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GOVERNMENT EXPENDITURE AND ECONOMIC DEVELOPMENT: EVIDENCE FROM NIGERIA

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ABSTRACT

This empirical research assesses the relationship between Federal Government expenditure and economic development in Nigeria. The sources of analytical data include the Central Bank of Nigeria Statistical Bulletin and the United Nations Development Programme. The study employs the Augmented Dickey-Fuller unit root test method. The stationary series are subjected to a long-run cointegrating test using Engle-Granger residual-based technique. Findings show no long-run cointegrating relationship between government recurrent expenditure components and per capita income. However, the Ordinary Least Square methodology provides insightful short-run findings indicating a negative and insignificant relationship between expenditure in education and per capita income. Expenditure in health was positive and significant as a relationship to per capita income. We conclude that recurrent expenditure of the government does not meaningfully support development beyond the short run. Although Keynesian theory defends government economic involvement expenditure, however when spending head such as education is critically examined, education expenditure does not support per capita income. It is evident in this regard that health is a key sector and its operation is of significant advantage to economic development in the country. The evidence renders valid the theoretical views of Rostow and Musgrave. It was recommended that education expenditure should be revisited by the budget office or Authority to Incur Expenditure (AIE) department of the government. It is important that funds appropriated for educational spending be honestly expended. Alternatively, the economy manages should devote more resources to education.

KEYWORDS

GOVERNMENT EXPENDITURE, ECONOMIC DEVELOPMENT, EVIDENCE FROM NIGERIA.

Introduction

The essential needs for government to participate in the economic development can be seen from the need to carry out capital projects and recurrent expenditures. The direction and magnitude of relationship between government expenditure and economic development has continued to generate series of debate among scholars. It is obviously presumed that government performs two basic functions security (protection) of lives and properties and provision of public goods. Government provides public goods like defense, good roads, education, health power etc.

The protective function involves the creation of rule of law and enforcement of property which helps to protect lives and property and reduce criminality. Many scholars have supported the fact that, increase in government expenditure on social-economic and physical infrastructures enhances economic growth and development. For instance, studies conducted by Abu and Abullahi 2010, Al-Yousif, 2000 and Cooray, 2009 all concluded that expansion of government expenditures increase economic growth positively. Their studies simply suggest that government expenditures on health and education raises the productivity of labour and increase the growth of national output. Similarly expenditure on infrastructures such as communication, roads, power etc. reduces production cost, increases private sector investment and profitability o firms, thus fostering economic growth (Abu et al, 2010).

According to Asiedu (2005) both united Nations and World Bank targeted poverty reduction as the major sustainable Development Goal that should be attained by 2015. The new partnership for Africa's Development(NEPAD) is more emphatic in its own declaration needs to augment an annual resource gap to the tune of US $64 billion which represents about 12% of the region's GDP.

The contentious issue in contemporary economy debate however is whether public expenditure impact on economic development. Secondly once there is this affirmation, there is therefore the need to ascertain both the direction and extent of its influence on economic growth. The above objectives seem to have been met in many different ways depending on which side of the coin is viewing it.

It has been the desire of nations from all over the world to improve the welfare of their people and give them the power not only to afford the basic necessities of life, but also to empower them to be economically useful to their nations. It is the quest to achieve these that nations are stimulated to increase their Gross Domestic Products (GDP), achieve balance of payment equilibrium, achieve price stability, and increase business activities. Thus, economies are working towards achieving economic growth. Beyond this, they are working towards achieving economic development which does not only involve economic growth, but also transformational changes that accelerate the pace of growth. Though, these are goals, not all nations have been able to achieve them. This is why nations are still classified into the categories of underdeveloped, developing, emerging and developed. Irrespective of each nation's category, each has to work towards survival and sustainability by pursuing the goal of economic growth and development.

If the goal of economic growth and development will be achieved, appropriate measures will have to be taken. Various economists have come up with various theories and postulations in this regard. Adam Smith postulated a laissez-faire system such that the government should not intervene to allow the market system free access to pursue surplus value, which according to him, will lead to the wealth of nations (McCreadie, 2009). Classicalists and neo-classicalists still the contrary, Keynes (1936) came up with a postulation that faulted Adam Smith's postulation. In his view, the government cannot

hands-off out-rightly, as the market has failure tendencies that are costly. He therefore postulated that the government should be involved by increasing government expenditure to stimulate aggregate demand, which will culminate in economic growth. These two postulations have governed the process of economic development till date; and the strength of each has been tested overtime.

If the market be made solely responsible for the allocation of resources, as advocated by Smith, circumstances will emerge where the pursuit of private interest will not lead to the efficient employment of resources; neither will there be fair distribution. At such point, it is considered that the market failed. Government intervention is thus the way out. The government has to increase its expenditure to stimulate aggregate demand to restore the economy and improve economic growth (Keynes, 1936). The question however is what size of government affects economic growth. Many studies postulate that countries with more growth had large government sizes while those with less growth had smaller government sizes. Knoop (1999) found out from his study that reducing the size of the government reduces economic welfare and growth. But this does not hold in all cases as other studies have come up with contrary results.

