

## CROWDING-IN AND CROWDING-OUT EFFECTS OF RECURRENT AND CAPITAL EXPENDITURE ON HUMAN CAPITAL DEVELOPMENT IN NIGERIA



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### ABSTRACT

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It has been argued that public expenditure on education and health is a veritable tool in improving human capabilities. Expenditure on these sectors is categorized into recurrent and capital. While capital expenditure can go a long way in enhancing the productivity capacity, recurrent expenditure is for non-productive activities. Available statistics however shows that in Nigeria, emphasis has been on recurrent expenditure at the detriment of capital expenditure. This study therefore employed multiple regression to ascertain how this pattern of expenditure crowd-in and crowd-out human capital development in Nigeria using capital and recurrent expenditure on education and health. The estimated models reveal that both capital and recurrent expenditure crowd-in and crowd-out human capital development. This outcome therefore suggests a new expenditure framework that refocuses more on capital expenditure than recurrent expenditure.

**Contribution/ Originality:** This study contributes in the existing literature by adopting the crowding-in and crowding-out methodological framework to analyze the effects of capital and recurrent expenditure on human capital development.

## 1. INTRODUCTION

It has been asserted by Harbison (1973) and Odusola (1998) that there can be no significant growth in an economy without adequate human capital development. This is because human capital development has the capacity to enlarge people's choices and opportunities and improve healthier living. Of the various ways of human capital development, education and health seems to be the most veritable. This is based on the notion that education and health makes labor force more productive, improves welfare and enhances the human capacity to contribute meaningfully to the growth process. The positive externalities associated with human capital accumulation and the difference between social and private returns to education often provide the rationale for government intervention.

Government expenditure represents an important policy instrument through which human capital can be developed to enhance their efficiency in the economy. However, there are two divergent views on the effects of government expenditure on human capital development. The traditionalists opine that government expenditure endangers human capital development, while the non-traditionalist is of the opinion that government expenditure

stimulates human development. Although some studies have been conducted on the relationship between government expenditure and human capital development, the adoption of aggregate expenditure may not reveal the actual contribution of certain components of government expenditure in enhancing human capital development. The distinction between capital and recurrent expenditure will therefore offer useful information on the effects of the pattern of government expenditure on human capital development. In this paper, we employed recurrent and capital expenditure on education and health and identify which component of expenditure that crowd-in or crowd-out human capital development. The employment of education and health as sectors that enhances human capital development is supported by empirical literature. (*See for instance* Grier and Tullock (1989); Erkin and Ward (1993); Bloom and David (2000); Oluwatoyin (2011)) who demonstrated that government spending on education improves general welfare, reduces poverty and boosts growth. Also Isabel *et al.* (1997) shows that public spending on education results in more egalitarian gains for households with differing levels of human capital endowments.

A general trend noticeable in Nigeria expenditure pattern in recent years is high rate of recurrent expenditure. Available data shows that recurrent expenditure exceeds capital expenditure nearly 72 percent of the periods. Specifically, recurrent expenditure in the 1984-85, 1987-19995 and 2000-2011 periods was more than capital expenditure in each year. On the other hand, the capital expenditure decreased nearly 60 percent in the 1980-84 periods. Meanwhile, from 1980-1983, capital expenditure was more than the recurrent expenditure. Apart from 1986 and 1996-2000 periods, the federal government capital expenditure was less than the recurrent expenditure. Within the 1980-1983 periods, the share of capital expenditure in total expenditure exceeded that of recurrent expenditure. From 1984-1985 the share of recurrent expenditure in total expenditure was more than of capital expenditure. From 1987 to 1995, the share of recurrent expenditure consistently exceeded that of capital expenditure. From 1996-1999 the share of capital expenditure exceeded that of recurrent expenditure. From 2000-2011, the share of recurrent expenditure was more than that of capital expenditure. Taking a look at the capital expenditure and recurrent expenditure GDP ratios from 1980-1983, the capital expenditure GDP ratio was more than the recurrent expenditure GDP ratio. From 1984-85 and 1987-1995, the recurrent expenditure GDP ratio exceeded the capital expenditure GDP ratio. From 1996-1999, the capital expenditure GDP ratio exceeded the recurrent expenditure GDP ratio. From 2000- 2011, the recurrent expenditure GDP ratio exceeded the capital expenditure GDP ratio. The medium term financial strategy further revealed that in 2012, out of total expenditure of N4.648 trillion, capital expenditure took N1.284 trillion while recurrent expenditure gulped N3.716 trillion (Central Bank of Nigeria, 2013).

