and drainage systems, operation or support of extension services or veterinary services to farmers, pest control services, crop inspection services, provision of grants and subsidies to farmers and so on. Investing in agriculture is one of the most effective ways of promoting agricultural productivity, raising real incomes, reducing poverty and food insecurity, and enhancing environmental sustainability. International Foods Research Institute (2008) opines that public spending on agriculture in Nigeria is exceedingly low. Less than 2 percent of total federal expenditure was allotted to agriculture during 2001 to 2005, far lower than spending in other key sectors such as education, health, and water. This spending contrasts dramatically with the sector's importance in the Nigerian economy and the policy emphasis on diversifying away from oil. Mary (2021) maintains that Nigerian government proposed 1.8 per cent of the 2022 budget for agriculture was significantly short of the Maputo Declaration benchmark and falls well below the 10 percent goal set by African leaders in the 2003 Maputo agreement. Nigeria also falls far behind in agricultural expenditure by international standards, even when accounting for the relationship between agricultural expenditures and national income. The spending that is extant is highly concentrated in a few areas.

### **Government Expenditure on Roads Construction**

Aljoufie, Brussel, Zuidgeest and Maarseveen (2013) state that the provision of road infrastructure not only lower the physical barrier by stimulating the movements of people, goods and services but also improve access to markets, social services and employment by reducing the overall transportation times and costs. The development or provision of high mobility road infrastructure such as expressway can increase the speed and improve the efficiency of domestic and international trades by reducing the transportation times and costs; whilst the development or provision of high accessibility road infrastructure such as local roads allow easy land access and promote commercial and social activities at local level. Better road infrastructure may make it easier to start businesses and increase their chances of survival by decreasing operating costs, or enabling increasing returns to scale. Yusupov (2020) confirms that infrastructure improvements can push low-productivity projects out of business if they had previously been protected from competition by high transportation costs. In the long run, such push factors will also result in aggregate productivity gains and consumer surpluses.

Nworji and Oluwalaiye (2021) state that in Nigeria, roads play significant role in social and economic life development and are seen as the centre of connectivity of all other mode of transport with an approximate total network of about 193,200kms. Nigerian road sector carries more passengers domestically, and the transport sector contributes about 2.4% to real Gross Domestic Product (GDP) with road transport accounting for about 86% of the transport sector output. Road network represents the arteries of the Nigerian economy through which the country's economic activities flow to local, state and national levels. Motamed, Florax and Masters (2014) posit that the cost of road infrastructure is very high in Nigeria and this can be attributed to the rapid inflation in the cost of construction materials. Generally, road infrastructure plays a crucial role by providing mobility for the efficient movements of people, goods and services as well as providing accessibility to land and a wide variety of commercial and social activities. Nworji and Oluwalaiye (2012) note that the present state of Nigerian roads provides additions to the rate of poverty particularly, among the peasants who as farmers, artisan and other petty traders inhabit mostly the neglected rural areas of the country. The persistence road decay in the nation, has continued to impact the economy negatively in all facets, requiring urgent remedy by all stake holders as the government, despite the perceived huge financial resources at its disposal could not handle the problem alone. Funding of road construction, expansion, rehabilitation and maintenance has been the responsibility of government and quasi-government establishments in Nigeria. The economic realities indicate insufficiency of the public sector alone in meeting the financial requirements of ameliorating the present situation of the roads alone.

### **Economic Growth in Nigeria**

Adamu and Hajara (2015) describe economic growth as the increase in output of an economy's capacity to produce goods and services needed to improve the welfare of the citizens of the country. Growth is seen as a steady process which involves rising of output of goods and services in the economy. It is meaningful when the rate of growth is much higher than population growth because it has to lead to improvement in human welfare. International

Monetary Fund (2009) state that economic growth is the increase in the amount of the goods and services produced in an economy over time. It is conventionally measured as the percent rate of increase in real gross domestic product or real gross domestic product. Growth is usually calculated in real term, that is, inflation- adjusted terms, in order to net out the effect of inflation on the price of the goods and services produced. Potters (2021) equally defines economic growth as an increase in the production of economic goods and services, compared from one period of time to another. It can be measured in nominal or real (adjusted for inflation) terms. Traditionally, aggregate economic growth is measured in terms of gross national product or gross domestic product, although alternative metrics are sometimes used.

