Impact of Human Capital Development on Economic Growth: Evidence from Nigeria

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Abstract

The study examined the impact of human capital development on economic growth in Nigeria from 1986 to 2019. The ex-post facto research design was adopted in the research. Multiple regression analysis was utilized in the study in which the co-integration test and Vector Error Correction Model (VECM) model were the methods of analysis employed in the analysis. The co-integration test was engaged to investigate the long-run equilibrium relationship among the variables, while the VECM was employed to examine the long-run relationship and short-run interactions among the variables. The variables analyzed in the study include gross domestic product as the dependent variable, while life expectancy, total government expenditure on education, total government expenditure on health, primary school enrollment, external debt and private domestic investment were employed as the independent variables. The results indicated evidence of a long-run equilibrium relationship among the variables. The estimation results showed that life expectancy and total government expenditure on health have a positive and significant impact on gross domestic product in Nigeria. Similarly, the results indicated that total government expenditure on education and primary school enrollment have a negative and significant influence on gross domestic product. Furthermore, the estimation results revealed that external debt and private domestic investment have a positive and insignificant influence on gross domestic product. Thus, since life expectancy has a positive and significant impact on economic growth in Nigeria, government should, as a matter of fact, formulate and implement human capital empowerment policies that ensure improvement in the standard of living of the citizenry in the country. Hence, improve good life of the citizens leading to higher life expectancy; the skills and knowledge acquired would be utilized in productive ventures, which will in turn, result in increase in economic growth in the economy. Based on the results, 1% increase in life expectancy brings about a 12.97% increase in economic growth in Nigeria.

Introduction

The wealth of any nation is a function of the availability and development of three endowments: natural resources, technological development and human capital development. Except the first endowment which is natural, technology and human capital are complementary and reinforces each other for growth to be achieved. Human capital refers to the acquired and useful abilities and skills of the country, and human capital has been recognized globally as one major factor that is responsible for the wealth of nations

Over the years, Nigeria has made vivid attempt to process her human capital development programmes so as to achieve sustainable growth by embarking on some educational programme for which the impact on the economy is yet to be realized. For instance, in 1976, Nigeria launched a mass-oriented education program; Universal Basic Education (UBE).The program was launched at Sokoto by the President at that time, Olusegun Obasanjo. However, not long after the period of commencement, the federal government reported that the falling standard of education in Nigeria is caused by "acute shortage of qualified teachers in the primary school level. It was reported that about 23percent of the over 400,000 teachers employed in the nation's primary schools do not possess the Teachers' Grade Two Certificate, even when the National Certificate of Education (NCE) is the minimum educational requirement one should possess to teach in the nation's primary schools (Ogbeifum & Olisa, 2001). Nigeria in 1976 again launched the Universal Primary Education (UPE) but as noted, the program failed due to lack of funds resulting from corruption, amongst other factors. These have caused undesirable consequences for the development of high quality human capital in Nigeria but, have not changed the focus of the Nation of Nigeria on human capital development in its objective to achieve significant levels of economic growth.

Over the years, Nigeria government has been making frantic efforts at ensuring that there is an increase in the level of human capital development. The government has increased budgetary allocations towards the improvement of education and health. The available statistical data in Nigeria indicate that gross domestic product in 1986 stood at 1.8%, and increased to 16.7% in 1991. By 1996, it increased further to 39.8% and decreased to 3.11% in 2001. In 2006, it increased to 27.4%. However, in 2011 to 2016 GDP has continued to be declining from 15.3% to 7.8% (CBN, 2016). On the other hand, total government expenditure on health stood at 14.4% in 1986, and it decreased to -0.25% and -7.19% in 1991 and 1996, in 2001, 2006 to 2011 the total government expenditure on health is 104.9%% , 29.8% and

41.9% respectively. However, in 2016, total government expenditure on health decreased to -0.802%. More so, total government expenditure on education stood at 31.7% in 1986, and it decreased to -32.3% in 1991, it increased to 247.9% in 1996. However, it decreased to -11.58% in 2001, But in 2006, 2011 and 2016 total government expenditure on education is 37.64%%, 68.45% and 2.69% respectively (CBN, 2016). From the above expression, a close scrutiny of the figures revealed that over a few ranges there appears to been no correlation between gross domestic product, total government expenditure on health and total government expenditure on education, despite the frantic efforts of Nigeria's government. Given this scenario, how much impact has human capital development variables such school enrollment index, government expenditure and life expectancy rate affected the growth of Nigeria's economy.

