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The Government's Aim and Expenditure on Educational Development: A Pari Pasu Panacea for True Economic Development

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ABSTRACT

This study systematically examined the impact of government education expenditure on economic growth in Nigeria from 1980 to 2015 using econometrics methods of ordinary least squares (OLS) and Co-integration as well as inferential analysis such as unit root test; Co-integration, etc. to analyse the data. The unit root test results reveal that the variables were stationary at their first differences using Augmented Dickey-Fuller unit root test. The co- integration test reveals that there is a Long-run relationship between the variables. The result of the Ordinary Least Squares shows that the overall model is satisfactory given the coefficient of determination of 79 percent and F- statistic of 39.25094. The result also reveals that government capital expenditure on education, government recurrent expenditure on education and tertiary school enrolment has a significant relationship with economic growth in Nigeria, thereby fulfilling the aim and purpose of public spending. Based on these findings, the study concludes that Nigeria's policy for economic growth and development has actually focused more on the educational sector. The government should endeavour to achieve a high-quality education along with the ultimate purpose of enhancing education for all as the panacea for true development.

KEYWORDS: Government Expenditure on Education, Government Capital Expenditure on Education, Economic growth, development, School enrolment

INTRODUCTION

Background to the Study

Education the bedrock of human development is poised to create improved citizens and upgrades the general standard of living in a society. The role of education and human capital in economic development and that of growth of an economy has been underscored in many studies. Education is a key component of human capital formation and is so recognized as being vital in increasing the productive capacity of people. Education, at the higher level, contributes directly to economic growth by making individual workers more productive and indirectly by leading to the creation of knowledge, ideas, and technological innovation. Therefore, positive social change is likely to be associated with the production of qualitative citizenry. If more individuals are educated, the wealth of a nation would rise, since higher education attracts higher wages leading to aggregative higher national income earnings. Similarly, if there are positive externalities of education, national income would rise andincrease.

The growing evidence on the role and importance of education in the development process has made social sector investment an important component of national strategies for sustained growth and development. In budget estimates, the ratio of public expenditure on social and community services to total public expenditure averaged 12.2 percent between 1977 and 2007 and whereas, about 6.5 percent has been directed to education during the same period (CBN, 2000).

Dahlin 2005, Heckman and Klenow, 1997 and Michaelowa, 2000 says that an investment in education is very beneficial to the society, both at the micro and macro levels and affects the system both directly and indirectly.

Human capital development is a necessary condition for sustained economic growth and a key functionality to poverty reduction and is a vehicle for promoting equity, fairness and social justice as opening by Okojie (1995); Yesufu (2000); Todaro and Smith, (2007).

Education is basic to the development and also regarded as the only instrument through which the society can be transformed and developed. Transformation of a nation and its development can only come when its citizenry is educated. Increase in individual's wage as a result of being obtained a higher degree is a direct effect while the increase in externalities associated with education is of an indirect effect. We can only talk of transition programme of a nation when human capital is given a well-balanced education with all the needed knowledge, skills and competencies, which would make such a nation functional, and accordingly contribute to the all-round development of the nation.

However, a major trend in education in Nigeria indicates that investment in this sector has not been encouraging. Government expenditure on education as a percentage of the gross national product was just a mere 1.5% in 1960; 1.7% between 1985 and 1987; and 0.7% in 1995. These figures compare very unfavourably with other developing countries such as Jamaica who had 4.9% in 1985 and 1987, as well as 7.5% between 1995 and 1997; while Malawi had 3.5% between the same period of 1985 and 1987; as well as 5.4% between 1995 and 1997 respectively (UNDP, 2003). Of recent, the percentage of the annual Nigerian federal government budget in the educational Section for the period 2005, 2006 and 2007 was 6.3%, 7.8%, and 8.7% respectively as against the 26 percent recommended by the United Nations Educational Scientific and Cultural Organisation (UNESCO); indicating clearly that there is still a significant shortfall in educational investment necessary for the realization of sustainable growth and development in the country.

The question before us is: – where is the future direction of the macroeconomic policy of investment in educational capital in Nigeria? Which way to go? This uncertainty may be attributed to the existence of macroeconomic disequilibrium in the financial allocation and unsatisfactory performance of the country's economy in recent times. Nauseously, a review of Nigeria's economic development between 2000 to date revealed that overall macroeconomic policies and development strategies have failed to provide an enabling environment that could alter the structure of production and consumption activities in order to diversify the economic base. The Nigerian economy is said to have continued to be a mono-cultural economy, depending on oil without a corresponding expansion and diversification of the export base with a further widening gap in savings and investment, high rates of inflation, chronic balance of payment problems and underutilization of resources which have continued to plague the nation. As it were this is not enough, poverty and inequality continue to widen among an enduring 100 million Nigerians, living below $1 a day. In addition, the socio statistics of infants under the age of 5, and the maternal mortality rate, as well as unemployment rate, are higher than the averages for developing countries (Fakiyesi and Ajakaiye, 2009). Regarding Nigeria's current economic problems, and particularly its poverty situation and unimpressive rates of economic growth, our research work takes the position that educational development should be given the utmost attention it deserves having the mind to enhance sustainable economic growth and development. Since a healthy and well-educated people make an economy more productive, it is indisputable that capacity building through investment in human capital, particularly embarking on investment in the educational sector to enhance economic growth, alleviate poverty and protect the Nigerian economy from further distortions is a task that must be done. It is, therefore, apparent to critically examine the relationship between investment in education and economic growth in Nigeria, vis-à-vis the aims and execution of the educational expenditure. This indeed constitutes the major focus of this research work.

Statement of the Problem

The educational sector in Nigeria has passed through two major phases of development. The first phase of development brings about the rapid expansion in the growth of the sector, especially within the period 1950 to 1980. The second phase of rapid decline in the sector in terms of growth was that of infrastructural and the standard of learning.

This second phase falls within the period 1981to 2009. It is pertinent to know that the early 1950s when representative governance took its roots in Nigeria, the three regional and later four (4) governments had control of the educational development in their respective regions. This first phase in educational development in Nigeria effectively marked the beginning of the rapid expansion in terms of access to education. To be precise, the number of pupils in primary schools was 626,000 in 1954, the figure rose to 2,912,619 in 1960; and similarly, the number of post-primary school rose from 161 in 1955 to 912 in 1960. The student population in post-primary schools as at then rose from 9,908 in 1947 to 140,401 in 1960 (Aigbokhan, Imahe, and Aileman, 2005). The heave in access to schools was due largely to the policies and programmes of governments that built primary and post-primary schools and also provided a grant in- aid to missionary schools.

The government of Nigeria ensured unimpeded access to primary education leading to the introduction of the Universal Primary Education (UPE) programme. This policy made primary education free to all Nigerian children. The second phase of the educational development in Nigeria was a period that was characterized by a decline in educational inputs leading to deterioration of educational fixed assets, inadequate funding and declining standards. Aighokhan et al (2005) noted that the period 1978 to 1999 was a crisis period in the educational sector in Nigeria and the root cause of the crises was inadequate funding.

Nigeria spends an almost insignificant proportion of her financial resources on education, leading to the question whether the nation's capital and recurrent expenditure in Nigeria is sufficient? In Nigeria, educational expenditure as a proportion of gross domestic product (GDP) is found to be an average of 5.64 percent between 1986 and 1990, in contrast to 5.84 percent between 1999 and 2003. This performance fell below those of other developing countries, which were spending an average of 11.7 and 16.3 percent of their total expenditure on education in 1960 and 1977 respectively. These figures are far from the United Nations recommendation of 26 percent of the total expenditure in the educational sector. What will the government of Nigeria do to reverse or change the situation? Seychelles had committed 10.2 percent of its gross national product (GNP) to total education in 1985-87 and 8 percent in 1995-97. Ghana allocated an average of 20 percent of its total expenditure to education yearly. Between 1986 and 1992, Botswana spent 21 percent of her expenditure on education; Malaysia, 19 percent; Kenya, 20 percent; Uganda, 15 percent; but Nigeria allocated just 5.23 percent (Olaniyi and Adam, 2003). Not only that education's sector allocation, as a percent of total expenditure falls low in many developing countries allocation, including Nigeria, making the top to be heavier than the bottom being the primary education.

In a lot of the poorest developing countries, primary education has been most neglected, while the social rate of return on investing in basic education is high. Several reasons have been advanced for the low and unstable trend in the allocation of resources to the educational sector.

First, the dwindled oil revenues due to a fall in oil prices in the early 1980s and following, making the federal government to further lower her budgetary allocations to the educational sector.

Secondly, the IMF/World Bank inspired structural Adjustment Programme (SAP) that was adopted as a development policy beginning from 1986 engendered more difficulties leading to a series of cuts in fiscal spending including educational expenditure.

Thirdly, the debts overhang of the 1980s and 1990s constraints and inhibit the number of resources available for the other sectors of the economy including the education sector.

Fourthly, it has also been suggested that the long military rule in Nigeria favoured the Defence sector to the neglect of the educational sector in terms of resource allocation.

