

COMPARATIVE ANALYSIS OF BUDGETARY ALLOCATION TO EDUCATION AND LIFE EXPECTANCY IN NIGERIA, 1980 – 2015

Ukaigwe, P.C. (Ph.D) and Chima, Daniel Nwosu

Department of Educational Management and Planning
Faculty of Education, University Of Port Harcourt, Nigeria

ABSTRACT: *The study investigated the Comparative Analysis of Budgetary Allocation to Education and Life Expectancy in Nigerian from 1980-2015. The objective of the study was to comparatively analyze the relative impact of federal government actual budgetary allocation to education alongside UNESCO 26% recommended budgetary allocation to education. In respect to the above, relevant theoretical and empirical literature were reviewed. The researcher formulated the relevant objective research question hypothesis to guide the study. In the course of the study, relevant data relating to the variables needed by the researcher were extracted from various document analysis such as Central Bank of Nigeria (CBN) Statistical Bulletin and National Bureau of Statistics (NBS) Statistical Bulletin. The Classical Linear Regression Model was employed in modelling the relationship between poverty and the budgetary allocation variables. The Ordinary Least Square (OLS) equation technique was used in analyzing the data. The unit root analysis revealed that all the variables were not stationary at levels. But at first difference, all the variables became stationary. The Johansen cointegration analysis revealed that the variables were cointegrated and had a valid error correction mechanism. The analysis of the Error Correction Mechanism (ECM) showed that the impact on poverty was wrongly signed and insignificant. On comparative analysis, the researcher observed that the UNESCO's 26% recommended budgetary allocation to education criteria had more impact on Life Expectancy. It was therefore, recommended that Budgetary allocation to the educational sector in Nigeria should be implemented based on the UNESCO 26% recommended principle. Greater percentage of the budgetary allocation to education should be spent on capital project in the education sector. This is because such expenditure will impact positively on the educational sector and in turn have a multiplier effect on the general performance of the economy at the long run.*

KEYWORDS: Comparative Analysis, Budgetary Allocation, Education, UNESCO 26%, Health, Life- Expectancy

INTRODUCTION

Education is the life wire of every nation. It also goes a long way in explaining what growth and development is all about? Education instills in an individual the ability of broaden his/her horizons, making informed choices and also the opportunity of having a voice in public decision making. This is because education is viewed as a form of human capital and investment in human capital is an investment made for the growth and development of an individual and also that the future. Education instills in an individual the ability of broaden his/her horizons, making informed choices

and also the opportunity of having a voice in public decision making. This is because education is viewed as a form of human capital and investment in human capital is an investment made for the growth and development of an individual and also that the future.

In Nigeria, the educational system has experienced complete government participation and active intervention. The Nigerian educational policy has been through series of historical development. The major element of the Nigeria educational policy of promoting a broad based economic growth is through the provision of education. Being reviewed from an under perspective, social, political and economic development is driven by the application and advancement of knowledge.

Statement of the Problem

The Nigerian economy over-time has been confronted with a lot problems ranging from social, economic and political. Despite the abundance of human and natural resources in Nigeria, the nation is faced with a highly underdeveloped human capital most especially in the area of health. This has inversely affected the Nations educational sector and in extension the health sector.

According UNESCO, all nations of the world is expected to spend 26% of its annual budget to the educational sector. But, it is quite unfortunate that studies in the past has shown that the Nigerian government has not been able to meet-up with UNESCO 26% bench mark. Between 1977-1998, the total education budgetary allocation represented an average of 9.7% of total government expenditures (Herbert, 2002). While the percentage share, of the GDP from 1991-2009 has maintained a value of 0.85% to its highest value of 5.11% in 1981 and its lowest was 0.85% in 1991. Judging from these statistics, it is, quite clear that budgetary allocation to education is low. This trend will eventually lead to the underdevelopment of the country's health sector.