Review of Literature

Human capital development has been described as one of the key objectives of development. It is a way to fulfill the potentials of people by enlarging their capabilities, and this necessarily implies empowerment of people, enabling them to participate actively in their own development. Human capital development enhances the skills, knowledge, productivity, creativity and inventiveness of people. Thus, human capital development is people and not goods or production centered strategy of development. Essentially, it is the empowerment of people to identify their own priorities and to implement programmes and projects of direct benefit to them. This in turn implies the active participation of people in the development process and the consequent need to establish institutions that permit and indeed encourage that participation (Adamu, 2000). Moreso, it refers to the abilities and skill of human resources of a country, while human capital formation refers to the process of acquiring and increasing the number of persons who have the skills, education and experience that are crucial for the economic growth and political development of a country (Okojie, 1995).

As reinforced by Schultz (1961) human capital is one of the important factors that determine economic growth. He referred to the term human capital as the stock of productive knowledge and skills possessed by workers. (Beach, 2009). Rastogi (2002) conceptualizes the human capital as 'knowledge, competency, attitude and behavior embedded in an individual. Similarly, Human capital has also been categorized as important in itself but also important is the accumulation process. This perspective stresses on knowledge and skills obtained throughout educational activities.

The shift of the focus by the global economy towards more knowledge-based sectors (such as research and development, pharmaceuticals and ICT-based sectors), has encouraged policy makers to attend more critically to skills and human capital development (OECD, 1996). More so, Yesufu (2000) is of the views that the essence of human resources development becomes one of ensuring that the workforce is continuously adapted for, and upgraded to meet, the new challenge of its total environment. This is because the economy is a dynamic entity, which is constantly changing in response to various stimuli such as introduction and discoveries of new products or techniques of production. Therefore, those already on the job require retraining, reorientation or adaptation to meet the new challenges. This special human capacity can be acquired and developed in different ways, namely; education, training, health promotion as well as investment in all social services that influence man's productive capacities, including telecommunications, transport and housing. He concluded that, education and training are generally indicated as the most important direct means of upgrading the human intellect and skills for productive employment whereas , the term "economic growth" according to Jhingan (2006) is a continuous increase in output of goods and services. He explained further that it is related to a quantitative sustained increase in a country's per capita income or output accompanied by expansion in its labour force, consumption, capital and volume of trade. The

main characteristics of economic growth are high rate of structural transformation, international flows of labour, goods and capital.

Review of Theories

The study reviewed some relevant theories that convey deep academic impetus to both human capital development and economic growth and attempting to give a correlation between the two concepts. These include:

Human capital theory

This theory shows how education leads to increase in productivity and efficiency of workers by increasing the level of their cognitive skills. Theodore, Schultz, Gory Bucker and Jacob Mincer introduced the notion that people invest in education to increase their stock of human capabilities which can be formed by combining innate abilities with investment in human beings (Babalola, 2000). Examples of such investments include expenditure on education, on the job training, health, and nutrition. However, the stock of human capital increases in a period only when gross investment exceeds depreciation with the passage of time. The provision of education is seen as a productive investment in human capital, an investment which the proponents of human capital theory considers to be equally or even more equally worthwhile than that in physical capital. Human capital theorists have established that basic literacy enhances the productivity of workers low skill occupations. They further state instruction that demands logical and analytical reasoning that provides technical and specialized knowledge increases the marginal productivity of workers in high skill or profession and positions. Thus, the greater the provision of schooling society, the greater the increase in national productivity on economic growth.

The modernization theory

This theory focuses on how education transforms an individual's value, belief and behavior. Exposure to modernized institutions such as schools, factories, and mass media inculcate modern values and attitudes. Such attitude include openness to new idea, independences from traditional authorities, willingness to plan and calculate further exigencies and growing sense of personal and social efficacy. According to the modernization theorists, these normative and attitudinal changes continue throughout the life cycle, permanently altering the individual's relationship with the social structure. The greater the number of people exposed to modernization institutions, the greater the level of individual modernity attained by the society. Once a critical segment of a populations change in these ways, the pace of society's modernization and economic development quickens. Thus, educational expansion through its effects on individual values and benefits sets in motion the necessary building blocks for a more productive workforce and a more sustained economic growth.