Fifthly, widespread corruption in the management of educational institutions by political and school administrators is said to have also contributed to the underfunding of the educational sector in the past three decades. Hence the gross underfunding of the schools in the phase of increased enrolment. NEEDS (2007) gave the statistics of the national literacy rate as 67 percent while about 49 percent of the teaching force is unqualified, leading to the are acute shortages of infrastructure and facilities at all levels.

Objectives of the Study

The broad objective of this study is to examine the impact of government education expenditure on economic growth in Nigeria from 1980 to 2015, and specifically looking at the broad objectives as follows:

(i) to examine the relationship between government capital expenditure on education and economic growth in Nigeria;

(ii) to examine the relationship between government recurrent expenditure on education and economic growth in Nigeria;

(iii) To examine the relationship between tertiary school enrolment and economic growth in Nigeria.

Statement of Research Hypotheses

This research work uses the following hypothesis as follows:-

H0: There is no significant relationship between government capital expenditure on education and economic growth in Nigeria.

H1: There is a significant relationship between government capital expenditure on education and economic growth in Nigeria.

H0: There is no significant relationship between government recurrent expenditure on education and economic growth in Nigeria.

H1: There is a significant relationship between government recurrent expenditure on education and economic growth in Nigeria.

H0: There is no significant relationship between tertiary school enrolment in education and economic growth in Nigeria.

H1: There is a significant relationship between tertiary school enrolment in education and economic growth in Nigeria.

Definitions of Terms

Government Expenditure: Government expenditure encompasses all government consumption, investment, and transfer payments. Any expenditure in connection with education meaning that the total amount which the government at any level - federal, state or local government spends within the fiscal year on the budgetary allocation made to the educational sector on both recurrent and capital projects within a fiscal year usually one year.

Economic growth: Economic growth is the increase in the goods and services produced in an economy of a nation, over a period of time. This refers to the sustained increase in the actual output of goods and services. Economic growth is

defined in terms of achievement of yearly increases in both the total and per capita output of goods and services.

Capital expenditure: refers to money spent by a business outfit or organization in acquiring or maintaining fixed assets, such as land, buildings, and equipment. Recurrent expenditure: It consists mainly of expenditure on wages, salaries, and supplements, purchases of goods and services and consumption of fixed capital (depreciation).

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

The study is poised to examine the contributions of various authors who had a keen interest in the subject; having considered the conceptual and theoretical framework; and review of empirical literature.

Conceptual Framework

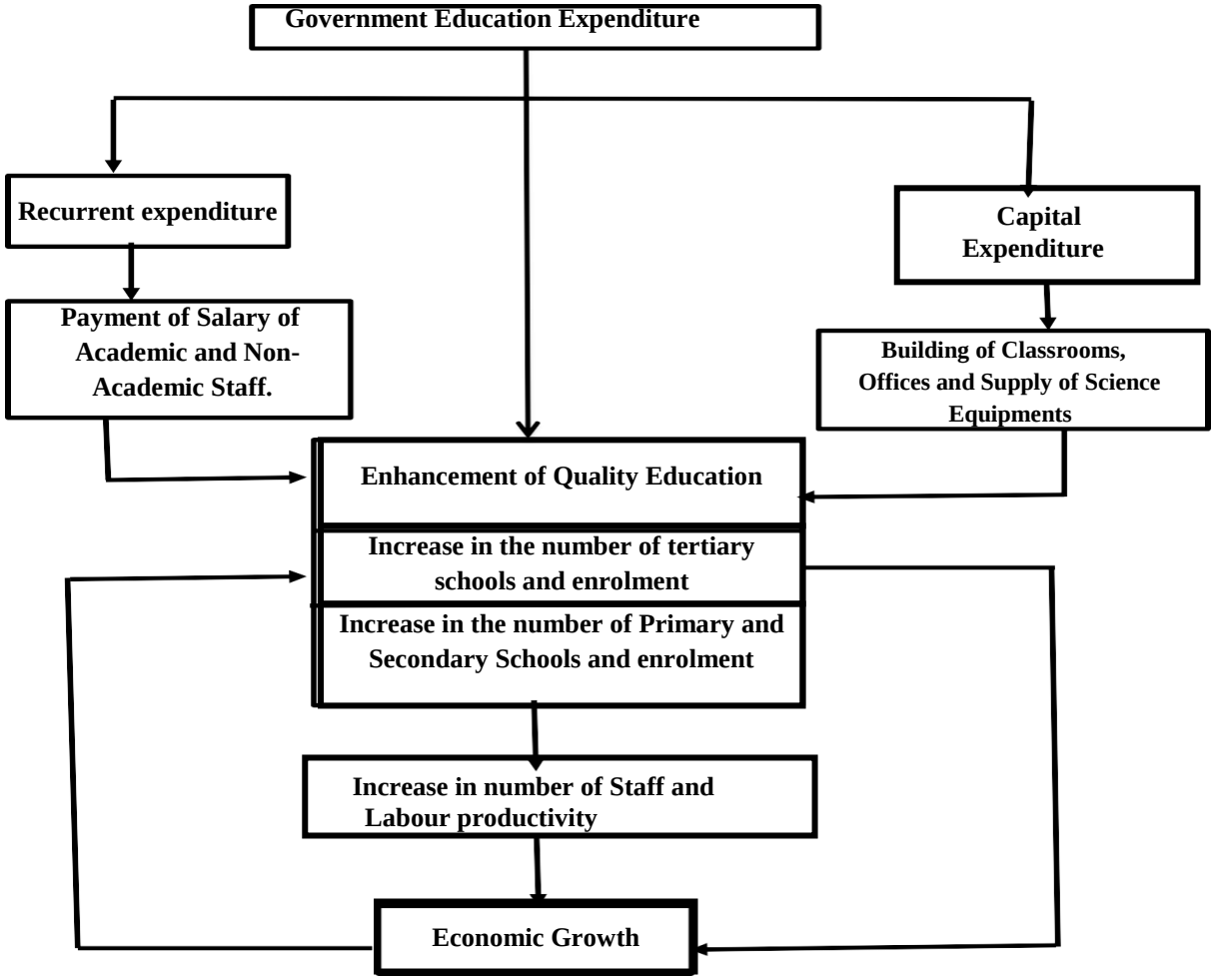
Investment in education is a continuous process in-view of new challenges being experienced in the Nigerian environment and the discovery of education as an impetus to economic growth and development. Various researchers such as Bakare (2006), Olaniyan and Okemakinde (2008) have explored the concept of human capital investment empirically tracing the linkage between education and economic growth.

Government Expenditure and the Growth Theory

Government expenditure and economic growth has been a subject of debate of recent times. The government has invested in physical capital development directly through investment in infrastructure such as roads, the building of Classrooms and offices, scientific investments etc. and indirectly through its physical capital development. Outside factor accumulation, government policy has significantly affected the speed of technological progress, both through direct government funding in research related activities and administration of the patent system, which allows researchers to reap rewards and thus provides an incentive for inventions.

As investment in capital development continues to increase through government expenditure in providing quality education, increase in labour productivity is enhanced culminating in an increase in economic growth. Government education expenditure is, therefore, expected to have a positive impact on economic growth which is illustrated below.

Figure 1: Government Expenditure and Economic Growth



Source: Researcher's conceptualized diagram

The Concept of Government Expenditure

The concept of government expenditure was as a result of meeting up the demands of the public sector. Government expenditures are on public sector spending and on government purchases. Government expenditure has been on the constant increase over the years.

Enueme (1999) stated that the significance of education in nation building cannot be overemphasized since its economic contribution benefits both the individual directly and the society indirectly and extension, making the individual useful and desirable in his society. Enueme (1999) goes on to explain some significant roles of education in nation building, by saying that formal education positions farmers in developing countries to appreciate and accept boosters of agricultural production through mechanized farming, use of fertilizers, crop rotation etc. rather than belief in the gods of harvest. According to her, education also attracts direct financial returns in form of earning differentials among graduates relatively to others with lesser educational qualifications.

Public expenditures are disaggregated into recurrent and capital expenditures. The recurrent expenditures refer to purchases of stationeries, fuel, payment of wages and salaries of workers, and electricity bills settlements, etc. Whereas, Capital expenditures refer to government undertakings in terms of construction of roads, bridges, health centers, School buildings, military installations, and hardware, etc.

Another major factor that permits sustained increase in government expenditure is that of growth in population, calling for an increase in the number of more health care centers and education expenditures and eventually an increase of public spending. The reasons for the increase in government spending have been a central concern of public sector economists like Wagner, (1893) and in more recent time Downs, (1957). An "excessive" population size is often alleged to be the cause of many economic ills in both developed and developing countries, including slow economic growth, large government deficits, internal imbalances (e.g., inflation, rising interest rates), and external imbalances (e.g., trade deficits, falling exchange rates).

