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Economic Growth Induction through Human Capital Development in Nigeria

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Abstract: *The study empirically investigated the induction of economic growth through human capital development for a period of thirty three years (1988-2020). The study employed the Ordinary Least Square (OLS) regression model to analyze the data and discovered the growth in GDP were accounted for by the Human Development Index (HDI), Education Expenditure of Government (EEG), Health Expenditure of Government (HEG), Life Expectancy (LEXP), and Gross Capital Formation (GCAPF). EEG and HEG had greater impact on economic growth than the other variables. The study concluded that all variables are responsible for the growth in GDP with EEG and HEG having the greatest influence. It recommended that education and health sector budget be increased significantly to ensure steady economic growth among others.*

Keywords: *Human Capital, Economic Growth, Human Development Index, Capital Formation, Life Expectancy.*

INTRODUCTION

Naturally, every country is endowed with both human and natural resources which are very critical to their growth and development. The wisdom, will and ability of any nation to make judicious use of these two resources determine the level of its growth and development. The wisdom in the human endowment lies in the proper and efficient allocation of the natural resources in production of the right goods and services for human consumption.

For any country either developed or developing, must invest in human capital by providing a working and sound system of education and a functional health system. Development of education and the health sector have been the major topic of discussion among economists, researchers and policy makers as the engine of growth. Education without doubt is an instrument of change as it is responsible for the development of the research sector where ideas and knowledge of modern technology and modern productive methods of production, even with innovation are acquired. Investment in education produces efficient and productive individuals that could bring about better plans which induce growth. Investment in the health sector on the other hand is for wellness of the working population and the general public. A healthy nation is a wealthy nation. The workers are not iron, even the iron does wear out after sometimes. The individuals get sick or tired after working for sometimes and so need maintenance and proper healthcare.

In 1959 seeing the importance of human capital development, the Nigerian government set up a panel to find out the manpower need of the country at the post-secondary and tertiary institutions over the next twenty years. The report of the committee known as the Ashby report (1960) made some projection of enrolment figures into Nigerian universities for a period of one decade (1960 - 1970). The committee made three recommendations as regard human resources planning. It suggested the establishment of the National University Commission (NUC) as university regulatory body to regulate the activities of universities in the country, the National Manpower Board (NMB) and its secretariat responsible for manpower training generally and the Regional Manpower Committee responsible for manpower training at the state or regional level.

Nigerian government has attempted to improve its human capital at various stages of reforms in education. According to Garba (2015), the British colonial rule in 1954 changed the 8-6-2-3 system to the 6-5-2-3 as a result of agitation from notable Nigerians who were educated at the time. The British system of education was criticized and in September 1969, a conference was held with recommendation that the old system of 6-5-2-3 be replaced with the 6-3-3-4 system. All these were meant to improve the quality of human capital in the country. The trend in the expenditure of government as a percentage of GDP in health has shown a non-stable movement over time.

Provision of viable healthcare stimulates productivity as healthy labour spend more time for work and earn more, spend more time in the labour force, invest in education and save for their old age. According to Adebisi et al. (2020), there has been a downward movement in government allocation as percentage of the

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total budget to the health sector. It continues to drop from 7.23% to 6.85% between 2014 and 2015 and dropped to 5.79% in 2018. According to them, government seeing the importance of the sector implemented the National health act which increased the allocation to health between 2018 and 2020 as was approved by the national assembly.

No doubt, Nigeria has all it takes to attain the desired level of development since independence. It has the population and the natural resources needed to achieve it growth. The availability of both federal and state universities and proliferation of private universities all over the country and the little attention to the health sector by both the state and federal government should have impacted on the development of the nation to a reasonable extent. People are graduating every year without job and the country is almost ravaged by abject poverty.

Objective of the study

The major objective of the research is to investigate the economic growth induction impact of human capital development in Nigeria. Specific objectives of the study are;

- To find out the effect of Human Development Index HDI on economic growth (GDP)
- To ascertain the impact of education expenditures of government on economic growth
- To examine the impact of health expenditures of government on economic growth
- To study the relationship between life expectancy and economic growth
- To investigate the influence of gross capital formation on economic growth

REVIEW OF LITERATURE

Human Capital

Human capital is the personnel endowment as found in the individuals that constitute the labour force of any nation and it is made of the physical appearance of persons and their abilities. These abilities include energy, skills and knowledge, innovative and leadership skills, tolerance and endurance.

Human capital is the skills and experience of a country's labour force and its ability to control all other resources. Human capital can be developed through acquiring education, training on the job, spending judiciously in health and proper nutrition. Abubakar et al. (2021). Developing human capital is capable of transforming every other resource because of its overhauling nature. When the labour force is improved in skills and knowledge, there will be proper channeling and utilization of other factor toward a productive and efficient use.