Arising from the above, the crowding-out and crowding-out effect of government expenditure on human capital development is not inevitable when it is financed largely by budget and its effect depend on the pattern of government expenditure, especially if the unproductive component is rising more than the productive component (Martins and Lewis, 2004). Productive expenditure might help enhance human potential especially in a developing country framework. In enhancing human capital development, expenditure on education and health can be a veritable tool due to its immediate and lagged effect in improving human capabilities and quality of life. It can therefore be argued that capital expenditure is more likely to crowd-in rather than crowd-out human capital development. A study on the crowding-in and crowding-out effects of disaggregated government expenditure on human capital development can thus be seen as an attempt at the examination of human capital development efforts in the country and ensure that the right expenditure framework is adopted. The rest of the paper as organized as follows: Section 2 presents an overview of recurrent and capital expenditure; section 3 is review of previous studies, section 4 is methodology, presentation and discussion of result is in section 5 while section 6 is conclusion.

## 2. AN OVERVIEW OF RECURRENT AND CAPITAL EXPENDITURE

This section reviews trends and patterns of government expenditure which can be broadly divided into two categories: recurrent and capital or development expenditure. Recurrent expenditure refers to operating expenses needed for the day-to-day functioning of government departments. Capital expenditure on the other hand refers to the creation or acquisition of fixed asset and sometimes is used to improve existing facilities. Capital expenditure thus represents the expenditure undertaken by the government to build its investments. These investments can go a long way in enhancing the productivity capacity of the economy through the provision of infrastructures and other capital goods. The actual impact of these investments on the growth process is magnified by the crowding-in or crowding-out impact on human capital investment.

Through the period of 1977-2015, recurrent expenditure forms a larger proportion of total government expenditure compared to capital expenditure. For instance, recurrent expenditure increased from N3, 819.20 million in 1977 to N4, 805.20 million in 1980 and further to N36, 219.60 million in 1990. Recurrent expenditure was N461, 600.00 million and N1, 589,270.00 million in 2000 and 2007, respectively. Similarly, government capital expenditure rose from N5, 004.60 million in 1977 to N10, 163.40 million in 1980 and further to N24, 048.60 million in 1990. The value of capital expenditure stood at N239, 450.90 million and N759, 323.00 million in 2000 and 2007 respectively. During the period 2010-2015, the share of recurrent expenditure was 0.65 percent as compare to the share of capital expenditure at 0.35 percent for the same period.

## 3. PREVIOUS STUDIES

According to [Landau \(1983\)](#); [Robert \(1991\)](#); [Ross and Renelt \(1992\)](#) human capital development has the capacity to enlarge people's choices and opportunities, improve healthy living through acquired skills and knowledge from both specific and cross-country studies. But this may not be true for Nigeria. According to [World Bank \(2010\)](#) and [United Nations Development Programme \(UNDP\) Report \(2014\)](#) the desire of the country to becoming a knowledge-based economy and attain sustainable growth has been difficult due to low human development. According to the report a major challenge has been the pattern of expenditure practiced by the country. There are also other studies who blamed this situation on the efficiency of public expenditure. In this category, there are essentially three variants. First, those that analyzed changes in efficiency associated with reform programmes in the public sector in specific countries. These studies offered some examples of best practices at the policy level. In the second group, efficiency has been investigated using data on inputs of government spending. In developed countries, these studies have dealt with health sector and social security reform, where the government expenditure is found to be highest among the social sectors. These group of studies are those carried out to explain the differences in social indicators among different countries after netting out the effects of income levels and distribution as well as rate of economic growth. For instance, [Mukherjee \(2006\)](#) reviewed 96 studies of education production functions in developing countries and 187 studies in the United States that investigated the relationship between education inputs and outputs. A common finding of these studies is that public expenditure on education has positively impacted on human capital development. A study of OECD member countries by [Erkin and Ward \(1993\)](#) which analyzed the efficiency of health expenditure found that public-reimbursement health systems reduces public health expenditure and improves efficiency than publicly managed and financed healthcare systems. [Robert \(1991\)](#) assessed the incremental impact of public spending on social and economic services for developed countries comparing social indicators for countries with varying income levels. They conclude that higher public spending does not significantly improve human capital development. In another study involving OECD countries, [Gochoco \(1990\)](#) estimated a semi-parametric model of health production process using a two-stage approach applying both Data Envelopment Analysis (DEA) and Tobit procedure to evaluate efficiency in health services across countries. Results from the first-stage shows that inefficiencies may be quite high on the average and as a conservative