History of government expenditure on education in Nigeria

The analysis of the nexus between education and economic development has been of a long history. Adam Smith (1937), Marshall (1930) and Schultz (1961) and others, have emphasized the importance of education as a national investment of prime importance. In a generic term, education refers to the process of imparting knowledge and acquiring knowledge and skills about ideas, values, and concepts, borne out of learning, practice, and experience. Knowledge can be imparted to or shared with others through formal and informal institutional arrangements, such as schools. Every human endeavour requires one form of knowledge or another. It is the proper nurturing, transmission and application of such knowledge that guarantees the development and sustenance of individual societies (Abiodun, 2002). Education is fundamental to the process of nation-building and should be given prominence in the development efforts.

As it is with advanced nations, so it is with the Nigerian government to have recognized the role of educating human capital in economic development. Hence, at independence, Nigeria embarked on the quantitative and qualitative training of personnel through the expansion of educational facilities at all levels. Nigeria government went on to established five universities in 1970, which number steadily rose to 24 in 1986. As of 2005, the number of educational institutions, namely, primary, secondary and tertiary institutions stood at 59,340; 12,610; and 128 respectively. Similarly, the number of enrolments at the various levels of educational institutions has continued to increase. The adult literacy rate has greatly improved from 57 percent to 62 percent between 1997 and 2005. During the same period, the number of pupils per primary school fluctuated between 492 and 26,160. The pupil per teacher ratio in primary schools which was 34 in 1970, increased to 40 in 2005. This showed a negative trend and when compared to the United Nations of 25, one can infer that the country has not performed satisfactorily, (CBN, 2000). The various government initiatives have not been translated into remarkable educational development due to many factors amongst which is inadequate funding. In the early 1970s, the country had a lot to spend as a result of the oil windfalls which partly accounted for the upsurge in the number of educational institutions during the period. However, the downturn of the economy in the 1980s and the adoption of the structural adjustment policies, supported by both the World Bank and International Monetary Fund have adversely affected the number of funds available for the education sector.

With the institution of democratic government in Nigeria in 1999 and successive governments, have all continued to invest substantially in the educational sector of the Nigerian economy. In 1977 the federal government spent 8.4 percent of total expenditure on education. The educational expenditure rose to 10.4 percent of the total expenditure in 1980 and fluctuated between 1985 and 2007. In 2007, only 8.7 percent of total expenditure was spent by the government on education which fell below the minimum standard of 26.0 percent of annual budget prescribed by the United Nations Educational Scientific and Cultural Organisation (UNESCO) according to CBN (2000). Nigeria's educational system was also accompanied by structural defects, inefficiency, and ineffectiveness which today place the country at its lowest ebb in human capital development and utilization. The educational system as at then was poised to produce skills in personnel of those who

lack job skills for employment than those the economy requires to remain vibrant. The emphasis has been on linear expansion in the size of the educational system without any broad and dynamic conception of the qualitative dimensions of the system. The result of this inadequate educational system includes decreasing industrial capacity utilization, rising unemployment, rising poverty, threats by social insecurity by ebullient jobless youths, and structural imbalance and system configuration as elicited by Uwatt (2003) quoting Borishade (2001). All these underscore the fact that education is yet to produce the desired results in accordance with its inability to improve the human resource stock of the nation.

Evolution of Education in Nigeria

Education has evolved in Nigeria even prior to the amalgamation of the Northern and Southern protectorate in 1914. The most active period of the development, however, began from 1950 when the constituent part of the country (Northern, Eastern, and Western regions became self-governing (Sambo, 2005); especially when the division of Nigeria into Northern, Eastern and Western regions by Richard's constitution which came into effect in 1947. From that time, Nigerians became the sole policymakers for the educational system. The three geo-political regions had a Ministry of Education under the leadership of the Minister of Education who was mainly responsible for educational policies in each of their regions. There was also a Director of Education in each region that was responsible for the implementation of educational policies. At the national level, the Director General of Education coordinates the regional educational systems. In 1955, the Joint Consultative Committee on education (JCC) was established as a major organization directly involved in educational activities in the country. The importance of education in national development cannot be overemphasized hence its cardinal position in various objectives of most developing countries. In Nigeria over the years, elements of uncertainty have beclouded this sector both in nominal and in real terms. Incessant strikes, closure of schools and other vices accounted for poor quality teaching and products. Various report about the fiscal operations and developments of education in Nigeria revealed that Federal Government expenditure on education is categorized under the social and community services sector; and the implication according to Orubu (1989), is that education is an impure public good. CBN (2000) report says that the importance of education is reminiscent of its role as a means of understanding, controlling, altering and redesigning of the human environment. Anyanwu, Oyefusi, Oaikhenam & Dimowo (1999) goes on to say that education improves health, productivity, and access to paid employment. This means that education has a link with economic development. Ola (1998) in one of his remarks said: "If you see an economy that is not doing well, find out what is spent on education".

Psacharopoulos (1973), Combs (1985), Aruwa (2010) and Aboribo (1999) have all stated that increase in national income and per capita income is a function of education and that differences among nations can better be explained by differences in the endowments of human, rather than physical capital. This underscores the reason why the 'Asian Tigers' in the past three decades allocated between 25-35% of their annual budgets to their educational sector (Aboribo, 1999).

Theoretical Framework

Public expenditure theories are based on costs of providing goods and services through the public sector budget and/or the regulations and laws introduced into the economy leading to private sector expenditure. We shall rely upon three theories basically Wagner's Law, Peacock and Wiseman's analysis and development models of public expenditure growth.

Wagner's Theory of Increasing State Activities

The earliest theory of government expenditure could be traced to Adolph Wagner, one of the leading German economists who in 1883 propounded an interesting development thesis, which stated that as a nation develops its public sector and subsequently public spending will increase. Both the state's requirements and those of local authorities expenditures grow when the administration is decentralized and local government well organized.

Wagner identified three factors which would cause state activities in expenditure to grow proportionately and will be faster than other sectors of the economy.

I. First, he projected an expansion of the government's traditional role in providing administration, maintains law and order as the economy becomes more specialized and, social and economic life more atomized as a consequence of the increased division of labour.
II. Second, he foresaw an increase in the provision of "cultural and welfare" expenditures, most particularly education. His reasons for this expectation were not altogether clear, although it may do him little injustice to say he thought they behaved as superior goods with an income elasticity of demand greater than unity.
III. Third, he saw that the increasing scale of technologically efficient production would cause the government to undertake certain economic services of which the private sector would be no longer capable.

In this, he had in mind the heavy investments associated with railroad construction according to Diamond (1977). Wagner's Law in part states that government grows because there is an increasing demand for public goods and for the control of externalities. Wagner's work is based on

empirical observations in a number of Western industrialized countries. Hence, his suggestion is not prescriptive, but rather explanatory in character (Peacock & Wiseman, 1967). Wagner's model does not contain any apriori property; he rather put his model forward with regard to posterior results and made his suggestions based on empirical results observed in a number of industrialized countries. The main inference is that as the community's output increased in the past, public expenditure grew accordingly. Wagner's law implies causality running from national income to public sector expenditure. Hence, public expenditure is considered as an endogenous variable to the growth of national income, which postulations run foul to the Keynesian view, which considers public spending as an exogenous policy instrument which can affect growth in the national product (Magazzino, 2010). The validity of the law has been assessed empirically for a large number of developing and developed countries using both time series and cross-sectional data sets. The role of the public sector is often criticized on the grounds that government is less efficient than market forces in allocating economic resources. Regulatory process using monetary and fiscal policies can potentially distort the incentive system; and a rapid expansion of public expenditure can indeed lead to structural changes which favour a relative growth of the public service sector (Bacon and Eltis, 1978).