Endogenous growth theory of Paul Romer's (1986)

Endogenous growth theory is a transformation and modification of the Solow's exogenous model. Endogenous growth theory shows that investments in skill, human capital, innovation, and knowledge are key ingredients, and factors of economic growth. The theory also centers on positive externalities or external benefits (consumption or production that gives benefit to the consumer) and spillover effects of knowledge and technology based economy that stimulates growth. It is a long-run economy growth at a rate dictated by forces that are internal to the economic system, especially those natural forces energize the opportunities and incentives to stimulate and drive science, research and overall technological knowledge. In the long run the rate of economic growth depends on the growth rate of total factor productivity

(TFP) which is determined by the efficiency and intensity of inputs used in production which in turn is determined by the rate of technological development (Romer, 1986).

The AK model (the model that works on the assumption of absence of diminishing returns to capital) is the simplest endogenous model with constant saving rate of endogenous growth. It has a notion of a constant, exogenous, saving rate. It captures technological progress as a single parameter (A). It assumes that the production function does not show diminishing returns to scale that culminate to endogenous growth; technological changes leading to furtherance of production. Endogenous growth is further backed up with models in which economic agents who postpone their current consumption to be able to save and perfecting the allocation of resources to research and development resulting to technological growth. The AK model is simplified of the form:

$$Y_t = AK_t^{\beta} K_t^{\theta} L_t^{1} - \theta \qquad (1)$$

Where, A is a positive constant that reflects the level of technology, K_t is aggregate capital stock (including manpower development), L_t is the amount of labour hired and Y_t = output per capita, The assumed knowledge externality form of the production functions include economies with endogenous growth (AK form, ie $\alpha + \beta = 1$) and those with no long run growth (ie $\alpha + \beta < 1$) as the classical model (Diamond, 1965)

Empirical review

Hadir and Lahrech (2015), examined the relationship between human capital development and economic growth in Morocco from 1973 to 2011. The Ordinary Least Square regression (OLS) was adopted using total government expenditure on health and education, tertiary school enrolment, secondary school enrolment and primary school enrolment as proxy for human capital. The study showed a positive relationship between total government expenditure on education, total government expenditure on health, primary school enrollment, secondary

school enrolment and tertiary school enrolment. They therefore recommended that the effort of government on increasing primary school enrolment through the free compulsory Universal Basic Education should be sustained and the government should invest more and more in health. Sadly, the study failed to establish the causal effect on the variables.

Lawanson (2015), examined the relevance of educational and health components of human capital to economic growth from 1980 to 2013, using a panel data from sixteen West African countries. The study employed Diff-GMM dynamic panel technique. The empirical findings showed that coefficient of both education and health has positive statistically significant effects on GDP per capital. The paper affirms the strong relevance of human capital to economic growth of West Africa. He recommended that increased resources and policy initiatives to motivate and enhance access to both health and education by the population should be pursued by policy makers. Lamentably, the study was unable to carry out standard econometric test.

Khalafalla and Suliman (2013), examined the impact of human capital on economic growth in Sudan for the period 1982-2009 by using a simultaneous equation model that links human capital i.e. school attainment; and investment in education and health to economic growth, total productivity, foreign direct investment, and human development index. Based on three-stage least squares technique, the empirical results of the paper showed that quality of the education has a determinant role in the economic growth; health quality factor has a positive impact on economic growth as expected and total factor productivity which mainly represents the state of technology has adverse effect on economic growth and human development due to the obsolete and old fashion technology. Unfortunately, unit root test and granger causality was not conducted in the study.

Ogunleye, Owolabi, Sanyaolu and Lawal (2017), examined the impact of human capital development on economic growth of Nigeria from 1981-2015. The study employed the Ordinary least square regression (OLS) analysis. The following variables were captured in the

study; gross domestic product (GDP), life expectancy rate (LER), total government expenditure on education (TGEE), total government expenditure on health (TGEH), primary school enrolment (PSE), secondary school enrolment (SSE) and tertiary school enrolment (TSE). The empirical results showed that human capital development has significant impact on economic growth, as proxy by gross domestic product. In line with theory, the human capital development indicators namely secondary school enrolment, tertiary school enrolment, total government expenditure on health and total government expenditure on education exhibit positive and statistically significant impact on economic growth of Nigeria which implies that these indicators are indispensable in the achievement of growth in the Nigerian economy. Unfortunately, stationarity test was not conducted in the study.

