AN EMPIRICAL INVESTIGATION OF THE EFFECTIVENESS OF GOVERNMENT SPENDING ON EDUCATION AND HEALTH SECTORS IN NIGERIA (1980-2009)

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OCTOBER 2012

DECLARATION

I hereby declare that the thesis entitled "AN EMPIRICAL INVESTIGATION OF THE EFFECTIVENESS OF GOVERNMENT SPENDING ON EDUCATION AND HEALTH SECTORS IN NIGERIA (1980-2009)" is the result of a research work carried out by BASHEER WAHAB SEKONI under the supervision PROF ABDULGANIYU GARBA and DR NJIFORTIPETER in the Department of Economics, Ahmadu Bello University, Zaria.

I further declare that it has not been previously submitted either in part or full to this or any other university for any degree. Due acknowledgements have been made whenever anything has been borrowed or cited from other Sources.

BASHEER WAHAB SEKONI …….. …….....

Signature Date

CERTFICATION

This is to certify that the thesis titled "AN EMPIRICAL INVESTIGATION OF THE EFFECTIVENESS OF GOVERNMENT SPENDING ON EDUCATION AND HEALTH SECTORS IN NIGERIA (1980-2009)" written by BASHEER WAHAB SEKONI meets the requirements and regulation governing the award of Masters of Science Degree (Economics) in the Department of Economics of Ahmadu Bello University, Zaria and is hereby approved for its contribution to knowledge and literary presentations.

…… ……

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DEDICATION

This thesis is dedicated to Almighty Allah who has bestowed on me knowledge to put this together and to my late dad Alh. WahabAkanbiSekoni as well as my mum Alh.WahabKhadijat for her constant love.

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Abstract

The study investigated the efficiency and effectiveness of government spending on human capital development in Nigeria (1980-2009) as a means of determining whether government spending on human development were efficient and effective in accomplishing the human development outcomes in the country. Specifically, the study focused on two main components of human capital- education and health; and modelled each component separately.The study used secondary data and employed ordinary least square techniques to estimate; in addition to charts and percentages for trend analysis. The result revealed that government capital spending on education and health sectors in the country is inefficient and ineffective in spurring human development. The study concluded that there was need for more capital spending as well as effective budget monitoring and evaluation through the use of performance-based budget technique rather than the line-itemed budget system.

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CHAPTER ONE

1.1 BACKGROUND TO THE STUDY

The way government expenditures are allocated has important impact on human capital formation hence, economic growth. According to Gupta et al (2001), public spending on education and health through its positive effects on the formation of human capital, can boost economic growth while promoting equity and reducing poverty. Spending on human capital development is aimed at ensuring that human resource endowments of a country are skilled, knowledgeable, healthy, innovative and productive to engender economic growth through further optimal exploitations of resources.

In every economy, public expenditure plays an important role in the development process through its effects on the quantity and quality of publicly provided social services, especially primary, secondary and tertiary education as well as primary health care (Olaniyi and Adams, 2003). Public spending on human capital development has, therefore, been identified as critical in the attainment of Vision 20:2020 and the 2015 Millennium Development Goals (MDGs).

In Nigeria, the importance government places on human capital resource development over years, has led to the establishment of educational institutions and health centres throughout the country. However, in the late 1970s and early 1980s, federal government spending grew substantially, resulting in deficits, inflation, and heavy borrowings. Subsequently, through the austerity measures adopted in 1982 and the Structural Adjustment Programme (SAP) introduced in 1986, the country attempted to bring down fiscal deficits as part of its stabilization measures by reducing public spending across board. These reductions, while necessary, resulted in unacceptable economic and social costs as human resource

development was neglected with adverse long-term developmental consequences (Olaniyi and Adams, 2003).

In the mainstream economic literature, public expenditures on human capital formation have been recognized as a key aspect of fiscal policy in most countries of the world. Human resource development is the basic factor that distinguishes the emerged, transitional and the emerging economies. Empirically, education development has been found to have a positive and significant effect on economic growth (World Bank, 1980; Barro, 1998; Barro and Sala-i-Martin, 1995), improve health, reduce poverty, increase access to paid employment and enhance social and political participation (Hill and King, 1991).

In recognition of the role of human capital formation in development, developing nations have, in varying degrees, attempted to stimulate the accumulation of human capital through public education expenditure as well as government spending on health and related social services. However, the debt crisis of the early 1980s and the implementation of Structural Adjustment Programme which emphasized fiscal austerity threatened public spending on education and health.

1.2 PROBLEM STATEMENT

Despite the importance of education and health to the human and economic development, Nigeria's education and health sectors confront numerous challenges. In terms of budgetary appropriations, these sectors are grossly underfunded. Although, education expenditure as a proportion of Gross Domestic Product (GDP) averaged 0.95 per cent between 1986 and 1989, 1.60 per cent between 1999 and 2003, and 5.88 per cent between 2004 and 2009, it is well below those of other developing countries such as Ghana, Kenya and Seychelles, which in 1960 and 1977, were spending an average of 11.7 and 16.3 per cent (Olaniyi and Adams, 2003) while in 2004 and 2009 were expending an average of 14.4 and 18.5 per cent of their total expenditure on education.

The United Nations recommends that 26 per cent of the government budget be devoted to education. In the last two or three decades the system has been consistently declining in standards. Graduates of the educational system are not only derided, but are also described as lacking in quality, low in perception and unfit in skills. In many cases, employers compensate for insufficient academic preparation by organizing remedial courses for new employees. The national literacy rate is 66 percent (UNDP, 2010). More than average of the teachers in schools is unqualified. There are acute shortages of infrastructure and facilities at all levels. Access to basic education is inhibited by gender issues and socio-cultural beliefs and practices, among other factors. Wide disparities persist in educational standards and learning achievements (Kazeem and Ige, 2010).

Equally, between 1986 and 1989, health expenditure as a per cent of GDP, in Nigeria, averaged 0.29 per cent and hardly changed between 1990 and 1993 (when it averaged 0.31 per cent) and 4.2 per cent precisely in 2009. When Nigeria's performance is compared with other African countries, it is observed that in 1990, government expenditure on health as a per cent of GDP was 2.7 per cent against 3.5 per cent in Ghana, 4.3 per cent in Kenya and between 1995 and 1997, 4 per cent in Seychelles (Olaniyi and Adams, 2003). World Health Organisation recommends that a minimum of 5 per cent of the government budget be devoted to health. A high proportion of the budget for health is spent on hospitals almost all of which are located in the cities (Griffin and Mckinley, 1992). At the same-time, only about 40 per cent of the population has access to primary health care. A high proportion of the poor, and of those living in rural areas, is not reached by the health care system and is forced to rely on home remedies and traditional medicine (Griffin and Mckinley, 1992).

Besides low budget allocations to education and health, budget performance is also below average. The effectiveness and efficiency in the utilization of the funds appropriated to the two sectors have been a subject of concerns. More attention is paid to budget appropriations

than budget performance. Not only is the problem of human capital development in Nigeria due to poor budget appropriations but also poor budget implementations on the part of relevant government agencies concerned. However, most empirical works done on human capital developmental challenges in Nigeria have narrow down the problems mainly to poor budget appropriations. It is in view of this, this study dwells on investigating the efficiency and effectiveness of government spending on human capital development as well as analyzing the structural trends of government allocations to human capital development over years. The state of education and health raises three key questions:

a) Is Government spending on human capital development in Nigeria efficient?
b) Is Government spending on human capital development in Nigeria effective?
c) What is the trend of government spending on human capital development?

1.3 OBJECTIVES OF THE STUDY

The general objective of this study, therefore, is to empirically investigate the efficiency and effectiveness of government spending on human capital development in the country. The specific objectives are:

a) To analyze the changing trends of government spending on human capital development in the country over years.
b) To recommend appropriate policy actions to the government to enhance greater human capital development in the country.

1.4 JUSTIFICATION FOR THE STUDY

Poor implementation of budget appropriated to human capital development in Nigeria has been one of the impediments to human resource development in Nigeria aside from inadequate funding. This is as a result of the low importance attached to human capital potentials in enhancing economic development in the country. According to 2010 Human Development Report, Nigeria's human development index (HDI) is 0.423. Nigeria is paradoxically classified among the 25 poorest countries in the world despite its rich oil reserves, natural resources, impressive human resources, agricultural potentials and emerging industrial potentials. According to the recent Global Competitiveness Report, in basic requirement, Nigeria is ranked 127th of 139 countries considered. This abysmal position is not unconnected with poor human development in the country. The current annual per capita income of US$ 310 is far below that of US$ 1,000 in the 1980s. The decline in per capita GDP may have resulted from the drastic reductions in the rate of economic growth in the country with corresponding population explosions coupled with low level of human development. Thus, it becomes imperative to empirically investigate the efficiency and effectiveness of government spending on human capital development in the country.

A review of Nigeria's economic development revealed that overall macroeconomic policies and development strategies had failed to provide an enabling environment that could alter the structure of production and consumption activities in order to diversify the economic base. The country has continued to be a mono-cultural economy, depending on oil, indicating that the export base is yet to be diversified. Widening saving investment gap, high rates of inflation, chronic balance of payment problems and underutilization of resources have continued to be the order of the day. Poverty and inequality are wide spread with about 71 million Nigerians living below $1 a day and the Gini coefficient of 0.49. Socio statistics such

as infant(under 5 years) and maternal mortality rate as well as unemployment rate are higher than the averages for developing countries (Fakiyesi and Ajakaiye, 2009).

In the light of Nigeria's current economic problems, and particularly its poverty and health situations as well as decaying educational system, there is need for empirical investigations into the efficiency and effectiveness of public spending on educational development and health sector restructuring in a bid to make appropriate recommendations that could reverse the ugly trends. Since a healthy and well-educated people make an economy more productive, it is apparent that a study of this nature can re-awaken the consciousness of government and other stakeholders to commit more resources to human capital development through investment in education and health with a view to improving educational system, alleviating poverty, reducing infant and maternal mortality rates and also protect the Nigerian economy from further crises.

1.5 ORGANISATION OF THE STUDY

The study consists of five chapters. Chapter one contains the background to the study, statement of the problem, objectives of the study, justification, scope and limitations, data sources, statement of hypotheses and organisation of the study. Chapter two presents a review of conceptual, theoretical and empirical literature as well as an overview of the education and health sectors in Nigeria. Chapter three presents the methodology and other estimation techniques while chapter four contains analysis and interpretations of results. In chapter five, are the summary, conclusion and recommendations of the study.

CHAPTER TWO

LITERATURE REVIEW

2.1 CONCEPTUAL LITERATURE

Human capital is a broad concept which identifies human characteristics which can be acquired and which increase productivity hence, income earning capacities of labour. It is commonly taken to include peoples' knowledge and skills, acquired partly through education, but can also include their strength and vitality, which are dependent on their health and nutrition. Human capital theory focuses on health and education as inputs to economic production. This is in contrast to the concept of human development which views health and education as intrinsically valuable outcomes to be placed alongside economic production as measures of human welfare (Todaro and Smith, 2003). In understanding the role of human capital as an input into development it is necessary to consider the possible links between government's human capital spending and a nation's human capital endowment. While it is true for every country, for which there is data, that more educated people earn more than less educated ones; it does follow that there is a simple relationship between investing in people and countries becoming richer. Government's spending on human capital and a nation's human capital endowments are complementary (Adamu, 2003).

The concept of human capital is not easily amenable to a general definition. Different writers often define human capital in different ways because the concept is complex and multifaceted. Adam Smith (1776) was the first classical economist to include human capital in his definition of capital. He included in the capital stock of a nation the inhabitants' acquired and useful talents, because human skills increase the wealth of a society as well as an individual. The concept of human capital was largely forgotten by economists until its re-birth in the early 1960s with the writing of Becker (1960, 1964); and Schultz (1961, 1962).

These economists rekindled the concept by re-affirming its links with economic growth and emphasizing its importance in explaining earning differentials

In the recent literature, OECD (2001) defines human capital as the knowledge, skills, competencies and attributes embodied in individuals that facilitate the creation of personal, social and economic well-being. Human capital is also represented by the aggregation of investments in activities such as education, health, on-the-job training and migration (brain gain) that enhances an individual's productivity in the labour market (Becker 1964). Human capital theory emphasizes how education and health increase the productivity and efficiency of workers by increasing the level of cognitive stock of economically productive human capability which is a product of innate abilities and investment in human beings.

Human capital is a stock concept; human capital formation is, therefore, its flow equivalent. Much of the empirical studies that measure the impact of human capital on growth over-emphasize the estimates and tend to under-estimate the importance of human capital formation (Garba, 2003). Human capital formation is an integral part of the process of human resource development. Yesufu (2000), cited in Garba (2003) quoted Okojie (1995) with approval, defines human capital formation as "the process of acquiring and increasing the number of persons who have the skills, education and experience which are critical for economic and political development of a country."

The concept of manpower planning places human capital formation within the context of development processes. Garba (2003) cited Ojo (1986) to have defined manpower planning as "the process of determining the policies that will develop, utilize and distribute manpower with a view to achieving a country's broader aims of socio-economic development." Manpower planning, thus, deals with human capital formation, allocation and utilization. Human capital formation deals with the issues of supply of human capital, human capital

utilization is concerned with the issues relating to the demand and the effective and efficient use of the stock of human capital (Garba, 2003).

The provisions of formal education and sound health are seen as productive investments in human capital, which the proponents of the theory have considered as equally or even more equally worthwhile than that of physical capital. According to Babalola (2003) cited in Lawanson (2009), the rationality behind investment in human capital is based on three arguments:

i. That the new generation must be given the appropriate parts of the knowledge which has already been accumulated by previous generations.

ii. That the new generation should be taught how existing knowledge should be used to develop new products, to introduce new processes of production and social services.

iii. That people must be encouraged to develop entirely new ideas, products, processes and methods through creative approaches.

2.1.1 MEASUREMENTS OF HUMAN CAPITAL

A review of literature reveals that there are three major approaches to estimating human capital which include: the cost-based approach, the income-based approach, and the education-based approach. We examine the features of each approach including modifications made to each approach.

(a) The Cost-based Approach

The cost-based approach considers the costs incurred in human capital formation. Engel (1883) was the first to apply a cost-based approach when he estimated human capital based on child rearing costs to their parents. He argued that since it was difficult to anticipate future earnings, the production cost of human capital can be a better source of the estimation.

Schutlz (1961) and Manchlup (1962) estimated human capital based on the assumption that the depreciated value of the dollar amount spent on those items defined as investments in human capital is equal to the stock of human capital.

The limitation of this approach is that it excludes social costs and the depreciation (or appreciation) of human capital investment. Cost-based estimates of investments in education fail to account for the crucial time dimension of educational investment (Jorgenson and Fraumeni, 1992). Thus, there is a long lag between the current outlays of educational institutions and the emergence of human capital embodied in their graduates. Another limitation, as pointed out by Jorgenson and Fraumeni (1992), is that by evaluating human capital based on the costs of education and rearing rather than lifetime labour incomes, the cost-based approach disregards the value of non-market activities.

(b) The Income-based Approach

The basic idea behind the income-based approach is that human capital embodied in individuals is valued as the total income that could be generated in the labour market over a life time. Using the income-based approach to human capital measurement, some authors seek to obtain an index value rather than a monetary measure. Prominent examples of this stream of researches are Mulligan and Sala-i-Martins (1997), Macklem (1997); Laroche and Merette (2000).