Peacock and Wiseman's Hypothesis

Peacock and Wiseman's (1961) study is assumed to be one of the best-known analyses of the time pattern of government expenditure. Their argument is that public expenditure does not increase in a smooth and continuous manner, but in jerks or step-like fashion based on the political theory of public expenditure determination, 'that governments like to spend more money, and that citizens do not like to pay more taxes, and that governments need to pay some attention to the wishes of their citizens'. Peacock and Wiseman expounded their analysis by saying that public expenditure is to be influenced at the ballot box. They viewed the voter as an individual who enjoyed the benefits of public goods and services but who disliked paying taxes. They also saw taxation as setting a constraint on government expenditures. To them, as the economy and incomes grew, tax revenue would rise, thereby enabling the public expenditure to grow in line with the GNP. Whereas in normal situations, government expenditure would show a gradual upward movement, even though within the economy there might be a divergence between what people regarded as being a desirable level of government expenditure and a desirable level of taxation. During the periods of social upheaval, this gradual upward trend in public expenditure would be disturbed and would coincide with war, famine, or some large scale societal disorder which would require a rapid increase in government expenditures. In order to finance the government expenditure that keeps on rising, the government would be forced to raise taxation levels, which would, however, be regarded as acceptable to the electorates during the crisis periods. This is what Peacock and Wiseman called the displacement effect. Government expenditure is displaced upwards and for the period of the crisis displaces private expenditures. It is a fact that during periods of crises, public expenditure does not fall to its original level. At periods of war, government finances towards the execution of the war were not fully paid for from taxes but rather, countries borrow and accumulate debt charges which have to be met after the war. Changes in social and political ideas and institutions, as such, may condition the evolution of the functions of government, and may also affect the nature and significance for public expenditures of such social upheavals as wars. Conversely, the displacement effect may be the origin of lasting changes in ideas and institutions especially at periods of war, which are cultivate periods for fruitful sources of both new ideas about society (is) and of new administrative procedures. In their own words, Peacock and Wiseman (1961) said, "All we suggest, therefore, is that in communities and over periods in which the economic activities of the state are in fact increasing in importance and in which social disturbances occur, the nature of political power will usually produce a time pattern of growth characterized by a displacement effect of the kind described". Another effect that they thought might operate is the inspection effect. They suggested that this arises from voters' keen awareness of social problems during the period of upheaval. The government, therefore, expands the scope of services it provides to improve these social conditions, and because the electorate's perception of tolerable levels of taxation does not return to its former level, the government is able to finance these higher levels of expenditure originating in the expanded scope of government and debt charges. The government and the people review the revenue position and agree to the required adjustments to finance the increased expenditure. They attain a new level of tax tolerance; ready to tolerate a greater burden of taxation and as a result, the general level of expenditure and revenue goes up (Batia, 2006). In this way, the government expenditure and revenue get stabilized at a new level till another disturbance or upheaval occurs to cause displacement effect. Thus, each major social upheaval leads to an assumption of a larger proportion of the total national economic activity. Peacock and Wiseman' hypothesis appears quite convincing and real but the question is whether at such period's government remembers the education sector at all? The answer may be yes and no.

Musgrave and Rostow Development Model

The development model of public expenditure could also be traced to the works of Musgrave (1969) and Rostow (1971). According to these authors, in the early stages of economic growth and development, public sector investment as a proportion of the total investment of the economy is very

high. At this level, the public sector provides social infrastructure, such as roads, transportation systems, sanitation systems, law and order, health and education and investment in human capital. The public sector is a necessary agent to gear up the economy for take-off into middle stages of economic and social development. In the middle stages of growth, the government continues to supply investment goods but complementing the private sector investment. Musgrave argues that over the development period, as the total investment-GDP ratio rises, the relative share of public sector investment falls. Rostow on his part claims that when the economy reaches the maturity stage, the mix of public expenditures will shift from infrastructures to increasing expenditures on education, health and welfare services. At the stage of high mass consumption, income maintenance programmes and policies are designed to redistribute welfare, which will grow significantly relative to other public expenditures and also relative toGDP.

Much of modern growth theory builds on the neoclassical model of exogenous growth theories of Solow (1956 and 1957) and that of Swan (1956) which views the accumulation of physical capital, associated with a permanently low level of technical progress, as the driver of economic growth. The basic assumptions of the model are constant returns to scale, diminishing the marginal productivity of capital, exogenously determined technical progress and substitutability between capital and labour. The most basic proposition of growth theory is that, in order to sustain a positive growth rate of output per capita in the long run, there must be a continual advances in technological knowledge in the form of new goods, new markets, or new processes, which was demonstrated by the neoclassical growth model which shows that if there were no technological progress, then the effects of diminishing returns would eventually cause economic growth to cease as stated by Aghion and Howitt (1998). Turning to the issue of convergence/divergence, the model predicts convergence in growth rates on the basis that poor economies will grow faster compared to rich ones. The neoclassical model predicts that countries with low per-capita incomes grow faster than those with high output (y), so that over time per-capita incomes converge. The neoclassical growth model assumes the Cobb-Douglas production function that, in its intensive form, is expressed as: $Y= Ak\alpha$; where, y and k are the output-labour ratios and the capital-labour ratio respectively, α is the capital elasticity of output, and A is the total factor productivity (TFP) representing the technological capacity of the productive system. Under the model, A grows either as a purely exogenous process or through exogenous technical innovations which are embodied in capital goods (Solow, 1960). Diminishing returns to capital, combined with assumptions of constant savings rate and constant growth of labour, generate a steady state growth rate depending only on the rate of exogenous technical progress. As Palley (1996) said, the most important feature of the model is that the steady-state growth rate depends exclusively on the rates of population growth and labour-augmenting technical progress, and as long as these variables are exogenous, the steady- state growth is also exogenously determined. The second important feature of the neoclassical growth model is that the rate of capital accumulation is dependent solely on the household savings behaviour and independent of the firm's investment spending. The implication of this feature is that household saving is translated automatically into investment. Thirdly, there is no mention of any demand constraints. According to Palley (1996), the model implicitly embodies a dynamic version of Say's law where all output growth is willingly demanded and that demand expands in line with the supply. A key feature of the neoclassical growth theory is that the steady-state growth rate is exogenously determined. The homogeneity assumption was the key to the old growth theory and greatly diminished its policy content. The principal contribution of the new endogenous growth theory is the resolution of the impasse (in old growth theory) by introducing mechanisms that render the steady-state amenable to endogenous variation. Endogenous growth is long-run economic growth at a rate determined by forces that are internal to the economic system, particularly those forces governing the opportunities and incentives to create technological knowledge.

A further idea put forward by the modern growth theory is on human capital. Human capital consists of the abilities, skills, and knowledge of particular workers. The model of human capital differs from the Solow model by implying that moderate changes in the resources devoted to physical and human capital accumulation may lead to large changes in output per worker. This has been able to account for the potential differences across countries in income (Romer, 1996). Human capital is the main source of growth in several endogenous growth models as well as one of the key extensions of the neoclassical model. Since the term 'human capital' refers principally to workers' acquisition of skills and technical know-how through education and training, the majority of studies have measured the quality of human capital using proxies related to education (such as school-enrolment rates). A large number of studies have found evidence suggesting that an educated population is a key determinant of economic growth (Barro, 1991; Barro and Sala-i-Martin, 1995; Hanushek and Kimko, 2000). However, there have been scholars who have questioned these findings and, consequently, the importance of human capital as a substantial determinant of economic growth was softened (e.g. Levine and Renelt, 1992; Benhabib and Spiegel, 1994; Topel, 1999; Krueger and Lindahl, 2001; Pritchett, 2001). However, an important assumption in the growth theories is that investment rates and the time people

spend in acquiring skills are exogenously given. If this assumption is relaxed, we discover that the role of infrastructure in the growth process is of a little value which is a major reason why some countries are rich while others are poor, because rich countries invest more in the capital and spend more time learning the use of technologies than others. Increase in education and by extension human capital affects economic growth through the increase in productivity, greater innovation and the adoption of new technology. The profitability of an investment project depends on the extent to which the rules and institutions in an economy favours production. Government enforces laws of the society and is also in control of the institutional framework of nations, but the extent to which these are enforced determines the level of production in the economy. An infrastructure that favours production encourages individuals to engage in the creation and transaction of goods and services; whereas diversion takes the form of theft or expropriation of resources from production. Diversion may correspond to illegal activities, such as theft, corruption or the payment of "protection money," or it may be legal as in the case of confiscatory taxation by the government, frivolous litigation, or the lobbying of government by special interests (Jones, 1998). Diversion affects production. The extent to which the infrastructure of an economy favours production or diversion is primarily determined by the government.

Empirical Literature

Chude and Chude (2013) investigated the effects of public expenditure in education on economic growth in Nigeria over a period, from 1977 to 2012, with a particular focus on disaggregated and sectorial expenditures analysis. The study used Ex-post facto research design and applied time series econometrics technique (Error Correction Model) to examine the long and short-run effects of public expenditure on economic growth in Nigeria. The results indicated that total expenditure on education is highly and statistically significant, and have a positive relationship with economic growth in Nigeria in the long run. Odeleye (2012) also examined the impact of education on economic growth using primary and secondary annual data ranging from 1985 to 2007. The findings revealed that only recurrent expenditure has significant effects on economic growth as the academic qualifications of teachers also have a significant impact on students' academic performance. Among others, the study recommended that the government should increase its expenditure on education especially, the capital expenditure, while a good salary scheme with other incentives for teachers' motivation should be implemented.

Nurudeen and Usman (2010) carried out a dis-aggregated analysis on government expenditure and economic growth in Nigeria. The analysis revealed that there was no significant relationship between expenditure on education and economic growth in Nigeria. However, the study suggested that the government should increase expenditure in the educational sector since it would increase productivity and economic growth.

Omojomite (2010) examined the notion that formal education accelerates economic growth using Nigerian data for the period of 1980-2005. Time series econometrics (co-integration and Granger Causality Test) were applied to test the hypothesis of a growth strategy led by improvements in the education sector. The results showed that there is co-integration between public expenditures on education, primary school enrolment, and economic growth. The tests revealed that public expenditures on education Granger cause economic growth but the reverse is not the case. The tests also revealed that there is bi-directional causality between public recurrent expenditures on education and economic growth. No causal relationship was established between capital expenditure on education and growth, and primary school enrolment and economic growth. The study recommended improved funding for the education sector and a review of the primary school curricula to make it more relevant to the needs of the Nigerian society.

