HUMAN CAPITAL ADVANCEMENT AND THE EXPANSION OF THEIR RELATIVE ECONOMY: A CASE STUDY OF NIGERIA

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Abstract:

This study examined the relationship existing between human assets advancement and the expansion of their relative economy in Nigeria. Ex-post facto research design was adopted in the investigation. Multiple regression analysis was employed, in which Vector Error Correction Model (VECM) and Granger Causality test were employed in the analysis. The variables employed in the analysis are real gross domestic product (RGDP as a dependent variable); while independent variables are total government expenditure on health (TGEH), total government expenditure on Education (TGEE) and total export (TEXP). The results of our unit root test showed that all the variables were stationary at first difference. The cointegration test showed that there was four co integrating vector and this necessitated the application of Vector Error Correction Mechanism; which revealed that total government expenditure on health (TGEH), total government expenditure on Education (TGEE) and total export (TEXP) are positive and statistically significant to real gross domestic product (RGDP) in Nigeria. Furthermore, the results of the Paiwise Granger Causality test revealed that bidirectional relationship exist between government expenditure and economic growth in Nigeria within the period under study, where the causality runs from TGEE RGDP and RGDP TGEE. Therefore, based on the above findings, the study recommends that Nigerian government should make education more accessible through improving its affordability to common individual in the society so as to boost the economic growth of Nigeria through human capital development.

Keywords: Human Capital Advancement, Economic Expansion, Vector Error Correction Model (VECM), Granger Causality)*, Nigeria*

Introduction

The most valuable assets in both developed and developing countries are humans. To achieve development, it therefore becomes imperative for these assets to be managed properly and effectively used. One of the ways this can be done is by ensuring that adequate investment is made in human capital (Hadir & Lahrech, 2015). Hence, human capital development is an issue of great concern; as it provides an economy with healthy trained human resources required for economic growth and development. Therefore, development in human capital in dimension of income, health and education, is an important factor used in converting all resources to mankind's use and benefits.

Human Capital can be developed through the process of human empowerment since it is expected to facilitate active participation and from that perspective may be affirmed a major source of economic growth. Many developed countries according to International Bank for Reconstruction and Development and World Health Organization have employed their human capital to achieve significant progress in terms of level of productivity and technological advancement. In spite of the popularity of

human capital usage among developed countries however, many developing countries have still not awaken to the fact that human capital can be used as a major drive to facilitate an improved economy. Hence, it is commonly believed that economic growth leads populations to live better, have longer lives and good health. In view of that, economic growth, meaning rising per capita income; has part of this increased income, translated into the consumption of higher quantity and better quality nutrients. Through nutrition, health which is measured by life expectancy, responds to increases in income (Fogel, 1997).

Economic expansion being fuelled by technological progress has part of this progress reflected in medical improvement. Hence, the state of health in a country affects its economic growth through various channels such as; good health. This is because; good health and nutrition enhance workers' productivity. In view of that, healthier people who live longer, have stronger incentives to invest in developing their skills, as they expect to reap the benefits of such investments over longer periods. That is, better health increases workforce productivity by reducing incapacity, debility and number of days lost due to sick leave. That is, good health helps to increase output with any given combination of skills, physical capital and technological knowledge. One way to think about this effect is to treat health as another component of human capital, incorporated in formulating the endogenous growth models (Thomas, 1997, Bloom 2001).

The effects of human capital variables (namely, health and education) imply that the investment rate tends to increase as levels of education and socioeconomic status of health rise. Longer life expectancy encourages larger investments in human capital, which in turn accelerates the per capita income. The provision of public resources for better health in a developing country can assist the poor to release resources for other investments, such as in education, as a means to escape poverty. Therefore, the development and proper utilization of human capital, plays a very paramount role in every nation's economic growth. That is, human capital is an important factor for the wealth of a nation due to its influence on the overall production of the country. Technological progress can provide more efficient production methods like machines and computers, but skilled labor is necessary to manage and develop them as well as to improve the quality and productivity of the existing labor. Hence, the development of Nigeria's human capital is therefore of great importance if Nigeria wants to be competitive in the future (Bloom 2001).