This approach, however, is not free from drawbacks. Most notably, the model rests crucially on the assumption that differences in wages truly reflect differences in productivity. If this assumption fails, the model collapses. Another shortcoming of the income-based method is that data on earnings are not as widely available as data on investment. This is especially the case for developing countries, where the wage rate is often not observable.

(c)The Education-based Approach

Contrary to the conventional approaches that measure human capital by cost or yield, the education-based approach estimates human capital by measuring such education output indicators such as literacy rates, enrolment rates, drop-out rates, repetition rates, average years of schooling in the population, and test scores. The rationale for this method is that these indicators are closely related to investment in education and that (investment in) education is a key element in human capital formation. Education measures are, therefore, proxies for, not direct measures of, human capital. Of course, human capital encompasses more dimensions but education is arguably the most important component. The following are the main proxies of the education-based approach:

(i) Adult Literacy Rates

It is defined as the proportion of the population aged 15 and above who are able to "read and write" a simple statement on his or her everyday life (UNESCO, 1993). Adult literacy rates convey meaningful information about a country's general educational status. This indicator has been used in early empirical studies on human capital and growth. Prominent works of Romer (1989),Azariadis and Drazen (1990) used this method to empirically test the impact of literacy rates on the economic growths of their respective countries of studies.

(ii) School Enrolment Rates

School enrolment rates measure the number of students enrolled at different levels of education relative to the population of the age group who, according to national regulations or customs, should be attending school at those levels. Net and gross enrolment rates are distinguished by the numerator of the ratio. Specifically, gross enrolment rates take as the numerator the total number of students, regardless of age, enrolled at the given level; whereas net enrolment rates only count those students belonging to the designated age group. Studies

that treat school enrolment rates as proxies for human capital include: Barro (1991), Mankiw et al (1992), Levine and Renelt (1992) and Gemmell (1996).

(iii)Average Year of Schooling

The shortcomings inherent in other proxies for capturing human capital stocks motivated researchers to look for another indicator, namely the average years of schooling of the labour force. This measure quantifies the accumulated educational investment in the current labour force and assumes that the human capital embodied in the workers are proportional to the years of schooling that they have attained. The number of average years of schooling has several advantages over adult literacy rates. First, it is a valid stock measure. Second, by taking into account the total amount of formal education acquired by the labour force, years of schooling captures the effective human capital available for economic production. Since primary data on years of schooling are mostly unavailable in developing countries, researchers have to construct the data set they want using several techniques. One of the studies that adopted this approach is the Barro and Lee studies (1993).

2.1.2 CONCEPTS OF EFFECTIVENESS AND EFFICIENCY OF PUBLIC SPENDING

The analysis of efficiency and effectiveness is about the relationships between inputs, outputs and outcomes. In 1957, Farrell already investigated the question of how to measure efficiency and highlighted its relevance for economic policy makers. "It is important to know how far a given industry can be expected to increase its output by simply increasing its efficiency, without absorbing further resources" (Mandl, et al, 2008). Since 1957, techniques for measuring efficiency have improved. Nevertheless, the measurement of efficiency and effectiveness of public spending remains a conceptual challenge. Problems arise because public spending has multiple objectives and public sector outputs are often not sold on the market which implies that price data is not available and that the output cannot be quantified.

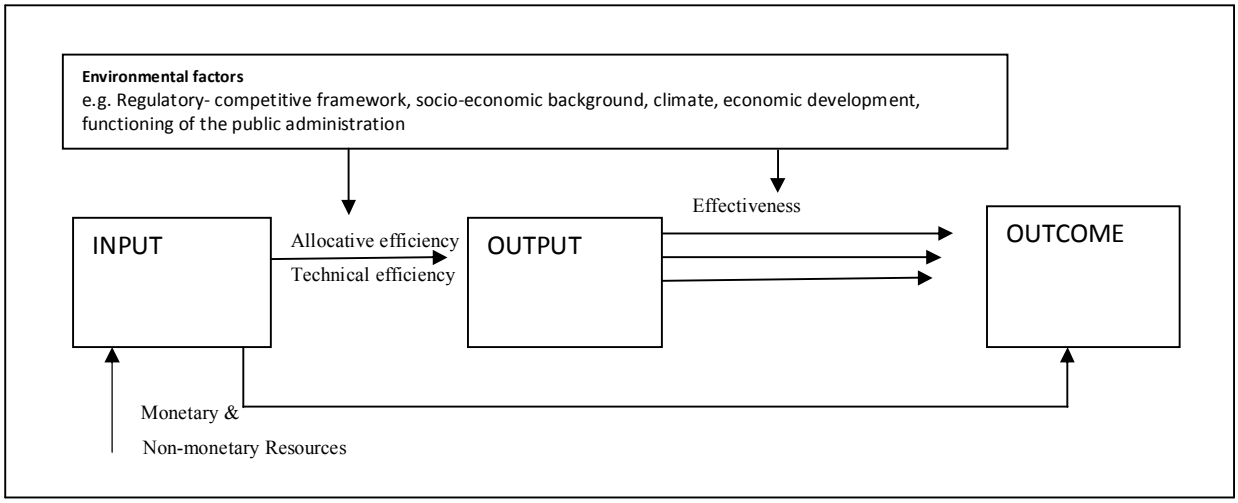
Figure 2.1 illustrates the conceptual framework of efficiency and effectiveness. It shows the link between input, output and outcome. The monetary and non-monetary resources are deployed (the input) to produce an output. For example, education spending (input) affects educational attainment rates (output). The input-output ratio is the most basic measure of efficiency. However, compared to productivity measurement, the efficiency concept incorporates the idea of the production possibility frontier, which indicates feasible output levels given the scale of operations. The greater the output for a *given* input or the lower the input for a *given* output, the more efficient the activity is. Productivity, by comparison, is simply the ratio of outputs produced to inputs used.

Effectiveness relates the input or the output to the final objectives to be achieved, i.e. the outcome. The outcome is often linked to welfare or growth objectives and therefore may be influenced by multiple factors (including outputs but also exogenous 'environment' factors). The distinction between output and outcome is often blurred and output and outcome are used in an interchangeable manner, even if the importance of the distinction between both concepts is recognised. For example, the outputs of an education system are often measured in terms of performance or attainment rates of pupils of a certain age. The final outcome, however, could be the educational qualifications of the working-age population as a whole. The effectiveness shows the success of the resources used in achieving the objectives set.

This implies that efficiency and effectiveness are not always easy to isolate. In addition, outputs and outcomes may be affected by environmental factors, which may or may not be within the control of the policy maker. For instance, if we scrutinise the efficiency of education spending, the wage setting mechanism is seen as an exogenous factor, whereas if we consider the efficiency of the public administration as a whole, the wage setting mechanism might be an important input of efficiency. Whether specific characteristics are taken as given or seen as under the control of policy makers depends among others on the

level of aggregation of the analysis. A high level of aggregation can conceal inefficiencies. For example, at the more aggregated level, specific sector-related circumstances would be taken for granted like the combination of inputs within the spending item. This illustrates the importance of correctly defining the scope of any efficiency and effectiveness analysis.

Figure 2.1:Conceptual framework of efficiency and effectiveness



Source: *Adapted from Mandl et al (2008): "The Effectiveness and Efficiency of Public Spending"; European Commission Journal Series.*

When measuring efficiency, a distinction can be made between technical and allocative efficiency. Technical efficiency measures the pure relation between inputs and outputs taking the production possibility frontier into account. Technical efficiency gains are a movement towards this production possibility frontier ("best practice"). However, not every form of technical efficiency makes economic sense, and this is captured by allocative efficiency, which introduces costs and benefits. Allocative efficiency reflects the link between the optimal combination of inputs taking into account costs and benefitsand the output achieved (Mandl, et al, 2008).

For instance to instruct pupils, there is a mix of inputs necessary, such as teachers, books and infrastructure. The attainment rate could be maximised by an optimal combination of these inputs. Thus, the measurement of allocative efficiency requires in-depth analyses of the area

in question as well as information on the broad country-specific strategies and most notably information on input prices. A high degree of technical efficiency achieved at the level of each individual input does not guarantee an efficient functioning of public sector activities if alternative combinations of inputs would result in higher outputs.

Another complication, which one encounters when measuring efficiency and effectiveness in terms of the identification of inputs and outputs, is that many public services are interlinked. This is the case, for example, when the outputs of one public service are used as inputs by another. For example, the research output of public research institutions is at the same time an input for R&D activities at universities. Similarly, public services can influence each other. For example, the public transport system – the output of spending on infrastructure – affects the spending on education (input) as school buildings have to be reachable. Unlike the private sector, the public sector cannot easily be represented by a clear input – output relationship.

2.1.3 ECONOMIC EFFECTS OF EDUCATION HUMAN CAPITAL

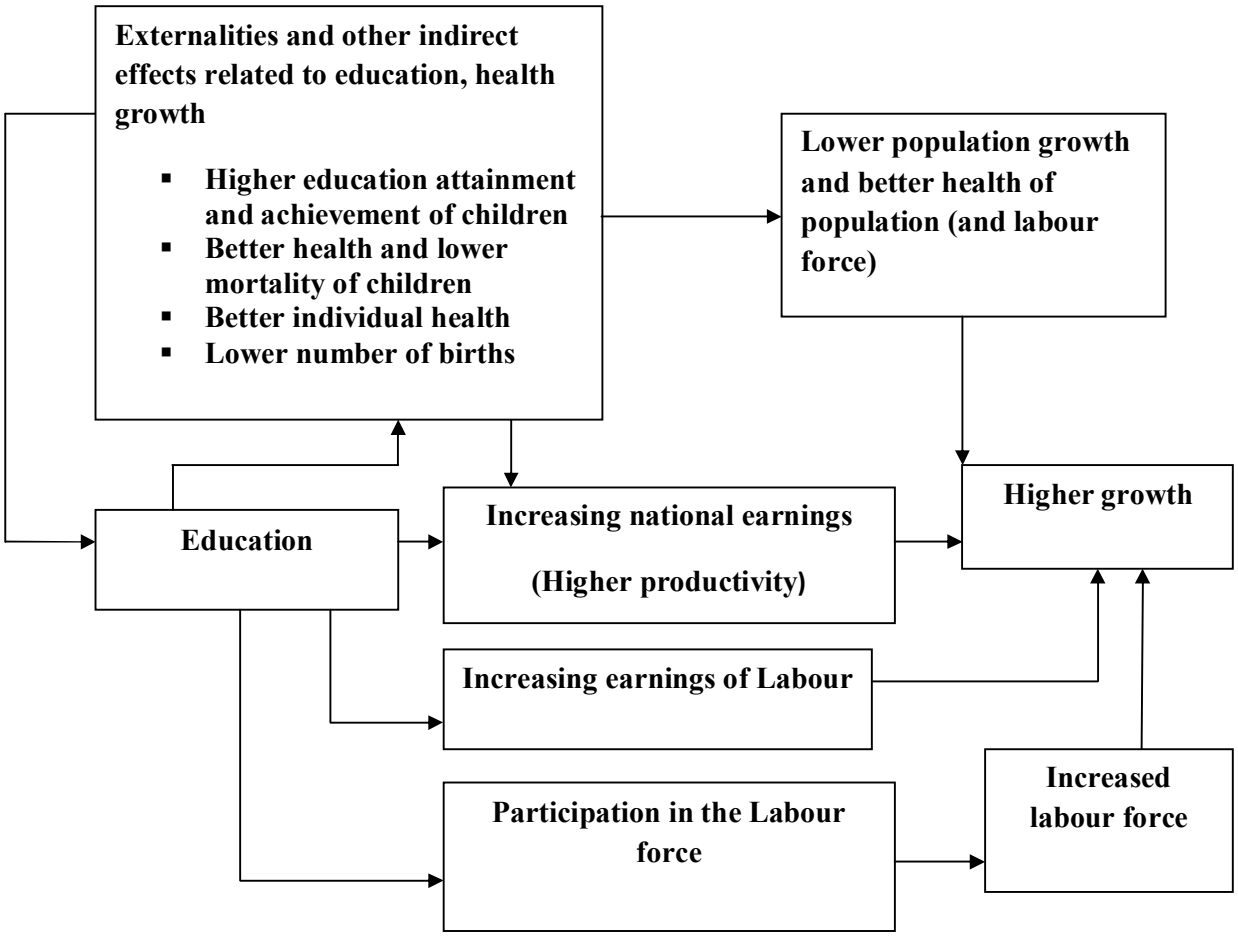
The role of education and human capital in economic growth and development of an economy has been underscored in many studies (such as: Mingat and Tan, 1992, Prichett and Filmer, 1997, Guptal et al, 2002, Larocque, 2008, and Risikat, 2010). Education, as a key component of human capital formation is recognized as being vital in increasing the productive capacity of people. Education, especially 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 (Larocque, 2008). Figure 2.2 depicts the economic effects of education on economic growth. An investment in education is very beneficial to the society, both at the micro level as well as macro level and affects the system both directly and indirectly. Increase in individual's wage is a direct effect while the increasing externalities associated to education are an indirect effect (Dahlin 2005, Heckman and Klenow, 1997 and Michaelowa, 2000). Education is basic to development, and also

regarded as the only instrument through which the society can be transformed. As a salient factor in transition programme, education equips human resources with the needed knowledge, skills and competencies, which would make them functional, and contribute to the all-round development of the nation. It does not only help to supply the essential human capital which is a necessary condition for sustained economic growth but it is a key to poverty reduction and vehicle for promoting equity, fairness and social justice (Okojie, 1995; Yesufu, 2000; Todaro, 2003).

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 Nigeria, in terms of budget estimates, the ratio of public expenditure on social and community services to total public expenditure averaged 12.2 per cent between 1977 and 2007 (Risikat, 2010). Out of which about 6.5 per cent was directed to education during the same period; which is very small considering the 26 per cent UNESCO benchmark. In the light of Nigeria's current economic problems, and particularly its poverty situation and unimpressive rates of economic growth, there is need for educational development via more fiscal commitments in a bid to enhance sustainable economic growth and development. Since a healthy and well-educated people make an economy more productive, it is apparent that capacity building through investment in human capital, particularly education can enhance economic growth, alleviate poverty and protect the Nigerian economy from further crises.

Heavy investment in human capital via education will in the long run enable the individual to perform new task, receive and process new information, communicate and therefore co-ordinate activities with one another; evaluate and adjust to changed circumstances. Furthermore, investment in human capital will help reduced individual subjective thinking and unnecessary

FIGURE 2.2:- ECONOMIC EFFECT OF EDUCATION ON ECONOMIC GROWTH



Source: Adapted from Michaelowa, K. (2000); "Returns to Education in Low Income Countries: Evidence for Africa."

anxietythereby helping to enhance his probability of adoption of new innovations or practices in production technology (Lau, et. al 1991).The World Bank (1991) stated that increased investment in human capital (through education) would not only improve people's ability to acquire and use information, but it will also deepen their understanding of themselves and the world, enrich their minds by broadening their experience and improve the choice they make as consumers, producers and citizens. Education will also strengthen their ability to meet their wants and those of their families by increasing productivity, and their potential to achieve a higher

standard of living. It will also improve their confidence and their ability to create and innovate thus multiplying their opportunities for personal and social achievement.Investing in human capital most especially women education, will also enhance their productive capacity, increase their income and make them better informed about the value of health care and personal hygiene. An educated woman will be able to improve the health and life expectancy of her children and create incentives for reducing family size, which in turn will help reduce poverty (Psacharopaulos and Winter 1990).