Another strand of literature emphasized the effectiveness of government, in order to sustain interest and power; government sometimes increase expenditure and investment in unproductive projects (white elephant) or goods that can better (efficiently) produced by the private sectors. This irrational activity often produces misallocation of resources and impedes the growth of national output. The studies conducted by Laudan, 1986, Barro, 1991, Engen, Skinner, Folster, and Henrekson, 2001 asserted that increasing government expenditure may slowdown overall performance of the economy. That is, financing government increasing expenditure by raising taxes or borrowing may induce long-run adverse effects, as higher taxes discourages innovation which in-turn results in lower income and aggregate demand. Likewise, if government finances her expenditure by domestic borrowing, it may crowd-out private investors hereby mitigating the level of growth

The general view is that public expenditure notably on physical infrastructure or human capital can be growth-enhancing although the financing of such expenditure can be growth retarding, owning mainly to the disincentive effect of taxation. This view has been supported by Kweka and Morrisey (2000) when they amplified that public expenditure can influence economic growth whether directly or in directly through government activities that increase the total output through its interaction with the private sector. Accordingly, Lin (1994) has succinctly asserted that the positive effect of the public expenditure can readily be felt when government spends to provide public goods and infrastructure, social services and targeted interventions.

Barids (1990) view such government spending on investment and production activities should increase the economic growth positively whereas government consumption spending is anticipated to be growth-retarding. The major problem with this line of reasoning stems from the seeming difficulty associated with the empirical determination of which particular item of expenditure should be labeled as investment or consumption, this line of thinking is influence from one country or region to another, the analytical tools in use as well as categorization of public expenditure.

The relationship between government spending and growth should be of particular importance to the developing countries. Most of the developing countries are associated with high rising fiscal deficit, indicating that these countries lack the ability to generate sufficient revenue that is necessary to support higher levels of expenditure. Expenditures are categorized as productive if they are included as argument in private production function and unproductive if isolated from such. This

categorization would imply that productive expenditure have a direct effect on the rate of economic growth while unproductive expenditure would either have an indirect effect or none at all.

The issue of which expenditure items qualify as productive or unproductive is highly debatable and hence maybe difficult to define. The pertinent question now is, how to sensitively define and apply public expenditure in Nigerian context. Based on the foregoing, this study will investigate the Nigerian experience as it determines the impact of public expenditure on economic development of the country.

Objectives of the study

The main objective of this study is to examine the relationship between government expenditures and economic development in Nigeria. Specifically, the objective of this study includes the following,

1. Examine the impact of Government expenditure on education affect per capita income.
2. To evaluate the impact of Government expenditure on health affect per capita income.

LITERATURE REVIEW

Theoretical Review

In a developed country, through economic stabilization, stimulation of investment activity and so on, public expenditure maintains a smooth rate of growth. In an underdeveloped country, public expenditure has an active role to play in reducing regional disparities, developing social overheads, creation of infrastructure of economic growth in the form of transport and communication facilities, education and training growth of capital goods industries, basic and key industries, research and development and so on (Bhatia, 2002). Public expenditure on infrastructural facilities plays a good role in stimulation of the economy. The mechanism in which government spending on public infrastructure is expected to affect the pace of economic growth depend largely upon the precise form and size of total public expenditure allocated to economic and social development projects in the economy. When public expenditure is incurred, by itself it may be directed to particular investments or may be able to bring about re-allocation of the investible resources in the private sector of the economy. This effect, therefore, is basically in the nature of re-allocation of resources from less to more desirable lines of investment. An important way in which public expenditure can accelerate the pace of economic growth is by narrowing down the difference between social and private marginal productivity of certain investments. Here, public expenditure on social and economic infrastructural like education, health, transport, communication, water disposal, electricity, water and sanitation etc., has the potential of contributing to the performance of the economy based on Promotion of infant industries in the economy; Reduction in the unemployment rate; Stabilization of the general prices in the economy; Reduction in the poverty rate and increase the standard of living of the people; Promotes economic growth by attracting foreign investment; and Promotes higher productivity. This study is anchored on the theory of increasing public expenditure.

Theory of Increasing Public Expenditure: There are two important and well-known theories of increasing public expenditure. The first one is connected with Wagner and the other with Wiseman and Peacock. On the one hand, Wagner revealed that there are inherent tendencies for the activities of different layers of a government (such as central, state and local governments) to increase both intensively and extensively. He maintained that there was a functional relationship between the

growth of an economy and government activities with the result that the governmental sector grows faster than the economy. However Nitti (1903) not only supported Wagner's thesis but also concluded with empirical evidence that it was equally applicable to several other governments which differed widely from each-others (Nitti, 1903). All kinds of governments, irrespective of their levels (say, the central or state government), intentions (peaceful or warlike), and size, etc., had exhibited the same tendency of increasing public expenditure. But on the other hand, Wiseman and Peacock in their study of public expenditure in UK for the period 1890-1955 revealed that public expenditure does not increase in a smooth and continuous manner, but in jerks or step like fashion. At times, some social or other disturbance takes place creating a need for increased public expenditure which the existing public revenue cannot meet.

As the economy and thus incomes grew, tax revenue at constant tax rate would rise, thereby enabling public expenditure would show a gradual upward trend even although within the economy there might be a divergence between what people regarded as being desirable level of public expenditure and the desirable level of taxation. During the periods of social upheaval however, this gradual upward trend in public expenditure would be disturbed.

These periods would coincide with war, famine or some large-scale social disaster, which would require a rapid increase in public expenditures; the government would be forced to raise taxation levies. The rising of taxation levels would, however, is regarded as acceptable to the people during the period of crisis. Peacock and Wiseman referred to this as the "displacement effect". Public expenditure is displaced upwards and for the period of the crisis displaced private for public expenditure does not however fall to its original level.