Dauda (2009) carried out an empirical investigation of the relationship between investment in education and economic growth in Nigeria, using annual time series data from 1977 to 2007. The study employs the Johansen cointegration technique and error correction model. His empirical results revealed that there is indeed, a long-run relationship between investment in education and economic growth. All the variables used, including gross fixed capital formation and educational capital are statistically significant (except labour force) in the Nigerian economy. The findings have a strong implication on educational policy in Nigeria. The study seems to suggest that a concerted effort should be made by policymakers to encourage an increase in educational investment in order to accelerate growth which would engender economic development.

Adebiyi and Oladele (2005) empirically investigated the relationship between public education expenditure and defence spending in Nigeria. The study employed the error correction mechanism and the vector autoregressive (VAR) models and found a negative trade-off between defence spending and public education expenditure. Analysis of the impulse response functions derived from the VAR model reveals that past public education expenditure shocks have a positive but declining relationship with current public education expenditure in the first two years after which it turns negative. Also, the impulse responses revealed that an increase in defence spending will increase public expenditure available for education in the short-run.

Babatunde and Adefabi (2005) also examined the long-run relationship between Education and economic growth in Nigeria using the Johansen Co-integration approach as a framework of analysis. The Co-integrating technique investigation suggested that there exists a long-run

relationship between enrolments in primary and tertiary levels of education and the average years of schooling with output per worker. The study concluded that a well-educated labour force possessed a positive and significant impact on economic growth through factor accumulation and on the evolution of total factorproductivity.

Omotor (2004) in his study analysed the determinants of federal government expenditures in the education sector in Nigeria using the ordinary least squares (OLS) methods. The study revealed that the trend in education expenditure in Nigeria is unstable which reflects the instability of government earning. Government revenue was the only significant determinant of education expenditures as revealed by the results of the regression. The study recommends a diversification of the sources of funding education so as to reverse the unstable trend in that sector.

Summary of Literature Reviewed

The theories of public expenditure recognize the fact that when the national income increases, the public expenditure also increases. There are different reasons, as drawn from the above theories that could cause a public expenditure to rise. These factors although causes the public expenditure to change, yet they do not tell us how these changes affect the economy. These changes in the public spending have the capacity to either undermine the progress of the entire economy or act as a catalyst to growth.

It is obvious that an increase in government expenditure in any sector will have a corresponding positive impact on the sector which will transit to the larger economy.

Looking at the spending pattern in Nigeria over the years reveals that government education expenditure has been on the steady rise over the years. The dilemma Nigeria finds herself despite the steady increase in the education sectorial allocation, education facilities in all tiers (primary to university levels) are still in dereliction, the human resources are under-skilled, and schools are both under-staffed and funded. There is, therefore, the need to empirically examine the impact of government education expenditure on economic growth in Nigeria from 1980 to 2015.

METHOD OF STUDY

The method of study employed was the use of research design, model specification, data collection, and analysis.

Research Design

This study used Ex-post facto research design and applied time series econometrics technique (Error Correction Model) to examine the long and short-run effects of public expenditure on economic growth in Nigeria. Data for our chosen variables were collected from the periods ranging from 1980-2015 and we adopted the ordinary least square (OLS) method and the co-integration econometric technique. Explanatory variables used to explain the relationships were government recurrent expenditure on education, government capital expenditure on education, and tertiary school enrolment. The real gross domestic product is a proxy for economic growth and it is the dependent variable.

Data Collection and Sources

The data collected and utilized in this study were sourced from Central Bank of Nigeria Statistical Bulletin, National Bureau of Statistics, Journals, Textbooks, and Magazines among others covering the period 1980-2015.

Model Specification

The model for this study was formulated in line with the conceptual, theoretical and empirical literature review. We adopted the model of Adeleye (2012) on the impact of education on economic growth in Nigeria from 1985 to 2007 but with slight modification.

The model for this study is presented thus:

The model for this study is presented thus:

$$RGDP = f(GCEE, GREE, TSE) \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (3.1)$$

$$RGDP_t = \beta_O + \beta_1 GCEE_t + \beta_2 GREE_t + \beta_3 TSE_t + ut \quad \ldots\ldots (3.2)$$

Using the log form of the model, we have:

$$\ln RGDP_t = \ln\beta_O + \beta_1 \ln GCEE_t + \beta_2 \ln GREE_t + \beta_3 \ln TSE_t + u_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots (3.3)$$

where;

ln= natural logarithm

RGDP= real gross domestic product

GCEE= government capital expenditure on education

GREE= government recurrent expenditure on education

TSE= tertiary school enrolment

u= error term

β_O= Autonomous component of RGDP

t = The time parameter regressed in time series

Apriori criteria

The economic a priori expectation was to show whether the parameters of the model meet our economic theory. The explanatory variables were stated in a positive relationship with the dependent variable.

The a priori expectations are: $\beta 1, \beta 2, \beta 3, > 0$. This implies that government capital expenditure on education, government recurrent expenditure on education and tertiary school enrolment has a positive relationship with economic growth for purposes of our analysis.

Data Required

This study employed secondary data from CBN Statistical Bulletin relating to the dependent and independent variables for the period 1980 to 2015 (indicating a long-time series relationship of 35 years).

Real Gross Domestic Product (RGDP) 1980 – 2015

Government Capital Expenditure (GCEE) 1980 – 2015

Government Recurrent Expenditure on Education (GREE)

1980 –2015 Tertiary School Enrolment (TSE) 1980 – 2015

3.5. The Variables Included in the Model

The variables included in the model are classified as dependent and independent variables.

Dependent Variable

Real Gross Domestic Product (RGDP): This refers to the measurement of economic output that accounts or the effects of inflation or deflation. It reports the gross domestic products as if prices never went up or down, which gives a more realistic assessment of growth.

Independent Variables

Government Capital Expenditure (GCEE): This refers to money spent by government on acquiring or maintaining fixed assets, such as land, buildings, and equipment in order to facilitate the growth of education in an economy.

Government Recurrent Expenditure on Education (GREE): this refers to government expenditure on wages, salaries, and supplements, purchases of goods and services with regards to the educational sector.

Tertiary School Enrolment (TSE) refers to the percentage of secondary school graduates that successfully enrol in the university.

3.6 Method of data analysis

The study employed the ordinary least squares method (OLS) and co-integration methods of econometrics to analyse the data on RGDP, GCEE, GREE, and TSE. The following diagnostic tests were conducted;

Unit Root Test

The assumption so far is that variables are well behaved, that is to say, that they do not possess any of the time series problems. However, literature has shown that most macroeconomic data are confined to time so that their mean is time- dependent making them non-stationary and cointegrated (Dickey & Fuller, 1981). We shall, therefore, subject the entire variables to a unit roots stationarity test using Augmented Dickey-Fuller (ADF) test.

Autocorrelation Test

This test was carried out to see whether the error terms corresponding to different observations of the series were correlated. Since the classical OLS assumption assumes that the disturbance term relating to any observation is not influenced by the disturbance term relating to any other observation. (Gujarati, 2005). The popular Durbin Watson d statistics shall be used for this test.

The Co-Integration Technique

In this study, we adopted the Co-Integration estimation technique in analysing our data. Cointegration is an econometric technique used for testing the correlation between non-stationary time series data. Usually, time series data are non-stationary due to fluctuations that do characterize such information.

Two variables are said to be Co-Integrated if they have a long run or equilibrium relationship between them (Gujarati, 2007 quoted in Abomaye- Nimenibo et al, 2018).

ANALYSIS OF RESULTS

We herein present the explanation of the data used in carrying out the study and the analysis of regression results. The sub-headings include data presentation, analysis, and discussion of the results.

Data Presentation

Our broad objective of this study is to examine the impact of government education expenditure and its impact on economic growth in Nigeria from 1980 to 2015. In order to achieve this objective, we utilized data on the real gross domestic product (RGDP) as the dependent variable while government capital expenditure on education (GCEE), government recurrent expenditure on education (GREE) and tertiary school enrolment (TSE) are the independent variables. The dataset used for the analysis is as per attached in appendix 1.

Correlation Matrix

Table 4.1: Correlation Matrix for all the Variables

VARIABLES	RGDP	GCEE	GREE	TSE
RGDP	1.000000	0.928315	0.883844	0.884872
GCEE	0.928315	1.000000	0.903715	0.941024
GREE	0.883844	0.903715	1.000000	0.848978
TSE	0.884872	0.941024	0.848978	1.000000

Note: RGDP, GCEE, GREE and TSE as earlier defined.

Source: *Computed Result Using (E-Views 8)*

The correlation matrix presented in Table 4.1 indicated a strong positive correlation of 93% between real gross domestic product (RGDP) and government capital expenditure on education (GCEE). A strong positive correlation of 88% existed between real gross domestic product (RGDP) and government recurrent expenditure on

education (GREE). A strong positive relationship of 88% existed between real gross domestic product (RGDP) and tertiary school enrolment (TSE).