Aim and Objective of the Study

The study is a comparative analysis of budgetary allocation to education and the development of the Health sector in Nigerian economy. The objective of the study is to:

1. Determine the impact of government actual budgetary allocation and UNESCO 26% recommended budgetary allocation to education on Life-Expectancy level in the Nigeria economy (1980-2015).

Research Questions

1. What is the impact of government actual budgetary allocation and UNESCO 26% recommended budgetary allocation to education on the Life-Expectancy level in the Nigerian economy (1980-2015)?

Research Hypotheses

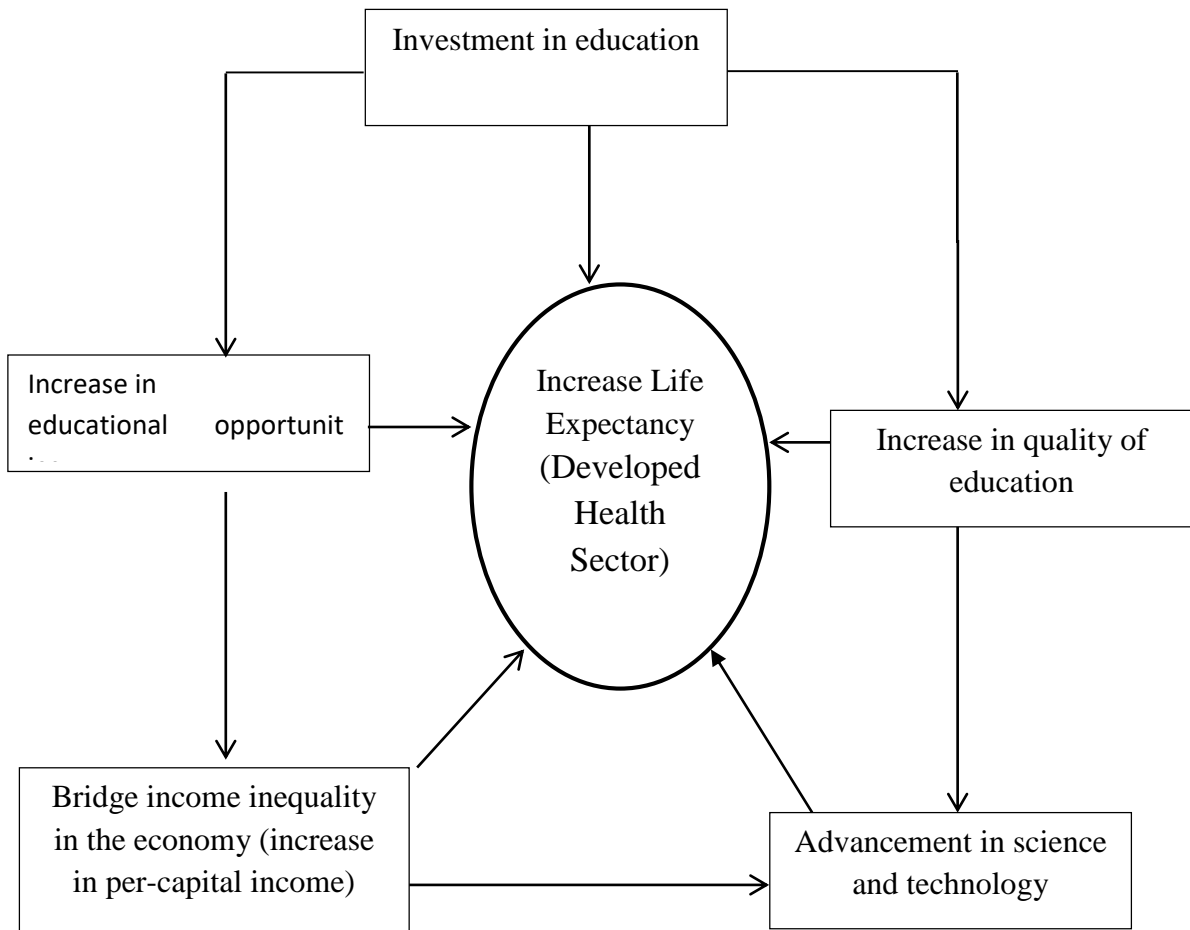
1. There is no significant relationship between government actual budgetary allocation and UNE-SCO 26% recommended budgetary allocation to education and Life-Expectancy in the Nigerian economy (1980-2015).