A war is not paid for from taxation; no nation has such large taxable capacity. Countries therefore borrow and debt charges have to be not after the event. Another effect that they thought might operate was the "imperfection effect" thus they suggested arise from the people Keener awareness of social problems during the period of upheaval. The government therefore expands its scope of services to improve these social conditions and because people perception to tolerable levels of taxation does not return to its former level, the government is able to finance these higher levels of expenditures originating in the expanded scope of government and debt charges.

Ernest Engel's Theory of Public Expenditure

Ernest Engel was also a German economist writing almost the same time as Adolph Wagner in the 19th century. Engel pointed out over a century ago that the composition of the consumer budget changes as family income increases. A smaller share comes to be spent on certain goods such as work clothing and a larger share on others, such as for coats, expensive jewelries etc. As average income increase, smaller charges in the consumption pattern for the economy may be to occur. At the earlier stages of national development, there is need for overhead capital such as roads, harbors, power installations, pipe-borne water etc. But as the economy developed, one would expect the public share in capital formation to decline over time. Individual expenditure pattern is thus compared to nation expenditure and Engel finding is referred to as the declining portion of outlays on foods.

Wagner Law of Increasing State Activities

Thus, Wagner was emphasizing long-term trend rather than short-term changes in public expenditure. Moreover, he was not concerned with the mechanism of increase in public expenditure. Since it is based on historical experience, the precise quantitative relationship between the extent of

increase in public expenditure and time taken by it was not fixed in any could not use to predict its rate of increase in future. Actually, it is consistent with the Wagner's law of the state that in future, the state expenditure will increase at a rate slower than the national income though speaking; it had increase at a faster rate in the past.

Thus, in the initial stage of economy growth, the state finds out that it has to expand its activities quite fast in several fields like education, health, civil amenities, transport, communications, and so on. But when the initial deficiency is removed, then the increase in state activities many be slowed down. The factors, which contribute to the tendency of increasing public expenditure, relate to a growing role of the state in ever-increasing socio-economic complexities of modern society.

Public Expenditure Policies in Nigeria

The Second National Development plan (1970-1974) accorded a leading role to government just as it considered public enterprise as crucial to growth and self – reliance due to capital scarcity, structural defects in the private sector and perceived danger of foreign dominance of the private sector. The third National Development plan (1975- 1980) advocated some shift in resources allocation in favor of rural areas, which were said to have benefited little from the economic growth of 1970's. Thus small farmers and the rural population were expected to benefit from public expenditure.

However, against the background of the austere fiscal outlook of the government, under the Third National Plan (1981- 1985)), the role of fiscal policy was viewed mainly as the generation of revenue through increased tax effort and the control of public spending. The structural adjustment programmed (SAP) introduced in July 1986 recognized that the financial resources for public expenditure for the rest of the 1980s and beyond were likely to be less than was previously envisaged. And given the uncertainty in the oil market and substantial debt repayment falling due, there was need to curtail government expenditure, especially those involving foreign exchange.

In the main, as with other IMF and World Bank programmers, measures were to be taken to reduced government expenditure. Such measures, include reduction of the growth of government wage bill; education in government subsidies on fertilizer, foods petroleum and petroleum products; limiting or delaying new investments, and the rationalization, and hence the privatization and commercialization of public enterprise, thereby efficiency of investment and expenditure control and administration. During the first National Rolling Plan (1990-1992), government aimed at effort of combat inflation hence budgetary deficit were to be avoided hence government expenditure was made more cost- effective and kept levels that were consistent with the nation's resources, realistic growth targets and general economic stability.

Conceptual Review

Government Expenditure

According to Othman (2012) define government expenditure as expenses incurred by the government for its own preservation, the expenses can be social as well as economical. The government expenditure should reveal the policy choice of the government. Government expenditure comprises of the recurrent expenditures and capital expenditures. Recurrent expenditure includes spending on wages and salaries, supplies and services, rent and so on. These are broadly considered to be consumable items, the benefits of which are consumed or exhausted within each financial year while Government capital expenditures are those devoted for the purposes of carrying out various governmental projects which are designed to improve the growth of the economy.

On the other hand, capital expenditure include spending on fixed assets such as land, buildings and plant and machinery, the benefits of which are more durable, lasting several years of decades. The capital expenditure can influence economic growth if government will allocate available resources from low to high productive sector. The investment expenditure can stimulate the accumulation of capital and increase productivity on both public and private sector. If capital expenditure can be efficiently used in the country will provide quality of labour force, advanced technological change and capital formation which will lead to the higher productive and economic growth.

The enhancing of economic development depends significantly on the public policies offered by the State. The policies affect people"s lives in many ways, mainly the lower income sector, which needs the public services and assets more. However, the effectiveness of these policies is directly influenced by the quantity of resources involved and, mostly, the quality of this expenditure. According to Joumard et al. (2004), an action to increase the efficiency of public spending is to expand market signals that enhance effectiveness of public policy programs, with the fundamental idea of increasing competitiveness in the public provision of goods, improving their cost-effectiveness. However, as Paternostro et al. (2005) explain, one weaknesses of the literature is that it has used the simplistic reasoning of connecting inputs (spending) and outcomes (economic growth). The major approaches suppressed the fundamental discussion of the relationship between public spending policy and its direct and indirect effects and consequences on short and long term. The effects of public policy on policy objectives can only be verified if the transmission channels and time period for the effects to be observed are fairly well defined. Without it, the link between inputs and outcomes is made subjectively, without empirical evidence. Another significant issue of these analyses is the difficulty in measuring the effects of public sector spending on final results, separating the impact of public spending from other influences. And also, as Mandl et al. (2008) pointed out, only partly of the economic growth potential is under direct influence and not always achievable within one political cycle. In addition to this, the focus on growth enhancing public expenditures can only be sustained with a strong link to efficiency issues.