Table 4.2: Unit Root Test for Stationarity (Augmented Dickey-Fuller)

Variables	ADF Test	Critical Value			Order of integration
		1% critical value	5%critical value	10%critical value	
RGDP	-6.374925	-3.639407	-2.951125	-2.614300	1(1)
GCEE	-6.758450	-4.252879	-3.548490	-3.207094	1(1)
GREE	-9.762383	-3.639407	-2.951125	-2.614300	1(1)
TSE	-13.28305	-3.639407	-2.951125	-2.614300	1(1)

Source: *Authors' Computed Result from (E-views 8)*

The stationarity test result presented in table 4.2 shows that at various levels of significance (1%, 5%, and 10%); the variables were stationary although none of the variables was stationary at any other level. However, the variables were differenced. Thus, RGDP, GCEE, GREE, and TSE became stationary at first difference (integrated of order one). Hence, the entire variables in this study are stationary. The test for the long-run relationship among the variables was conducted using the Johansen co-integration framework. For detail result of the Johansen co-integration, see table 4.3 below.

Table 4.3: Johansen Co-integration Test

Eigen value	Trace Statistic	5% critical value	Prob. **	Hypothesis of CE(s)
0.658022	83.53336	63.87610	0.0005	None *
0.603247	47.05102	42.91525	0.0183	At most 1 *
0.265338	15.62003	25.87211	0.5233	At most 2
0.140211	5.136303	12.51798	0.5769	At most 3

Source: *Computed Result Using (E-Views 8)*

The table 4.4 shows that there are two co- integrating equations at 5% level of significance. This is because the Trace Statistic is greater than critical values at 5%. Therefore, there exists a long-run relationship or equilibrium among the variables (RGDP, GCEE, GREE and TSE).

Table 4.4: Short Run Result: GDP = f(GCEE, GREE and TSE)

Variable	Coefficient	t-Statistic	Prob.
C	7.073193	7.040928	0.0000
LOG(GCEE)	-0.264071	-2.480339	0.0186
LOG(GREE)	0.359004	3.442957	0.0016
LOG(TSE)	0.349752	3.140624	0.0036
R^2=0.786315, F-Statistic=39.25094, DW=1.245758, Prob.(F-stat=0.000000)			

Source: *Authors' Computed Result from (E-view 8)*

The short-run result as reported in table 4.4 shows that the coefficient of determination- R2 is 0.79, indicating that the variation in real gross domestic product (RGDP) explained by government capital expenditure on education (GCEE), government recurrent expenditure on education (GREE) and tertiary school enrolment (TSE) is 79 percent.

In addition, the coefficient of government capital expenditure on education (GCEE) is negative; implying a negative relationship between government capital expenditure on education (GCEE) and economic growth (RGDP) during the period of study (i.e., a percentage increase in government capital expenditure on education will decrease economic growth by 0.264071 percent during the period of study). But this does not conform to the apriori expectation. Meanwhile, government capital expenditure on education is statistically significant at the conventional level (i.e., 5%). This is because the t-calculated of 2.480339 is greater than the t-table of 2.032. Thus, we accept that "there

is a significant relationship between government capital expenditure on education (GCEE) and economic growth in Nigeria".

The coefficient of government recurrent expenditure on education (GREE) is positive; implying a positive relationship between government recurrent expenditure on education and economic growth. This conforms to our apriori expectation. This means that a percentage increase in government recurrent expenditure on education (GREE) will lead to 0.359004 percent increases in economic growth. At the same time, the absolute value of the t-statistic for the slope coefficient is statistically significant. This is because the t-calculated of 3.442957 is greater than the t-table of 2.032. Thus, we reject the null hypothesis and accept the alternative hypothesis which states that "there is a significant relationship between government recurrent expenditure on education and economic growth in Nigeria".

Also, the coefficient of tertiary school enrolment (TSE) is positive; implying a positive relationship between tertiary school enrolment (TSE) and economic growth. This conforms to apriori expectation. This means that a percentage increase in tertiary school enrolment (TSE) will increase economic growth by 0.349752 percent. Moreover, the absolute value of the t-statistic for the slope coefficient is statistically significant. This is because the t-calculated of 3.140624 is greater than the t-table of 2.032. Thus, we reject the null hypothesis and accept the alternative hypothesis which states that "there is a significant relationship between tertiary school enrolment and economic growth in Nigeria".

The entire regression model is significant given the f-value of 39.25094 with the probability (F-stat=0.000000). The Durbin Watson value of 1.245758 depicts the presence of serial autocorrelation. This may be as a result of non-stationarity of time series data that are used for the study.

Summary

This study empirically examined Government Education Expenditure in Nigeria from 1980-2015. Therefore, the broad purpose of the research is to ascertain the impact of Government Education Expenditure on the economic growth in Nigeria from 1980-2015 to show forth that the aim of government expenditure on education to give a positive increase in the growth rate of the economy is achieved. The theoretical literature upon which this work is hinged on is Wagner's theory of increasing state activities, Peacock and Wiseman's hypothesis and Musgrave and Rostow Development model. In addition, the study also examined the history of government expenditure on education in Nigeria and the evolution of education in Nigeria.

Furthermore, to achieve our objectives, we utilized data on the real gross domestic product (RGDP), government capital expenditure on education (GCEE), government recurrent expenditure on education (GREE) and tertiary school enrolment (TSE) collected from a secondary source, particularly CBN Statistical Bulletins of various issues. The study adopted the ordinary least square (OLS) and Co-integration methods of econometrics to analyse the data and showcase the relationship that exists among the variables.

A country that seeks to experience rapid economic growth must give high preference to ensuring that a high percentage of its population is given quality education. The educational sector is one that ensures an increase in output per worker and this can transcend into economic growth.

The major findings in the study include:

i. There is a significant relationship between government capital expenditure on education and economic growth in Nigeria.
ii. There is a significant relationship between government recurrent expenditure on education and economic growth in Nigeria.
iii. There is a significant relationship between tertiary school enrolment and economic growth in Nigeria.
iv. The long-run dynamic result (co-integration result) also demonstrates that there is a long-run relationship or equilibrium between the variables.
v. That the aim of government is embarking on real expenditure in the educational sector to boost economic growth was achieved.

Policy Implication

The policy implication of the results of the research includes:

i. Government policy regarding financing education would impact positively on the educational sector. That is if priority is placed on education in line with the United Nations Educational Scientific and Cultural Organization (UNESCO) specifying that 26% of the country's budgetary allocation should be accorded to the education sector, then the education sector will contribute positively to the economic growth of the country.
ii. A deliberate action by the government in channelling more resources to the capital segment of education like the building of classrooms and laboratories, purchase of teaching aids, science equipment etc. will help in enhancing knowledge and produce increased productivity and by implication promoting the economic growth of the nation.
iii. Since it is inevitable that people have to travel outside the country to study, the government can take some pre-emptive measures to reduce the amount of brain drain in the country by awarding scholarship and training grants to students studying in the country while students studying abroad can be given grants only for programmes that are barely taught in our schools/universities due to lack of manpower and to conserve foreign exchange.

CONCLUSION

This study on government education expenditure and economic growth in Nigeria from 1980-2015 is very imperative because it examined empirically the degree to which Nigeria's government's expenditure on the educational sector has influenced economic growth in Nigeria from 1980 to 2015. With the utilization of data on RGDP, GCEE, GREE, and TSE from CBN Statistical Bulletin and the use of ordinary least square (OLS) and Co-Integration methods of econometrics to analyse the data so as to know the relationship that exists among the variables. The regression results suggest that there is a significant relationship between government capital expenditure on education and economic growth in Nigeria. There is also a significant relationship between government recurrent expenditure on education and economic growth in Nigeria. Thirdly, there is a significant relationship between tertiary school enrolment and economic growth in Nigeria. The long-run dynamic result (co- integration result) also demonstrated that there is a long-run relationship or equilibrium between the variables. Thus, the study concludes that investment in education is a key tool to economic progress. It does not only build up human capital but also help in the implementation of new technologies by lowering its adoption costs. Therefore, Nigeria's policy for economic growth and development has to focus more on the educational sector at all times. The government should strive to achieve high-quality education along with ensuring education for all. This could be done through increased public expenditures in the educational sector.