Nigeria as a country is immensely endowed with both natural and human resources. In spite of all these abundant resources, economic expansion in Nigeria has not grown to the expected standard. This is simply because, Nigeria has failed to realize her full development potential especially in education and health, with the top most priority, currently given to sustainable human capital development or people oriented development by many countries and multilateral organizations like UNDP. That is, the Human Development Index (HDI) provides a measure of human capital development in three dimensions: income, health, and education. But the values of HDI show that Nigeria is ranked 156 with the value of 0.459 among 187 countries (World Bank, 2013). This value places Nigeria in the bottom, meaning that Nigeria is considered to have low level of human development. The comparative value for Sub-Saharan Africa is 0.475, 0.910 for the US, and 0.694 for the world average. The HDI of Sub-Saharan Africa as a region increased from 0.365 in 1980 to 0.475 2013, which places Nigeria a little below the regional average with an HDI of 0.471 (World Bank,2013). The value for the education index is 0.457, compared to the average in the US of 0.939. The expected years of schooling in Nigeria is 9.0 (16.00 in the US), while the mean years of schooling for adults over 25 years is 5.2 years (12.4 years in the US). Additionally, Nigeria is also facing a relatively high inequality, worsening the problem regarding the formation of

human capital. The income distribution for the poorest (bottom 10%) is 1.6% while it is 40.8% for the richest (top 10%). Among 114 countries, the income distribution places Nigeria respectively in 94th position for the poorest and 17th for the richest (World Bank, 2013).The effects of this problem is increase in socio-economic problems like high rate of unskilled workers, low marginal productivity, low investment, unemployment and high cost of living in Nigeria.

The Federal Government reformed agenda is anchored on the National Economic Empowerment Development Strategy 2002 (NEEDS) document. It was indicated that adult literacy rate of at least 65% by 2007 would be attained. The NEEDS recognize the centrality of human capital development towards achieving economic growth. It was described as a vital transformational tool. Going by the UNESCO report 2010, clearly, Nigeria is still very far from meeting the global economic development target.

Therefore, having observed the above problem, the need to empirically investigate the human assets advancement and the expansion of their relative economy in Nigeria is felt.

Literature Review

Human Assets are the accumulated knowledge and skills that make a workforce productive and are part of the Intangible Assets the company. It is synonymous with human capital which refers to the abilities and skills of human resources, while human capital development refers to the process of acquiring and increasing the number of persons who have the skills, education and experience, which are crucial for the economic growth of the country (Harbison, 1962). It could be observed from the above elucidation that – human capital is an agent of national development in all countries of the world. Providing education and health services to the people is one of the major ways of improving the qualities of human resources. Apart from being issues of social concern, it provides an economy with healthy trained human resources required for economic growth and development. Studies have shown the handsome returns to various forms of human capital accumulation; basically on the aspect of education, research training, and learning by doing and capacity building. That is, education enriches people's understanding of themselves and the world. It improves the quality of their lives and leads to broad social benefits to individual and society. Hence, it raises people's productivity, creativity and as well promotes entrepreneurship and technological advancement.

Economic Growth

Economic expansion is defined as the augment in per capital income. It could be appraised as the rate of change in real GDP. Economic expansion could exist either as encouraging economic intensification or depressing expansion. It is encouraging when there are healthy macroeconomic indicators of the economy (inflation, unemployment, etc.) and moves towards being negative when these aggregate economic indicators are shrinking (Atuma, David, Nwibo, Nkwagu, Udenta, Njim & Uwaeke, 2024).