Composition of spending

The composition of public spending, application in different areas, and the quality of public policy, considering the way they are applied from different budget projects and activities, are the aspects that can affect most and support the economic development (Casasnovas, 2010). For example, spending in interest and retirement has a different nature from spending in education and health, thus it is important to outline the different groups of public expenditure. As Gupta et al. (2005) explain, the composition of public outlays matters – concentrated spending on wages tend to have low growth impact while high shares allocate to capital and nonwage goods and services enhance faster output expansion. Government expenditures can be differentiated according to their impact on the steady-state rate of growth. If they have a direct effect on growth rate, they are classified as productive; if they have not, then they are classified as unproductive expenditures (Barro and Sala-i-Martin, 1995). Therefore, the restructuring of public expenditure towards a productive spending generates a positive effect on growth rate without creating distortions in the economy that adversely affect growth (Zagler and Durnecker, 2003). However, Afonso et al. (2005) point out that the examination of different empirical studies indicates that is not feasible to have an objective and clear complete catalogue of "high quality" expenditure items – "there is no cookbook for growth. Economics gives an idea of the major ingredients, but it does not clearly tell the recipe". As Casasnovas (2010) emphasizes, the fundamental conclusion of this topic, and justification of this kind of analysis, is that

the composition of spending, not only its amount, is crucial for the assessment of the quality of public expenditure.

However, the ex-ante definition of productive and unproductive expenditure follows this structure :

Productive expenditures:

a) Health
b) Education
c) Public Security
d) Transportation

Unproductive expenditures:

a) Retirement and pensions (as a measure for Social Security)
b) Interest payments

Productive expenditure is considered here in a strict way: an expenditure that enhances the physical or human capital or the component of public expenditure that an increase in whose share will raise the steady-state growth (Devarajan et al., 1996). Yet the unproductive expenditures are the one that its rise will lower the steady-state growth. Our second approach is an explanatory analysis, which aims to explain the relationship between public expenditure composition and growth of per capita GDP for RS. It is used, as basic reference, the model developed by Devarajan et al. (1996), which has the great merit of not defining a priori which component of spending is productive or unproductive. The model allows to test whether the share allocated to the different components of public expenditure today is associated with greater future growth. Each component of spending in total government expenditure, then, is the explanatory variables. To control for the level of public expenditure, it also includes the share of government spending in GDP. According to Devarajan et al. (1996), this allows to control the effects of expenditures financing on growth, which is a function of the level of spending.

Economic Development

Economic development corresponds to the increase of the country's potential GDP caused by the increase on advanced technology, capital stock and improvement in the quality and level of literacy. Economic development is essential to every country and particularly to developing countries in order to get out of predicament of prehistoric poverty. This is the increase of country capital stock, the technological advances and the improvement in the quality and level of illiteracy in the country. The value of goods and services produced in the country can be also determining the country economic growth. The economic growth will be measured by comparing the gross national product (the standard measure of the output of an economy) in a year with the gross national product of the previous year. The economic development of the country can be positive or negative while negative growth indicates the depression of the economy and recession. GDP per capital (GDP) is the estimation of the value of goods produced per person in the country, equal to the GDP of the country divided by the total number of the people in the country. This can be seen as a roughly display of a nation's prosperity.

The picture of a country productivity and its international competitiveness can be observed on the GDP per employed person is the average labour productivity. The real GDP growth rate will be determined by the percentage change in real GDP from year to the next. The term economic development primarily concerned with the long run economy measured by the GDP of the country

taken as the increase of standard of living of the people. The economic development of the country should focus on the growth rate of GDP per capital, thus the output per person rather than to consider the overall output. The output of the economy as explained by the Solow (1997) mathematically can be illustrated on the production functions on association of various inputs and the level of output. The flow of output mostly depends upon the different types of capital that makes production possible. The simple form of an economy-wide production function assumed by Solow is written is the form:

Q = A Ka L b Where A indicating as multifactor productivity, a is less than one and also b are the diminishing return to a single factor but a+b =1 showing constant return to scale. While Q is the aggregate output, and any increase on Q should come from one of three sources. The increase in L due to diminishing return to scale will cause the reduction of Q/L thus output per worker while the increase of stock capital will also increase both output and Q/L and the increase in A increase output per worker Q/L. The model tries to highlight that in order to raise income per capital achieving economic growth there is a need to increase the amount of capital that each person works and to increase technology.

Empirical Review

Numerous studies have been conducted to investigate the relationship between government spending and economic growth. Landau (1983) found that the share of government consumption to GDP reduced economic growth which was consistent with the pro-market view that the growth in government constrains overall economic growth. The conclusions were germane to growth in per capita output and do not necessarily speak to increase in economic welfare. Economic growth was also found to be positively related to total investment in education. In a later study, Landua (1986) extends the analysis to include human and physical capital, political, international conditions as well as a three years lag on government spending in GDP. Government spending was disaggregated to include investment, transfers, education, defense and other government consumption. The results in part mirrored the earlier studies in that general government consumption was significant and had a negative influence on growth. Education spending was positive but not significant. It was unclear why lagged variables were included given that the channels through which government influence growth suggest a contemporaneous relationship. Ram (1986) study marked a rigorous attempt to incorporate a theoretical basis for tracing the impacts of government expenditure to growth through the use of production functions specified for both public and private sectors. The data spanned 115 countries to derive broad generalizations for the market economics investigated. He found government expenditure to have significant positive externality effects on growth particular in the developing countries (LDC) sample, but total government spending had a negative effect on growth. Lin (1994) used a sample of 62 countries (1960-85) and found that nonproductive spending had no effect in growth in the advanced countries but a positive impact in LDCs. Other studies have investigated the impact of particular (functional) categories of public expenditure. For example, Deverajan et al (1993), using a sample of 14 OECD countries, found that spending on health, transport and communication have positive impacts whereas spending on education and defense did not have a positive impact.