Dwivedi (2004) notes that economic growth is a sustained increase in per capita national output or net national product over a long period of time. It implies that the rate on increase in total output must be greater than the rate of population growth. Another quantification of economic growth is that national output should be composed of such goods and services which satisfy the maximum want of the maximum number of people. Economic growth can be determined by four important determinants namely, human resources, national resources, capital formation and technological development. Todaro and Smith (2011) state that the sources of economic growth can be traced to a variety of factors. Generally, investment that improve the quality of existing physical and human resources, increases the quality of these same productive resources through invention, innovation and technological progress have been and will keep on being the essential factor in stimulating economic growth in any society.

### **Gross Domestic Product**

Central Bank of Nigeria (2010) defines gross domestic products as the money value of goods and services produced in an economy during a period of time irrespective of the nationality of the people who produced the goods and services. It is usually calculated without making any allowance for capital consumption (or deductions for depreciation). Rathburn (2022) also describes gross domestic product as the total monetary or market value of all the finished goods and services produced within a country's borders in a specific time period. As a broad measure of overall domestic production, it functions as a comprehensive scorecard of a given country's economic health. Gross domestic products can be computed on a nominal basis or a real basis, the latter accounting for inflation. Nominal GDP is preferred figure for comparing variables that also don't adjust for inflation. Natural rise and fall of price are captured in nominal GDP

World Bank Development Report (2002) notes that the relationship between gross domestic products growth and population growth is very different in rich and poor countries. The populations in rich countries are growing very slowly, and gains in per capita income and gross domestic products are easily achieved. That is, while rich countries' population growth grows slowly, their per capita income and gross domestic products are high and easily achieved. Conversely, in the poorest countries, population is still increasing rapidly, making it difficult to raise standard of living. Rathburn (2022) states that the gross domestic products is typically calculated on an annual basis, it is sometimes calculated on a quarterly basis as well. In the United States for example, the government releases an annualized gross domestic products estimate for each fiscal quarter and also for the calendar year. The individual data sets included in this report are given in nominal terms, so the data is taken at current year's price. Of all the components that make up a country's gross domestic products, the foreign balance of trade is especially important. The gross domestic products of a country tend to increase when the total value of goods and services that domestic producers sell to foreign countries exceeds the total value of foreign goods and services that domestic consumers buy. When this situation occurs, a country is said to have a trade surplus.

### **Theoretical Framework**

This study is supported with -The Keynesian Theory developed by John Maynard Keynes in the 1930 is more situated for the study, we therefore anchored the study on the Keynesian Theory.

#### **The Keynesian Theory**

This theory was developed by British Economist, John Maynard Keynes in 1930 (the founder of modern economic). Keynesian economics is a macroeconomic economic theory of total spending in the economy and its effects on output, employment, and inflation. The Keynesian school of thought suggest that government spending can contribute positively to sectorial growth (like the agricultural sector) in an economy. Thus, an increase in government expenditure is expected to lead to an increase in employment, profitability and investment through

multiplier effects on aggregate demand. Consequently, government expenditure increases the aggregate demand which brings about an increased output depending on expenditure multipliers. Keynes regards public expenditures as an exogenous factor which can be utilized as a policy instrument to promote growth. Keynes advocates for higher government spending and lower taxes to stimulate demand and lift the world economy out of the depression, based on his theory. Following that, the term "Keynesian economics" was coined to describe the idea that optimal economic performance might be achieved, and economic slumps avoided by manipulating aggregate demand through activist stabilization and government intervention programs.