Theoretical Framework

Human Capital Theory

The human capital theory emphasized that human capital development relates to schooling and training as an investment in skills and competences (Schultz, 1992). This theory bases its argument on national

expectation of return on investment, as individuals make decisions based on the education and training they have received as a way of augmenting their productivity. As the global economy shifts towards more knowledge based sectors (such as the manufacture of ICT based services), skills and human capital development becomes a central issue for policy makers and practitioners engaged in economic development, both at the national and regional levels (Adelakun & Joseph, 2011). Yet, the impact of education and vocational training activities exert upon changing national and regional economies remains less than thoroughly explained and analyzed. Since the introduction of human capital theory in the 1960s, a number of studies have attempted to address this and other related issues (Adelakun & Joseph, 2011).

It is argued that based on national expectation of return on investment, individuals make decisions on the education and training they receive as a way of augmenting their productivity. A similar strand of studies focuses on the interaction between the educational/skills levels of the workforce and measurements of technological activities (Adelakun and Joseph, 2011). According to this theory, a more educated/skilled workforce makes it easier for a firm to adopt and implement new technologies, thus reinforcing returns on education and training. That is, this theory shows how education leads to increase in productivity and efficiency of workers by increasing the level of their cognitive skills. To proponents of this theory, people invest in education so as to increase their stock of human capabilities which can be formed by combining innate abilities with investment in human beings (Adelakun and Joseph, 2011). 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, with intense use or lack of use. 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.

Empirical Literature

Stephen, Savaş, Simplice and Festus (2020) examined the impacts of public expenditures on economic growth with respect to capital expenditure, recurrent expenditure and the government fiscal expansion in line with support for the budgetary allocations to various sectors in the context of the Nigerian economy. Pesaran's ARDL approach has been applied to carry out the impact analysis using annual time-series data from 1981 to 2017. Empirical findings support the existence of a level relationship between public spending indicators and economic growth in Nigeria.

Andabai and Eze (2018),examined the empirical investigation of human capital investments and its effect on economic growth in Nigeria; for the period 1990-2017. Secondary data were used and collected from Central Bank of Nigeria Statistical Bulletin. The study used Gross Domestic Product (GDP) and was employed as the dependent variable to measure the human capital investments on economic growth in Nigeria; whereas, government expenditure on health and government expenditure on education were also used as the independent variables to measure human capital investments in Nigeria. Hypotheses were formulated and tested using Ordinary Least Square econometrics techniques. The study showed that government expenditure on education had a significant effect on Gross Domestic Product in Nigeria.

Government capital expenditure on health sector had a significant effect on Gross Domestic Product in Nigeria.

Eigbiremolen and Anaduaka (2014),employed the augmented Solow human-capital-growth model to investigate the impact of human capital development on national output, a proxy for economic growth, using quarterly time- series data from 1999-2012. The study showed that human capital development, in line with theory, exhibited significant positive impact on output level. This implied 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. Their results further revealed a relatively inelastic relationship between human capital development and output level.

METHODOLOGY

Unit root, Cointegration, Vector Error Correction and Granger causality Test model were the analytical method engaged in the investigation. The test of stationarity is used to determine the rank of integration of the parameters of the model. On the other hand, Vector Error Correction and Granger causality Test model deal with the investigation of the long-run and short-run coefficients of the parameters as well as the direction of the causation. In capturing the study, these parameters were used as proxy:

$$RGDP = F(TGEH, TGEE, TEXP) \quad 1$$

Where; RGDP = Real Gross Domestic Product, total government expenditure on health (TGEH), total government expenditure on education (TGEE) and total export (TEXP).

Explicitly, equation (1) above is transformed into an econometric linear form as structurally expressed as:

$$RGDP_t = \beta_0 + \beta_1 TGEH_t + \beta_2 TGEE_t + \beta_3 TEXP_t + Ut \quad (2)$$

The coefficients in the model b_o =constant term, while $b_1 - b_3$ define elasticities of the logged variables.