Mba et al. (2014) saw human capital as one important factor which is capable of manipulating all other factors to the benefit of the populace. To them, it is critical to the socioeconomic growth and development of a nation and encompasses education, health, labour, and employment and women affairs. Investment in human capital is necessary as well as important because it is meant to improve knowledge and skills, productivity and sound health to ensure soundness of the labour force in order to achieve the desired growth. To this end, Todaro & Smith (2006) opined that education and health are seen as crucial agents in the process leading to growth and development. They owe their central importance to the dual role they play in the input and output production process in the economy.

According to Sunday (2021), human capital could be defined as some abilities such as knowledge and skills acquired by the working population during production process which are meant to achieve economic growth. He further explained human capital as reported by Adamu, to be the inherent skills and efforts of human in an economy which is mainly for the purpose of achieving economic growth and that these could be acquired and improved upon through formal or informal education, skill acquisition and other social investments that could increase the productive capacity of the labour force.

Barro (1991) asserted that investment in human capital is tantamount to carrying out socioeconomic and political revolution in a country due to its importance as a major over hauler of other resources targeted at achieving economic development. Commitment to human capital development is considered to be one of the vital elements responsible for the improved performance of most developed and industrialized nations of the world and so should be emulated by the developing countries. Human capital is a very important factor in production. There is need for it improvement and empowerment so as to keep the system on. For instance, the circular flow of income, labour is used and paid for its service. It constitute the household which supply the labour and also makes the effective demand that keep the production process on and the system continues to expand as the household increase in size.

The development of any nation depends on a number of factors among which is human capital as the most important tool for achieving sustainable economic development and upon which other factors partially or heavily rely on to function appropriately. Emegbara et al. (2021). If the working force is well educated, it will earn more and will be able to save so as to invest in physical assets. With the advancement in technology and invention of highly sophisticated machines and new industrialization, there is need for training and skill improvement to be able to cope with globalization.

Concept of Economic Growth

Production of physical goods and the provision of services over certain period are valued in currency of

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the country, compared with the output of goods and services in the previous year to ascertain whether or not the country is making progress. Thus, growth can be seen as the increase productivity of a country in a year. In Nigeria it is measured using the proxy Gross Domestic Product (GDP). Balami (2006) defined growth as steady process of increasing the output level of goods and services in the economy.

Growth is seen as a concept that is related to quantity. That is sustained increase in the per capita output of a country followed by expansion in manpower and volume of trade. Jhigan (2003). This entails a quantitative increase in output per head of the population and the volume of output traded within and outside the country. It also encompassed the contribution of all the factors of production to the total output. These factors include infrastructure development, technological advancement and human capital development.

Jhinghan (2016) viewed economic growth as the increase in real income per head (real per capita income) of a country for a fairly long time period. To him, the factors responsible for economic growth are growth in the size of population, technological know-how, accumulation of capital and mobilization of savings. Todaro (1977) in his version of economic growth explained it as the economy's capacity to produce output of goods and services over stipulated period of time for the main purpose of improving the wellbeing of the people in increasing number and diversity. This entails a steady increased productivity overtime that will lead to increased level of national income.

Economic growth is seen as increase in the production of goods and services over a specified period. Adeyemi & Ogunsola (2020). They viewed the increase in output from the stock market supply as prices of stock rise with businesses able to raise capital for investment and hiring more people. This creates a multiplier effect as more jobs are created and incomes are generated. Growth in output of goods and services is compared between one period and the other and it is measured in nominal or real term. It can be be measured in terms Gross National Product (GNP) or Gross Domestic Product (GDP).

Economic growth as put by Lipsey & Crystal (2011) is the increase in the capacity of the economy to produce goods and services after the passage of some times of which the production possibility boundary moves outward during the time duration. It means increase in output overtime when the economy makes effective and efficient use of it productive resources without leaving any of its resources underutilized. They believed that within the production possibility of the economy, all commodities are produced in large quantities.

Going through the various definitions of economic growth, it is a plan towards development which is entirely dependent on human capital for the manipulation of other factors such as both physical capital and natural resource to achieve the desired increase in the output of goods and services. Remember that Adam Smith once said that for a country to develop it must pay attention to productive labour and the major engine of growth is labour through division of labour. So, it means that production must take place with the use of labour. Smith said with division of labour, efficiency and effective use of both resource and time could be achieved.

Theoretical Framework

The idea that formed the basis for this research is the endogenous growth model. The theory explained the responsiveness of growth to internal factors rather than external influence of factors outside the system. It held that investment in human capital certainly brings about improvement in knowledge, skills and innovations that could lead to the desired economic growth. However, it does not undermine the possible positive external and spill over impact from a knowledge based economy that brings about economic development. The theory emphasizes on policy measures that enhance the long run growth rate of the economy, such as subsidies for research and development improve knowledge, skills and innovation thereby increasing output.