Theory of Expenditure Limitation

The theory was propounded in 2003 by Aaron Wildavsky. The theory is not concerned about why the government should make a choice on limiting its spending on certain sector of the economy or activities. Rather, the theories thoughts is linked to the theory of opportunity cost (alternative forgone), which states that the value of an act is measured in terms of opportunities forgone.

The theory of expenditure limitation simply means that government expenditure should be based on the principle of scale of preference. The theory supports the simple principle of rationality that emphasizes that more money should be spent on productive sectors of the economy and less money on unproductive sectors. This is because such a decision will impact positively on the economy at the long-run. Therefore, this will make government regulations that impose financial burdens not be considered viable and desirable, rather would create a balance against the loss to the economy on which the size of the social service depends.

Conceptual Framework



REVIEW OF LITERATURE

The concept of Education

The main purpose for the funding of education by the government is to equip and instill in the masses the basic skills, knowledge, values ethics and capacity to improve their lots in the society, increase the productive capacity of the country by acquiring basic knowledge of new and improved techniques for the production of goods and services etc. in other to enable the nation achieve sustainable growth and development. Based on this notion, Pritchett (2001), posited that education is simply the process at which the different learning domains (cognitive, affective and psychomotor) of the masses are developed so as to equip them with the needed knowledge, skills etc. necessary to survive and make progress and advancement in the society.

Amakom and Obi (2001), asserted that education is an experience or an act that has a formative effect on the character, physical and mental ability of the individual concerned. Education is also a means through which the society is able to provide for the transmission of its cultural values from the older generation to the younger ones (Ernest, 2011). It also means a situation in which the totality of the way of life of a society or people is been advanced. Ernest (2011), also went further to define education as the inculcation of attitudes, skills, values and knowledge by means of intuitions that have been developed for such purpose.

Education does not and cannot exist and strive in isolation. It can also not function properly (effectively and efficiently) without adequate support from the other sub-systems within its working environment. Thus, the educational system influences and in turn is also influenced by its sub-systems as they interact among one another to make up the external environment of super-structure/super-system. Education in Nigeria is a viable tool and instrument for the achievement of its developmental goals and objectives. The educational goals according to the National Policy on Education (FRN, 2013, p.2) are:

1. The inculcation of national consciousness and national unity.
2. The inculcation of the right types of values and attitudes for the survival of the individual and the Nigerian society.
3. The training of the mind in the understanding of the world around.
4. The acquiring of appropriate skills and the development of mental, physical and social abilities and competence as equipment for the individual to live in and contribute to the development of the society.

So far, the analysis given on the meaning of education has clearly shown that for an individual to be educated, it simply goes beyond schooling or being literate. It goes beyond acquiring higher degrees from tertiary institutions. It also goes beyond being skilled in one trade or the other.

Education and Health

Both education and health are related to economic development. Infact both variables are indices of economic development. The existing relationship between education and health a direct and positive, for instance, an increase in educational capital is likely to improve the return to

investment in health. Thus is because a good number of health programmes rely on the needed skills from the educational sector, including sanitation, basic numeracy and literacy and also personal hygiene.

Education as a tool for national development, is also needed for the formation and training of health personnel and also responsible for the various inventions and innovations in the health sector. Thus, an improvement in the productive efficiency from investments in education increases the return on a lifesaving investment in health (Todaro and Smtih, 2011).