Data Discussion

In the specified estimated model, it is stated that real gross domestic product (RGDP) is a function of Total Government Expenditure on Health (TGEH), Total Government Expenditure on Education (TGEE) and Total Export (TEXP). Thus, these variables are discussed below;

i). **Real Gross Domestic Product (RGDP)**: This is the total monetary value of goods and services produced within a country usually a year. With this, the standard of living of the populace in the country can be determined. It is all the goods and services produced in country in a year which is measured in monetary terms. It is concerned with domestic production and does not, include net income from abroad. RGDP is chosen because it is an indicator of growth we could use since it is GDP deflated.

ii). **Total Government Expenditure on Health (TGEH)**: This refers to the money spent on maintenance and running costs of health of citizens in a country. Public health expenditure consists of recurrent and capital spending from government (central and local) budgets, external borrowings and grants (including donations from international agencies and nongovernmental organizations), and social (or compulsory) health insurance funds. Health spending measures the final consumption of health care goods and services (i.e. current health expenditure) including personal health care

(curative care, rehabilitative care, long-term care, ancillary services and medical goods) and collective services (prevention and public health services as well as health administration), but excluding spending on investments. Health care is financed through a mix of financing arrangements including government spending and compulsory health insurance ("Government/compulsory") as well as voluntary health insurance and private funds such as house

.i**ii). Total Government Expenditure on Education (TGEE)**: General government expenditure on education (current, capital, and transfers) is expressed as a percentage of total general government expenditure on all sectors (including health, education, social services, etc.). It includes expenditure funded by transfers from international sources to government.

iv). Total Exports (TEXP): Exports are goods and services that are produced in one country and sold to buyers in another. Exports, along with imports, make up international trade.

Sources of Data

The data for this research work are obtained from the following sources:

- Central Bank of Nigeria Statistical Bulletin, vols. 23;26, 2013 and 2015; World Bank data.

OUTCOMES

Table 1: Results of Augmented Dickey-Fuller Unit Root Test

	Level			**First Difference**			Remark
Variables	t-Statistics	5% critical value	p-value	t-statistics	5%-critical value	p-value	
LRGDP	-0.517241	-2.948404	0.8759	-4.139011	-2.945842	0.0026	I(1)
TGEH	-1.910548	-2.951125	1.0000	-7.619676	-2.945842	0.0024	I(1)
TGEE	-0.176738	-2.960411	0.9315	-4.096083	-2.948404	0.0064	I(1)
TEXP	-1.509336	-2.943427	0.5179	-5.633832	-2.945842	0.0000	I(1)

Table 1: Augmented Dickey-Fuller(ADF) Unit Root Test (at level)

From the table 1 above, it was discovered that none of the variables was stationary at level as there ADF values (-0.517241, -1.910548, -0.176738 and -1.509336) were less than 0.05 critical value (-2.948404, -2.951125, -2.960411 and -2.943427), but at first differencing all the variables (RGDP, TGEH, TGEE and TEXP) became stationary as their ADF values (-4.139011, -7.619676, -4.096083 and -5.633832) became greater than their 0.05 critical value (-2.945842, -2.945842, -2.948404 and -2.945842). These indicate that all the variables were stationary and integrated of order 1, I(1).

Table 2: Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.814726	103.1831	47.85613	0.0000
At most 1 *	0.410058	42.49007	29.79707	0.0011
At most 2 *	0.359957	23.49178	15.49471	0.0025
At most 3 *	0.186435	7.427856	3.841466	0.0064

Source: Researcher's compilation from E-view 9

Table 3: Unrestricted Cointegration Rank Test (Maximum Eigenvalue)
Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.814726	60.69307	27.58434	0.0000
At most 1	0.410058	18.99829	21.13162	0.0969
At most 2 *	0.359957	16.06393	14.26460	0.0257
At most 3 *	0.186435	7.427856	3.841466	0.0064

Source: Researcher's Compilation from Eview

From the result above, the Johansen co integration indicated four co integrating equations. Under the Johansen Co integration Test, it could be said that there is a co integrated vector. Co integration is said to exist if the value of computed statistics is greater than 5% critical value. From the trace statistics, four of the absolute values of the variables were greater than 5% critical value. In other words, the null hypothesis of no co integration among the variables is rejected since four of the equations at 5% were statistically significant. The test result shows the existence of a long-run equilibrium relationship among the variables.