2.2 THEORETICAL LITERATURE

Economic theories do not automatically generate strong conclusions about the impact of government spending on economic performance. Perhaps, almost every economist would agree that there are circumstances in which lower levels of government spending would enhance economic growth and other circumstances in which higher levels of government spending would be desirable. If government spending is zero, presumably there will be very little economic growth because enforcing contracts, protecting property, and developing infrastructure would be very difficult if there were no government at all. In other words, some levels of government spending are necessary for the successful operation of the economy (Daniel, 2005).

Policymakers are divided as to whether government expansion helps or hinders economic growth. Advocates of bigger government argue that government programmes provide valuable "public goods" such as education and infrastructure. They also claim that increases in government spending can bolster economic growth by putting money into people's pockets. Proponents of smaller government spending have the opposite view. They explain that government is too big and that higher spending undermines economic growth by transferring additional resources from the productive sector of the economy to government, which uses

them less efficiently. They also warn that an expanding public sector complicates efforts to implement pro-growth policies-such as fundamental tax reform and personnel retirement accounts-because critics can use the existence of budget deficits as a reason to oppose policies that would strengthen the economy.

This controversy on the desirability of government spending (intervention) on the provisions of public goods and other social amenities in an economy has been the main subject of theoretical debates between the Classical and the Keynesian economists over years. The former are the advocates of *laissez-fairism*(market economies) while the latter are the advocates of *stabilization economies* through government stabilization measures of fiscal and monetary policies. For the purpose of this study, the heated theoretical arguments between these schools of thought were briefly examined as well as some theories relating to the efficiency and effectiveness of public expenditure on human capital development.

a) THE CLASSICAL VIEW

The classical school is averse to government spending because it regards the market mechanism as a better means by which the economy could work and be guided. The market mechanism could more efficiently allocate the economy's resources. The argument is based mainly on the self-interest of the individual economic agents (homo-economicus). The principle of self-interest is emphasized as the main driving force that motivates economic agents to allocate resources in the most optimal way in order to maximize utility and returns on investment; at the same time promoting the society's well-being (Jhingan, 2005). Thus, government is believed not to be in the position to judge and decide how the economic resources should be allocated. The advocates of this view include: Adams Smith, Thomas Malthus, David Ricardo, Jeans Baptise Says, among others.

Accordingly, the classical school posits that government should play a lesser role in the economy compared with the role played by the private economic units. Government should concentrate her resources in the administration of justice, defence, maintenance of law and order for the smooth functioning of the economy (Bello, 1996). This doctrine of the classical economists is referred to as the laissez-faire system. Laissez-faire is associated with the views of Adam Smith and other classical economists. It advocates freedom of individuals in the pursuit of their lawful economic activities with minimal role performed by government. In accordance with their belief in the free enterprise system, the classical school opposes government spending for the purpose of influencing private investment and enhancing human capital (education and health) which ought to have been treated as private goods. The argument was caged firmly in the crowding out theory. Atkinson (1991) observes that the most obvious case of crowding out is that, the government, having enormous resources at its disposal, would engage in activities which could otherwise be provided by the private sector. Hence, public investment spending would simply crowds-out i.e. replaces or reduces private investment spending. Thus, increased government spending can crowd-out private spending since the funds spent by the government are usually transfers from the businesses and the individuals in the form of taxes.

b) THE KEYNESIAN VIEW

The Keynesian view, however, advocates for government spending both for the purpose of promoting growth of private investment and economic growth. Keynes (1936) argued that government spending had a multiplier effect on the economy. The Keynesian position is that not only will an additional amount of government spending raise national income by the original amount spent by the government, but also that this will have a multiplier effect of several amount. The Keynesian analysis posits that national income is determined by the total

expenditure on consumption and investment by both private and public sectors of the economy which is stated as:

Y = C + I + G + (X-M)..... (2.2.1)

Where, C= Consumption expenditure; I= Investment expenditure; G= Government expenditure; (X-M) = Net exports.

Both consumption and Investment expenditures are known in the model to be unstable and in most cases, deficient while government expenditure is counter-cyclical in nature and most cases deficit. The multiplier effect (denoted by K) of government expenditure is assumed to be greater than unit which measures the impact of government expenditure.

Household consumption of different kinds and expenditure on education as well as other social goods are influenced by government fiscal policy. The multiplier effects of government spending will follow a specific transmission mechanism. An increase in government spending increases household disposable income which in turn raises their investment on human capital acquisitions. Furthermore, the Keynesian's advocacy for the state intervention in the economic activities by way of public spending on social goods, particularly education, is justified on the basis of the existence of *market failure*. It is argued that the public sector performs certain functions because some goods cannot be provided efficiently through the market system owing to apparent market failures or associated inefficiencies. Market failure occurs because the benefits created by social goods are not limited to one particular consumer who purchases the goods, as is the case with private goods. The non-rival or non-excludability nature of public goods has important implication for consumer behaviour and on the provision of both private and social goods (Musgrave and Musgrave, 1989). Although the market mechanism is structured for the provision of private goods, the exclusivity of the title accorded purchasers of private goods is lacking in social goods. It would be inefficient,

therefore, to exclude any consumer from partaking in the benefits of a social good since such consumption does not reduce or limit the benefits according to others (Onwioduokit and Tule, 2002).

2.2.1 THE PERFORMANCE-BASED BUDGETING THEORY

The multiplicity of definitions of performance budgeting in the literature makes it essential that any rigorous treatments of the subject start by clearly defining the concept. According to Robinson and Brumby (2005), performance budgeting refers to procedures or mechanisms intended to strengthen links between the funds provided to public sector entities and their outcomes and/or outputs through the use of formal performance information in resource allocation decision-making. "Formal" performance information in this context refers to performance measures,measures of the *costs* to particular parties of outputs and outcomes,and assessments of the effectiveness and efficiency of expenditure obtained through the use of any of a range of analytic tools (Robinson and Brumby, 2005).The core objectives of performance budgeting are enhanced allocative and productive efficiencyin public expenditure. This definition is quite close to those advanced by, for example, the OECD ("a form of budgeting that relates funds allocated to measurable results" (OECD, 2003)) and the U. S. General Accounting Office ("the concept of linking performance information with the budget" (GAO, 1999)). Like these definitions, it embodies a very general notion of performance budgeting which encompasses a diverse range of specific performance budgeting systems. This is a definition that does not restrict the performance budgeting concept to resource allocation decisions made in the formulation of the government-wide budget. Rather, it is relevant also to the way in which agencies execute their budgets—either when allocating resources internally or when distributing funding to lower-level public sector entities which they supervise. Thus, the use by a health ministry of a technique such as "program budgeting marginal analysis" (Debble, 2000) to improve the allocation of the health

budget, constitutes a form of performance budgeting. So also does case-mix funding of public hospitals or the use by an education ministry of a combination of output funding and outcome bonuses for the funding of public universities.

One reason why this is important is that allocative efficiency can never be a function simply of the allocation of resources in the government-wide budget. Even though budgeting system varies in the extent to which they seekto centralize resource allocation decisions, the reality is that even in the most centralized systems a great deal of allocative decision-making necessarily takes place at the discretion of agencies within the parameters of their budget authorizations.Information costs and bounded rationality make this inevitable. All too often, as Joyce (2003) notes, discussions of performance budgeting implicitly assume that "resource allocation is something that occurs only (or at least mostly) in the central budget office or in the legislature," which leads to an unduly narrow empirical focus upon allocative impacts only at the level of government-wide budget formulation.

Performance-based budgeting system is a new concept that has just been introduced in Nigeria as a way of ensuring effectiveness and efficiency in public expenditure management. The new budgeting initiative has typically been part of a broader set of reforms that are changing both the way in which the public sector is managed and also the boundary between the public and private sectors. Their inspiration has been a widespread feeling that there is a compelling need to deal with the problem of disappointing public sector performance. Performance budgeting has been closely linked with other reforms in public sector budgeting and financial management that have aimed not only at improving public sector performance, but also at ensuring fiscal sustainability. The main idea behind this is that the performance of a budget is appraised on the basis of the results the budget achieved in the previous financial year. The outcome is evaluated by comparing the accomplishments with the targets.

Line-item budgeting in Nigeria has been criticized for holding public agencies accountable only for what they spend. Therefore, budget reformers have recommended the adoption of performance-based budgeting which is intended to hold agencies accountable for what they achieve. The bases of performance-based budgeting, according to Greg et al, (2001) are as follows:

i. **Objectives: -** Agencies should develop strategic plans of what they intend to accomplish. These plans should contain objectives based on outcomes that the public values.
ii. **Performance Measures: -** Based on their strategic plans, agencies should develop specific, systematic measures of outcomes that can be used to determine how well agencies are meeting their objectives. Examples include students overall national examination result performances for education sector performances and national mortality rates for health sector performances.
iii. **Linkages: -** Objective and performance measures are integral parts of the budgetary process. Appropriations are linked to agencies' results: how well they are meeting their objectives as indicated by performance measures.

One of the most difficult aspects of performance-based budgeting is the definition of agency performance targets that can be reliably measured on a regular basis. Measures can be developed to track several aspects of agency performance, as follows:

i. **Inputs: -** These are objects of expenditures for the resources used to provide government services such as personnel and operating expenses as well as capital costs. Inputs have the advantage of being relatively easy to measure, usually in Naira. It is also easy to make comparisons of the costs of inputs across diverse public programmes.

ii. **Activities (outputs):-** These are what an agency does. Examples include such things as the number of schools or health centres constructed, miles of highways constructed.

iii. **Efficiency:** - This relates costs to a unit of activity. Examples include annual cost per students, costs of filling a pothole, or cost for child vaccination. Relating costs to activities is not straight-forward.

iv. **Outcomes:** - It is a measure of how well a programme is meeting an objective. Objectives are usually the ends of government; things that the public values such as safety, health, or education improvement. For health programmes; reductions in the rates of particular diseases or increases in life expectancy rates are feasible outcomes while education outcomes may be improvements in the national literacy rates. Outcome indicators measure progress toward achieving objectives.

2.2.2 HUMAN CAPITAL DEVELOPMENT THEORIES

This section briefly outlines several key theories of human and skills development that are frequently used to explain observed relationships between human capital acquisition and labour market and social outcomes.Three leading models are discussed: human capital, signalling or screening, and job-matching or information-based models. The objective is to present the central ideas of these theories and their relevance to understanding the mechanisms through which human capital spending may influence human capital outcomes. Riddell (2006) identified three models of human capital development. These are presented as follows:

a) HUMAN CAPITAL THEORY

Human capital theory is widely used to explain labour market outcomes. The essence of the theory is that investments are made in human resources in order to improve productivity, and therefore employment prospects and earnings. Individuals acquire skills through formal schooling and/or work experience, and these skills increase the individual's value to

employers and therefore their future earnings. Several key elements of human capital theory are worth noting. First, it is a theory of investment decisions: individuals incur costs at the present time in return for benefits in the future. This investment dimension is particularly important because the benefits of human capital acquisition typically accrue over a long period, in the form of a higher earnings stream over many years. Second, because the benefits accrue in the future; there will typically be uncertainty about the extent to which the investments will pay off. Human capital investments are generally risky investments. Third, a major component of the costs of acquiring human capital is typically the opportunity cost -- the income foregone by not working.

Decisions about education -- both the amount of time to devote to schooling and choice of educational programs -- will be influenced by both the "investment" and "consumption" components of human capital formation. The latter refers to the fact that learning may be a very enjoyable activity for some, but a less enjoyable or even unpleasant activity for others. Other factors being equal, individuals who enjoy learning are more likely to remain in school longer. Similarly, other things being equal, students are more likely to choose educational programs that they regard as interesting and stimulating.

An important distinction is that between private and social returns to human capital formation. Private returns are those based on the costs incurred by and benefits received by the individual acquiring the education. These benefits include both the consumption and investment consequences of schooling. Social returns are based on the costs incurred by and benefits received by society as a whole. There may be differences between private costs and social costs, as well as between private and social benefits. This distinction is important because individuals can be expected to base their schooling decisions on the private costs and benefits, whereas it is in the interest of society as a whole to have educational decisions based on the social costs and benefits.

A final important concept is the distinction between general and firm-specific human capital. General human capital refers to skills and knowledge that are useful to many employers, while firm-specific human capital is useful to one employer but not to others. This distinction is useful in understanding the incentives for individual workers and employers to pay for education or training. In a competitive environment, firms will not be willing to pay for workers to acquire general skills because they will not be able to reap the benefits of this investment. Rather, workers will pay for general training because they are the ones who will receive the benefits in the form of higher earnings. On the other hand, workers do not have an incentive to invest in firm-specific skills because doing so does not raise their value to other employers. Firm-specific human capital investments will either be paid for by the employer or these investments will be shared, with both the employer and employee paying some of the costs and receiving some of the benefits.

In between the extreme cases of general and firm-specific human capital are situations in which the skills acquired are industry-specific or occupation-specific. Lifetime earnings display two well-established patterns. First, the lifetime earnings profile of more educated workers lies above the equivalent earnings profile of less-educated workers. Second, earnings rise with work experience, albeit at a diminishing rate. The increase in earnings with experience is especially pronounced during the first 5-10 years after entering the workforce. Human capital theory accounts for these well-established patterns through the mechanism of skill formation; education and work experience enhance the individual's skills, thereby raising their market value to employers. Human capital investments thus yield a private return in the form of greater employment opportunities and higher lifetime earnings. Because they increase worker productivity human capital investments also yield social benefits – the increase in the total output of goods and services produced. They may also yield social benefits in excess of private benefits.

b) SIGNALLING/SCREENING THEORY

Human capital theory emphasizes the role of education and health as enhancing the productive capacities of individuals. A contrasting view of education, where it has no effect on individual productivity, is the signalling/screening model. According to this theory, education may act as a signal of the productive capacity of individuals. Central to this theory is the importance of imperfect information. In their hiring decisions, employers are imperfectly informed about the capabilities of potential employees. They therefore may use education as a signal of a new hire's future productivity. If employers' beliefs are subsequently confirmed by actual experience (that is, if more educated workers turn out to be more productive), employers will continue to use education as a signal. Employers will thus offer higher wages to more educated workers. Facing a positive relationship between education (which is costly to acquire) and wages, individuals will have an incentive to invest in education.

A central assumption of the signalling model is that education is less costly to acquire for individuals who are innately more skilled or able. If this assumption holds, higher ability individuals will invest more in education than will lower ability individuals. Both high and low ability individuals face the same potential benefits from investing in schooling, but low ability workers face higher costs and therefore will acquire less education. In these circumstances, employers' beliefs about the relationship between education and worker productivity will be confirmed. Even though schooling has (by assumption) no effect on worker productivity, employers have an incentive to offer higher wages to more highly educated workers and higher ability individuals have an incentive to invest in education. In this model, education serves as a "sorting device", separating the high from the low ability workers.