Ekesiobi, Dimnwobi, Ifebi and Ibekilo (2016), examined public sector education investment and manufacturing output in Nigeria. The study employed Augmented dickey fuller (ADF) unit root test and Ordinary least square (OLS) technique to analyze the relationship between public education spending, primary school enrolment rate, per capital income, exchange rate, foreign direct investment and manufacturing output growth. The study shows that public education spending has a positive but insignificant effect on manufacturing output growth in Nigeria. They recommended among other things, that government should target education spending in ways that favour manufacturing industry growth. Dismally, co-integration and granger causality was not conducted in the study.

Adeyemi and Ogunsola (2016), examined the impact of human capital development on economic in Nigeria from 1980 to 2013. The study make used of the following variables; secondary school enrolment, life expectancy rate, government expenditure on education, gross capital formation and economic growth. He employ the Autoregressive distributed lag approach, and the result showed a positive long run relationship among secondary school enrolment, life expectancy rate, government expenditure on education, gross capital formation

and economic growth. They therefore recommended that there should be more government financial commitment to education rather than health sector. Horribly, the study failed to conduct unit root and Granger causality test.

Paul and Akindele (2016), examined the impact of human capital development on economic growth in Nigeria using time series data spanning from 1980 to 2013 which were sourced from the World Bank Indicator and National Bureau of Statistics. It was set out to explore the relationship between human capital indices (education and health) and economic growth. The study employed ARDL Co-integration analysis to estimate the relationship among the variables used in the study. The study established long-run co-integration among the variables. The findings from the study revealed that there is positive long-run relationship among secondary school enrolment, public expenditure on education, life expectancy rate, gross capital formation and economic growth but it is statistically insignificant. The results also showed that there is negative long-run relationship among primary, tertiary school enrolment, public expenditure on health and economic growth. In line with the findings, the study recommended that government should put in place the required education and training policy that would guarantee quality schooling for primary and tertiary education. Miserably, the study failed to conduct unit root and Granger causality test.

Oru and Kalu (2016), examined the effects of human capital on Nigeria's economic growth within the ambience of neoclassical growth model with time series covering 1961-2010 period. The result showed that gross fixed capital formation exerts positive influence on output. That of labour force is also positive and statistically significant which implies that physical components of human capital development contribute positively to the output growth. On the other hand, non-physical human capital coefficients of education and health variables are negative but health is not statistically significant. The research outcome showed that physical capital attributes play a more positive role in boosting Nigerian's economic growth than the

non-physical attributes of education and health. The study recommended that, Nigeria increases investment in human capital development especially, the active workforce and capital formation to improve economic growth. Sadly, the study failed to carry out standard econometrics test.

Jaiyeoba (2015), examined the relationship between investment in education, health, and economic growth in Nigeria from 1982 to 2011. The study employed trend analysis, the Johansen co-integration and Ordinary least square technique (OLS). Empirical findings indicated that there is a long run relationship between government expenditure on education, health and economic growth. The variables; health and education expenditure, secondary and tertiary enrolment and gross fixed capital formation appear with the expected signs and are statistically significant (expect government expenditure on education and primary enrolment). The findings of this work have strong implications on education and health policies and considering that they are of great debate in the country. Horribly, the study failed to conduct unit root and granger causality test.

Sulaiman, Bala, Tijani, Waziri and Maji (2015), examined the impact of human capital and technology on economic growth in Nigeria from 1975-2010. The study make used of Autoregressive distributed lag approach. Two proxies of human capital (secondary school enrolment and tertiary school enrolments) were used in two separate models. Their result showed that all the variables in the two separate models were co-integrated. However, the results of the two estimated models showed that human capital in the form of secondary and tertiary school enrolments have had significant positive impact economic growth. Sadly, the study failed to conduct unit root and granger causality test.

Oladeji (2015), examined the relationship between human capital (through education and effective health care services) and economic growth in Nigeria from 1980 to 2012. The study employed Ordinary least square (OLS) techniques and revealed that there is a significant

functional and institutional relationship between the investment in human capital and economic growth. The result showed a long run relationship existed between education and economic growth in Nigeria. He therefore recommends that there is need to increase budgetary allocation to human capital which includes the educational sector and the health sector. Regrettably, stationarity was not conducted in the study.