Recommendations

Based on the findings of this work, it is our recommendation that:

i. Nigeria should increase her annual budgetary allocation for the educational sector.
ii. The increase should maintain an upward review rather than an up and down pendulum. This becomes relevant considering the increase in the number of people seeking formal education, particularly at the tertiary levels because only trained labour force can meaningfully and potentially contribute to societal development. The importance of education is reminiscent of its role as a means of understanding, controlling, altering and redesigning of the human environment. It also has a link with economic development and so the economic quality of a country's labour force cannot be separated from the strength of its educational sector. Therefore, if Nigeria seeks to experience rapid economic then she must fund the sector adequately.
iii. In order to foster the growth of the economy, the Nigerian government must give high preference to ensuring that a high percentage of its population is entitled to quality education.
iv. Based on the findings of this research work, it is necessary to provide a set of policy recommendations that would be applicable to the economy of Nigeria.
v. Considering the importance of education in the economic growth and development of Nigeria, the government should increase her capital expenditure on the educational sector in order to improve the level of education for sustainable economic growth. That is, the government should carry out capital projects in the educational sector including building and renovation of classrooms and laboratories, purchase of teaching aids, etc. as these will help in enhancing knowledge, increased productivity and by implication promoting economic growth and development.
vi. The government should implement a good salary scheme and incentives for the teaching and non-teaching staff in the educational sector.
vii. Though it is inevitable that people travel outside the country to study, the government can take some pre-emptive measures to reduce the amount of brain drain in the country.
viii. Employ the best brain in our institutions of higher learning.
ix. Scholarships and training grants be awarded to students studying in the country while students studying abroad should be given grants only for programmes that are barely taught in our tertiary schools/universities due to lack of manpower.
x. Only University lecturers should be given Ministerial appointments in the educational sectors.
xi. The same salary scales and remunerations be given to all lecturers in higher institutions irrespective of type o institution either government (Federal or State) and private institutions of higher learning that are recognized by government regulatory body such as the National Universities Commission (NUC) in Nigeria.
xii. Enforcement of discipline against erring lecturers over government laws regulating conduct in tertiary institutions in Nigeria, such as no sorting or gratification and no sexual abuse.

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APPENDIX I: RESEARCH DATA:Nigeria's RGDP, GREE, GCEE and TSE

YEAR	RGDP (N million)	GREE (N million)	GCEE (N million)	TSE (N million)
1980	31546.08	597.2	952.6	57742
1981	205222.1	543.7	440.9	77791
1982	199685.2	646.7	488.4	90751
1983	185598.1	620.8	346.6	104774
1984	183563.0	716.3	144.9	116822
1985	201036.3	669.5	180.7	126285
1986	205971.4	652.8	442.0	125783
1987	204804.5	514.4	139.1	151967
1988	219875.6	802.3	281.8	160767
1989	236729.6	1719.9	221.9	174133
1990	267550.0	1962.6	331.7	179494
1991	265379.1	1265.1	289.1	200774
1992	271365.5	1676.3	384.1	232282
1993	274833.3	6436.1	1563.0	255730
1994	275450.6	7878.1	2405.7	281303
1995	281407.4	9421.3	3307.4	309433
1996	293745.4	12136.0	3215.8	269687
1997	302022.5	12136.0	3808.0	862023
1998	310890.0	13928.3	12793.0	941329
1999	312183.5	23047.2	8516.6	983689
2000	329178.7	44225.5	23342.6	1032873
2001	356994.3	39884.6	19860.0	1136160
2002	433203.5	100240.2	9215.0	124776
2003	477533.0	64755.9	14680.2	1272772
2004	527576.0	72217.9	21550.0	417281
2005	561931.4	92594.7	27440.8	1540021
2006	595821.6	129421.9	35791.8	1562010
2007	634251.1	71228.99	48293.5	1567550
2008	672202.6	97748.53	37175.4	1602441
2009	718977.3	99466.47	40420.2	1680112
2010	776332.2	89481.33	41963.0	1701123
2011	834161.9	95565.44	39852.9	1661225
2012	902794.0	94837.75	40745.4	1680820
2013	964184.0	93294.84	40853.8	1681056
2014	969969.1	94566.01	40484.0	1674367
2015	945,649.0	94232.87	40694.4	1678748

Source: *CBN Statistical Bulletin (Various Issues)*

APPENDIX II: REGRESSION RESULTS

LINEAR REGRESSION RESULT

Dependent Variable: RGDP

Method: Least Squares

Date: 10/04/18 Time: 08:41

Sample: 1980 2015

Included observations: 36

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	191981.5	27140.40	7.073644	0.0000
GCEE	9.272354	3.478461	2.665648	0.0119
GREE	1.486171	0.886276	1.676872	0.1033
TSE	0.040235	0.073277	0.549079	0.5868
R-squared	0.873960	Mean dependent var		428600.5
Adjusted R-squared	0.862144	S.D. dependent var		263763.2
S.E. of regression	97932.68	Akaike info criterion		25.92639
Sum squared resid	3.07E+11	Schwarz criterion		26.10233
Log likelihood	-462.6750	Hannan-Quinn criter.		25.98780
F-statistic	73.96247	Durbin-Watson stat		0.425764
Prob(F-statistic)	0.000000			

APPENDIX III: LOG-LINEAR REGRESSION RESULT

Dependent Variable: LOG(RGDP)

Method: Least Squares

Date: 10/04/18 Time: 08:42

Sample: 1980 2015

Included observations: 36

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	7.073193	1.004582	7.040928	0.0000
LOG(GCEE)	-0.264071	0.106466	-2.480339	0.0186
LOG(GREE)	0.359004	0.104272	3.442957	0.0016
LOG(TSE)	0.349752	0.111364	3.140624	0.0036
R-squared	0.786315	Mean dependent var		12.77103
Adjusted R-squared	0.766282	S.D. dependent var		0.683899
S.E. of regression	0.330627	Akaike info criterion		0.728788
Sum squared resid	3.498057	Schwarz criterion		0.904735
Log likelihood	-9.118183	Hannan-Quinn criter.		0.790198
F-statistic	39.25094	Durbin-Watson stat		1.245758
Prob(F-statistic)	0.000000			

APPENDIX IV: UNIT ROOT TEST RGDP @ LEVEL

Null Hypothesis: RGDP has a unit root

Exogenous: Constant

Lag Length: 1 (Automatic - based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		2.275536	0.9999
Test critical values:	1% level	-3.639407	
	5% level	-2.951125	
	10% level	-2.614300	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(RGDP)

Method: Least Squares

Date: 10/04/18 Time: 08:43

Sample (adjusted): 1982 2015

Included observations: 34 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RGDP(-1)	0.038952	0.017118	2.275536	0.0299
D(RGDP(-1))	0.139964	0.120433	1.162177	0.2540
C	1356.992	7832.136	0.173259	0.8636
R-squared	0.239460	Mean dependent var		21777.26
Adjusted R-squared	0.190393	S.D. dependent var		25107.00
S.E. of regression	22590.81	Akaike info criterion		22.97257
Sum squared resid	1.58E+10	Schwarz criterion		23.10725
Log likelihood	-387.5337	Hannan-Quinn criter.		23.01850
F-statistic	4.880260	Durbin-Watson stat		0.749851
Prob(F-statistic)	0.014368			

RGDP @ 1ST DIFF.

Null Hypothesis: D(RGDP) has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic - based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-6.374925	0.0000
Test critical values:	1% level	-3.639407	
	5% level	-2.951125	
	10% level	-2.614300	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(RGDP,2)
Method: Least Squares
Date: 10/04/18 Time: 08:44
Sample (adjusted): 1982 2015
Included observations: 34 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(RGDP(-1))	-0.759988	0.119215	-6.374925	0.0000
C	15152.77	5272.267	2.874051	0.0071

R-squared	0.559469	Mean dependent var	-5823.415
Adjusted R-squared	0.545703	S.D. dependent var	35637.69
S.E. of regression	24020.36	Akaike info criterion	23.06821
Sum squared resid	1.85E+10	Schwarz criterion	23.15800
Log likelihood	-390.1596	Hannan-Quinn criter.	23.09883
F-statistic	40.63967	Durbin-Watson stat	0.684032
Prob(F-statistic)	0.000000		

GCEE @ LEVEL

Null Hypothesis: GCEE has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 0 (Automatic - based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-2.473204	0.3385
Test critical values:	1% level	-4.243644	
	5% level	-3.544284	
	10% level	-3.204699	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(GCEE)
Method: Least Squares
Date: 10/04/18 Time: 08:45
Sample (adjusted): 1981 2015
Included observations: 35 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GCEE(-1)	-0.274775	0.111101	-2.473204	0.0189
C	-3136.018	2131.657	-1.471164	0.1510
@TREND("1980")	464.9423	185.0409	2.512646	0.0172

R-squared	0.169793	Mean dependent var	1135.480
Adjusted R-squared	0.117905	S.D. dependent var	5095.299
S.E. of regression	4785.501	Akaike info criterion	19.86639
Sum squared resid	7.33E+08	Schwarz criterion	19.99970
Log likelihood	-344.6617	Hannan-Quinn criter.	19.91241
F-statistic	3.272298	Durbin-Watson stat	2.147183
Prob(F-statistic)	0.050931		

GCEE @ 1ST DIFF.