Like human capital theory, the signalling/screening model can explain the positive relationship that exists between schooling and labour market outcomes such as earnings. However, there are important differences between the two theories. In the human capital model, education is privately and socially productive. In contrast, in the signalling model; education is privately productive (high ability individuals benefit from investing in education) but not socially productive because education has no effect on the total goods and services produced by society. Another important difference is that in the human capital model, schooling exerts a causal influence on worker productivity and thus earnings. In the signalling theory, education has no effect on worker productivity so there is no causal influence of education on earnings. Rather, the positive relationship between schooling and earnings arises because both variables are related to a third factor – worker ability. In many circumstances, worker ability is unobserved so it is difficult to determine whether the positive relationship between education and earnings arises because schooling enhances workers' productive capacities (the human capital explanation) or because schooling sorts out high and low capacity individuals. However, as discussed subsequently, considerable recent progress has been made on identifying the causal effect of education on earnings. This evidence thus provides insights into the relative importance of skills development versus signalling in determining labour market outcomes.

c) JOB-MATCHING/INFORMATION-BASED THEORY

In the human capital model, individuals choose among alternative educational programmes according to the costs of these programmes and the associated lifetime earnings streams (and other benefits) that they generate. Information may play a role in helping to identify or forecast the benefits of alternative educational choices. An alternative view of the educational process is that it helps individuals to determine what types of careers they are most suited for. In this case, education plays the role of providing individuals with information about their

comparative advantages -- the types of occupations and jobs they are likely to do well in. This mechanism is characteristic of job-matching and information-based models. The perspective is similar to human capital theory in several ways, including the implication that education has both private and social benefits.

However, the emphasis is different. Human capital theory emphasizes the acquisition of skills that are valued by the labour market, while job-matching models emphasize the acquisition of information about one's abilities and aptitudes. Human capital theory focuses on the direct increase in skills provided by schooling, whereas information-based models highlight the role of education in identifying the most productive applications of a given set of skills. The job matching approach also has important implications for the interpretation of returns to work experience. It views jobs as having an idiosyncratic, or firm-worker specific, value. The same job may be a better match for some workers than for others. In addition, the quality of the match usually cannot be observed in advance. It takes time for workers and firms to determine whether a particular relationship is a good fit.

One interpretation that follows from this view of the world is that some job instability – especially among young workers -- is not a bad thing. Investment takes the form of workers learning about their comparative advantage by sampling and experiencing a variety of jobs in different industries and occupations. Additionally, there is a search for a good firm-worker match. Further, the model suggests that mobility should decrease with time in the labour market as workers learn about their own abilities and are more likely, as a result of moving from job to job, to find a good match.

This approach has led to a re-evaluation of the relative importance of general versus firm specific human capital. Much empirical work observes that workers who have been with a firm a long time have higher wages than otherwise similar workers with less tenure. This was previously interpreted to mean that firm-specific human capital was very important and its

accumulation was associated with increasing wages. However, the job search/shopping model suggests that causality may also go in the other direction. Good firm-worker matches have high wages because they benefit both parties, and are more likely to endure.

As with many perspectives on the labour market, empirical research has observed that both human capital and job-matching models explain some of what we observe. Related empirical research has altered the interpretation of "specific" human capital by showing that industry- and occupation-specific human capital are probably more important than firm-specific human capital. Industry- and occupation-specific human capital seems to be relatively easily transferred across firms. Further, the research shows the importance of general labour market experience to earnings growth, and the importance of job shopping to earnings growth among young workers.

Overall, the job shopping model points out that early career job transitions are often productive, that training need not be firm-specific and that general labour market experience is especially valuable in the early stages of a career. It also reinforces the long-term value of formal education not only because of its own labour-market productivity enhancing effects, but also in its interaction in making general labour market experience more valuable. Finally, it emphasizes that educational programs may help people learn about their comparative advantages, in addition to directly enhancing skills and knowledge (Riddell, 2006).

In all, to investigate the efficiency and effectiveness of government spending on education and health, performance based budgeting theory appears to be of most relevant. The framework for the study is, therefore, premised on performance based budgeting model to empirically investigate the efficiency and effectiveness of the government spending on education and health sectors in Nigeria.

2.3 EMPIRICAL LITERATURE

Several attempts have been made to examine the effectiveness and efficiency of public expenditure in the social sector. A number of past studies , such as Pritchett and Filmer (1997), Mingat and Tan (1992), Harbison and Hanushek (1992), Gupta et al. (2002), Baldacci et al (2004) among others have investigated the effectiveness of public spending in education (and health) on social development outcomes such as enrolment rates, infant mortality rate, life expectancy and other outcome indicators. Most of these studies either use cross-country datasets or concentrate on a sub-sample of developing economies or on a particular region like Africa (Risikat, 2010). Education contributes to economic growth by improving health, reducing mortality, improving fertility and possibly by contributing to political stability. The major importance of the educational system to any labour market will depend majorly on its ability to produce a literate, disciplined, innovative and productive labour force via high quality skills and sound health. Numerous attempts have been made to analyse the efficiency and effectiveness of government spending. This body of empirical research can be grouped into four categories: (i) inquiries that focus on certain types of government spending in a specific country; (ii) papers that attempt to quantitatively measure public spending efficiency using data on inputs of government spending; (iii) studies that evaluate public spending efficiency using output data only; and (iv) empirical analyses that seek to assess the efficiency and effectiveness of public expenditures using input and output data. This study falls into the final category.

Prichett and Filmer (1997) used cross-national data to examine the impact on child (under 5) and infant mortality of both non-health (economic, cultural, and educational) factors and public spending on health. Their findings revealed that roughly 95 per cent of cross-national variations in mortality could be explained by a country's per capita income, the distribution of income, the extent of women's education, the level of ethnic fragmentation, and the

predominant religion. Public spending on health has relatively little impact, with a coefficient that is numerically small and statistically insignificant at conventional levels. Independent variations in public spending explains less than one-tenth of 1 per cent of the observed differences in mortality across countries. They outlined three possible explanations for this divergence between the actual and apparent potentials of public spending: the allocation of public spending, the net impact of additional public supply, and public sector efficiency. They estimated the following model to arrive at the empirical result:

$$\mathbf{In(Health\ Status_i) = \alpha\ In(\frac{Hi}{GDPi}) + \beta\ In(\frac{NHi}{GDPi}) + (\alpha+\beta)\ In(\frac{GDPi}{Ni}) + A_i} \text{.....(2.3.1)}$$

Where $(\frac{Hi}{GDPi})$ is the ratio of public expenditure on health to GDP, $(\frac{NHi}{GDPi})$ is the ratio of non-health public expenditure to GDP, $(\frac{GDPi}{Ni})$ represents the country's per capital income, where N_i is the country's population and A_i denotes the country's specific factors.

Gupta et al (1999) used ordinary least square and two stages least squares regression on a cross section of data from 50 developing and transitional economies. Results indicated that greater public spending on primary and secondary education had a positive impact on widely used measures of education attainment such as gross enrolment in primary and secondary education, gross enrolment in secondary education and persistence through grade four. Regression estimates showed that performance in the education sector was also affected by other factors such as per capita income, urbanization, adult illiteracy, access to safe sanitation and water, and immunization.

Gupta and Verhoeven (2001) applied Free Disposable Hull (FDH) techniques to measure the efficiency of public expenditure in social sector in developing countries. The study utilized the FDH analysis taking government expenditure on education as the input and literacy, primary, and secondary enrolment as output. Results showed that there was an increase in

efficiency in expenditure over time in Africa. However, it still lagged behind compare to countries in Asia and Latin America.

Garba (2003) used actual Nigerian data to provide a system analysis framework for elucidating the relations between human capital formation, utilization and development through the network of relations between relevant components covering the formal, informal and foreign sectors. The approach facilitated the view of the triad processes in the context of the duality and openness of the processes in Nigeria. The analysis showed a dysfunctional process and a triad of failures: institutions, state and the market in Nigeria. The dysfunctional process has created great divides between the components, which constitute formidable obstacles to Nigeria's developmental process. The study identified factors such as: returns to education, incentives system, organizational structures, inter-relations between knowledge and skills generating and using centres, inter-relations between knowledge and skills forming centres and the environment, and manpower planning; as the main determinants of the formation and utilization of human capital and their contributions to growth and development.

Using Granger Causality test and VAR Model to analyze the direction of causality between public expenditure (military spending) and human capital development as well as the impact of government military spending on human capital investment; Adebiyi (2003) found that the increased defence spending in Nigeria had negative implications on socio-economic development programmes such as education and health. The data set for the study consists of annual time series spanning 1970 through 2000. The variables used are education expenditure, health expenditure, human capital expenditure, debt service obligations and defence spending, all expressed as percentage of total expenditure. He estimated the following VAR model:

$$\boldsymbol{Y_t = a_{10} + a_{11} Y_{t-1} + a_{12} Z_{t-1} + \varepsilon_{yt}} \quad \textbf{(2.3.2)}$$

$$Z_t=a_{20}+a_{21}Y_{t-1}+a_{22}Z_{t-1}+\varepsilon_{zt}\text{……..(2.3.3)}$$

Where; $Y_t$represents human capital expenditure on health and education while $Z_t$denotes public expenditure on military and debt service obligation. The use of the forecast error variance decomposition and the impulse responses from estimated Vector Autoregressive Models (VAR) to examine the effects of shocks to human capital expenditure brings to the fore the impact of public expenditure shocks on human capital in Nigeria.

Using a panel data for African countries from 1990 to 2002, Anyanwu and Erhijakpor (2007) investigated the relationship between government expenditure on education and enrolment at the primary and secondary school levels, with illustrations from the SANE countries (South Africa, Algeria, Nigeria and Egypt). Results provided support for the proposition that government expenditure on education impacted positively on education attainment. The evidence was stronger for secondary education. The study also found that other policy interventions, such as consolidating and sustaining democracy, accelerating national income and international community fulfilling its aid promises to Africa also were found crucial for school enrolment. The model estimated is specified as follows:

$$\mathbf{Edu_{it} = \alpha_{1i} + \beta_1 In(Eduexp_{it}) + \beta_2 In(Ethnicfrac_{it}) + \beta_3 In(Democ_{it}) + \beta_4 In(Urbanpop_{it}) + \beta_5 In(y_{it}) + \mu_{it}} \text{ .....(2.3.4)}$$

Where Edu= represents education enrolment rate, α = Regional/Country-specific effect; *Edu*exp = Government expenditure on education as percent of GDP; *Ethnicfrac*= Index of ethnolinguistic fractionalization; *Democ*= Democracy index; *Urbanpop*= Urban population, as a measure of urbanization and y = GDP per capita in international dollars.

Risikat (2010) examined the effect of government educational spending and macroeconomic uncertainty onschooling outcomes in Nigeria using the econometric methods of co-integration and error correction mechanism together with the vector auto-regression methodology. The

results indicated that schooling/educational outcome co-integrated with all the identified explanatory variables. The study found that government educational spending impacted positively on schooling outcome while macroeconomic instability impacted negatively. The variance decomposition analysis showed that "own shocks" constituted the predominant source of variation in schooling outcome. The impulse response analysis showed that any unanticipated increase in the macroeconomic uncertainty rate would have a contractionary impact on literacy rate. The study adapted Gupta et al education production function to estimate variables such as:adult literacy rate (LIT), Public expenditure on education as a percent of GDP (PEX), Macroeconomic uncertainty (MAU), GDP per capita measured in purchasing power parity (PCI) and urban population, as a measure of urbanization (URB). The following structural equation is estimated where variables are as defined below:

$$\mathbf{LIT_t = \alpha_0 + \alpha_1 PEX_t + \alpha_2 MAU_t + \alpha_3 PCI_t + \alpha_4 URB_t + U_t} \quad \textbf{(2.3.5)}$$

2.4 AN OVERVIEW OF THE NIGERIAN EDUCATION SECTOR

Education constitutes the core of human development. It opens up opportunities for both individual and group empowerment. It is a vital tool for transformation and the key to the sustainable development of a nation. Human capacity development anchored on strong learning systems is central to the attainment of Vision 20: 2020. Education is the most crucial instrument for empowering young people with knowledge and skills which in turn provide them access to productive employment in future. The goal of Vision 20:2020 in education sector is to ensure that all children, irrespective of ethnicity, gender, or disability, complete a full course of basic education which is 12 years of formal education comprising three years of Early Childhood Care Development and Education (ECCDE), six years of primary schooling and three years of junior secondary schooling. In addition to Universal Primary Education being one of the Millennium Development Goals (MDGs), education is crucial for the achievement of the MDGs. Attaining the goals of eradicating extreme poverty and hunger,

promoting gender equality and the empowerment of women, reducing child mortality, improving maternal health, combating HIV/AIDS and ensuring environmental sustainability are predicated on sound education. The acquisition and dissemination of the requisite knowledge and skills, their effective application to address challenges that cumulatively result in sustainable development are highly dependent on a strong education system. The first Pillar of the Vision 20:2020 is to guarantee the well-being and productivity of the people with education as the bedrock.

The Nigerian education system is categorised into three main vertical segments: basic education, post-basic education (or senior secondary education) and tertiary education. Early Childhood Care and Development (ECCDE or pre-primary education) is viewed as a specialised part of basic education for younger children who are not yet of primary school age. Similarly, Nomadic Education is part of basic education for special groups of migrants. Adult and Non-Formal Education may be part of basic education or may transcend it, as it can go as high as the post-basic level. Technical/vocational education cuts across basic, post-basic and tertiary education while teacher education is a sub-set of tertiary education (Vision, 20:2020).

a) <u>Early Childhood Care and Development Education (ECCDE)</u>

ECCDE includes training offered in day care centres largely by the private sector and social development services for children between 0-3 years; and the education of those of ages 3-5 provided within the formal education sector. Learning at this early stage of life is important for better educational performance in later years and enables children to derive maximum benefits from education and learning. Available statistics indicate that enrolment and patronage of ECCDE centres vary across the States of the Federation. Access to such centres, majority of which are in the urban areas, has been identified as a factor in their utilisation. There is a need for skilled teaching personnel in pre-primary schools.

b) Primary and Post-Basic Secondary

Primary education is free and compulsory although not all eligible children are in school. Despite the considerable progress made with the Universal Basic Education (UBE), it is estimated that only 22.3million of the 42.1million eligible children are in school, clearly indicating that access remains a problem (Vision 20:2020). There is strong participation of the private sector in primary education but government is the dominant provider of education at this level. The infrastructure in schools is dilapidated. The adverse learning conditions in schools include paucity of teaching and instructional materials, absence of adequate infrastructure, as well as over-crowded classrooms. The hygiene and sanitary conditions are also critical and have been identified as contributory to the effective retention and participation of girls in education, particularly in some parts of the country. Furthermore, there is a dearth of qualified and competent teachers in schools and institutions thereby adversely affecting the quality of education.

The gross enrolment in secondary schools is a major concern because less than 30 per cent of eligible children in the 14 -17 age bracket are enrolled nationwide (Vision, 20:2020). Effective youth empowerment and harnessing the enormous potential of this segment of the population cannot be realised without proper education and skills acquisition. It is important that the underlying factors of the high drop-out rate be identified and addressed including proper guidance and counselling to enable young people identify strengths, talents and vocations early; it is also crucial to provide conducive learning and teaching environment that will definitely encourage self discovery and actualisation. The issue of fees at this level is a likely critical factor in the drop-out rate if parents are unable to pay the required fees.