Seymour (1997) used a disaggregated approach to examine the impact of government expenditure on economic growth in the OECD. Josaphat (2000) investigated the impact of government spending on economic growth in Tanzania (1965-1996) using time series data for 32years. They formulated a

simple growth accounting model, adapting Ram (1986) model in which total government expenditure is disaggregated into expenditure on (physical) investment, consumption spending and human capital investment. It was found that increased productive expenditure (physical investment) have a negative impact on growth and consumption expenditure relates positively to growth, and which in particular appears to be associated with increased private consumption. The results revealed that expenditure on human capital investment was insignificant in their regression and confirm the view that public investment in Tanzania has not been productive, as at when the research was conducted. Nitoy (2003) employed the same disaggregated approach as followed by Josaphat (2000). They examined the growth effects of government expenditure for a panel of thirty developing countries (including Nigeria) over the decades of the 1970s and 1980s, with a particular focus on sectoral expenditures. The primary research results showed that the share of government capital expenditure in GDP is positively and significantly correlated with economic growth, but current expenditure is insignificant. The result at sectoral level revealed that government investment and total expenditures on education are the only outlays that remain significantly associated with growth throughout the analysis. Although public investments and expenditures in other sectors (transport and communication, defense) was found initially to have significant associations with growth, but do not survive when government budget constraint and other sectoral expenditures were incorporated into the analysis. Also private investment share of GDP was found to be associated with economic growth in a significant and positive manner. Junko and Vitali (IMF, 2008) investigate the impact of government expenditure on economic growth in Azerbaijan because of the temporarily oil production boom (2005-07), which caused expectationally large expenditure increase aimed at improving infrastructure and raising incomes.

Azerbaijan's total expenditure increased by a cumulative 160 percent in nominal value from 2005 to 2007 (i.e. from 41 percent of non-oil GDP to 74 percent) in their research reference which were made to Nigeria and Saudi Arabia (1970-1989) who have also experienced oil boom and increased government expenditure over the years. The study simulated the neo-classical growth model tailored to the Azeri conditions. Their analysis suggested that the evaluated fiscal scenario poses significant risks to growth sustainability and historical experience indicates that the initial growth performance largely depends on the efficiency of scale-up expenditure. The study also sheds light on the risks associated with a sudden scaling-down of expenditure, including the political difficulties to undertake an orderly expenditure reduction strategy without undermining economic growth and the crowding-out effects of large government domestic borrowing.

From the foregoing, it is hypothesized in their null structures that:

H_{o1}: There is no significant relationship between government expenditure on Education and per capita income.

H_{o2}: Government expenditure on health has no significant impact of government expenditure on health affects per capita income.

RESEARCH METHODOLOGY

This section discusses the method and procedures that were used in carrying out the research. This includes research design, method of data collection, sampling technique, technique of data analysis, variable measurement, reliability and validity of instrument.

Research Design: This empirical research studies government expenditure and economic development in a developing country like Nigeria. Since government is expected to support developmental drive of the country, this study adopts the causal design approach. A design is causal considering a world where the present causes the future. This is suitable because time-series data provides opportunities and challenges for addressing causality. A random variable causes another variable if the dependent variable is better predicted by the past occurrence of the exogenous variable.

Study Area: The study area of this research work is Nigeria. The work covers the 36 states in Nigeria and the secondary data used was collected from the Central Bank of Nigeria Statistical Bulletin.

Sample and sampling techniques: The study covers Government expenditure and economic development in Nigeria for the period of 1990-2020. The expenditure components to be used are functionally defined by the Central Bank of Nigeria (CBN), and all the data set are from the secondary sources as found in the Central Bank of Nigeria (CBN) Statistical bulletin.

Nature/Source of data: The study has drawn its data from the Central Bank of Nigeria Statistical Bulletin, spanning from 1990-2020. This data is use in SPSS analysis to ascertain the impact of Government Expenditure on economic development.

Method of Data Collection: The study gathered data mainly from secondary sources of data which were extracted from the Central Bank of Nigeria (CBN) statistical bulletin and the United Nations Development Programme (UNDP). Secondary data was considered more appropriate since the variable can be measured using data from the Central Bank of Nigeria (CBN) report.

Methods of Data Analysis: We commence with descriptive statistics involving the mean, standard deviation, skewness and kurtosis and further test for normality using the Jarque-Bera statistics through hypothesis. But first, we proceed to refine the data by removing the problem of outliers by performing logarithm transformation to capture change. Historical data series are required to be normally distributed or stationary prior to a regression. Where the data is not stationary the normal distribution curve is distorted.