estimate, countries could increase their results by 40 per cent using the same resources with countries such as Hungary, the Slovak Republic and Poland showing sign of significant improvement. The second stage procedure shows that GDP per head and educational attainment are highly and significantly correlated with human capital development. [Baldacct et al. \(2004\)](#) also measured the efficiency of public spending in Malta by applying two alternative non-parametric techniques: the Full Disposal Hull and the Data Envelopment Analysis. These results revealed that the efficiency of public healthcare expenditure is weak and concluded that it is crucial to identify the institutional and structural factors that prevent public expenditure from achieving higher efficiency.

In another variant, [Dehlberg and Jakobsson \(1977\)](#) assessed the efficiency of both government expenditure on education and health in 38 African countries between 1984 and 1995, both in relation to each other and in comparison with countries in Asia and the Western Hemisphere. Their results showed a wide variation in the way government spending in African countries impacted on human development. The results further indicated that, on the average, Africa countries are less efficient in the provision of health and education services than countries in Asia and the West Hemisphere. The implication of this finding is that improvements in educational attainment and health output require more than just higher budgetary allocations to translate expenditure growth to sustainable socio-economic development. In Nigeria, [Ehimare et al. \(2014\)](#) notes that there has been significant reduction in the efficiency in capital and recurrent expenditure on education as well as capital expenditure on information and communication technology of government expenditure since 1990 to 2011 which has been on decreasing level. This could be evidenced from the poor quality and output in the Nigerian education sector. This outcome is in tandem with [Torruam and Abur \(2014\)](#) who found that a percentage increase in capital and recurrent expenditure and led to a decline in economic growth by 0.004 percent and 0.005 percent respectively. This negative impact was attributable to mismanagement and diversion of funds by government official and political appointees.

The effects of health expenditure on human capital development at both the micro and macro levels have also been investigated in the literature. Studies at the micro level include [Benerjee and Newman \(1998\)](#) which conclude that good health is a necessary condition for school attendance. It was found that healthier students, in contrast to their less healthy counterparts received better education for a given level of schooling which in turn guarantees higher earning over a longer period of time. This has demonstrated that health expenditure is indispensable in the achievement of sustainable human development. This was further extended by [Blundel et al. \(2004\)](#) when they added both health and education expenditure into the model and found improvement in educational attainment, although the study fail to disaggregate expenditure on health and education into the recurrent and capital components.

In assessing the challenges of human capital development in Nigeria, [Audu et al. \(2013\)](#) argue that government should be more responsive with education expenditure so that technical education and innovation adaptation centres will help produce the quality human capital needed to engender the growth process of the economy. The [World Bank \(2010\)](#) model which linked several federal and private universities in developing shared infrastructure for cooperation and cost-reduction, is recommended as a good start to address the challenges of human capital development efforts. Further, [Osadebe \(2013\)](#) evaluated the human capital development efforts in Delta State using a sample of 180 respondents randomly drawn through the proportionate stratified random sampling technique. The results showed that the human capital development in some areas is highly commendable while a lot more efforts is required in other areas. [Usman and Anene \(2014\)](#) evaluated the specific impact of public expenditure on human capital development and found that both recurrent and capital expenditure on education are positively related to human capital development, especially at the higher level of education. Specifically, a percent increase in recurrent education expenditure and capital education expenditure impacted on human capital development by 0.61 percent and 0.07 respectively. This suggests that although there is positively functional relationship between capital and recurrent education expenditure and human capital development, they have not contributed significantly to human

capital development. This low contribution can be attributed to structural defects, inefficiency and ineffectiveness which today places Nigeria at its lowest ebb in human capital development and utilization.