Ibok and Ibanga (2014), examined the impact of human capital development and economic empowerment on the socio-economic development of Akwa Ibom state. The study adopted a historical and descriptive approach in data allocation. The study revealed that from 1999 to 2012, the government being the foremost driver of the economy has made a positive impact on the training and re-training of workers in the public sector. The study also revealed that, aside from training, the government also embarked on elaborate empowerment programs which has helped so many people to become self- employed as well as employers of labours. Based on these findings, the study recommended among others that government should embark on extensive training of domestic engineers in the areas of oil and gas in the state. Dismally, the study was limited to Akwa Ibom state, but Nigeria as a whole.

Ajadi and Adebakin (2014), examined human capital development as correlate of economic growth in Nigeria, The descriptive survey research was adopted and multi stage sampling technique was used to select a total of 200 respondents used for the study. An adopted questionnaire with 0.86 reliability index was used for data collection. Data collected were analyzed using the Pearson's Product Moment Correlation Coefficient. The findings showed that education has a predictive r-value of 0.76 on individual personal income and the nature of job (employment) is related to individual personal income (r=0.64). It, therefore, concluded that economic growth is a function of individual income level and recommended that government should develop appropriate educational policy to provide the human capital need

of the society for economic growth. Unfortunately, the study concentrated on primary data, without conducting econometric techniques test.

Ehimare, Ogagaoghene, Obarisiagbon and Okorie (2014), examined the Nigeria government expenditure on human capital development from 1990 to 2011. The level of human capital development which is a reflection of the level of health and education of a nation affect the level of economic activities in that nation. The unit root test was conducted to determine whether the variables are stationary or not using Philip Peron test. In order to captured the efficiency of government expenditure on human capital development in Nigeria, the data analysis was conducted using Data Development Analysis involving Input Oriented Variable Return to Scale. The findings of the study revealed that there has been significant reduction in the efficiency of government expenditure since 1990 to 2011 which has been decreasing. The result can be evidenced from the poor quality and output experienced in the Nigeria education sector. Horribly, Co-integration, vector error correction mechanism and granger causality test was not conducted in the study.

Godstime and Uchechi (2014), examined the impact of human capital development on national output in Nigeria, a proxy for economic growth, using quarterly time-series data from 1999-2012. The following variables were used in the study; gross domestic product, total labour force and government total expenditure on education (GTEE). Empirical results showed that human capital development, in line with theory, exhibits significant positive impact on output level. This implies that human capital development is indispensable in the achievement of sustainable economic growth in Nigeria, as there is an increase in economic performance for every increase in human capital development. The results further revealed a relatively inelastic relationship between human capital development and output level. Going forward, government and policy makers should make concerted and sincere efforts in building and developing human

capacity through adequate educational funding across all levels. Lamentably, the study did not use secondary data.

Atoyebi, Olaleye, Ishola, Adekunjo and Kadiri (2013), examined the effect of human capital development in Nigeria. The general aim of the work was to examine the relative effect of human capital development and economic growth in Nigeria and also to evaluate the effect of physical formation on economic output in Nigeria. The method of data collection used for this study is the secondary sources of data. Also, the researcher makes used of multiple regression analysis technique to compute his data collected. The findings from the co-integration regression result test showed that there is a strong evidence co-integration between RGDP and HDI. Also, high level of human capital development has increased the utilization of resources both human and material. Therefore, economic growth is proxied by gross domestic product while human capital development is proxied by investment in education and health sector. Finally, the researcher recommended that government should endeavour to provide enabling environment by ensuring macroeconomic stability and increased investment in human capital by individual. Sadly, the study refers to multiple regressions as a technique, instead of methodology.

Kanayo (2013), examined the impact of human capital formation in Nigeria. The study employed Error Correction Model as an analytical tool. The findings showed that investment in human capital in form of education and capacity building at primary and secondary levels impact significantly on economic growth while capital expenditure on education was not significant to the growth process. The study recommended that educational institutions in Nigeria should be restructured for quality schooling at primary, secondary and tertiary levels. Horribly, Co-integration and granger causality test was not conducted in the study.