## **Empirical Review**

### **Government Expenditure on Education and Economic Growth**

Agung, Thamer and Nurwanto (2021) studied the relationship between public expenditure in the educational sector and the economic growth in Indonesia for the period 1988 to 2018 using Autoregressive Distributed Lag bound tests to find the relationship between the variables. Findings showed that public expenditure on education has positive insignificant relationship in the long and negative insignificant relationship in the short-term estimation. Gross fixed capital formation showed a positive relationship, and the labour variable had a negative relationship in the short and long terms. Zouheyr, Mohamed, Abdelli and Saadaoui (2021) studied the effect of education expenditure on economic growth in the Kingdom of Saudi Arabia from 1990 to 2017. Unit root test, regression and correlation analysis were used to analyze the data collected and Findings showed that education expenses in the Kingdom of Saudi Arabia had a positive effect on economic growth and the relationship between domestic production and the volume of expenditure was also statistically positive and significant.

Almajdob and Marikan (2019) used panel data regression analysis to ascertain the effect of education sector expenditure on economic growth in Arab Spring Countries. Study explored the dynamics of education and economic growth expenditure in selected five major Arab countries with balanced panel data from 2000 to 2014. The study focused on Arab Spring Countries (ASC), ASC, including Libya, Yemen, Iraq, Egypt and Tunisia, and all of these are developing Countries. A sample period of 15 years has been taken from 2000 to 2014 with panel data from ASC countries. Unit root test and integration test were applied on the collected data. Results of Pedroni, Kao and Johansen Fisher 's co-integration showed that there was a long- term balance between education and economic growth expenditure in all countries.

Kouton (2018) investigated the relationship between education expenditure and economic growth in C<sup>ote</sup> d'Ivoire. The study used secondary annual data on gross domestic product (GDP) and education expenditure (% GDP) for the period 1970-2015. Real GDP was used to measure economic growth, and government expenditure on education (% GDP) was a measure of the education expenditure. The study control for some socio-economic variables namely: financial development, life expectancy at birth and inflation. Financial development was measured by the broad money/GDP ratio. Life expectancy at birth is used to control for health stock. The inflation variable is used to control for the macroeconomic instability. All the variables were taken from the World Development Indicators Database. Descriptive statistics and correlation analysis were used to analyze the data showed a negative and significant long-term effect of government education expenditure on economic growth and a non-significant positive effect of government education expenditure on economic growth in the short term. The study further showed a unidirectional causality relationship between the two variables, running from education expenditure to economic growth.

Mehmet and Sevgi (2014) examined the effect of education expenditure on economic growth of Turkish economy over the period 1979-2012, annual data were collected from The World Bank for the two variables educational expenditure and gross domestic product, study adopted the bounds test approach to test the effect of education expenses on economic growth. Result of the findings revealed a positive relationship between education expenses and economic growth of Turkish economy for the period.

### **Government Expenditure on Agriculture and Economic Growth**

Apata (2021) analyzed the effect of public spending on agricultural productivity in major agro-ecological regions in Nigeria (1981- 2018). Public spending on drivers of agricultural growth such as education, farm feeder roads and health care facilities and their effect on agricultural productivity were also examined. Data were analyzed using descriptive statistics and three-stage simultaneous equations. Descriptive statistics analysis results indicated that agricultural public spending as a part of total public spending averaged 4.88% between 1981 and 2018 across zones

in Nigeria. Less than 25% of this allocation was spent on agricultural developmental/capital project. Elasticity results computed from the 3-stage simultaneous equation showed that the access to moderate farm feeder roads variable was 0.045, the access to education variable was 0.071 and the access to health care facilities variable was 0.013. Such outcomes suggested that a 1% increase in the funding of education, farm feeder roads and health care facilities will enhance agricultural productivity per capita by 0.043.