#### 4. METHODOLOGY

##### 4.1. Data Sources, Description and Method of Analysis

This study employed secondary data generated from CBN Statistical Bulletin and Annual Report and Statement of Accounts. Time series data covered the period, 1977-2013. As stated earlier, the focus of this paper is to ascertain the crowd-in and crowd-out effects of government expenditure on human capital development. To make the analysis more robust, we employed both capital and recurrent expenditure on education and health.

The methodological framework of this study follows the crowd-out and crowd-in hypothesis. The basic tenet of the crowding-out theory is that increase in public spending reduces or even eliminate private spending. The theory is often used to demonstrate the reduction of private spending in areas where government purchase is high. One of the commonest forms of crowding-out occurs when a large share of government expenditure comes from increased borrowing. This has the ability of absorbing the country's lending capacity and discourages investments. This reduction can partially offset benefits derivable through government borrowing. This occurs when the economy is operating at full capacity. But macroeconomic theories such as the Post-Keynesians are of the view that in a modern economy operating significantly below capacity, government borrowing can actually increase demand by improving employment thereby stimulating private spending. This process is often referred to as the crowding-in effect. In this paper, the concepts being expressed are analogous to constraint being faced by government in developing human capital. One assured way of doing this is to carry out expenditure on some sectors of the economy such as education and health. But expenditure on the sectors is decomposed into capital and recurrent whose impact as enunciated by [Arshad and Zulklify \(1988\)](#) and [Martins and Lewis \(2004\)](#) depends on the type of government expenditure being considered. In this paper, we consider both recurrent and capital expenditure and examined their separate effects on human capital development.

One explanation that can be adduced why crowding-out occurs is that government finance projects with deficit spending via borrowing which has made government expenditure to continuously increase over the years. There are divergent views on the effect of increased government expenditures on private investment. Assuming full employment of resources, Neoclassical argue that increased consumption would decrease saving. For this reason therefore, interest rates must rise to bring equilibrium to capital markets which in turn result in a decline in private investment. Implied here is that budget deficits could crowd-out private investment. The Keynesians however offered a counter argument by making a reference to the expansionary effects of budget deficits. The implication of the Keynesians is that investors may lay claim to real resources in excess and ex ante estimates of saving, as capital formation creates new capacity and employment. Thus, an initial inflationary impulse may be offset by an increased supply potential and planned saving may catch up with forced saving. There is also the Ricardian equivalence approach which asserts that a decrease in tax that simply substitutes debt-finance for tax-finance of unchanged government spending would leave consumer spending unchanged lower it as a share of disposable income. Whether public sector investment in the economy crowds-in or crowds-out has been a major controversy in economic theory and policy.

As enunciated by [Ahmed and Miller \(1999\)](#) crowding-out is the displacement of private economic activity by public economic activity. The theoretical excursion of crowding-out is that individual derive utility from a public good, in this case welfare provision or the well-being of others and regard their own and other agents' benefit from the public good as perfect substitutes. Intuitively, the agent is regarded as purely altruistic because he is only one concerned with the total amount of welfare provided, such that the model predicts perfect crowding-out between government provision of welfare and private charity. However, since the prediction of perfect crowding-out is not empirically supported and the predicted level of giving is unrealistically low, the model has been extended in several

directions. One of these extensions is the impure altruist model developed by [Atukeren \(2005\)](#). Here, individuals are said to be impurely altruistic as they derive utility from their saving as well as the total level of welfare provided by the society.

The model for this study is drawn from the augmented Solow’s growth model as modified by Mankiw, Romer and Weil (1992) which included human capital in their growth model. The model is of the form:

$$Q = AK^{\alpha} (HL)^{\beta} \dots\dots\dots (1)$$

When expanded, we have:

$$Q = f(A, K, HL) \dots\dots\dots (2)$$

where Q= Output, K= Capital, H= human capital, L= Labour

However following [Miller and Russek \(1997\)](#) this study estimated two set of regression. The first is with total recurrent and capital expenditure while the other is with share in total expenditure. Following from the above, the functional relationship the relationship between human capital development and respective expenditure components can be modeled as:

$$HCD = f(RED, CED, RHT, CHT) \dots\dots\dots (3)$$

$$HCD = f(sRED, sCED, sRHT, sCHT) \dots\dots\dots (4)$$

When linearized, equation (1) and (2) can be written as:

$$HCD = \chi_0 + \chi_1RED + \chi_2CED + \chi_3RHT + \chi_4CHT \dots\dots\dots (5)$$

$$HCD = \beta_0 + \beta_1sRED + \beta_2sCED + \beta_3sRHT + \beta_4sCHT \dots\dots\dots (6)$$

where RED = recurrent expenditure on education, CED = capital expenditure on education, RHT = recurrent expenditure on health, CHT = capital expenditure on health respectively while *sRED, sCED, sRHT, sCHT* are respective share of capital and recurrent expenditure in total expenditure.