Stationarity Test

An Augmented Dickey-Fuller (ADF) converts stochastic series to a standard normal distribution. The advantage of stationarity test is to avoid production of spurious result which is meaningless to economic policy. The problem of spurious regressions is already addressed by Granger and Newbold (1974). At point of stationarity the ADF statistics is greater or more negative than all critical values; hence the null is accepted to suggest no unit root.

Long-Run Cointegration Test

We test cointegration of government expenditure indicators and per capita income using the Engle-Granger framework which is a single equation model based on the residual. At point of cointegration there is convergence of the random variables such that a linear combination of the variables is stationary.

Model Specification

In an attempt to find the impact of Government Expenditure on Economic Development (1990-2020) the regression analysis was employed. We model the long run relationship as follows:

$$LOGPCI \quad = \beta_0 + +\beta_1 LOGGOVHETH + \beta_2 LOGGOVEDU + \mu_t \qquad (1)$$

Where;

LOG is a natural logarithm of the series; PCI represents per capita income; GOVHETH is government expenditure on health; LOGGOVEDU is government expenditure on education; $\mu_t$is residual. $\beta_1 - \beta_3$ are parametric constants which are expected to be positive. The *a priori* expectation of positive sign is influenced by the Keynesian theoretical model. Keynesian unlike the classical theory supports involvement of government in the economic process. Thus, government expenditure and economic decision is by *a priori* expected redistribute wealth and increase income per head of the population through increase in the national income.

RESULTS AND DISCUSSION

Research Results and Analyses

In finding the relationship between government expenditure and economic development we commence this section of chapter four with descriptive statistics.

Descriptive Statistics Analysis

Below is the descriptive statistics of this study however we limit analysis to first, second, third and fourth moments. The analytical data is found in appendix I of this study.

Table 1 Tabular Result of Descriptive Statistics

	mean	std- deviation	skewness	kurtosis	JB(P-value)
GOVHETH	3.369805	2.144891	-0.803999	2.609486	0.170606
GOVEDU	4.106058	1.922026	-1.007724	3.354940	0.066886
PCI	8.267670	0.246346	0.052897	1.353550	0.172398

From the table above we could understand the distribution of the variables.

The mean of government expenditure on health is 3.369805 however the standard deviation of 2.144891 indicates minimum variance of corresponding data points do not completely deviation from the mean. The series is negatively skewed (-0.803999). Therefore, it has fat tails to the left. It is also platykurtic since 2.609486 is greater 3. In the JB statistics the GOVETH is normally distributed. It is slightly different with GOVEDU as corresponding observations deviates by 1.922026 from the mean of 4.106058. The third moment indicates negative skewness at -1.007724.

Unit Root Test

For a series to be stationary the null suggesting that a variable has a unit root has to be rejected at 5% critical value and the order of integration is determined for long run test.

Table .2 Augmented Dickey-Fuller Result

Variable	ADF-statistic	5% Critical Values	Order of Integration
GOVEDU	-4.617168	-2.986225	I(0)
GOVHETH	-4.128833	-2.986225	I(0)
PCI	-3.098463	-2.967767	I(1)

In the table above we reject the null hypothesis suggesting presence of unit root in the single time series random variables of GOVEDU, GOVHETH, and PCI. Specifically, expenditure on education and health are stationary at levels, hence they are integrated of order 1. Observe that in the entire test, ADF statistics is more negative than the critical values at 5% suggesting absence of unit root. Subsequent results can be relied upon to validly explain the relationship between government expenditure and development in the economy.

We proceed to employ Engle-Granger single equation method to test for a long run relationship irrespective of whether the variables are mutually integrated. Not surprisingly, the intuition behind the convergence of two independent random variables in the long run is attributable to the information about the error term. If the error term in our chosen framework is stationary due to the linear combination of the series, then it is justified to report a long run cointegrating relationship. We derive this cointegrating relationship from the residuals in the equation.

Long- run Cointegration Test Analysis

Table 3 Cointegration Result

Date: 04/03/21 Time: 18:04
Series: LPCI LGOVTRAN LGOVHETH LGOVEDU
Sample: 1990 2020
Included observations: 31
Null hypothesis: Series are not cointegrated
Cointegrating equation deterministics: C
Automatic lags specification based on Schwarz criterion (maxlag=6)

Dependent	tau-statistic	Prob.*	z-statistic	Prob.*
PCI	-4.231004	0.0790	-21.44960	0.0996
GOVHETH	-6.008267	0.0021	-29.01305	0.0093
GOVEDU	-5.568477	0.0055	-28.04988	0.0133

*MacKinnon (1996) p-values.

Intermediate Results:

	PCI	GOVHETH	GOVEDU
Rho - 1	-0.714987	-0.967102	-0.934996
Rho S.E.	0.16898	0.160962	0.167909
Residual variance	0.006259	0.041483	0.043186
Long-run residual variance	0.006259	0.041483	0.043186
Number of lags	0	0	0
Number of observations	30	30	30
Number of stochastic trends*	4	4	4

**Number of stochastic trends in asymptotic distribution

The Table 3 presents all proxies as predicted variable, however our focus is on the per capita income (PCI). The *p*-value of 0.0996 corresponding to PCI is greater than 0.05 level of significance which means that government expenditure and development do not converge in the long run. An absence of long run cointegrating relationship does not support error correction model test. This means the relationship only exists in the short-run.

Short Run Analysis and Hypotheses Test

As it has been shown in the Engle-Granger estimation the relationship only exists in the short run. Ordinary least square estimator only captures short run dynamics which is presented in table 4.1.4.