Olayemi, Aderemi, Adeagbo. and Olajide (2019) investigated the long and short run relationship between agricultural expenditure, health expenditure and economic growth in Nigeria. Data were collected from CBN Statistical Bulletin for the periods 1981 to 2016. Results from ARDL and ECM models established the existence of a short-run and long-run relationship between the variables of interest in Nigeria. While the error correction model revealed that about 19 percent of total disequilibrium due to external shock in the previous year was corrected in the current year. Therefore, it will take about five (5) years for the system to adjust back to its long-run equilibrium path. Results further showed that there was a significant positive relationship between agricultural expenditure and economic growth in Nigeria. However, there was a significant negative relationship between health expenditure and economic growth in the long run.

Asmau (2020) investigated the impact of government agricultural expenditure on economic growth in Nigeria. Time series data were gathered from secondary sources on real GDP, government agricultural expenditure, agricultural output and agricultural credit from the CBN statistical bulletin covering the period between 1981 and 2019. Econometric methods such as Augmented Dickey-Fuller unit root test, Johansen Co-integration test, Ordinary Least Squares method and Granger Causality tests were used for data analysis. Result indicated that the overall model was statistically significant at 5% level of significance. Agricultural output and agricultural credit had a positive effect on economic growth whereas government agricultural expenditure had a negative effect on economic growth. Therefore, the study recommended that budget allocations to the agricultural sector should be closely monitored and ensured that they were channelled into the right targets.

Osuji, Ehirim, Ukoha and Anyanwu (2017) examined the effect of government expenditure on economic growth and development in Nigeria from 1990-2012. Ordinary Least Square multiple regression technique was used to estimate the effect of government expenditure on economic growth and development in Nigeria. Gross Domestic Product, proxy for economic growth and development was adopted as the dependent variable while Total Recurrent Expenditure and Total Capital Expenditure constitute the independent variables. The results of the study showed that the Federal Government Expenditure on Education, Health, General Administration, and Road Construction for the period; 1990–2012 had positive and significant impact on the economic growth and development of Nigeria. The result further showed that government expenditure on Agriculture for the period had an inverse relationship with GDP.

### **Government Expenditure on Road Construction and Economic Growth**

Babalola and Iwegbu (2021) adopted ex-post fact research design and investigated the influence of cost of road infrastructure development and some selected macroeconomic variables such as inflation rate, interest rate, exchange rate on the economic growth in Nigeria. Public expenditure data (1980-2018) on agriculture was obtained from the Budget and Economic Planning office (Federal Ministry of Finance Abuja), the National Bureau of Statistics' (NBS) annual abstract (various issues), and the Agricultural Development Project (ADP) Offices. Descriptive Statistics as well as Autoregressive Distributed Lag Model (ARDL) estimation technique were employed to estimate the regression. Finding suggest that sustained increase in the cost of road infrastructure dampens the nation's economic performance as the sustained increases impact heavily on the fiscal component of government resources thereby gulping much of it that would have been channelled to other sources of the economy. Result also showed that depreciation of the currency does not improve economic performance. It was further observed that there is thus a lag between the period foreign direct investment inflows impacts on the economy while inflation rate significantly enhances the economic performance and lagged interest rate has negative impact.

Nworji and Oluwalaiye (2021) analyzed the impact of government spending on road infrastructure development on economic growth in Nigeria from 1980-2009. Indicators used for government spending were values for defense, transport/communication, and inflation rate as the explanatory variables, while gross domestic product constituted the explained variable. These data were extracted for the period 1980-2009. Multiple regression analysis was used to estimate the relationship between government spending on infrastructure development and economic growth. Findings showed that transport and communication, including defense, individually exerted statistically significant

impact on the economic growth. However, inflation exerted positively but statistically non-significant effect on economic growth in the period reviewed. However, the variables jointly exerted statistically significant impact on the growth of the economy.