Table 1: National Summary of Secondary School Statistics

Year	2004	2005	2006	2007	2008
Total No of Schools	10,913	10,913	18,238	18,238	18,238

Total student enrolment	6,279,463	6,398,343	6,536,038	6,068,160	6,625,943
Total female enrolment	2,739,754	2,854,718	2,893,167	2,608,014	2,943,802
Total male enrolment	3,539,709	3,543,625	3,642,871	3,460,142	3,682,141
Total No of teachers	154,594	144,413	199,163	N/A	N/A
Total No of classrooms	98,077	98,077	98,077,	98,077	98,077

Source: National Bureau of Statistics

The quality of education is of considerable concern using the achievements of candidates in the WASC examinations as a yardstick. In the recent past, less than 10 per cent of the candidates obtained minimum of five credits including English and Mathematics and this trend has continued even with the examinations conducted by the National Examination Council (NECO). Table 2 shows the performance of candidates from 2004 to 2008.

Table 2: National Summary of WAEC Examination Results May/June 2004-2008

Year	**2004**	**2005**	**2006**	**2007**	**2008**
Total number of candidates	1,051,246	1,091,763	1,184,223	1,275,832	1,369,171
Total number with 5 credits including English and maths	191,938	203,991	110,417	98,133	127,147
Total male candidates with 5 credits	96,268	104,378	60,986	55,079	72,118
Total female candidates with 5 credits	95,670	99,613	44,514	43,178	55,029
Total per cent with 5 credits including English and mathematics	18.26	18.68	9.32	7.69	9.29

Source: National Bureau of Statistics.

According to the UNDP Human Development Report on education in Nigeria 2008-2009, the adult literacy rate is 64.2 per cent which indicates that over 50 million Nigerians are unable to read and write. This level of illiteracy combined with poor educational quality and standards are antithetical to the rapid economic growth required for the actualisation of Vision 20: 2020. Adult and Non-Formal Education must be given greater impetus to enable this large segment of the population to acquire functional literacy that would make them contribute more effectively to national development.

c) Tertiary Education

Tertiary education encompasses all forms of post secondary education which includes education that takes place in universities, colleges of education, polytechnics and monotechnics. There were 104 universities in Nigeria as at 2010; 27 Federal, 36 State and 41 being privately owned, indicating a very strong presence of the private sector in tertiary education. There are 72 colleges of education, 57 polytechnics, and 90 specialised colleges and monotechnics. The statistics from the Joint Admissions Matriculation Board (JAMB) examinations show that more students opt for university education rather than other tertiary institutions. The preference for universities has been largely attributed to the compensation system in the public service which accords higher rewards to university degrees than other qualifications. Access, quality of education, dearth of learning/instructional materials and inadequate numbers of teaching personnel are also critical issues that require careful attention at this level of education. Furthermore, there is need to actively involve key industry stakeholders in the review and development of tertiary education curricula in order to improve the employment chances of the products.

2.5 AN OVERVIEW OF THE NIGERIAN HEALTH SECTOR

Nigeria operates a pluralistic healthcare delivery system with the orthodox and traditional health care delivery system operating alongside each other. The private and the public sectors provide orthodox health care services, while the traditional health care system is managed by traditional health care practitioners. The Public Health service is organized into primary, secondary and tertiary levels. National Health Policy ascribes responsibilities for primary healthcare to local government, secondary healthcare to states and tertiary healthcare to the Federal Government (Vision 20:2020).

According to the results of the Federal Ministry of Health (FMH) survey conducted in 2005, the country has 23,640 health care facilities of which 85.8 per cent are primary, 14.0 per cent are secondary and 0.2 per cent are tertiary. Of this number, 38 per cent are owned by the private sector which accounts for 60 per cent of health care services in the country. Even though 60 per cent of the primary healthcare facilities are located in the northern zone of the country, they are mainly health posts and dispensaries that provide only basic curative services. The private Out-of-Pocket (OOP) expenditure in Nigeria accounts for more than 60 per cent of the estimated $10 per capita expenditure on health, limiting equitable access to quality healthcare (Anyanwu, et al, 1997). The Primary Health Care (PHC) delivery system is the bedrock of the national health system. However, it is currently underfunded and there is lack of capacity at the LGA level, which is the main implementing organ of primary health care.

The Human Development Index (HDI) Report (2007) rated Nigeria's health status as poor. The high rates of maternal and under-5 mortality rate are estimated at 800 per 100,000 and 75 per 1000 live births respectively. The prevalence of HIV/AIDS pandemic is 5.2 per cent, and other communicable diseases, pose formidable challenges to the nation's effort at meeting the

MDGs by the year 2015. Other inhibiting factors include poor health infrastructure, unavailability of drugs in hospitals, inadequate health personnel (28 doctors to 100,000 patients) and other related matters (Anyanwu, et al, 1997). It is therefore imperative that a more focused attention is given to the health sector, if Nigeria is to meet the MDGs, improve her ranking in the world HDI and guarantee the well-being of her human capital stock, in order to accelerate economic growth and development. The Nigerian health care system is faced with numerous challenges. These include: *Size and diversity of the country*: The size of the country, the diversity in culture, social and economic conditions and the wide disparity of health resource availability, access to health services and health outcomes across the zones of the country are major challenges to health planning in the country.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 THEORETICAL FRAMEWORK

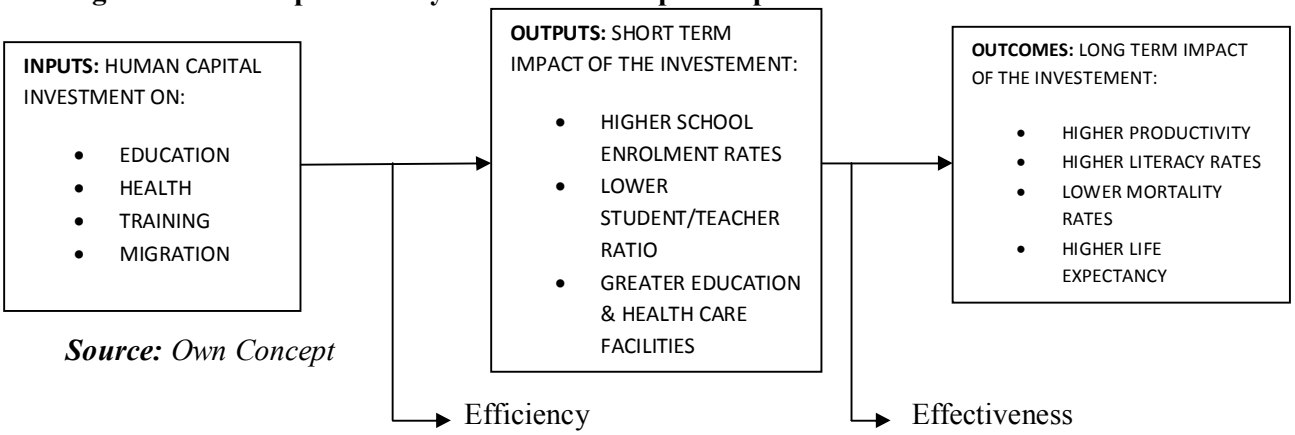
Human capital model provides adequate understanding into the relationships between the human capital inputs in the production function and the resulting outputs or economic growth. To identify the efficiency and effectiveness of public spending on human capital development in Nigeria, there is a need to explore the performance of government budget over time using performance-based budgeting model. Performance-based budgeting model (PBBM) takes into account the relationship between the inputs (in terms of budget appropriations) and the resulting outputs (which represent the budget efficiency) as well as the outcomes (which represent the budget effectiveness).

Against this background, the study attempted to take into cognisance all major inputs required in human capital formation process in order to capture the efficiency and effectiveness of the inputs on the quality of the human capital development in the Nigerian economy with a special focus on education and health as crucial components of human capital. The study, therefore, synthesized "the human capital production function model" used by Pritchett and Filmer (1997), Gupta et al (1999 and 2002) as well as "performance-based budgeting model" used by Riddel (2006) to empirically investigate human capital input-output and input-outcome nexuses. The choice of these models is as a result of their flexibilities in accommodating other variables which are peculiar to different economies apart from the expenditure related inputs.

3.2 CONCEPTUAL FRAMEWORK

The purpose of this study is to develop a model to show the efficiency and effectiveness of human capital inputs on the resulting social outcomes. As argued in the earlier discussions, the general human capital investment includes training, education, knowledge and skills that can enhance human effectiveness. Based on the literature reviews, it is, therefore, postulated that greater human capital investment leads to greater human capital outcomes. It shows the link between input, output and outcome. The input-output ratio is the most basic measure of efficiency. However, compared to productivity measurement, the efficiency concept incorporates the idea of the production possibility frontier, which indicates feasible output levels given the scale of operations. The greater the output for a *given* input or the lower the input for a *given* output, the more efficient the activity is. Thus, human capital production function relates the quantities of inputs used in human capital formation process to the outcomes to arrive at effectiveness concept. Figure 3.1 illustrates the conceptual framework:

Figure 3.1: Conceptual Analysis of Human Capital Inputs/ Outcome Nexus



Source: *Own Concept*

3.3 ANALYTICAL FRAMEWORK AND THE MODEL

Synthesized human capital production and performance-based budgeting models appear to be the most suitable for the study. The human capital production model suggests that the quantity of human capital inputs determines the quantity of the outcome which significantly shows the effectiveness in the use of inputs. The performance-based budgeting model, on the other hand, focuses mainly on the budget performance in terms of efficiency and effectiveness in the realization of budget targets or goals. A synthesis of these models will enable us to demarcate the borderline between government spending efficiency and effectiveness on human development in the country. Although, human capital production function model seems to be a widely used model that provides a systemic investigation of the human capital-output growth nexus. For example, Pritchett and Filmer (1997), Gupta et al (1999 and 2002), Anyanwu and Erhijakpor (2007), and Risikat (2010) used it to assess the effectiveness of government spending on human capital formation in the economy.

The framework for this study is adapted from Gupta et al (1999 and 2002). It assumes a standard human capital production function which begins from the premise that changes in the inputs level in the production function accounts for outputs growth.Against this background, general models showing the relationship between public education spending and educational outcome and public health spending and health status outcome were developed. These models were modified education and health production functions which were complemented with a series of control variables introduced into the models. Generally, an education and health production functions describe the nexus between combinations of schooling and health inputs, economic and non-economic inputs and the resulting educational and health outcomes respectively (Risikat, 2010). The production processes depend, not only on the education and health subsystems and their resource inputs but also on the non-economic, social, economic and physical conditions.

The general model used by Gupta (2002) was an education production function given as:

$$Y_i = f(X_{1i}, X_{2i}, Z_i), \quad \text{.....(3.3.1)}$$

Where Y_i, is a social indicator reflecting education attainment for a country *i* as measured by adult literacy rate, which is a function of aggregate public spending on education as a share of GDP, X_{1i}; allocations to different programs within the sector; X_{2i}; and a vector of socio-economic variables Z_i.

On the basis of the Gupta et al model stated above, the following structural models were specified to evaluate the efficiency and effectiveness of government expenditures on education and health on human capital formation in Nigeria:

3.4 MODEL SPECIFICATION

Education Spending Efficiency Model Specification (Input-Output nexus)

There are several measures of input-output nexus; known among them is the education facility availability rate, school enrolment rate and student-teacher ratio. The choice of student-teacher ratio could be rationalised based on the fact that it is the only measure that shows the true state of education input efficiency in terms of the quality of the output. It defines the number of students per teacher.

$$S/T = f(PCE, PRE, URB, PCI) \quad \text{..... (3.4.1)}$$

Where;

S/T = Student-teacher ratio as a measure of education spending efficiency (output).

PCE = Capital expenditure on education as a percentage of GDP.

PRE = Recurrent expenditure on education as a percentage of GDP.

PCI= GDP per capita measured in purchasing power parity.

URB= Urban population

For estimation purposes, we re-specified equation (3.4.1) in logarithmic linear non-functional form: This gives:

$\log(S/T) = \alpha_0 + \alpha_1\log(PCE) + \alpha_2\log(PRE) + \alpha_3\log(URB) + \alpha_4\log(PCI) + \mu$ ..... (3.4.2)

The a priori expectations are as follows: $\alpha_1, \alpha_2 < 0$; $\alpha_3, \alpha_4 > 0$

Education Spending Effectiveness Model Specification (Input-Outcome Nexus)

Literacy rate defines the number of total population that can read and write simple statements while adult literacy rate takes into congnisance the number of the adult population (that is 18 years and above) that can read and write simple statements. The choice of the adult literacy rate is justified by the fact that it considers only the school aged population and beyond. Thus; it is an appropriate measure of education input-outcome nexus.

ALTR = f (PCE, PRE, TNS, S/T, URB, PCI)…….. (3.4.3)

Where all the variables are as defined above except;

ALTR = Adult Literacy rate as a measure of education spending effectiveness (outcome).

TNS =Total registered schools.

For estimation purposes, we re-specified equation (3.4.3) in logarithmic linear non-functional form: This gives:

$\log(ALTR) = \alpha_0 + \alpha_1\log(PCE) + \alpha_2\log(PRE) + \alpha_3\log(TNS) + \alpha_4\log(S/T) + \alpha_5\log(URB) + \alpha_6\log(PCI) + \mu$ ..... (3.4.4)

The a priori expectations are as follows: $\alpha_1, \alpha_2, \alpha_3, \alpha_4, \alpha_5, \alpha_6 > 0$

Health Spending Efficiency Model Specification (Input-Output nexus)

Registered Health Workers is used to proxy health input-output nexus. It provides for the aftermath of health spending efficiency. Therefore, it is used to capture the efficiency of spending on health sector in terms of the number of qualified health personnel who are available to ensure a better health outcome.

RHW = *f* (PCH, PRH, URB, PCI)…….……..…. (3.4.5)

Where;

RHW = Registered health workers as a measure of health spending efficiency (output).

PCH = Capital expenditure on health as a percentage of GDP.

PRH = Recurrent expenditure on health as a percentage of GDP.

URB = Urban population as a measure of urbanization.

PCI= GDP per capita measured in purchasing power parity.

For estimation purposes, we re-specified equation (3.4.5) in logarithmic linear non-functional form: This gives:

$\log(RHW) = \beta_0 + \beta_1 \log(PCH) + \beta_2 \log(PRH) + \beta_4 \log(URB) + \beta_5 \log(PCI)$.....(3.4.6)

The a priori expectations are as follows: β_1; β_2; β_3; β_4; > 0;

Health Spending Effectiveness Model Specification (Input-Outcome Nexus)

Life expectancy rate explains health outcome effectiveness in terms of expected life span of the average population. It shows the general health status of the population and the rate of prevalence of major diseases as well as the level of government commitment. The choice of life expected rate is to provide a holistic coverage of the effectiveness of health spending.

LER = f (PCH, PRH, RHW, URB, PCI)…….....……. (3.4.7)

Where all the variables are as defined above except;

LER= Life expectancy rate as a measure of health spending effectiveness (outcomes)

For estimation purposes, we re-specified equation (3.4.7) in logarithmic linear non-functional form: This gives:

$\log(LER)=\beta_0 + \beta_1\log(PCH) + \beta_2\log(PRH) + \beta_3\log(RHW) + \beta_4\log(URB)+ \beta_5\log(PCI) + \mu$….....(3.4.8)

The a priori expectations are as follows: β_1; β_2; β_3; β_4; $\beta_5 > 0$;

3.5 OTHER ESTIMATION TECHNIQUES

UNIT ROOT TESTS

In the literature, most time series are non-stationary and using non-stationary variables in the model might lead to spurious regressions (Granger, 1986). The first or second differenced terms of most variables will usually be stationary (Ramanathan, 1992). Therefore, all the variables were subjected to unit-root test at levels for stationarity using the Augmented Dickey-Fuller (ADF) test. Thus, non-stationary series were stationarized through integrations or differencing.