Ifeoma, Emmanuel, Jonathan and Chizoba (2013), examined the relevance of human capital development on the growth of the economy. The study employed the ordinary least square

(OLS) technique. The following variables were used; gross domestic product, primary school enrolment, public expenditure on education and health, life expectancy, stock of physical capital. From the analysis, it was revealed that there is a strong positive relationship between human capital development and economic growth. The recommendations drawn from the study centered on revisiting the man-power needs of the various sectors of the economy. Also, while workable policies should be put in place to bring about an overall economic growth, expenditures on health and public education should be utilized effectively and efficiently so that the country would experience quality health care services and quality educational system. Regrettably, unit root test was not conducted in the study.

Methodology

Research design

The methodology for this study is multiple regression analysis using the following estimation techniques; unit root tests, co-integration tests, vector error correction mechanism, and granger causality tests. These will ensure the robustness of the estimated parameters and lead to drawing valid conclusions concerning the relationship among the variables of interest.

This study employed ex-post facto design to examine human capital development variables on Nigeria's economic growth within the period (1986-2019). Ex-post facto design is employed where data already existed and are arranged naturally.

Model specification

The model is represented symbolically in its functional form as:

$$GDP = f(LER, TGEE, TGEH, PSE) \quad (3)$$

Where;

GDP = Gross Domestic Product;

LER = Life Expectancy Rate;

TGEE = Total Government Expenditure on Education;

TGEH = Total Government Expenditure on Health;

PSE = Primary School Enrollment.

$GDP = b_o + b_1 LER + b_2 TGEE + b_3 TGEH + b_4 PSE + U_t$ (4)

Where

b_o = Constant term/parameter intercept.

b_1 = Regression coefficient of life expectancy rate;

b_2 = Regression coefficient of total government expenditure on education;

b_3 = Regression coefficient of total government expenditure on health;

b_3 = Regression coefficient of primary school enrollment;

U_t = Error Term

As effort will be made to rescale the data, the log function is thus expressed as follow:

$LOG (GDP) = b_o + b_1 LER + b_2 LOG (TGEE) + b_3 LOG (TGEH) + b_4 LOG (PSE) + U_t$ (5)

A priori expectation

Theoretically, it is expected that increase in total government expenditure on education, total government expenditure on health and primary school enrollment will have positive relationship with gross domestic product, while life expectancy rate is expected to assume a negative relationship with the gross domestic product.

Estimation procedure

The following pre-test and estimation techniques tests were conducted: They include: Unit root test, co-integration test, vector error correction mechanism (VECM) and Pairwise granger causality test.

Unit root test

The unit root test is conducted through the application of the ADF unit root test. The estimation technique is carried out to determine the order of integration among the variables analyzed in the study. Thus, the results are revealed in table 2 below.

Table 2: ADF & PP Stationarity Test Result at First Differencing

Trend and Intercept

	First Difference			First Difference		
Variables	**ADF Statistic**	**5% Critical Value**	**PP Statistic**	**5% Critical Value**	**Remarks**	**Rank**
LGDP	-4.211316	-3.557759	-6.821814	-2.960411	Stationary	I(1)
LLEXP	-4.323904	-3.557759	-11.90985	-2.960411	Stationary	I(1)
LTGEE	-7.475566	-3.557759	-13.56038	-2.960411	Stationary	I(1)
LTGEH	-4.794212	-3.580623	-5.701296	-2.957110	Stationary	I(1)
PSE	-5.363694	-3.557759	-6.145675	-2.957110	Stationary	I(1)
LPDI	-4.243686	-3.557759	-4.214617	-2.957110	Stationary	I(1)
LEXD	-4.071273	-3.557759	-9.889108	-2.960411	Stationary	I(1)

Sources: *Researcher's computation from E-view 9*

From the estimation, the results revealed that all the variables were not-stationary at level I(0) since all their ADF statistics were individually less than 0.05 critical values. However, at first differencing I(1), the test revealed evidence of stationarity for all the variables, as their ADF statistics were greater than 5% level of significance. The study therefore proceeds to apply the co-integration test to estimate the long-run equilibrium relationship among the variables.

Table 3: Co-integration test Result

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.940010	244.5483	125.6154	0.0000
At most 1 *	0.803569	154.5137	95.75366	0.0000
At most 2 *	0.718637	102.4356	69.81889	0.0000
At most 3 *	0.633915	61.85604	47.85613	0.0014
At most 4	0.469776	29.69956	29.79707	0.0513
At most 5	0.174592	9.396953	15.49471	0.3299
At most 6	0.096769	3.256860	3.841466	0.0711

Source: computation from E-views 9.0

Tables 3. The result indicates that there exist four (4) co-integrating equations among the variables. Thus, the study proceeds to investigates the long-run relationship and short-run dynamics of the variables through the application of the vector error correction model (VECM) as the appropriate estimation technique for the research.