On the other hand, the health sector impacts positively on the educational sector in such a way that greater health is likely to improve the return to investment in education. This is because health is wealth and as such, is an important factor in school attendance and in the formal learning process of an individual. Thus, Todaro and Smith (2011) posits that a longer life raises the return to investments in education; better health at any point during working life may in effect lower the rate of depreciation of education capital.

Education has a direct effect on health and healthy behaviours, because people may learn about the consequences of unhealthy behaviours at colleges or universities, schools etc. Also, more educated people tend to be better-able to grasp the basic consequences of unhealthy living, even if they don't understand the complex biology behind it. But education also have certain level of indirect effects on health. For instance, if individuals who are better educated ends up securing higher paid jobs, they are more likely to be able to afford things that will help them live a healthier lifestyle like gym membership etc. research has shown that more educated individuals also put a higher value on their future life outcomes (they discount the future loss heavily) making them less likely to participate in unhealthy behaviour like smoking, unprotected sex etc. if more educated people tend to work and socialize with others who have a similar education level, then peer effects might play a part.

Summary of Related Literature

The related literature reviewed on this study was empirically carried out in order to have an idea on the views of other scholars on related study. The theoretical framework was hinged on three basic theories: The theory of Expenditure Limitation by Aaron Wildavsky and the theory of Increasing State Activity by Adolph Wagner.

Relevant literature was also reviewed on the concept of Education and Economic Development, Trend in budget and budgetary allocation to educational sector in Nigeria, the concept of education, Education and Health. While reviewing empirical works relating to the present study. Also, efforts were not made to determine the actual impact of total government expenditure on education to the health sector in the Nigerian economy.

In addition in filling these gaps, the study intends to determine the actual percentage growth rate of budgetary allocation to education in Nigeria within the period under review and also, ascertain the impact public spending on education would have on the health sector in the Nigerian economy if UNESCO 26% recommended budgetary allocation was implemented.

Research Design

The research design for this study is the experimental and a correlational research design. Experimental research design is the type of research in which the independent variable is manipulated to observe its effect on the dependent variable (Nwafor, 2001). The present study has dependent and independent variable. The independent variable in the experiment is treated and the effects on the dependent variable observed. Experimental and correlational research designs were chosen for this study because government budgetary allocation to education and UNESCO 26% recommended budgetary allocation to education would be treated to observe its effect on the health sector in the Nigerian economy.

Method of Data Collection (Nature and Sources of Data)

The data required for this study are secondary in nature and consist of annual time series of the following variables:

- i. Life Expectancy rate
- ii. Government Recurrent Expenditure on Education
- iii. Government Capital Expenditure on Education
- iv. UNESCO 26% Recommended Budgetary Allocation to Education.

All data were collected from 1980-2015.

The main sources of our research data are

Model Specification

$$\text{LIFE} = f(\text{GREE}, \text{GCEE}, \text{UNESCO } 26\%) \quad (1)$$

They implicit model above were transformed into log linear explicit model as follows:

$$\log \text{Life} = \lambda_0 + \lambda_1 \log \text{GREE} + \lambda_2 \log \text{GCEE} + \lambda_3 \log \text{UNESCO } 26\% + \mu_4 \quad (2)$$

Where:

GREE is government recurrent expenditure on education

GCEE is government capital expenditure on education

LIFEXP is life-expectancy and

UNESCO 26% recommended budgetary allocation.

$\alpha_0, \beta_0, \theta_0$ and λ are intercept terms.

α_1 to α_3 and β_1 to β_3 are model parameters while the μ is the error term.

Variables in the Model

The model consist of dependent and independent variables.