Ng, PLaw, Jakarni and Kulanthayan (2018) analyzed the contribution of road infrastructure development and other socio-economic factors that contributed to economic growth in selected 60 countries. Time series cross-sectional data for 60 countries over the period of 3 decades from 1980 to 2010 were used for the study. Fixed-effects panel linear regression analysis was used to conduct the study. Finding indicated that the growth in road length per thousand populations, per capita export, per capita education expenditure and physical capital stock per worker contributed positively to economic growth. Result also showed that there was an inverted shaped dependency relationship between urbanization and economic growth. That is, the economic growth increases at low urbanization levels but decreases once urbanization exceeds a threshold level. Moreover, it was also observed that the growth in road length per thousand populations would facilitate export growth.

Akw (2017) studied the relationship between Road infrastructure investment and Economic growth in South AFRICA. Annual time series data between 1960 and 2013 were extracted for gross domestic product, road infrastructure investment, ICT investment and labour input from the South African Reserve Bank. The Vector Auto regression (VAR) model was used for the implementation and forecasting of time series data. It was also used to examine the dynamic shock in one variable to another. The Cobb-Douglas production function was also used to test the relationship between infrastructure capital, labour input and ICT investment, The findings of the study showed that road infrastructure investment, ICT stock and labour input had positive relation to economic growth.

Despite some impressive works already done on the relationship between government expenditure on primary welfare sector and economic growth around the world, there are still some literature gaps in this area of studies in Nigeria. For instance on the Area of Study, out of the fourteen (14) empirical studies reviewed in the course of this work, only six (6) were conducted in Nigeria while the remaining eight (8) were conducted outside the country; On the topic of study, more studies were conducted on Government Expenditure on single variable like Government expenditure on Education, Agriculture or road construction and Economic Growth than on the Relationship between Government Expenditure on Economic Welfare Sector and Economic Growth. The period covered also constitute a gap as none of the studies covered the period 2020 to 2021. These literature gaps prompted the present study to investigate the relationship between government expenditure on primary welfare sector and economic growth of Nigeria from 2010 to 2021.

## Methodology

This study adopted *ex-post facto* research design. This implies that historical financial data covering the period from 2010 to 2021 were extracted from Central Bank of Nigeria (CBN) statistical bulletin and Nigeria Budget Office. The study was conducted in Nigeria covering the period 2010 to 2021.

The population of items under study are the four sectors classified as primary welfare sectors of the economy. They are education, agriculture, construction and health while three out of the population of four sectors in the primary welfare sector were selected randomly. Pearson Correlation analysis was adopted to analyse the data while Adjusted R-Square was used to ascertain the extent by which the variations in the variables of the study relates to each other.

## Model Specification

The following model was developed in line with the variables of the study:

$$GDP = f (\beta_0 + \beta_1 GEE + \beta_2 GEA + \beta_3 GERC) + \mu$$

Where: GDP = Gross Domestic Product

GEE = Government Expenditure on Education

GEA = Government Expenditure on Agriculture

GERC = Government Expenditure on Road Construction

$\beta$  = Beta

$\beta_0$  = Constant term

$\mu$  = error terms

## Data Analysis

The data collected were subjected to Correlation Analysis. The objective is the test the null hypotheses formulated for the study.

**Table 1: Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.939 <sup>a</sup>	.881	.836	.01582

a. Predictors: (Constant), GEE, GEA and GERC

**Source: SPSS Output**

The result of the Adjusted Coefficient of Determination ( $R^2$ ) is presented in table 4.2.1 and was used to test the predictive power of the model. The result from the Model Summary shows that the value of Adjusted Coefficient of Determination ( $R^2$ ) is 0.836. This implies that 84% of the variation in GDP of Nigeria during the period are predicted by the Government expenditure variables (Government Expenditure on Education, Government Expenditure on Agriculture and Government Expenditure on Road Construction) while the remaining 16% is predicted by error margin and other variables not captured in the model of the study.