### 5. PRESENTATION AND DISCUSSION OF RESULT

The result of the impact of government expenditure on human capital development is presented in Tables 1 and 2 below.

**Table-1.** Effect of government expenditure on human capital development (total)

Variable	Coefficient	Std. error	t-Stat	Prob.
Red	-1603	1904	-2.9911	0.0056
Red	-8284	5941	-1.3943	0.1738
Rht	3480	5357	-2.014	0.0535
Cht	3116	4749	0.1636	0.8712

Note: R<sup>2</sup> = 0.8554

**Table-2.** Effect of government expenditure on human capital development (as share in total)

Variable	Coefficient	Std. error	t-Stat	Prob.
Reds	-0.0008	0.0005	7.0435	0.0000
Ceds	1667	16815	0.9913	0.3298
Rhts	-3842	2691	-1.4277	0.1641
Chts	-1570	4671	-3.3615	0.0022

Note: R<sup>2</sup> = 0. 7947

Table 1 estimates the effect of the components of expenditure as share of total expenditure while Table 2 estimates the effects of the components of expenditure as total. A notable observation in total expenditure is that both components of education expenditure is negatively related with human capital development while health expenditure is positively related with human capital development. An increase in both recurrent and capital



education expenditure by N1 million on the average lead to respective decrease in 0.160 and 0.828 percent point. This is an indication that both recurrent and capital education expenditure crowd-out human capital development while both components of health expenditure crowd-in effect on human capital development, but the relationship is not significant as indicated in the t-values.

Considering the share of each component on total expenditure, the result shows that it is only capital expenditure on education that crowd-in or complements human development. This positive relationship indicates that capital expenditure is significant in improving human capital development. Furthermore, the coefficient of recurrent education and health expenditure as well as capital health expenditure on human capital development indicates a negative relationship, but the relationship is not significant. Therefore recurrent education and health expenditure and capital health expenditure crowd-out human capital development. This result implies that the low budgetary allocation coupled with the lack of implementation leads to human capital development. This could be due to the decline in capital expenditure which is insufficient to improve human capital development. The Nigeria government expenditure favours recurrent expenditure more than capital expenditure this is why the performance of capital is going down the drain every year.

## 6. CONCLUSION

In this study we empirically investigated the crowd-in and crowd-out effects of government expenditure on human capital development in Nigeria using both recurrent and capital expenditure on education and health. The empirical result of this study has revealed the weak impact of government capital expenditure on human capital development over the years. Although capital expenditure and recurrent expenditure on health has positive impact on human capital development, it is insignificant. This could be attributable to the declining nature of the capital expenditure over the years. A general conclusion that be deduced from this study is that both recurrent and capital expenditure crowd-out and crowd-out human capital development. The impact of the components of recurrent expenditure reveals that recurrent expenditure crowd-out human capital development. However, the outcome of equation 2 suggests recurrent and capital expenditure on education and health crowded-in and crowded-out human capital development. Indeed, the extent of the effect of government expenditure on human capital development would more likely be due to the composition of the expenditure rather than the way in which the government chooses to finance its spending.

For government to be more productive in human capital development there is urgent need to increase capital investment in the education and health sectors which has been undermined over time. Such investment should however focus more on capital expenditure which is more productive and growth oriented. Beside, government should meet the 26 percent benchmark, as stipulated by UNESCO by raising the share of education expenditure to GDP. Also government at all level should be committed to the enhancement of human capital development by increasing the budgetary allocation to both education and health sectors. This is an exigency given the dilapidating state of medical and educational facilities, all of which have reduced the physical and mental productive capacity of Nigerians. Above all, a new expenditure framework that refocuses more on capital expenditure rather than recurrent expenditure should be put in place. This will usher in the right pattern at reducing recurrent expenditure and increasing the capital expenditure component in the near future.

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