In testing for the stationarity, the method suggested by Dickey and Fuller (1979) to test for unit-root (i.e. non-stationarity) was adopted. This approach is illustrated in equations 3.5.1 and 3.5.2 as follows:

$\Delta Y_t = \gamma_0 + \gamma_1 Y_{t-1} + \Sigma\gamma_i \Delta Y_{t-i} + \mu_t$……..……(3.5.1)

Where, i= (1,……, m), Δ= the first-difference operator, γ = the parameters and μ= stationary stochastic process. The number of lag length (m) was determined based on the appropriate model criterion.

To test for the presence of unit-root with intercept and trend on the series, the above model was modified to include the trend parameter which is stated as:

$$\Delta Y_t=\gamma_0+\gamma t+\beta_1 Y_{t-1}+\Sigma\gamma_i\Delta Y_{t-I}+\varepsilon_{it}(i=1,\ldots\ldots,m)\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (3.5.2)$$

Where; β_1 and $\gamma_i$are constant parameters while ε_{it} is a stationary stochastic process. The m-lagged difference terms were included so that the error terms μ_t and ε_{it}in both equations are serially independent. Thus, if $\beta=0$, there is no presence of unit-root but if $\beta\neq0$, it means the series contains a unit-root (Ramanathan, 1992).

3.6 SOURCES OF DATA

The data for the analysis was secondary and sourced from the Central Bank of Nigeria (C.B.N) Statement of Account and Annual Reports (various editions), Statistical Bulletin, 2010 and the Federal Ministry of Education (F.M.E) Statistics of Education (various editions), National Bureau of Statistics (NBS) and National Population Commission (NPC) as well as relevant websites.

3.7 STATEMENT OF HYPOTHESES

The following hypotheses were used to guide this study:

H_0: Government spending on human capital development is inefficient.

H_1: Government spending on human capital development is efficient.

H_0': Government spending on human capital development is ineffective.

H_1': Government spending on human capital development is effective**.**

CHAPTER FOUR

PRESENTATION, ANALYSIS AND INTERPRETATION OF RESULTS

4.1 TREND ANALYSIS OF GOVERNMENT SPENDING ON HUMAN CAPITAL DEVELOPMENT IN NIGERIA

An examination of the trends of government expenditure on education and health portrays the pictures of government investment on human capital development in the country. Table 4.1 and 4.2 show the ratios of government expenditures on education and health to gross domestic products. Between 1980 and 1985, government expenditures on education as a percentage of GDP averaged 1.28 per cent while it declined to 0.95 per cent between 1986 and 1989 due to the introduction of structural adjustment programmes aimed at curtailing government expenditure across board. In 1990-1993, it declined further to 0.85 per cent while between 1994 and 1998 it rose marginally from the previous value to 0.90 per cent. Specifically, between 2004 and 2009, education expenditure to GDP reached its highest value of 5.88 per cent. Overall, between 1980 and 2009 the ratio of expenditure on education to GDP averaged 2.0 per cent and varied from 0.13 per cent to 10.30 percent. This fell below the minimum standard of 26 per cent of annual budget prescribed by the United Nations Scientific and Cultural Organization. It is evident from the analysis that the Nigerian government needs to commit much greater fund to education sector if the country wants to develop skilled manpower that would make enormous contribution to growth and development.

Table 4.1: The Trend of Expenditure on Education as a Ratio of GDP

Year	Educational Expenditure as a ratio of GDP
1980-1985	1.28
1986-1989	0.95
1990-1993	0.85
1994-1998	0.90
1999-2003	1.60
2004-2009	5.88
1980-2009	2.0

Source: Computed based on data from Central Bank of Nigeria 2010; Annual Report and Statement of Accounts.

Resulting from the austerity measures adopted in the early 80s, health expenditures to GDP averaged 0.40 per cent between 1980 and 1985; which later declined to 0.29 per cent between 1986 and 1989 when SAP was introduced. In 1990-1993, ratio of health expenditure to GDP marginally climbed 0.31 per cent. While between 1994 and 1998, health expenditures to GDP averaged 0.37 per cent and increased to 0.64 per cent in 1999-2003. In 2004-2009, it climbed to the highest value 5.83 per cent. Overall, between 1980 and 2009 the ratio of expenditure on health to GDP averaged 1.35 per cent and varied from 0.06 per cent to 4.2 percent. World Health Organisation recommends a minimum of 5 per cent of government annual budget for health. It is very obvious that government needs to invest massively in health sector if the quality of human development in the country is to be improved.

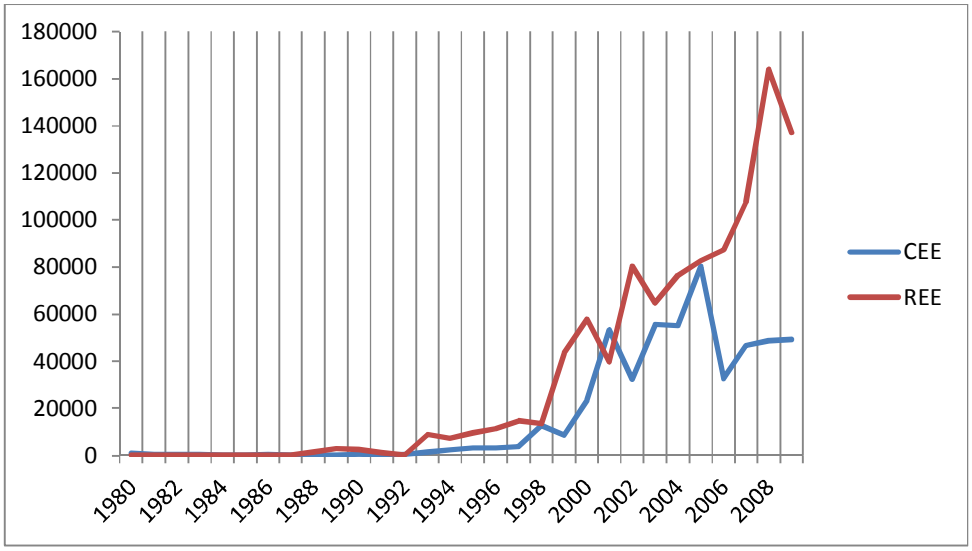
Table 4.2: The Trend of Expenditure on Health as a Ratio of GDP

Year	Health Expenditure as a ratio of GDP
1980-1985	0.40
1986-1989	0.29
1990-1993	0.31
1994-1998	0.37
1999-2003	0.64
2004-2009	5.83
1980-2009	1.35

Source: Computed based on data from Central Bank of Nigeria 2010; Annual Report and Statement of Accounts.

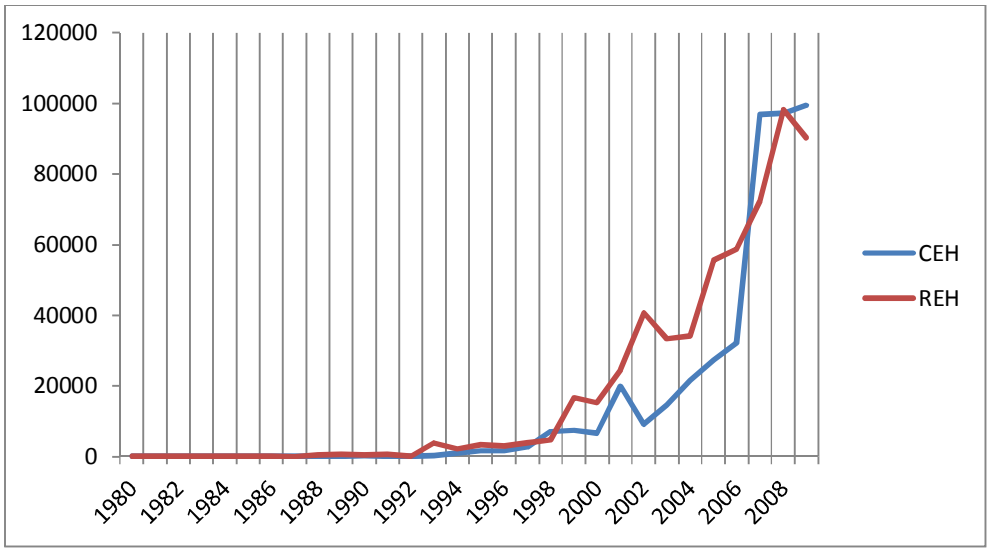
A cursory look at figures 4.1 and 4.2 provides an insight into the behavioural trends of key government expenditure components over years. It is evident from the line graphs that recurrent expenditures on education and health constitute the bulk of the federal government expenditure to education and health sectors. A very striking feature of the expenditure is that at the early 80s and 90s, precisely between 1980 and 1992, government expenditure on human development was embarrassingly low. This was attributed to the adoptions of austerity measures and structural adjustment programmes which aimed at correcting fiscal deficits across board. Also, the trends have been very inconsistent with up and down swings revolving around the outlays. These inconsistencies have constituted greatly to the poor human development in the country. Literacy and life expectancy rates have been declining, malnutrition level is still very high, and the performance of the HDI is poor when compared with those of other countries and the benchmark for economic growth (Olaniyi and Adam, 2003). There is a need for a careful scrutiny of public expenditure priorities by ensuring increase in social spending in the context of human resource development which should focus on education and health sectors development.

Figure 4.1: Trends of Government Capital and Recurrent Expenditure on Education



Source: Computed based on data from Central Bank of Nigeria 2010; Annual Report and Statement of Accounts.

Figure 4.2: Trends of Government Capital and Recurrent Expenditure on Health



Source: Computed based data from Central Bank of Nigeria 2010; Annual Report and Statement of Accounts.

Where CEE= Capital expenditure on education; REE= Recurrent expenditure on education; CEH= Capital expenditure on health and REH= Recurrent expenditure on health.

4.2 STATIONARITY TEST RESULTS

Presented in table 4.3 is the Augmented Dickey Fuller (ADF) unit-root test results conducted on all the series. The series were integrated of different orders and the ADF test equations were selected on the basis of the graphical observations of all the series. Thus, some series contained trends and intercepts while others had either only intercepts or none. The ADF statistics were compared with the Mackinnon (1980) critical values at 5%. The results of the unit root test showed that some variables had unit roots (i.e. they were not stationary at levels but were stationary at first differences) while others were stationary at levels (i.e. they were stationary at levels without being integrated). This, by implication, means that all the series are stationary and suitable for empirical analysis. That is, their means and variances are time invariant throughout the study periods.

TABLE 4.3: RESULTS OF STATIONARITY TEST

	ADF Test Statistics		Mackinnon Critical Values @ 5%		
	Levels	**Difference**	**Levels**	**Difference**	**Orderof Integration**
ALTR	-1.327227	-2.788318	-2.6242	-2.6265	I(1) @ 5%
PCE	-1.899458	-4.262066	-3.5796	-3.5943	I(1) @ 5%
PRE	-2.069677	-3.556135	-3.2239	-3.2279	I(1) @ 5%
TNS	-2.590801	-10.95707	-2.9705	-2.9750	I(1) @ 5%
S/T	-2.052336	-4.196311	-3.5796	-3.5867	I(1) @ 5%
PCI(PPP)	-0.544906	-4.748266	-2.9705	-2.9750	I(1) @ 5%
URB	-1.822722		-1.6223		I(0) @5%
LER	-3.555571		-2.9705		I(0) @ 5%
PCH	-1.279793	-3.719830	-2.9705	-2.9798	I(1) @ 5%
PRH	-1.991264	-3.461574	-3.2239	-3.2279	I(1) @ 5%
RHW	0.738831	-2.867076	-2.6242	-2.6265	I(1) @ 5%

Source: E-view 4.0 output

4.3 DATA DESCRIPTION

The data used for the estimations, as earlier highlighted above, were differenced to correct for the presence of unit-root and at the same time transformed to correct for the presence of skewness which could impact negatively on the data. A diagnostic check on the properties of all the variables showed that the data were most positively skewed. Their means, media and standard deviations, among others; are dispersed and the standard deviations are almost half

the means. To correct for these disparities, the data were transformed using logarithms to minimize the effects on the estimation results. Also, the capital expenditure variables were lagged because government's human capital spending is considered to be an investment that takes some times to manifest.

4.4 ANALYSIS OF EFFICIENCY AND EFFECTIVENESS OF GOVERNMENT SPENDINGS ON EDUCATION AND HEALTH

GOVERNMENT SPENDING AND EDUCATION OUTCOMES

Equation 4.1 shows the estimation result of the government education spending efficiency. From the result, it is evident that a positive relationship exists between capital expenditure(Pce_{t-1}) and student teacher ratio(str_t). This implies that a percentage change in capital expenditure lagged once leads to a 0.35 percentage points increase in student-teacher ratio.

$\log(d(S/T_t))$=-7.66+0.0035$\log(d(Pce_{t-1})$+0.01$\log(d(Pre_t)$+4.97$\log(d(Urb_t)$-1.74$\log(d(Pci_t)$ ……. (4.1)

SE: (2.227) (0.022) (0.011) (1.39) (0.614)

t-test: (-3.44) (0.158) (1.05) (3.56) (-2.83)

p-value (0.007) (0.877) (0.318) (0.006) (0.0195)

R^2=0.80, R^{-2}=0.71, DW=2.2, F=9.09, p=value=0.0031

Similarly, a positive relationship is observed between recurrent expenditure (Pre_t) and student teacher ratio. That is a percentage change in recurrent expenditure exerts a 1.1 percentage points increase in student teacher ratio. However, the parameters are not significant. These results suggest that, though both capital and recurrent expenditureshad the potentials to increase student teacher ratio during the study scope, however, they werenot efficiently used by the government to improve human development.

Urban population (Urb_t)exhibits a positive and significant impact on student teacher ratio. Thatis a percentage increase in urban population leads to 4.97 percentage point increase in student teacher ratio. This result is in line with the a priori expectation.This is why it is important that government spending on educational infrastructure and teachers are efficient and effective; otherwise, the educational system will weaken progressively as the demands on schools increase without expansion in capacity.A negative and significant relationship exists between student teacher ratio and per capita income(Pci_t). A percentage increase in per capita income reduces student teacher ratio by 1.7 percentage points.

Presented in equation 4.2 below, is the result of the estimates for education's input-outcome nexus as a measure of effectiveness of government spending. The result showed a negative and significant relationship between capital expenditure and adult literacy rate($altr_t$). That is, a percentage increase in capital expenditure on education leads to 4.0 percentage decrease in adult literacy rate.

$L(d(altr_t)=-0.79-0.04L(d(pce_{t-1})-0.03L(d(pre_t)-0.02L(d(tns_t)-0.05L(d(str_t)-0.31L(d(urb_t)-0.09L(d(pci_t).....(4.2)$

S.E:	**(0.39)**	**(0.009)**	**(0.007)**	**(0.05)**	**(0.065)**	**(0.085)**	**(0.07)**
t-test:	**(-2.0)**	**(-4.8)**	**(4.1)**	**(-0.34)**	**(-0.9)**	**(-3.7)**	**(-1.1)**
p-value:	**(0.056)**	**(0.00)**	**(0.00)**	**(0.73)**	**(0.37)**	**(0.00)**	**(0.24)**

R^2 =0.96, R^{-2}=0.95, DW=1.7, F=110.7, p=0.000

In the same manner, a negative and significant relationship is observed between recurrent expenditure and adult literacy rate. A percentage increase in recurrent expenditure reduces adult literacy rate by 3.0 percentage points.These unexpected signs suggest that capital and recurrent expendituresdid not effectively improve literacy rate in Nigeria in the period of the study.This may be attributed to institutional bottlenecks, misappropriation of funds and poor planning.