**Table 2: Pearson Correlations Coefficients**

		GDP	GEE	GEA	GERC
GDP	Pearson Correlation	1			
	Sig. (2-tailed)				
	N	12			
GEE	Pearson Correlation	.924**	1		
	Sig. (2-tailed)	.000			
	N	12	12		
GEA	Pearson Correlation	.791**	.893**	1	
	Sig. (2-tailed)	.002	.000		
	N	12	12	12	
GERC	Pearson Correlation	.574	.739**	.806**	1
	Sig. (2-tailed)	.051	.006	.002	
	N	12	12	12	12

\*\* . Correlation is significant at the 0.01 level (2-tailed).

**Source: SPSS Output**

## Test of Hypotheses

### Decision Rule:

Level of significance ( $\alpha$ ) = 0.05. Reject the null hypothesis if the significant value in the Correlation Coefficient is less than the level of significance (0.05), otherwise accept the null hypothesis. Based on this decision rule, the results of the test of hypotheses are hereby presented below:

### Hypothesis One

**H<sub>0</sub>:** Government Expenditure on Education does not significantly relate with gross domestic products in Nigeria.

**H<sub>1</sub>:** Government Expenditure on Education significantly relate with gross domestic products in Nigeria.

The correlation model in table 2 reveals that the significant value of education expenditure is significant at 0.05 level of significance ( $0.05 > 0.000$ ). Based on this, we reject the null hypothesis and accept the alternative which states education expenditure (GEE) significantly relates with gross domestic Products (GDP) in Nigeria.

### Hypothesis Two

**H<sub>0</sub>:** Government Expenditure on Agriculture does not significantly relate with gross domestic products in Nigeria.

**H<sub>1</sub>:** Government Expenditure on Agriculture significantly relate with gross domestic products in Nigeria.

The correlation model also shows that the significant value of Government expenditure on Agriculture is significant at 0.05 level of significance ( $0.05 > 0.002$ ). In view of this, we reject the null hypothesis and accept the alternative which states that Government Expenditure on Agriculture (GEA) significantly relates with gross domestic Products (GDP) in Nigeria.

### Hypothesis Three

**H<sub>0</sub>:** Government Expenditure on Road construction does not significantly relate with Gross Domestic Products in Nigeria.

**H<sub>1</sub>:** Government Expenditure on Road significantly relate with Gross Domestic Products in Nigeria.

The correlation analysis further disclosed that the significant value of Government Expenditure on Road Construction is not significant at 0.05 level of significance ( $0.05 < 0.051$ ). In the light of this, we accept the null hypothesis which states that Government Expenditure on Road Construction (GERC) does not significantly relate with gross domestic Products (GDP) in Nigeria.

### Discussion of Findings

**Government Expenditure on Education and Gross Domestic Product:** Result from test of hypothesis one indicates that the null hypothesis was rejected while the alternative was accepted ( $0.05 > 0.000$ ). The correlation model also reveals that the coefficient of education expenditure is positive at 0.924. Thus, we have enough evidence to state that education expenditure positively and very strongly relates with gross domestic products (GPD) in Nigeria during the period.

The implication of the result is that Government expenditure on Education very strongly have positive influence on the Gross Domestic Product, which implies that increase in government expenditure on education will most likely predict high improvement in the Gross Domestic Product of Nigeria.

The result is consistent with the Keynesian Theory developed by British Economist, John Maynard Keynes in 1930. The Keynesian school of thought suggested that government spending can contribute positively to sectorial growth (like the agricultural sector) in an economy.