The interesting thing about the endogenous growth model is that it modeled technology explicitly as a variable within, what determines it rather than making it exogenous. In the present world of globalization, economic progress of any nation depends on its level of technology and on its ability to effectively and efficiently utilize its productive resources. The working force should be able to brace up with the rapid change in industrialization, learn how to operate the more advanced facilities and introducing innovations that would lead to increased output.

One of the endogenous growth models adopted in this research is the AK model developed by Romer in 1986. He developed a production function as follows:

$Y = AK$

Where Y = output

A = Level of technology

K = the capital stock

From the equation, in essence the level of technology includes the research funds spent on seeking advancement in technology and training of personnel. The capital encompasses both human and physical capital. So, extending the model to the cobb-Douglas production function with a constant return to scale, we have;

$Y = AK^{\alpha} L^{1-\alpha}$

Y = the economy's total output

A = productivity of factors

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L = labour
α = elasticity of capital

The cob Douglas function shows that the level of technology is dependent on human capital development through research. The positive nature of the symbol, α is an indication that the enormity of human capital in an economy triggers its growth.

The proponents of the endogenous growth model are of the opinion that as government spend reasonably on financing health services, it does not only increase utilization in the country but provision of sound and functional health system that would be accessed by the poor majority. Accessibility to health services is an important element in human capital investment that will induce aggregate economic growth in the economy.

RESEARCH METHOD

Model Specification

The Ordinary Least Square (OLS) multiple regression models was adopted for this research. The model is a linear model showing linear relationship between the dependent variable and the explanatory variables.

GDP = F(HDI, EEG, HEG, LEXP, GCAPF)

$GDP = \alpha_0 + \alpha_1 HDI + \alpha_2 EEG + \alpha_3 HEG + \alpha_4 LEXP + \alpha_5 GCAPF + \mu$

Where GDP = Gross Domestic Product
HDI = Human Development index
EEG = Education Expenditure by Government
HEG = Health Expenditure by Government
LEXP = Life Expectancy
GCAPF = Gross Capital Formation
α_0 = the intercept
α_1 - α_5 = the parameters
μ = error term

Priori Expectation

From principles and economic theories, it is a known fact that when government spend judiciously on education and health, growth and development will be greatly achieved without doubt except for other inhibiting factors. So, it is expected that economic growth and human capital investment should have a positive relationship.

RESULTS AND DISCUSSION

The data was analyzed with E-view 10.0 and the results are discussed as follows;

To ensure stationarity of the data, Augmented Dickey Fuller (ADF) was used to test for unit root. The ADF was used to run unit root at level and at first difference. The summary is shown in Table 4.1 below;

Table 1: Results of Unit Root Test (trend and intercept) at First Difference

Variable	ADF Test Statistic	T-Statistic @5%	Order of Integration	P-Value
GDP	-6.30	-3.57	I(1)	0.0001***
HDI	-5.92	-3.57	I(1)	0.0002***
EEG	-5.35	-3.57	I(1)	0.0007***
HEG	-7.75	-3.57	I(1)	0.0000***
LEXP	-7.47	-3.57	I(1)	0.0000***
GCAPF	-6.42	-3.57	I(1)	0.0001***

Note: *** indicates 1% level of significance
Source: Author's extractions from E-view results

The results in Table 1 showed the variable to be stationary at first difference. This is evident in the ADF statistic as they are less than 1% and are significant at 0.01. It implied that the variables are stationary at first difference and was used to run the regression analysis.

Table 2: Summary of Regression Results

Independent Variable	Coefficient	T-Value	Prob.
C	7.14 (2.51)	7.78	0.0000***
HDI	0.51 (0.13)	4.25	0.0003***
EEG	2.11 (0.16)	3.81	0.0012***
HEG	2.25 (0.13)	3.63	0.0019***
LEXP	1.73 (0.06)	2.94	0.0024***
GCAPF	1.13 (0.28)	2.96	0.0029***

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R^2 = 0.75, F-statistic = 25.48***
R^2 Adjusted = 0.70
Note: *** 1% level of significance and the figures in brackets are the standard errors.
Source: Author's extractions from E-view regression results

The value of R^2 indicated that 75% of the variations in economic growth as represented by GDP are accounted for by the dependent variables. The F-statistic was statistically significant at 1% with probability less than 0.01. This means that the independent variables jointly contributed to economic growth.

Multicollinearity Test

Multicollinearity test was conducted among the independent variables and the summary presented in Table 3.