The result establishes a negative and insignificant relationship between total number of schools (tns_t) and adult literacy rate as well as between students-teachers ratio and adult literacy rate. A percentage increase in total number of schools reduces adult literacy by 5.0 percentage points. Also a percentage increase in student ratio reduces adult literacy rate by 6.5 percentage points. These results are not in conformity with a priori expectations, thus indicating that the improvement of literacy rate did not depend on the number of schools.

A negative result is obtained between urban population and adult literacy rate. That is, a percentage increase in urbanization significantly reduces adult literacy rate by 3.1 percentage points. This implies that, urban population explosion contributes tothe decline in adult literacy rate in the country. Furthermore, a negative relationship is suggested between per capita income and adult literacy rate: a percentage increase in per capita income led to a 9.0 percentage decline in adult literacy rate. However, the unexpected sign is not significant.

GOVERNMENT SPENDING AND HEALTH OUTCOME

The result in equation 4.3 indicates the impact of government spending on health as well other social variables on health output. All the variables except recurrent expenditure on health exhibit a positive relationship with registered health workers (rhw_t). A percentage increase in capital expenditure increases registered health workers (rhw_t) by 4.0 percentage points. The implication, therefore, is that an expansion in the number of health infrastructure by way of capital expenditure will lead to more health workers required. Also, a percentage increase in urban population, increases health workers by 57.0 percentage points. This parameter is, however, insignificant, but indicates that urban population had the potentials of increasing health though not efficient.

$L(d(rhw_t)= -6.1 + 0.04L(d(pch_{t-1})-0.26(L(d(prh_t)+0.57L(ubr_t)+ 2.14L(d(pci)$ .....(4.3)

SE: (3.16) (0.08) (0.07) (0.62) (0.54)

t-test: (-1.9) (0.05) (-3.82) (0.9) (3.9)

p-value (0.06) (0.007) (0.0008) (0.371) (0.0006)

R^2=0.95, R^{-2}=0.94, DW=1.81, F=133.6, p=0.000

However a negative relationship is observed between recurrent expenditure and health output. Showing that a percentage increase in recurrent expenditure reduces health output by 26 percentage points.The parameter sign suggests that recurrent expenditure is notefficient in driving health output in the short run. Per capita income significantly and positively increases health output in the short-run. That is, a percentage increase in per capita income leads to an increase in health output by 2.14 percentage points. This parameter sign implies that per capita income can efficiently boost health output.

The result presented in equation 4.4 below shows the effectiveness of government spending on health. From the results, capital expenditure significantly reduces life expectancy rate(ler_t). That is, a percentage increase in capital expenditure on health reduces life expectancy by 4.0 percentage points. This parameter sign suggests that capital expenditure did not increase life expectancy in the period of the study. The result, therefore, suggests that government capital spending on health was inefficient and ineffective.

$L(ler_t)=0.75-0.04L(d(pch_{t-1})+0.03L(d(prh_t)-0.15L(urb_t)-0.08L(d(pci_t)+0.002(L(d(rhw_t)$.....(4.4)

S.E: (0.75) (0.009) (0.01) (0.13) (0.10) (0.02)

t-test: (0.99) (-5.27) (2.93) (-1.13) (-0.77) (0.09)

p-value: (0.33) (0.00) (0.00) (0.27) (0.44) (0.926)

R^2=0.64, R^{-2}=0.55, DW=1.91, F=7.3, p=0.000

The recurrent expenditure, however, had a positive effects on life expectancy suggesting that it was more efficient and effective than capital spendings. Urban population (urb_t)and per capita income (pci_t)exert negative and insignificant effects on life expectancy. That is a percentage increase in urban population reduces life expectancy by 15.0 percentage points,

while per capita income reduces life expectancy by 8.0 percentage points. The result suggests that population explosion and poor standard of living emanating from low per capita income contribute effectively to the decline in life expectancy in the country.

Furthermore a positive but insignificant relationship exists between registered health workers and life expectancy rate. A pecerntage increase in registered health workers leads to 0.2 percentage points increase in life expectancy rate. This suggests that an increase the number of registered health workers has the potentials of increasing life expectancy.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 SUMMARY

The study investigated the efficiency and effectiveness of government spending on human capital development in Nigeria (1980-2009) as a means of determining whether government spending on human development were efficient and effective in accomplishing the human development outcomes in the country. Specifically, the study focused on two main components of human capital(education and health) and modelled each component separately. In the study, education output was proxied by student/teacher ratio and education outcome was proxied with adult literacy rate while health output was represented by total registered health workers and health outcome was proxied by life expectancy rate. To determine the effectiveness of government spending on human development, percentages of government expenditures on education and health (capital and recurrent) to gross domestic products as well as other controlled variables were used; all of which represented human development inputs. Thus, the effectiveness of government spending on human development was determined from the estimates by comparing the relationships between human development inputs and the human development outcomes.

Finally, the study went further to analyse the structural trends of government spending on education and health in the country over the sample periods using percentages and graphical analytical tools. Both capital and recurrent government expenditures on education and health exhibited different behavioural trends through out the sample periods. Percentages of Government spendings on both education and health to GDP, for instance, were embarrassingly low during the study period with the average growth rates of 2 and 1.35 percents between 1980 and 2009 respectively.

5.2 OUTLINE OF KEY FINDINGS

a) The estimation results showed that both capital and recurrent expenditures on education wereineffective in reducing students/teacher ratio and in increasing adult literacy. The ineffectiveness were due to the underlying inefficiencies in government spending on education.

b) Capital expenditure on health was found to be ineffective in increasing life expectancy and number of health workers.Recurrent expenditureon health, moreover, was ineffective in increasing number of health workers but effective in increasing life expectancy.The result indicated that the government spending on health was significantly ineffective and that the ineffectiveness was due to underlying inefficiencies.

5.3 CONCLUSION

The main conclusion of the study is that government expenditure on education and health were ineffetive in the period of the study (1980-2009). Further, that the ineffectiveness were attributable to the inefficiencies in government expenditure. Therefore, low human development in Nigeria could be attributed to the inefficiencies in government spending on education and health.

5.4RECOMMENDATIONS

Based on the findings of this study, the following recommendations were made; government should place a high priority on the efficiencies of government expenditure. This would require a transition from the current line item and eveloped budgeting to performance based budgeting.

Government should ensure effective budget monitoring and evaluation in considering the use of performance-based budgeting rather line-item budgeting. Government expenditure should

be allocated based on efficiency and effectiveness of the spending units such as ministries/departments. In addition, government should accord priority to education aand health given that they are critical to human and economic development.

REFERENCES

Adamu, P. A (2003). "The Impact of Human Capital on Economic Growth in Nigeria: An Error Correction Approach". In: Human Resource Development in Africa: Selected Papers for the Year 2002 Annual Conference, the Nigerian Economic Society (NES), Part Three.

Adebiyi, M.A. (2003). "Debt Service-Education Expenditure Nexus: The Nigerian Experience". In: Human Resource Development in Africa: Selected Papers for the Year 2002 Annual Conference, The Nigerian Economic Society (NES), Part Three.

Adedeji, A. S et al (1990). "The Human Dimension of Africa's Persistent Economic Crisis". United Nation Economic Commission for Africa, Hans Zell Publishers.

Anyanwu, J.C. et al (1997). "The Structure of the Nigeria Economy".Joanee Educational Publishers Ltd.

Anyanwu, J.C and Erhijakpor, A.E. (2007). "Education Expenditures and School Enrolment in Africa: illustrations from Nigeria and the other SAWE Countries". Paper presented at the 50th Anniversary and Annual conference of the Nigerian Economic Society, Abuja, 23-28 October 2007.

Atkinson, A.B,(1991). "Modern Public Finance". Edward Edgar Publishing Co. Ltd., Aldershot, Vol. 11.

Barro R. J. and Sala-i-Martin, X. (1995)."Economic Growth" MacGraw-Hill, New York.

Barro, R. J. (1998). "Human Capital and Growth in Cross-Country regressions, Technical Report", Mimeo Harvard University.

Bello, D. (1996). "Public Expenditure and Economic Growth in Nigeria".An Unpublished Ph. D Thesis, Department of Economics, A.B.U, Zaria.

Bhartial, H.L. (2009). "Public Finance" 26th Edition.Vikas Publishing House PVT Ltd.

Dahlin, B.G. (2005). "The Impact of Education on Economic Growth: Theory, Findings and Policy Implications."*Working Paper*, Duke.

Daniel, M. (2005)."The Impacts of Government Spending on Economic Growth".Published by The Heritage Foundation Leadership for America.

David, J. (1992). "The Impacts of Public Expenditures on Economic Growth in Nigeria".An Unpublished M.sc Thesis, Economics Department, Ahmadu Bello University, Zaria.

Debble, J. (2000). "Resource Allocation in Public Health: An Economic Approach". National Public Health Partnership; Melbourne, 2nd Edition.

Dolado, J. and Lutkepohl, H. (1996)."Making Wald Tests work for Cointegrated VAR Systems".*Econometric Review*, 15, 369-386.

Engle, R.F. and Granger, C.W.J. (1987). "Co-integration and Error Correction: Representation, Estimation and Testing". *Econometrica*55: 251-276.

Fakiyesi, T and D.O..Ajakaiye, (2009).“The Global Financial Crisis and the Nigerian Economy.” Research Report Submitted to Overseas Development Institute, UK. (Presented at the Department of Economics, University of Lagos).

First Implementation Plans (2010-2013). “Nigeria Vision 20:2020 Document.

Garba, P.K (2003). “Human Capital Formation, Utilization and the Development of Nigeria: A System Analysis.” Human Resource Development in Africa: Selected Papers for the Year 2002 Annual Conference, The Nigerian Economic Society (NES), Part Seven.

General Accounting Office (1999). “Performance Budgeting: Initial Experiences Under The Results Act in Linking Plans with Budget, GAO/AIMD/GGD-99-67

“Global Competitiveness Report (2010-2011)”; A Publication of World Economic Forum; Geneva, Switzerland.

Granger, C.W.J. (1969).“Investigating Causal Relations by Econometric Models and Cross Spectral Methods”.*Econometrica*37: 428-438.

Granger, C.W. (1986).“Developments in the Study of Cointegrated Economic Variables” *OxfordBullentin of Economic and Statistics* 48(3), pp.213-228.

Greg, H. et al. (2001). “Performance-based Budgeting: Concepts and Examples. Research Report No. 302 Submitted to Legislative Research Commission; Frankfort, Kentucky, U.S

Griffin, K and McKinley, T. (1992).“Towards a Human Development Strategy”. Occasional Paper 6, December.

Gujarati, D.N. et al, (2007).“Basic Econometrics” (Fourth Edition). Tata McGraw-Hill Publishing Company Ltd, New Delhi.

Gupta, S., M. Verhoeven and E. Tiongsan (1999). “Does Higher Spending Buy Better Results in Education and Health Care”? IMF Working Paper WP/99/21 (Washington: International Monetary Fund).

Gupta and Verhoeven (2001). “The Efficiency of Government Expenditure: Experiences from Africa”. *Journal of Policy Modeling* 23(4).

Heckman, J. and Klenow, P. (1997).“Human Capital Policy”.Htpp://www.klenow.com/Human Capital.pdf.

Hill, M. A. and King, E. M. (1991). “Women Education in the Third World”: An overview. In Women Education in Developing Countries: Barriers, Benefits and Policy. King, E. M. and M.A. Hills, eds. Washington, D. C.: The World Bank.

Hsiao, C. (1981). “Autoregressive Modelling and Money-Income Causality Detection”.*Journal of Monetary Economics: 85*-106.

Jhingan, M.L. (2005). “The Economics of Development and Planning”.Thirty Eight Edition; Vrinda Publications (P) Ltd. Delhi, India.

Jorgenson, D.W. and Fraumeni, B.M. (1992). “Investment in Education and US Economic Growth”, *Scandinavian Journal of Economic*, Vol.94, p.551-570

Joyce, P. (2003). "Linking Performance and Budgeting: Opportunities in the Federal Budget Process". Arlington, Virginia: IBM Centre for the Business of Government.

Johansen, S. and Juselius, K. (1990)."Maximum Likelihood Estimation and Inference on Cointegration-with application to the demand for money".*Oxford Bulletin of Economics and Statistics* 52: 169-210.

Kazeem, K. and Ige, O. (2010)."Redressing the Growing Concern of the Education Sector in Nigeria."Edo Journal of Counselling, Vol. 3, No. 1.

Keynes, J. M (1936)."The General Theory of Interest Rate, Price and Employment".

Larocque, N. (2008). "Comment on Inter-sectoral Interfaces in Higher Education Development": Private and Public in Sync? " by Daniel C. Levy. In.: *Higher Education and Development*. Annual World Bank Conference on Development Economics-Regional, Justin Yifu Lin and Pleskovic B. (ed.), The World Bnk, Washington, D.C.

Lawanson, O.I (2009). "Human Capital Investment and Economic Development: The Role of Education and Health". St Hugh's College, Oxford University, Oxford, U.K

Lucas, R. (1988). "On the Mechanics of Economic Development", Journal of Economic Research, the World Bank.

Mandl, U. et al (2008). "The Effectiveness and Efficiency of Public Spending".Economic Paper 301; European Commission.

Michaelowa, K. (2000). "Returns to Education in Low Income Countries: Evidence for Africa." http://www.hwwwa.de/Projects/ResProgrammes/RP/Development Processes/Vfs EL 2000 Rev2.pdf

Musgrave, R A. and Peggy, B. M, (1989). "Public Finance in Theory and Practice, 5th Edition", New York: McGraw-Hill International Editions, Finance series.

Okojie, C.E.E. (1995). "Human Capital Formation for Productivity Growth in Nigeria".Nigeria Economic and Financial Review.

Olaniyi O. O. and Adam J.A, (2003)."Public Expenditure and Human Development in Nigeria". In: Human Resource Development in Africa: Selected Papers for the Year 2002 Annual Conference, the Nigerian Economic Society (NES), Part Three.

Onwioduokit E. A. and Tule, M. K.(2002). "Options for Sustainable Funding of Education in Nigeria". In: Human Resources Development in Africa Ozo-esan, and Evbuomwan G. Conference Proceedings of the Nigerian Economic Society, Ibadan, Nigeria.

Organisation of Economic Cooperation for Development (2003). "Public Sector Modernalization: Governing for Performance". Gov/PUMA (2003) 20.

Prichett, L. and Filmer, D. (1997). "Child Mortality and Public Spending on Health": How much does money matter? World Bank Policy Research Working Paper No.1864, World Bank, Washington D.C.

Psacharopaulos, G. and Winter, C. (1990). "Women's Employment and Pay in Latin America". IMF/World Bank Finance Development.Vol. 29, No. 4.

Ramanathan, R. (1992). "Introductory Econometrics with Applications". Second Edition, Harcourt New York, Brace Jovanovich.

Rambaldi, A.N. and Doran, H.E. (1996)."Testing for Granger non-Causality in Cointegrated Systems Made Easy". Working paper in econometrics and applied statistics no. 88, University of New England.

Riddell, W.G. (2006). "The Effectiveness and Efficiency of Public Spending".Economic Papers 301; European Commission.