The study is also consistent with: Zouhey, Mohamed, Abdelli and Saadaoui (2021) studied the effect of education expenditure on economic growth in the Kingdom of Saudi Arabia. Findings show that in long term, a rise in education expenditure of 1% would lead to an increase in economic growth by 0.89%. Almajdob and Marikan (2019) who studied the effect of education sector expenditure on economic growth in Arab Spring Countries and found that education is one of the important economic growth ingredients in all five countries. Mehmet and Sevgi (2014) who examined the effect of education expenditure on economic growth of Turkish economy. Findings reveals a positive relationship between education expenses and economic growth of Turkish economy for the period. Osuji; Ehirim; Ukoha and Anyanwu (2017) who examined the effect of government expenditure on economic growth and development in Nigeria. Findings show that Federal Government Expenditure on Education, Health, General Administration, and Road Construction for the period; 1990–2012 has a positive and significant impact on the economic growth and development of Nigeria. However, the result is not in line with: Kouton (2018) who investigated that relationship between education expenditure and economic growth in C<sup>o</sup>te d'Ivoire. Finding also show that there is a non-significant positive effect of government education expenditure on economic growth in the short term. Agung, Thamer and Nurwanto (2021) who studied the relationship between public expenditure in the educational sector and the economic growth in Indonesia and found that public expenditure on education has an insignificant relationship in the long and short-term estimation.

**Government Expenditure on Agriculture and Gross Domestic Product:** Result from test of hypothesis two also reveals that the null hypothesis was rejected while the alternative was accepted ( $0.05 > 0.002$ ). The model equally shows that the correlation coefficient of Government Expenditure on agriculture is positive at 0.791. These results present enough evidence to assert that agricultural expenditure positively and strongly relates with gross domestic products (GPD) in Nigeria during the period.

The implication of the result is that government expenditure on Agriculture strongly have positive relationship with Gross Domestic Product of Nigeria, which implies that as Government invest in Agricultural sector, the output will predict favorable gross domestic product of Nigeria.

The result is consistent with the Keynesian Theory developed by British Economist, John Maynard Keynes in 1930. The Keynesian school of thought suggested that government spending can contribute positively to sectorial growth (like the agricultural sector) in an economy.

The study is also consistent with: Olayemi, Aderemi, Adeagbo. and Olajide (2019) who investigated the long and short run relationship between agricultural expenditure, health expenditure and economic growth in Nigeria. Results further showed that there is a significant positive relationship between agricultural expenditure and economic growth in Nigeria. However, the result is not in line with: Asmau (2020) who examined the impact of government agricultural expenditure on economic growth in Nigeria. It was observed that agricultural output and agricultural credit have a positive effect on economic growth whereas government agricultural expenditure has a negative effect on economic growth. Apata (2021) who analyzed the effect of public spending on agricultural productivity in major agro-ecological regions in Nigeria. It was found that a 1% increase in the funding of education, farm feeder roads and health care facilities will enhance agricultural productivity per capita by 0.043.

**Government Expenditure on Road Construction and Gross Domestic Product:** Result from test of hypothesis three however, shows that the null hypothesis was accepted ( $0.05 > 0.051$ ). The model also indicates that the correlation coefficient of Government Expenditure on Road Construction is positive at 0.574. In view of these results, we have enough evidence to opine that Government Expenditure on Road Construction positively, but *weakly* relates with gross domestic products (GPD) in Nigeria during the period.

The implication of the result is that government expenditure on road construction has positive but weak influence on Gross Domestic Product. Which implies that government expenditure on road construction may not translate to commensurate change on the Gross Domestic Product of Nigeria.

The result is consistent with the Keynesian Theory developed by British Economist, John Maynard Keynes in 1930. The Keynesian school of thought suggested that government spending can contribute positively to sectorial growth (like the agricultural sector) in an economy.

The study is also in agreement with; Osuji, Ehirim, Ukoha and Anyanwu (2017) who examined the effect of government expenditure on economic growth and development in Nigeria. Findings show that Federal Government Expenditure on Education, Health, General Administration, and Road Construction for the period; 1990–2012 has a positive and significant impact on the economic growth and development of Nigeria. Nworji and Oluwalaiye (2021) who analyzed the impact of government spending on road infrastructure development on economic growth in Nigeria and found transport and communication, including defense, individually exerted statistically significant impact on the economic growth. Akw (2017) studied the relationship between Road infrastructure investment and Economic growth in South Africa. The findings show that road infrastructure investment, ICT stock and labour input had positive relation to economic growth. However, the study disagrees with: Babalola and Iwegbu (2021) who investigated the influence of cost of road infrastructure development and some selected macroeconomic variables such as inflation rate, interest rate, exchange rate on the economic growth in Nigeria. Finding suggest that sustained increase in the cost of road infrastructure dampens the nation's economic performance.