Table 3: Summary of Multicolinearity Test

Variables Paired	Coefficient	Remark
HDI vs EEG	0.61	No Multicolinearity
HDI vs HEG	0.58	No Multicolinearity
HDI vs LEXP	0.58	No Multicolinearity
HDI vs GCAPF	0.15	No Multicolinearity
EEG vs HEG	0.47	No Multicolinearity
EEG vs LEXP	0.53	No Multicolinearity
EEG vs GCAPF	0.31	No Multicolinearity
HEG vs LEXP	0.50	No Multicolinearity
HEG vs GCAPF	-0.00	No Multicolinearity
LEXP vs GCAPF	0.17	No Multicolinearity

Source: Author's extraction from multicolinearity result of E-view.

The guideline for decision making in this regard was from the rule of thumb. It says correlation coefficients greater than 0.8 shows mulitolinearity among the variables and coefficients less than 0.8 means no colinearity among the variables. So, going through Table 3 it can be seen that the coefficients are less than 0.8. This means that there is no multicolinearity among the variables.

Heteroscedasticity Test

Heteroscedasticity test was done on the results and the summary presented in Table 4.

Table 4: Result of Heteroscedasticity Test: White

F-statistic	3.196208	Prob. F(20,12)	0.2615
Obs*R-squared	27.78427	Prob. Chi-Square (20)	0.1146
Scaled explained SS	34.66891	Prob. Chi-Square (20)	0.0219

Source: Author's extraction from E-view

Results

F-statistic of 3.196208 with probability value 0.2615 greater than 5% is an indication the there is no heteroscedasticity in the results.

From the summary of regression results in Table 4.2, it is observed that all the variables' coefficients have positive and significant values meaning that they have direct, positive and significant relationship with GDP. HDI has a coefficient of 0.51 and significant at 1%. This means that 0.51 of human development index has contributed to economic growth since, if forecasting is to be made 0.51 must be multiplied by HDI. The regression coefficients of EEG and HEG are 2.11 and 2.25 respectively and are both significant at 1%. It is indicated that EEG and HEG contribute more to growth more than the remaining variables. 2.11 of EEG contributed to GDP while 2.25 of HEG accounted for the growth in GDP. LEXP and GCAP also have positive and significant relationship with GDP. From Table 4.2, 1.73 and 1.13, both significant at 1% are the regression coefficients of LEXP and GCAPF respectively. It means 1.73 of LEXP and 1.13 of GCAPF respectively accounted for the growth of GDP.

CONCLUSIONS

It has been observed from this study that Human Development Index (HDI) has contributed positively and significantly to economic growth with GDP as proxy. Education Expenditures of Government (EEG) and Health Expenditures of Government (HEG) respectively, have outstanding contributions to economic growth among the other variables. This was indicated by their regression coefficients as shown in Table 4.2. Life Expectancy (LEXP) and Gross Capital Formation (GCAPF) respectively significantly induced economic growth at almost the same rate and the relationship was positive. However, with the presence of high unemployment in the country and the poor state of health

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and low life expectancy experienced, with the little government has spent on education and health, GDP has grown to certain extent. Between 1988 and 2020, it has increased from $49.65B to $2, 097B (World Bank (2020). So, it is only normal to expect contribution to this GDP growth since provisions are made for human capital in the budget.

Recommendations

The government should take various aspect of human development serious. Poverty reduction should be of utmost priority. Employment creation and empowerment of the working population should be given proper attention because it is when the people are empowered that per capita contribution to economic growth becomes significant.

Spending of government on education and health should be increased by significant amounts in the budget to ensure the production of skilled, experienced and healthy workers that will bring about the innovations the country needs to produce at its optimum level of output. Science and technology should be developed and research grants and training organized to brace up with globalization.

Life expectancy can only improve when the health sector is working properly. As it was earlier stated, government should increase its budget on health and enlightenment through health nutrition personnel to educate the people on the importance of diet and personal healthcare. With improved government spending on health and awareness on personal hygiene and diet, the labour force and the entire population will be sound to produce the required growth in output needed by the nation to make progress.

Capital formation is paramount in economic planning. It has been the basis of economic theories and principles. Investment should be encouraged by reducing bank lending rates to encourage borrowing. Employment should be created and with good wages to encourage savings which will lead to investment. Massive investment in an economy result in capital accumulation and multiple investments lead to growth in output.

Finally, corruption should be properly tackled with all seriousness because it suppresses the efforts of government towards achieving economic development. Development will not be comparable to what is spent on execution of planning. Moreover, execution of government projects may not be properly done due to lack of government supervision and commitment. Accountability by the government and the people handling all projects connected to human capital development is necessary as the stronghold of the country's development. It has frustrated the nation's development moves and should be taken serious by the government.

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