A. Dependent Variable

- i. **Life Expectancy:** This is a statistical measure of the average time an organism is expected to live, based on the year of their birth, their. Current age and other demographic factors including sex. Therefore, the apriori expectation is $\lambda_1 > 0, \lambda_2 > 0, \lambda_3 > 0$

B. Independent Variables

- i. **Government Recurrent Expenditure on Education (GECC):** This is the total budgetary allocation meant for salaries and other over head in the educational sector.
- ii. **Government Capital Expenditure on Education (GCEE):** This is the total budgetary allocation meant for expansion of the educational sector and facilities.
- iii. **UNESCO 26% Recommended Budgetary Allocation to Education:** This is derived by $\frac{26}{100} \times \frac{\text{AnnualBudget}}{1}$

Method of Data Analysis

This section described the method employed in estimating the model specified and analyzing the research data. The model specified in equation 3.3 above was analyzed with the use of computer aided statistical software-E-view. Specifically, we used the Classical Linear Regression approach, using the Ordinary Least Square (OLS) method. The OLS method was chosen because of the statistical properties of its estimates. The parameter estimates will be examined for significance at 0.05 level and the model explanatory power and significance will be evaluated using the R² and f-statistic respectively

Data Analysis and Empirical Results

The data presented above was analyzed using computer aided software E-view and the classical linear regression method. The results of the data analysis are presented as follows:

Before using any time series for empirical analysis, it is always important to examine the data for the presence of unit root. In the presence of unit root, the regression results will have very high R² and low DW values, but many insignificant variables. This is the phenomenon of spurious regression, and will lead to type I error. Again, the parameter estimates will not be reliable for forecasting and policy formulation. Thus, we examined the unit root property of the data first before any further empirical analysis

Table 4.2 Unit Root Test Result

Variable	Level	1 st difference	5% critical	Remark
LIFE EXP	-6.9097	-1.1074	-3.5485	1(0)
GREE	-3.4268	-4.5568*	-3.5629	1(1)
GCEE	-2.3219	-5.5158*	3.5485	1(1)
UNESCO	-1.5426	-6.2627	3.5578	1(1)

Source: E-view output printout

*Stationary at 1st difference

** Stationary at 2nd difference

The unit root test results presented in table 4.2 above showed that all the variables, apart from life expectancy, were not stationary at level. Life expectancy is stationary at level, meaning that its trend is deterministic; its trend can be predicted and if disturbed from its equilibrium path, it will rebound back to the equilibrium level. After 1st differencing GREE GCEE and UNESCO became stationary.

Co-integration Analysis: life Expectancy**Table 4.3: Unrestricted Cointegration Rank Test (Trace)**

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.803837	115.4638	47.85613	0.0000
At most 1 *	0.700684	60.08427	29.79707	0.0000
At most 2 *	0.320546	19.07164	15.49471	0.0138
At most 3 *	0.160094	5.931818	3.841466	0.0149

Trace test indicates 4 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

Also, the last model, life expectancy model, model (4) presented above, equally showed evidence of co-integration among the variables. Specifically, the empirical trace statistics is greater than the critical value at 0.05 level of significance.