Risikat, O.S (2010). "Effect of Public Educational Spending and Macroeconomic Uncertainty on Schooling Outcomes: A Nigerian Case Study". A Paper Presented at the 51st Nigerian Economic Society Annual Conference on "Distortions in the Nigerian Economy", Abuja, 21st – 23rd September, 2010.

Robinson, M. and Brumby, J. (2005). "Does Performance-based Budgeting Work? An Analytical Review of the Empirical Literature".IMF Working Paper.WP/05/210.

Schultz, T.W. (1961). "Investment in Human Capital".*American Economic Review*: March pp 1-17.

Toda, H.Y. and Yamamoto, T. (1995)."Statistical Inference in Vector Auto-regressions with Possibly Integrated Processes".*Journal of Econometrics* 66: 225-250.

Todaro M. P. and Smith S. C. (2003)."Economic Development".8th Edition, Pearson Education (Singapore) Ltd, Delhi, India.

UNDP (2007)."Human Development Report 2007". New York: Oxford University Press

..... (2009). "Human Development Report 2009". New York: Oxford University Press

..... (2010). "Human Development Report 2010". New York: Oxford University Press.

World Bank (1980)."World Development Report", Washington, D.C.; World Bank.

…….. ..(1991). "Challenges of Development".World Development Report; New York.

Yesufu, T.M. (2000). "The Human Factor in National Development: Nigeria", Ibadan: Spectrum Books.

Zapata, H.O. and Rambaldi, A.N. (1997)."Monte Carlo Evidence on Cointegration and Causation".*Oxford Bulletin of Economics and Statistics* 59: 285-298.

Websites

http//www.aerc.com

http//www.cenbank.org

http//www.google.com

http//www.imf.org

http//www.nigerianstat.gov.ng

http//www.repec.com

APPENDICES

APPENDIX I: UNIT-ROOT TEST RESULTS

ADULT LITERACY SERIES WITH UNIT-ROOT

ADF Test Statistic	-1.327227	1% Critical Value*	-3.6852
		5% Critical Value	-2.6242
		10% Critical Value	-2.9705

*MacKinnon critical values for rejection of hypothesis of a unit root.

STATIONARIZED ADULT LITERACY SERIES

ADF Test Statistic	-2.788318	1% Critical Value*	-3.6959
		5% Critical Value	-2.6265
		10% Critical Value	-2.9705

*MacKinnon critical values for rejection of hypothesis of a unit root.

CAPITAL EXPENDITURE SERIES WITH UNIT-ROOT

ADF Test Statistic	-1.899458	1% Critical Value*	-4.3226
		5% Critical Value	-3.5796
		10% Critical Value	-3.2239

*MacKinnon critical values for rejection of hypothesis of a unit root.

STATIONARIZED CAPITAL EXPENDITURE EDUCATION SERIES

ADF Test Statistic	-4.262066	1% Critical Value*	-4.3552
		5% Critical Value	-3.5943
		10% Critical Value	-3.2321

*MacKinnon critical values for rejection of hypothesis of a unit root.

TOTAL REGISTERED SCHOOLS SERIES WITH UNIT-ROOT

ADF Test Statistic	-2.590801	1% Critical Value*	-3.6852
		5% Critical Value	-2.9705
		10% Critical Value	-2.6242

*MacKinnon critical values for rejection of hypothesis of a unit root.

STATIONARIZED TOTAL REGISTERED SCHOOLS SERIES

ADF Test Statistic	-10.95707	1% Critical Value*	-3.6959
		5% Critical Value	-2.9750
		10% Critical Value	-2.6265

*MacKinnon critical values for rejection of hypothesis of a unit root.

STUDENT/TEACHER SERIES WITH UNIT-ROOT

ADF Test Statistic	-2.052336	1% Critical Value*	-4.3226
		5% Critical Value	-3.5796
		10% Critical Value	-3.2239

*MacKinnon critical values for rejection of hypothesis of a unit root.

STATIONARIZED STUDENT/TEACHER SERIES

ADF Test Statistic	-4.196311	1% Critical Value*	-4.3382
		5% Critical Value	-3.5867
		10% Critical Value	-3.2279

*MacKinnon critical values for rejection of hypothesis of a unit root.

RECURRENT EXPENDITURE EDUCATION SERIES WITH UNIT-ROOT

ADF Test Statistic	-2.069677	1% Critical Value*	-4.3226
		5% Critical Value	-3.2239
		10% Critical Value	-3.5796

*MacKinnon critical values for rejection of hypothesis of a unit root.

STATIONARIZED RECURRENT EXPENDITURE ON EDUCATION SERIES

ADF Test Statistic	-3.556135	1% Critical Value*	-4.3382
		5% Critical Value	-3.2279
		10% Critical Value	-3.5867

*MacKinnon critical values for rejection of hypothesis of a unit root.

PER CAPITA INCOME SERIES WITH UNIT-ROOT

ADF Test Statistic	-0.544906	1% Critical Value*	-3.6852
		5% Critical Value	-2.9705
		10% Critical Value	-2.6242

*MacKinnon critical values for rejection of hypothesis of a unit root.

STATIONARIZED PER CAPITA INCOME SERIES

ADF Test Statistic	-4.748266	1% Critical Value*	-3.6959
		5% Critical Value	-2.9750
		10% Critical Value	-2.6265

*MacKinnon critical values for rejection of hypothesis of a unit root.

STATIONARY URBAN POPULATION SERIES

ADF Test Statistic	-1.822722	1% Critical Value*	-2.6522
		5% Critical Value	-1.6223
		10% Critical Value	-1.9540

*MacKinnon critical values for rejection of hypothesis of a unit root.

STATIONARY LIFE EXPECTANCY SERIES

ADF Test Statistic	-3.555571	1% Critical Value*	-3.6852
		5% Critical Value	-2.9705
		10% Critical Value	-2.6242

*MacKinnon critical values for rejection of hypothesis of a unit root.

CAPITAL EXPENDITURE ON HEALTH SERIES WITH UNIT-ROOT

ADF Test Statistic	-1.279793	1% Critical Value*	-3.6852
		5% Critical Value	-2.9705
		10% Critical Value	-2.6242

*MacKinnon critical values for rejection of hypothesis of a unit root.

STATIONARY CAPITAL EXPENDITURE ON HEALTH SERIES

ADF Test Statistic	-3.719830	1% Critical Value*	-3.7076
		5% Critical Value	-2.9798
		10% Critical Value	-2.6290

*MacKinnon critical values for rejection of hypothesis of a unit root.

RECURRENT EXPENDITURE ON HEALTH SERIES WITH UNIT-ROOT

ADF Test Statistic	-1.991264	1% Critical Value*	-4.3226
		5% Critical Value	-3.2239
		10% Critical Value	-3.5796

*MacKinnon critical values for rejection of hypothesis of a unit root.

STATIONARIZED RECURRENT EXPENDITURE ON HEALTH SERIES

ADF Test Statistic	-3.461574	1% Critical Value*	-4.3382
		5% Critical Value	-3.2279
		10% Critical Value	-3.5867

*MacKinnon critical values for rejection of hypothesis of a unit root.

REGISTERED HEALTH WORKERS SERIES WITH UNIT-ROOT

ADF Test Statistic	0.738831	1% Critical Value*	-3.6852
		5% Critical Value	-2.6242
		10% Critical Value	-2.9705

*MacKinnon critical values for rejection of hypothesis of a unit root.

STATIONARIZED REGISTERED HEALTH WORKERS SERIES

ADF Test Statistic	-2.867076	1% Critical Value*	-3.6959
		5% Critical Value	-2.6265
		10% Critical Value	-2.9750

*MacKinnon critical values for rejection of hypothesis of a unit root.

APPENDIX II

EDUCATION SPENDING EFFICIENCY ESTIMATES

Dependent Variable: LOG(D(S/T))
Method: Least Squares
Date: 10/23/11 Time: 09:10
Sample(adjusted): 1981 2009
Included observations: 29
Excluded observations: 1 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-7.662481	2.227412	-3.440083	0.0074
LOG(D(PCE(-1))	0.003493	0.022073	0.158231	0.8778
LOG(D(PRE))	0.011367	0.010762	1.056250	0.3184
LOG(URB)	4.975612	1.395807	3.564686	0.0061
LOG(D(PCI))	-1.743845	0.614788	-2.836496	0.0195

R-squared	0.801653	Mean dependent var	0.505023
Adjusted R-squared	0.713498	S.D. dependent var	0.043756
S.E. of regression	0.023421	Akaike info criterion	-4.397924
Sum squared resid	0.004937	Schwarz criterion	-4.169689
Log likelihood	35.78547	F-statistic	9.093734
Durbin-Watson stat	2.200371	Prob(F-statistic)	0.003176

APPENDIX III

ESTIMATION RESULT FOR EDUCATION SPENDING EFFECTIVENESS

Dependent Variable:Log(D(ALTR))
Method: Least Squares
Date: 06/25/11 Time: 09:19
Sample(adjusted): 1981 2009
Included observations: 29 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.797551	0.396223	-2.012883	0.0565
Log(D(PCE(-1))	-0.044296	0.009233	-4.797635	0.0001
Log(D(PRE))	0.029226	0.007024	4.160688	0.0004
Log(D(TNS))	-0.018103	0.051887	-0.348894	0.7305
Log(D(STR))	-0.058873	0.065351	-0.900882	0.3774
Log(URB)	-0.316374	0.085479	-3.701179	0.0012
Log(D(PCI)	-0.094499	0.079704	-1.185627	0.2484

R-squared	0.967928	Mean dependent var	1.732281
Adjusted R-squared	0.959181	S.D. dependent var	0.069151
S.E. of regression	0.013971	Akaike info criterion	-5.497161
Sum squared resid	0.004294	Schwarz criterion	-5.167124
Log likelihood	86.70883	F-statistic	110.6605
Durbin-Watson stat	1.709513	Prob(F-statistic)	0.000000

APPENDIX IV

HEALTH SPENDING EFFICIENCY ESTIMATES

Dependent Variable: Log(D(RHW))
Method: Least Squares
Date: 10/23/11 Time: 09:29
Sample: 1983 2009
Included observations: 27
Excluded observations: 3 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-6.112745	3.163763	-1.932112	0.0648
Log(D(PCH(-1))	0.044062	0.080112	0.550005	0.0074
Log(D(PRH)	-0.267777	0.070049	-3.822728	0.0008
Log(URB)	0.567008	0.623615	0.909228	0.3719
Log(D(PCI))	2.143441	0.548600	3.907113	0.0006

R-squared	0.955310	Mean dependent var	4.628792
Adjusted R-squared	0.948159	S.D. dependent var	0.513720
S.E. of regression	0.116967	Akaike info criterion	-1.302843
Sum squared resid	0.342030	Schwarz criterion	-1.069310
Log likelihood	24.54264	F-statistic	133.6011
Durbin-Watson stat	1.817094	Prob(F-statistic)	0.000000

APPENDIX V

ESTIMATION RESULT FOR HEALTH SPENDING EFFECTIVENESS

Dependent Variable: Log(LER)
Method: Least Squares
Date: 06/25/11 Time: 09:38
Sample(adjusted): 1983 2009
Included observations: 29 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.749637	0.750934	0.998273	0.3295
Log(D(PCH(-1))	-0.048286	0.009146	-5.279737	0.0000
Log(D(PRH))	0.030382	0.010342	2.937735	0.0079
Log(URB)	-0.156268	0.138075	-1.131760	0.2705
Log(D(PCI))	-0.084486	0.108586	-0.778055	0.4452
Log(D(RHW))	0.002364	0.025341	0.093273	0.9266

R-squared	0.636117	Mean dependent var	1.711451
Adjusted R-squared	0.549479	S.D. dependent var	0.030404
S.E. of regression	0.020407	Akaike info criterion	-4.752714
Sum squared resid	0.008746	Schwarz criterion	-4.464751
Log likelihood	70.16164	F-statistic	7.342181
Durbin-Watson stat	1.912557	Prob(F-statistic)	0.000406

Year	ALTR	PCE	PRE	TNS	STR	URBPP	PCI(PPP)	LER	PCH	PRH	RHW
1980	39	0.990367	0.161987	10621	35	21313559	532.12	47	0.153036	0.054883	8037
1981	39	0.626315	0.234999	16638	36	22410537	584.022	47	0.182397	0.119979	9488
1982	41	0.695583	0.267871	29543	39	23523601	719.6	47	0.185584	0.136765	9947
1983	41	0.522071	0.24424	34612	40	24662279	622.42	48.5	0.204852	0.124703	12900
1984	44	0.229977	0.315682	39287	40	25842771	940.74	48.5	0.081103	0.161174	14620
1985	44.5	0.262202	0.375238	39787	42	27077903	852.865	48.5	0.081548	0.191566	15834
1986	46	0.62187	0.369619	40614	44	28424939	761.044	49.3	0.114244	0.1887	15969
1987	48.05	0.196632	0.318074	40699	37	29831342	822.352	50	0.098245	0.058396	16145
1988	50.1	0.362432	1.87621	40772	41	31293684	882.672	51	0.235619	0.543777	17121
1989	52.2	0.265764	3.607153	41435	37	32805078	1004.552	52	0.150907	0.689022	17,954.00
1990	54	0.36716	2.659668	41334	36	34360412	1004.849	52	0.284474	0.553529	19126
1991	54	0.305557	1.327815	41619	37	35979221	1005.456	54	0.145433	0.653391	20210
1992	55	0.394227	0.298981	44193	39	37645811	1021.045	54	0.192957	0.154119	21325
1993	55	1.562762	8.88103	44723	41	39362910	1023.86	52	0.352846	3.871012	21739
1994	57	2.374124	7.285838	47960	50	41134656	1014.059	52	0.948386	2.066496	35280
1995	54.26	3.195247	9.415902	48306	60	42964790	1055.907	52	1.666699	3.208096	42741
1996	53.44	3.004859	10.74206	51262	48	44854622	1075.066	53	1.550645	2.825369	55290
1997	53.52	3.449275	13.45429	53422	52	46805201	1086.818	53	2.37663	3.524547	69012
1998	51.78	11.32124	12.0261	56015	54	48820003	1078.353	53	6.304248	4.196699	71528
1999	52.1	7.335573	37.56301	57136	52	50903143	1129.203	54	6.362446	14.33141	72302
2000	57.22	19.35539	48.05642	57618	54	53058008	1215.528	54	5.447098	12.61864	72890
2001	58.51	1.128784	0.844061	58779	56	55311726	1456.691	54	0.42031	0.51898	75106
2002	59.8	0.469698	1.165024	69744	40	57640536	1597.864	41.9	0.133312	0.587662	76325
2003	62	0.656723	0.763308	71102	43	60045518	1773.307	41.8	0.172972	0.391986	86848
2004	63.1	0.48202	0.670618	71102	36	62527320	1795.5	54	0.188852	0.299684	87745
2005	64.2	0.552492	0.56817	72772	37	65085902	1916.382	54	0.188309	0.38197	88144
2006	66.9	0.176171	0.470221	72772	46	67692977	2052.248	54	0.173188	0.316121	231984
2007	66.9	0.226554	0.520539	72772	46	70374686	2162.054	54	0.469083	0.349949	373360
2008	70	0.204679	0.687857	72884	42	73126246	2200	54	0.407681	0.411875	529282
2009	70	6.865196	19.13058	72886	44	73271483	2300	54	13.86708	12.58144	593361