Table 4: Vector Error Correction Model (VECM) System Equation

Variable	Coefficient	Std. Error	t-Statistic	Prob
C	-23038.04	3764.312	-6.120119	0.0000
D (RGDP)	0.054052	0.083043	0.650888	0.5211
D(TGEH)	1058.826	256.6123	-4.126171	0.0004
D(TGEE)	373.5146	72.92449	5.121936	0.0000
D(TEXP)	5.871844	1.383369	4.244596	0.0003
VECM(-1)	-0.003488	0.000306	-11.40128	0.0000

R-squared = 0.913932 F-statistic = 29.49639
Durbin-Watson = 2.118863Prob(F-statistic) = 0.000000
SOURCE: Researcher's Compilation from Eview 9

From the table VECM (1) was consistent by assuming a negative value, fractional and significant. It suggests that the VECM could correct any deviations from longrun equilibrium relationship between RGDP and the explanatory variables. The co-efficient indicates a speedy adjustment of 0.003488 per annum. This implies that following short-run disequilibrium, 3% of the adjustment to the long-run takes places within one year. The above result shows that the R^2 is 0.913932, which impliesthat the model explains that about 0.913932% of the total variations in RGDP are explained by the independent variables (total government expenditure on health, total government expenditure on education and total export) during the period of the study. While the remaining 8.668% variations are as a result of other explanatory variables that are not captured in the model.

The result also shows that both total government expenditure on health, total government expenditure on education and total export are statistically significant as their respective probability values as less than 0.05 at 5% level of significance.

Table 5: Granger Causality Result

Null Hypothesis:	Obs	F-Statistic	Prob.
TGEH does not Granger Cause RGDP	36	2.33529	0.1136
RGDP does not Granger Cause TGEH		1.14090	0.3326
TGEE does not Granger Cause RGDP	36	5.43060	0.0095
RGDP does not Granger Cause TGEE		8.63322	0.0010
TEXP does not Granger Cause RGDP	36	1.18198	0.3201
RGDP does not Granger Cause TEXP		3.39710	0.0463

SOURCE: Researcher's Compilation from Eview

From the above computed result, the hypothesis of no significant causal relationship existing between human capital development and economic growth in Nigeria is rejected as the p-values (0.0095 and 0.00010) are less than 0.05 at 5% level of significance. Hence, we conclude that government expenditure and economic growth granger cause themselves in Nigeria. This shows that there is a bidirectional relationship between TGEE and RGDP, as each granger cause the other. That is, TGEE RGDP and RGDP TGEE.

Conclusion

This study represents an attempt to investigate the existing relationship between human capital development and economic growth in Nigeria. The study employed Vector Error Correction and Granger causality. The tests reveal that there is evidence of positive and significant interactive effect of human capital development components on the growth of Nigeria's economy. The study therefore concluded, among others, that, given the hindsight provided, disaggregated functional government expenditure on health has significant and positive impact on economic growth of Nigeria. Hence, the signs of components of human capital development are in line with the modernization theory which focuses on how education transforms an individual's value, belief and behavior; thereby assuming that exposure to

modernization institutions such as schools, factories, and mass media inculcate modern values and attitudes. The 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.

Recommendations

Sequel from the findings of this research, the following recommendations are made:

i). The Nigerian government should ensure sufficient budgetary allocation on health expenditure in order to make proper health care facilities available to Nigeria's citizens. That is, government should as a matter of urgency, increase health care facilities in the country and motivate the health personnel with good remuneration to guarantee increased productivity in the sector.

ii). The Nigerian government should increase its total expenditure on education so that adequate educational facilities for thorough and proper quality education delivery would be made available in Nigeria.

iii). The Nigerian government should make education more accessible through improving its affordability to common individual in the society so as to boost the economic growth of Nigeria through human capital development.

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