Error Correction Model Analysis for GDPc Model

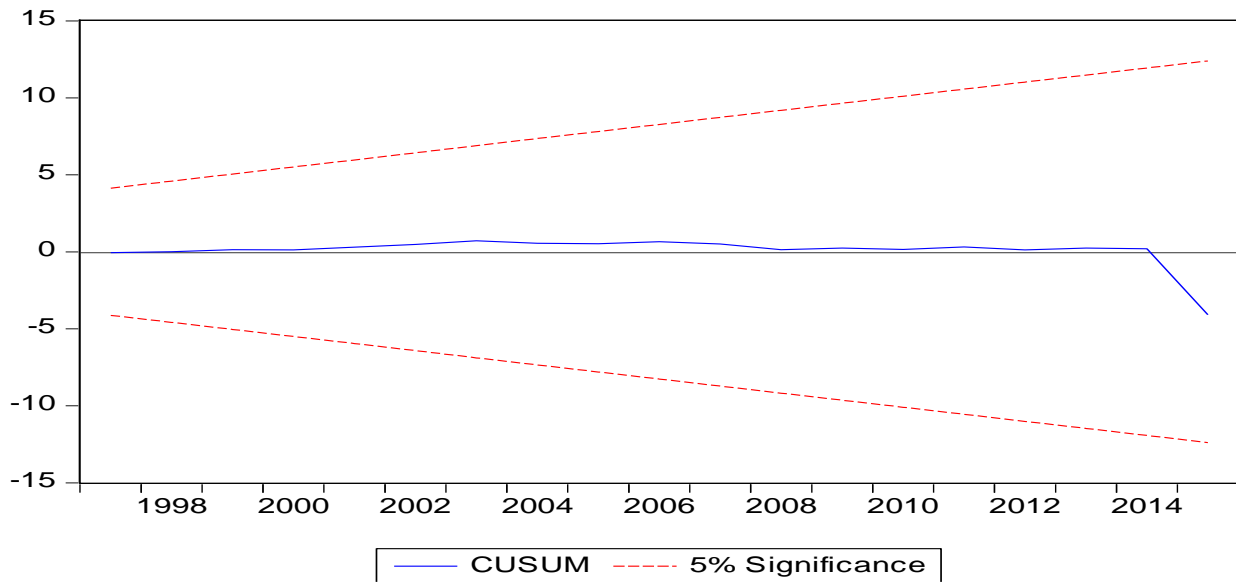
The Error Correction Model (ECM) is the short run adjustment mechanism of the model, it shows how the variable adjusts to short term disturbances or the relationship of the variables in their disequilibrium state.

4.4: Life Expectancy Model Diagnostic

Test/Hypothesis	Test type	Test statistics	Prob	Decision
Residual normally	Jacque-Bera(BJ)	1.2278*	0.7412	Accepted
No serial correlation	Brcusch-Godfrey (BJ)	4.2125*	0.2394	Accepted
No Heterosedasticity	Brcusch-Pagan (BPG)	18.5469*	0.1001	Accepted

Source: E-view computer printout 23rd May, 2011

Figure 4.2: Cusum Stability Test for LIFEXP Model



The test of our stated research hypothesis is based on the significance of government capital expenditure on education and the UNESCO recommend 26% budgetary allocation. The decision rule is to accept the null hypothesis if both of GCEE and UNESCO criteria-values are less than 5% critical value, and or the GCEE is less than the 5% critical value. If the UNESCO variable is less, but the GCEE is greater, the null hypothesis would be maintained because the GCEE is real variable applicable in Nigeria economy while the UNESCO is imaging variable for comparism.

Table 4.5: Test of Hypothesis

S/No	Hypothesis	Empirical t- statistics GCEE	Empirical statistics UNESCO	5% critical value	Prob	Decision
1.	There is no significant relationship between government actual allocation and UNESCO recommended budgetary allocation to education and life expectancy in Nigeria	3.0008*	6.4997*	2.0420		Reject

Olajide and Abiola (2000) observed that the impact of actual budgetary allocation on life expectancy is statistically significant. The analysis of our empirical data has revealed that if Nigeria had used the UNESCO’s recommended budgetary allocation to education we would have been impacting more on the evils bedeviling the health sector than Nigeria is currently doing. Again the analysis showed that government budgetary allocation on education has significant impact on life expectancy.

Comparative Result

This section compares the impact of the various independent variables on the dependent variable. Specifically, we compare the impact of UNESCO variables GCEE and GREE on the various development indicators.

Table 4.6: Comparative impact of GREE, GCEE and UNESCO criteria on Life Expectancy

Development indicator Variable	Life Exp.
GREE	-7.788
GCEE	1.278
UNESCO	8.522

The table above shows the impact of GREE, GCEE and UNESCO on Life-Exp. The result shows that If we have been using the UNESCO criteria, we would have been impacting more on the chief evils of underdevelopment. So, by comparison, the UNESCO criteria would have developed Nigeria more than we are developing currently. The UNESCO criteria would have reduced improved life expectancy in the country than the current budgetary allocation is doing.