Null Hypothesis: D(GCEE) has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 0 (Automatic - based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-6.758450	0.0000
Test critical values:	1% level	-4.252879	
	5% level	-3.548490	
	10% level	-3.207094	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(GCEE,2)

Method: Least Squares

Date: 10/04/18 Time: 08:46

Sample (adjusted): 1982 2015

Included observations: 34 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(GCEE(-1))	-1.193167	0.176544	-6.758450	0.0000
C	292.2491	1905.293	0.153388	0.8791
@TREND("1980")	60.33893	91.64454	0.658402	0.5151

R-squared	0.595825	Mean dependent var	21.23824
Adjusted R-squared	0.569749	S.D. dependent var	7935.161
S.E. of regression	5204.948	Akaike info criterion	20.03670
Sum squared resid	8.40E+08	Schwarz criterion	20.17138
Log likelihood	-337.6240	Hannan-Quinn criter.	20.08263
F-statistic	22.84975	Durbin-Watson stat	2.044528
Prob(F-statistic)	0.000001		

GREE @ LEVEL

Null Hypothesis: GREE has a unit root

Exogenous: Constant

Lag Length: 1 (Automatic - based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-0.482399	0.8827
Test critical values:	1% level	-3.639407	
	5% level	-2.951125	
	10% level	-2.614300	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(GREE)

Method: Least Squares

Date: 10/04/18 Time: 08:48

Sample (adjusted): 1982 2015

Included observations: 34 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GREE(-1)	-0.032915	0.068232	-0.482399	0.6329
D(GREE(-1))	-0.478559	0.160058	-2.989905	0.0054
C	5410.576	3903.289	1.386158	0.1756
R-squared	0.252919	Mean dependent var		2755.564
Adjusted R-squared	0.204720	S.D. dependent var		18500.46
S.E. of regression	16498.43	Akaike info criterion		22.34401
Sum squared resid	8.44E+09	Schwarz criterion		22.47869
Log likelihood	-376.8483	Hannan-Quinn criter.		22.38994
F-statistic	5.247417	Durbin-Watson stat		2.233135
Prob(F-statistic)	0.010894			

GREE @ 1ST DIFF.

Null Hypothesis: D(GREE) has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic - based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-9.762383	0.0000
Test critical values:	1% level	-3.639407	
	5% level	-2.951125	
	10% level	-2.614300	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(GREE,2)
Method: Least Squares
Date: 10/04/18 Time: 08:50
Sample (adjusted): 1982 2015
Included observations: 34 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(GREE(-1))	-1.497340	0.153379	-9.762383	0.0000
C	4130.106	2827.288	1.460801	0.1538

R-squared	0.748633	Mean dependent var	-8.224706
Adjusted R-squared	0.740778	S.D. dependent var	32013.75
S.E. of regression	16299.43	Akaike info criterion	22.29267
Sum squared resid	8.50E+09	Schwarz criterion	22.38246
Log likelihood	-376.9754	Hannan-Quinn criter.	22.32329
F-statistic	95.30413	Durbin-Watson stat	2.253943
Prob(F-statistic)	0.000000		

TSE @ LEVEL

Null Hypothesis: TSE has a unit root
Exogenous: Constant
Lag Length: 1 (Automatic - based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-0.427758	0.8931
Test critical values:	1% level	-3.639407	
	5% level	-2.951125	
	10% level	-2.614300	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(TSE)
Method: Least Squares
Date: 10/04/18 Time: 08:51
Sample (adjusted): 1982 2015
Included observations: 34 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TSE(-1)	-0.033149	0.077496	-0.427758	0.6718
D(TSE(-1))	-0.675050	0.135822	-4.970094	0.0000
C	104513.5	74757.95	1.398026	0.1720

R-squared	0.483289	Mean dependent var	47086.97
Adjusted R-squared	0.449952	S.D. dependent var	375244.9
S.E. of regression	278301.1	Akaike info criterion	27.99489
Sum squared resid	2.40E+12	Schwarz criterion	28.12957
Log likelihood	-472.9132	Hannan-Quinn criter.	28.04082
F-statistic	14.49741	Durbin-Watson stat	2.008520
Prob(F-statistic)	0.000036		

TSE @ 1ST DIFF.

Null Hypothesis: D(TSE) has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic - based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-13.28305	0.0000
Test critical values:	1% level	-3.639407	
	5% level	-2.951125	
	10% level	-2.614300	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(TSE,2)

Method: Least Squares

Date: 10/04/18 Time: 08:53

Sample (adjusted): 1982 2015

Included observations: 34 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(TSE(-1))	-1.693075	0.127461	-13.28305	0.0000
C	80041.14	47503.19	1.684963	0.1017

R-squared	0.846478	Mean dependent var	-460.8235
Adjusted R-squared	0.841681	S.D. dependent var	690449.0
S.E. of regression	274725.3	Akaike info criterion	27.94195
Sum squared resid	2.42E+12	Schwarz criterion	28.03174
Log likelihood	-473.0132	Hannan-Quinn criter.	27.97257
F-statistic	176.4394	Durbin-Watson stat	2.027336
Prob(F-statistic)	0.000000		

APPENDIX V: JOHANSEN COINTEGRATION TEST

Date: 10/04/18 Time: 08:55

Sample (adjusted): 1982 2015

Included observations: 34 after adjustments

Trend assumption: Linear deterministic trend (restricted)

Series: RGDP GCEE GREE TSE

Lags interval (in first differences): 1 to 1

Unrestricted Co integration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.658022	83.53336	63.87610	0.0005
At most 1 *	0.603247	47.05102	42.91525	0.0183
At most 2	0.265338	15.62003	25.87211	0.5233
At most 3	0.140211	5.136303	12.51798	0.5769

Trace test indicates 2 co integrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Co integration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.658022	36.48234	32.11832	0.0137
At most 1 *	0.603247	31.43099	25.82321	0.0082
At most 2	0.265338	10.48373	19.38704	0.5673
At most 3	0.140211	5.136303	12.51798	0.5769

Max-eigenvalue test indicates 2 co integrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Co integrating Coefficients (normalized by b'*S11*b=I):

RGDP	GCEE	GREE	TSE	@TREND(81)
-2.79E-06	0.000406	-7.90E-05	-8.85E-06	0.228271
1.12E-05	-0.000190	-3.50E-06	3.43E-06	-0.225148
4.79E-06	7.33E-06	3.47E-05	-5.35E-06	0.078620
2.78E-06	0.000124	1.74E-05	-7.88E-07	-0.260192

Unrestricted Adjustment Coefficients (alpha):

D(RGDP)	-5435.410	-16790.46	-1523.465	1559.175
D(GCEE)	-2262.358	466.1957	1091.603	-730.0829
D(GREE)	5335.538	-5038.028	-3707.723	-3708.585
D(TSE)	51994.69	1100.097	109703.4	-33995.70

1 Co integrating Equation(s): Log likelihood -1539.996

Normalized co integrating coefficients (standard error in parentheses)

RGDP	GCEE	GREE	TSE	@TREND(81)
1.000000	-145.3968	28.28436	3.167414	-81738.04
	(20.2195)	(4.64682)	(0.51581)	(17588.8)

Adjustment coefficients (standard error in parentheses)

D(RGDP)	0.015180
	(0.01190)
D(GCEE)	0.006318
	(0.00178)
D(GREE)	-0.014901
	(0.00759)
D(TSE)	-0.145207
	(0.12378)

2 Co integrating Equation(s): Log likelihood -1524.281

Normalized co integrating coefficients (standard error in parentheses)

RGDP	GCEE	GREE	TSE	@TREND(81)
1.000000	0.000000	-4.103446	-0.073183	-11950.80
		(1.21383)	(0.08924)	(5630.00)
0.000000	1.000000	-0.222755	-0.022288	479.9779
		(0.02851)	(0.00210)	(132.234)

Adjustment coefficients (standard error in parentheses)

D(RGDP)	-0.172726	0.990437
	(0.03283)	(1.27659)
D(GCEE)	0.011535	-1.007416
	(0.00726)	(0.28232)
D(GREE)	-0.071282	3.125927
	(0.02936)	(1.14152)
D(TSE)	-0.132895	20.90307
	(0.51123)	(19.8781)

3 Co integrating Equation(s):		Log likelihood	-1519.039	

Normalized co integrating coefficients (standard error in parentheses)

RGDP	GCEE	GREE	TSE	@TREND(81)
1.000000	0.000000	0.000000	-0.428020	-2244.004
			(0.12482)	(7714.04)
0.000000	1.000000	0.000000	-0.041550	1006.909
			(0.00633)	(391.017)
0.000000	0.000000	1.000000	-0.086473	2365.524
			(0.02849)	(1760.69)

Adjustment coefficients (standard error in parentheses)

D(RGDP)	-0.180021	0.979271	0.435345
	(0.03537)	(1.27021)	(0.24447)
D(GCEE)	0.016762	-0.999416	0.214905
	(0.00743)	(0.26677)	(0.05134)
D(GREE)	-0.089036	3.098753	-0.532316
	(0.03056)	(1.09756)	(0.21124)
D(TSE)	0.392412	21.70708	-0.308776
	(0.48925)	(17.5718)	(3.38196)