Model: LGDP = -0.105115 + 12.97435LLEXP - 0.165622LTGEE + 0.212997LTGEH -

(5.794165) *(0.052012)* *(0.066941)*

[2.239210] *[-3.184310]* *[3.181858]*

0.009030PSE + 0.033120LEXD + 0.066837LPDI
(0.003032) (0.036631) (0.108807)
[-2.978246] [0.904173] [0.614269]

R^2 = 0.832725; F-stat = 4.978177, and Prob(F-stat) = 0.001776, DW stat = 1.989106

Analysis of Result

From table 6.0, the P-value of LLEXP is 0.0407<0.05; the t-statistic of LLEXP is 2.23>1.96 which indicate that the estimated result is statistically significant. Also, the result shows a positive function of life expectancy on economic growth. In effect, an increase in life expectancy by 1% brought about 12.97% increases in economic growth proxy by GDP.

The result reveals that the P-value of the associated variables is less that 0.05; then, we reject the null hypothesis.

From table 6.0, the P-value of LTGEE is 0.0062<0.05; the t-statistic of LTGEE is 3.18>1.96 which indicate that the estimated result is statistically significant. Also, the result shows a positive function of life expectancy on economic growth. In effect, an increase in life expectancy by 1% brought about 0.16% increases in economic growth proxy by GDP.

From table 6.0, the P-value of LTGEH is 0.0062<0.05; the t-statistic of LTGEH is 3.18>1.96 which indicate that the estimated result is statistically significant. Also, the result shows a positive function of total government expenditure on health on economic growth. In effect, an increase in total government expenditure on health by 1% brought about 0.21% increases in economic growth.

From table 6.0, the P-value of Primary School Enrollment (PSE) is 0.0094<0.05; the t-statistic of LTGEH is 2.98>1.96 which indicate that the estimated result is statistically significant. Also, the result shows a positive function of total government expenditure on health on economic growth. In effect, an increase in total government expenditure on health by 1% brought about 0.07% increases in economic growth.

Recommendations

Since the study revealed that life expectancy has a positive and significant impact on economic growth in Nigeria, government should government and other funding institutions should formulate health policies aimed at enhancing access to health provisions and services. This will inadvertently smoothen good life leading to higher life expectancy of her people.

Above all, the government should as a matter of great importance improve on its allocative spending of health sector because of the rising demand for health provisions occasioned by numerous health uncertainties in our society.

Finally, the study recommended that government should focus on education policies that promote increase in primary school enrollment as the basic education while monitoring programmes in order to instill confidence in the primary education in the country. It is only in this way, that primary school enrollment can contribute positively to economic growth in Nigeria.

Conclusion

The estimation results indicated evidence of a long-run equilibrium relationship among the variables utilized in the study. The results of the VECM showed that life expectancy (LLEXP) and total government expenditure on health (LTGEH) have a positive and significant impact on economic growth proxy by gross domestic product (LGDP) in Nigeria. Similarly, the results indicated that total government expenditure on education (LTGEE) and primary school enrollment (PSE) have a negative and significant influence on gross domestic product (LGDP). Furthermore, the estimation results revealed that external debt (LEXD) and private domestic investment (LPDI) have a positive and insignificant influence on gross domestic product in Nigeria.

Thus, since life expectancy has a positive and significant impact on economic growth in Nigeria, government should, as a matter of fact, formulate and implement human capital empowerment policies that ensure improvement in the standard of living of the citizenry in the country. Hence, improve good life of the citizens leading to higher life expectancy; the skills and knowledge acquired would be utilized in the productive ventures, which in turn, result in increase in economic growth in the economy. Based on the results, 1% increase in life expectancy brings about a 12.97% increase in economic growth in Nigeria.

More so, having indicated that total government expenditure on health has a positive and significant impact on economic growth; government should continue increasing its spending on health sector, as improves in total government expenditure on health brings about increase in quality and good health among the workforce, leading to improved economic growth in the country. Based on the results, a 1% increase in total government expenditure on health will result in 0.2% rise in economic growth in Nigeria.

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