DISCUSSION OF FINDINGS (EMPIRICAL RESULT)

The result in table 4.6.shows that the impact of government capital expenditure on education, and the UNESCO criteria variables have positive impact on life expectancy. However, the impact of government recurrent expenditure was negative and contrary to the apriori expectation. This phenomenon could be explained in the fact that, though the government recurrent expenditure on education, in absolute term increased over the year, there was serious drop in the life expectancy index as a consequence of detorating macroeconomic environment, communal clashes, increase in road accidents, insecurity in the north and the Niger Delta, and increase in the level of diseases such as pretension, diabetes, HIV/AIDS, etc.

Life in Nigeria became much more than risk and the life expectancy index dropped. Hence, the negative relationship. Specifically, increase in government recurrent expenditure led by one percent (1%) led to drop in life expectancy by 7.8% in the same fiscal year, and about 6% after two (2) fiscal years. In contrast, increase in government capital expenditure on education by one percent led to increase in life expectancy by 1.3% in the same fiscal year. Increase in the UNESCO variable by one percent (1%) would have led to a change of 3% in life expectancy in the same fiscal year and about 9% after one year lag in the life expectancy.

The model R^2 value of 0.993 means that the independent variables accounted for about 99.3% variation in life expectancy in Nigeria during the period of the analysis. The model F-statistics value of 222.63 with probability value of 0.0000 proved that the model employed in the analysis was significant and actually represented the relationship between the variables in the short run. The model stability test results presented as the cumulate sum of residuals plot, **figure 4.2** shows

that the relationship model was stable throughout the period of the study. The residual plot remained with the 5% critical value throughout the period of analysis.

The model diagnostic test results presented in table 4.7b revealed that the variable data fulfilled the requirement for the use of the analytical techniques employed in the analysis. Specifically, there was no evidence of serial correlation among the error terms as the empirical Breusch-Godfrey (BG) test statistics was lower than the critical X^2 value at 0.05 level of significance. The Breusch-Pagan-Godfrey (BPG) test of heteroscedasticity maintained the hypothesis there was no heteroscedasticity. Finally, the Jacque-Bera (JB) test of normality statistics maintained the null hypothesis that the error terms were normally distributed. The important of these is to justify our empirical method and evaluate the empirical estimates. From the results, the estimates are unbiased and therefore dependable.

Discussion of Findings

The results of the data analysis revealed that all the variables, apart from life expectancy were not stationary at levels. However, GREE, GCEE and UNESCO became stationary after 1st differencing. To use the differenced variables for regression, that is to examine the differenced equation, it is always important to examine if there is any long run relationship among the variables. The results of the Johansen (1998) cointegration test revealed that there were at least two cointegrating equation among variables. Thus, there was a stable long run relationship among the variables of the models in each equation.

The estimate of the parsimonious error correction model (ECM) of the four equations revealed that all the model were statistically significant. The model diagnostic analysis showed that all the model fulfilled the assumptions of the ordinary least square (OLS) regression techniques, and that there was no incidence of serial correlation, Heteroscedasticity, and the residual were normally distributed. Following the Gauss Markov theorem, the estimates are Best Liner Unbiased Efficient (BLUE) estimators and therefore dependable for forecasting and as policy variables.

In the life expectancy model, the GREE variable was wrongly signed, however, significant. The GCEE variable was rightly signed and significant. Specially, increase in GCEE by 1% led to increase in life expectancy by 1.27% during the same fiscal year. The UNESCO variable was rightly signed and significant increase. In the UNESCO recommended allocation by 1% would have improve life expectancy by 8.5%. The model R² was 0.9929 meaning that GCEE, GREE and the UNESCO recommended variable accounted for about 99.2% variation in the level of change in life expectancy. In other words, changes in education variables have significant effects on life expectancy. The model f-statistics value of 222.63 was statistically significant. There was no incidence of auto-correlation, heteroscedasticity and the residuals were normally distributed. Hence, the estimates best linear unbiased and efficient (BLUE) estimates. The impact of this is that the estimates are dependable.