Table 4 Ordinary Least Square Result

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	8.176444	0.081394	100.4554	0.0000
GOVEDU	-0.103325	0.070824	-1.458913	0.1561
GOVHETH	0.151847	0.065695	2.311378	0.0287

R-squared	0.877058	Mean dependent var	8.267670
Adjusted R-squared	0.863398	S.D. dependent var	0.246346
S.E. of regression	0.091049	Akaike info criterion	-1.834927
Sum squared resid	0.223827	Schwarz criterion	-1.649897
Log likelihood	32.44137	Hannan-Quinn criter.	-1.774612
F-statistic	64.20531	Durbin-Watson stat	1.311623
Prob(F-statistic)	0.000000		

Source: Author

As it has been established that the relationship between government expenditure only exists in the short run result, we have presented short run result in the table above. Government expenditure on health has a beta of 0.151847 which is positive. The positive sign shows that a unit percent increase in government health expenditure increases per capita income by approximately 0.151847 per cent. This does not violate the Keynesian view of government involvement in the economic process, it rather supports it. This is further buttressed in the hypothesis. The *p*-value of government health expenditure is 0.0287 which implies that alternate hypothesis is accepted based on the decision rule 5% significance level. The effect of expenditure on health is quite significant in support of per capita income development.

The beta of government expenditure in education is -0.103325 which does not comply with Keynesian theoretical model. It rather shows that a unit percent increase in education spending declines per capita income by approximately 0.1033%. When we consider its hypothesis, we could not reject the null of no significant hypothesis given a *p*-value of 0.1561 which means 15.61 per cent is greater than 5% significant level.

Diagnostic Test of the Model

In other to validate our finding we put the series of estimates into diagnostic test. first the pictorial plots of the actual and fitted trends of the series to measure their simultaneous closeness.

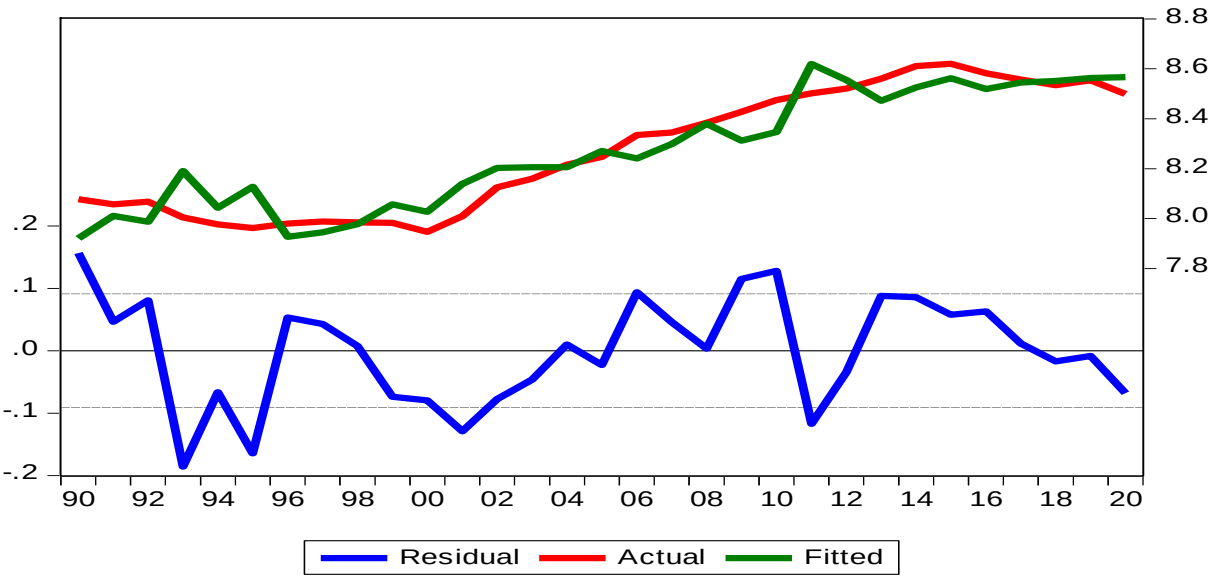


Figure 5: Actual and Fitted Graphs

In the figure above the actual and fitted line graphs comoves closes such that there is minimum gap between the two-line graphs. This indicates that regression line mimics the actual data observations and can be relied upon to explain the behaviour of the entire population.

Wald Test Analysis and Serial Correlation Test

Table 4.1.4 Joint significance and Autocorrelation

Test Statistic	Value	df	Probability
F-statistic	64.20531	(3, 27)	0.0000
Chi-square	192.6159	3	0.0000

Breusch-Godfrey Serial Correlation LM Test

F-statistic	1.581115	Prob. F(2,25)	0.2256
Obs*R-squared	3.480871	Prob. Chi-Square (2)	0.1754

From the Wald result the joint relevance of the variables in the *F* -statistics distribution is significant given a *P*-value of 0.0000. This confirms that all the government expenditure measures are ideal proxies and captures changes in per capita income.

In the serial correlation test using Breusch-Godfrey Serial Correlation Lagrange Multiplier (LM) statistics, the null of no serial correlation is accepted given a Prob. *F* statistics of 0.2256.

Discussion of Findings

We have observed that government expenditure in education; health and transport do not converge with per capita income in the long run. Statistically they behave in a way that is randomly different, thus the effect of expenditure in the three sectors can only be observed in the short run which is perhaps due to the recurrent nature of these spending heads. By intuition recurrent expenditures do not support the economy beyond one or two lags. However, it does in the short run as seen in the findings.