### Summary of Findings

Based on the data analysis, the findings and deduced discussions, we summarized the findings of the study as follows;

- I. Government expenditure on Education has a significant value of 0.000 and a correlation coefficient of 0.924 which make the relationship between Government Expenditure on Education and gross domestic products in Nigeria during the period to be positively and statistically very strong.
- II. The relationship between Government Expenditure on Agriculture and gross domestic products in Nigeria during the period is positive and statistically strong having a significant value of 0.002 and a correlation coefficient of 0.791
- III. Government expenditure on Road construction has a significant value of 0.051 and correlation coefficient of 0.574 which make the relationship between Government Expenditure on Road Construction and gross domestic products in Nigeria during the period to be positive but statistically weak.

## Conclusion

The study analysed the relationship between government expenditure on primary welfare sector and economic growth of Nigeria. Time series data from 2010 to 2021 were obtained from Central Bank of Nigeria Statistical Bulletins and also from Nigeria Budget Office. The data were analysed using Pearson's Correlation Analysis. In the light of the findings from the study, we conclude that Government expenditure variables; Government Expenditure on Education, Government Expenditure on Agriculture and Government Expenditure on Road Construction can predict gross domestic products in Nigeria. This study equally concludes that Government Expenditure on Education very strongly and positively relates with Gross Domestic Product of Nigeria, Government Expenditure on Agriculture positively and strongly relate with gross domestic product in Nigeria while the relationship between Government Expenditure on Road Construction expenditure and gross domestic product is positive and weak.

## Recommendations

Based on the findings, discussions and conclusions, the study recommends the following to Federal Government of Nigeria:

The Federal Government of Nigeria should improve the education sector of the economy and also the country's gross domestic products by allocating more funds to education sector during its annual budgets. This will help reconstruct the decaying infrastructure, provide funding for recurrent expenditure and also research and development, thus, improve the quality education in the country's institutions of learning. Education is like a sword that will help you to conquer the deficiencies of the world economy.

The government should also improve agricultural sector and gross domestic products by allocating more money to agricultural sector during its annual budgets. More funds to agricultural sector will among others improve food supply, food security and promote the nation's export from agriculture thereby improving the gross domestic product of the country. An industry that feeds you is an industry worth fighting for.

The government should equally improve the country's economy by voting more funds for road construction in its annual budgets and monitor the implementation to ensure the fund allocated is used solely for the purpose effectively and efficiently. Good road network will easy transportation problems in the country and enable vehicles move into the hinterlands to lift agricultural produce. This will also easy commercial activities in the country, bring down cost of production per unit and ultimately grow the country's gross domestic products. Management is the efficiency in climbing the ladder of success.

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APPENDIX

Table 1: Raw Data from CBN Statistical Bulletin and Nigeria Budget Office

YEAR	NOMINAL GDP (BILLIONS)	GOVT. EXP ON EDU (BILLIONS)	GOVT EXP ON AGRIC (BILLIONS)	GOVT. EXP ON ROAD CONST (BILLIONS)
2010	0.03	258.70	106.20	252.50
2011	0.06	371.20	104.10	346.60
2012	0.07	396.00	96.70	237.50
2013	0.08	425.80	95.80	203.00
2014	0.09	384.60	98.60	259.20
2015	0.09	355.60	115.20	248.90
2016	0.10	364.60	78.90	200.90
2017	0.11	459.40	136.60	301.50
2018	0.12	538.10	182.30	421.60
2019	0.13	634.56	164.90	428.44
2020	0.15	607.66	160.46	288.83
2021	0.17	771.46	280.32	430.37