CONCLUSIONS

The study compared the relative impact of federal government budgetary allocation to education and UNESCO recommended 26% budgetary allocation to the education sector. In order to achieve the research objectives, the researcher employed econometrics method to analyze the data. The results of the data analysis showed that government expenditure on education and the UNESCO recommended criteria have positive impact on life expectancy.

Based on the foregone, the study therefore conclude that increase in budgetary allocation to education can reduce the incidence of poverty and unemployment in Nigeria economy. Increase in budgetary allocation to education, especially, the use of the UNESCO recommended budgetary allocation to education will accelerate the pace of economic development in Nigeria economy. The impact coefficient of the UNESCO 26% recommended budgetary allocation was always higher than the impact coefficient of the government recurrent and capital expenditure on education. There is no doubt that the slow growth of Nigerian economy are consequences of inadequate investment in human capital development institutions. The current situation of Nigerian economy is the case of poverty trap: a case where high unemployment lead to low income, how income to poverty and low life expectancy. The only sustainable escape route from the poverty trap is human capital development through investment in education.

Recommendations

Based on the findings of the study the following recommendations for policy action and for further studies were made:

- i. Government at all level should implement the UNESCO 26% recommended budgetary allocation to education for investment in the education sector.
- ii. Budgetary allocation to education sector should always be monitored to ensure that the budgetary allocation are released as at when due, effectively and efficiently utilized.
- iii. Greater percentage of the budgetary allocation to education should be spent on capital project in the education sector.

References

- Amakom, U. & Obi, A. W. (2007). Nigeria's education sector allocation and expenditure, 1995 – 2005: Implications for Poverty and gender. *Journal of Economic Studies*, 6(1),16
- Chude N.K. & Chuded.I (2013). Impact of Government expenditure on economic growth in Nigeria. *International Journal of Business Management*. 1(4):64-71.
- Cook, S. (2013, May 28-30). *Combating Poverty and inequality: What role for social protection?* Paper presented at the Asia Public Policy forum, Jakarta, Indonesia. Retrieved from <http://www.ash.harvard.edu/extension/ash/docs/cook.pdf>.
- Currie, J. and E. Moretti (2002), "Mother's Education and the Intergenerational Transmission of Human Capital: Evidence from College Openings and Longitudinal Data", *Working Paper 9360, NBER*.
- Dahlin, B.G. (2005), *The Impact of education on economic growth: Theory findings and policy implication*, Duke University of Working Paper.

- Fandi, Z.M, Hussain S, Bashir F (2010). Impact of Education on Students Earnings: A case of Public Sector Universities: *Pakistan. J. Finance and Econ.* 42, 170-177
- Ernest, S. O. (2011). Government spending on education, economic growth and long waves in a CGE micro-simulation analysis: The case of Nigeria. *British Journal of Economics, Finance and Management Sciences*, 1(2):74 – 87.
- Federal Republic of Nigeria (2001), National poverty eradication programme: A blueprint for the schemes, NAPEP Secretariat, Abuja, June.
- Pritchett, L. (2001). Where has all the education gone? *The World Bank Economic Review*, 15(3): 367 – 391.
- Oladeji, S.I & Abiola, A.G. (2000). Poverty alleviation with economic growth strategy: prospects and challenges in contemporary Nigeria. *Journal of Social Development in Africa*, 15(2), 33-53.
- World Bank (2000). *Nigeria: Targeting Communities for effective poverty alleviation finding report*. Washington D.C, August.
- World Science Report, UNESCO, Paris
- Yogish, S.N. (2006), Education and Economic Development. *Indian Journal of Social Development*, 6(2):16-18.
- Zhman, K. (2008). An Investment for Pro-poorness of Government Educational Policy in Pakistan (1991-2007). International Conference on Assessing Quality in Higher Education, 1st -3rd December, 2008, Lahore-Pakistan.