Expenditure on education has adverse implication on per capita income. This contradicts Rostow and Musgrave claim that public expenditure is a prerequisite for economic development. However, the negative effect is not significant in the short run. This finding has theoretical implication in the economy. Such spending might be inferentially seen to be meaningless, or the education sector is not developing proper intellectual capital tailored to development need. However, expenditure in health is vital as it supports per capita income.

All the findings are clearly reliable in the model. For instance, there is no autocorrelation in the variables to violate OLS regression assumption. All the variables are jointly relevant in capturing dynamics of government expenditure and development.

Conclusion

We conclude that recurrent expenditure of the government does not meaningfully support development beyond the short run. Although Keynesian theory defends relevance of government expenditure in the economy, however when spending head such as education is critically examined; education expenditure does not support per capita income. It rather declines it which unfortunately contradicts expectation. The extent spending of taxpayers' income on education declines per capita income is not hypothetically significant. Given the enormous resources appropriated to education it is only startling to say that it adversely reduces expected developmental benefits.

Government expenditure on health give profitably good account of the wealth dedicated to their operation. It is evident in this regard that health is a key sector and its operation is of significant advantage to economic development in the country. The evidence renders valid the theoretical views of Rostow and Musgrave.

Recommendations

Motivated by our findings we make the following policy suggestions:

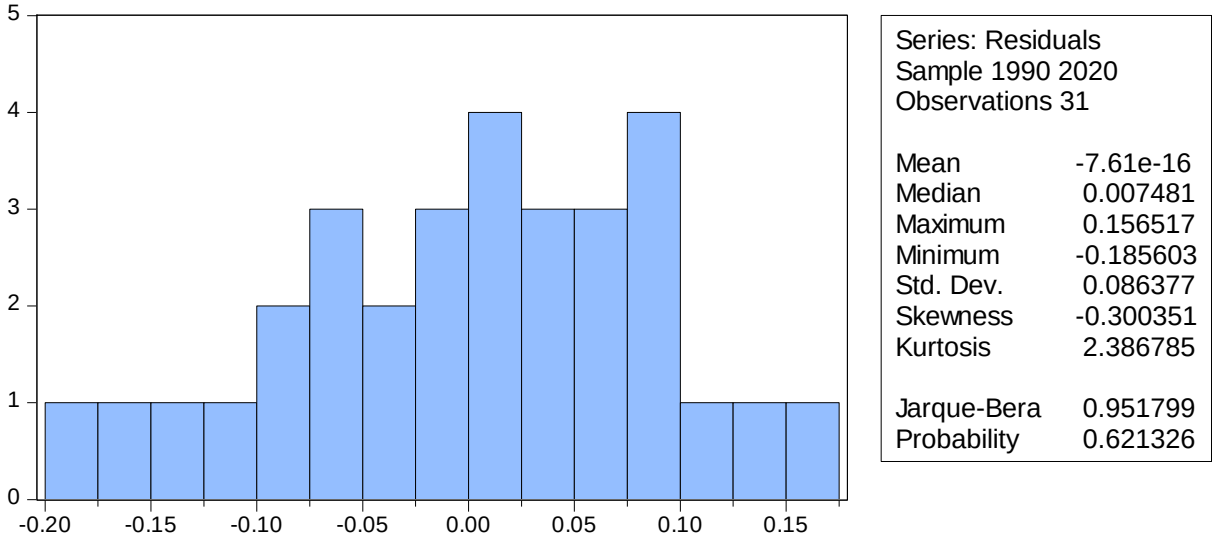
1. Education expenditure should be revisited by the budget office or Authority to Incur Expenditure (AIE) department of the government. It is important that funds appropriated for educational spending be honestly expended. Alternatively, economy manages should devote more resources to education.
2. Government expenditure might boost development if spending focus is on capital project. Further studies should be conducted based capital expenditure model.

Appendix I: Summary of Government Expenditure And Per Capita Income

YEAR	Per capita income $	Government expenditure on education N'billion	Government expenditure on health N'billion	Government expenditure on transport N'billion
1990	3221	2.40	0.50	0.29
1991	3157	1.26	0.62	0.24
1992	3191	0.29	0.15	0.55
1993	2995	8.88	3.87	2.03
1994	2912	7.38	2.09	0.45
1995	2872	9.75	3.32	1.08
1996	2924	11.50	3.02	0.03
1997	2946	14.85	3.89	0.04
1998	2936	13.59	4.74	0.03
1999	2932	43.61	16.64	0.04
2000	2828	57.96	15.22	0.05
2001	3011	39.88	24.52	0.05
2002	3381	80.53	40.62	0.18
2003	3499	64.78	33.27	0.23
2004	3699	76.53	34.20	0.30
2005	3819	82.80	55.66	0.29

2006	4166	119.02	62.25	0.24
2007	4207	150.78	81.91	0.55
2008	4375	163.98	98.22	2.03
2009	4573	137.12	90.20	0.45
2010	4793	170.80	99.10	1.08
2011	4924	335.80	231.80	90.03
2012	5017	348.40	197.90	42.41
2013	5220	390.42	179.99	13.10
2014	5494	343.75	195.98	23.20
2015	5540	325.19	257.70	18.51
2016	5336	339.28	200.82	18.30
2017	5203	403.96	245.19	24.39
2018	5086	465.30	296.44	20.57
2019	5190	434.63	270.82	29.97
2020	4910	449.97	283.63	30.47

Appendix II: Residual Normality Test



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