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Human Capital Investment and Economic Growth in Nigeria: 1989-2019

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ABSTRACT: Human capital investment has been identified as the increase in the potential of an individual through education, knowledge, skills and health acquired overtime which enhances his ability to be more productive in the society. It is believed that the more productive a people are, the more developed the economy, having been impacted by the increased productivity of the workforce. As its main objective, this paper examined the relationship between human capital investment and economic growth with Nigeria in focus and between the period 1989 – 2019. The paper used secondary sources of information for the study. Data obtained within the scope of the study and the variables were within the period of investigation. It adopted the unit root, the dynamic ordinary least squares, as well as the Error Correction Model (ECM) to test the short and long run relationship of the variables selected for the study. Between human capital investment and economic growth in Nigeria, the results showed a strong relationship. Based on the result, the study recommended that government prioritize education and health to assure the socio-economic well being of the people. As a corollary to the above, government at all tiers should increase annual budgetary allocation to these sectors. Government should also intensify efforts in economic and social orientation to mobilize and inculcate sanitary and health culture in the people.

KEYWORDS: Health, investment, economic growth, capital error correction mechanism

INTRODUCTION

The quest for Economic Growth is essential in the achievement of the overall welfare of citizens in any country. Therefore, strong and deliberate efforts would be necessary in the management of relevant institutions to achieve greater improvement and sustain the key sectors to promote economic growth. This includes but not limited to investment and development of the human capital resources. Education and health are adjudged the most important components of human capital and also seen as major contributors and determinants of economic growth and development of any nation. According to Todaro & Smith (2006), they are inputs to the aggregate production function. Their individual and adjunct roles as both input and outputs give them their central role in economic growth. Education and health perform dual functions within economic growth dynamics as they function as investments in human capital as well as variables that lead to higher future standard of living (Schultz, 1999).

Development in human capital thus is a veritable engine for growth and development. This fact has been stated by (Bloom, Canning & Sevilla 2004; Krueger & Lindahl 2001; Barro and Sala-i-Martin 1999; Topel 1999). Even though this study emphasizes different perspectives to this statement, some however, emphasize formal education whereas others dwell on health being the measure for life expectancy. Humans have vigorously sought to improve on their health to promote their life which in consequence, lengthens their life span or life expectancy and enhance their skills.

In developing countries like Nigeria, promotion in human capital has not received much attention given the government expenditures on human capital. For instance, the 5-year average value of capital expenditure by the government on social services (health, education and other social services) as percentage of total expenditure have serially decreased from average of 15.89% to 13.37% and later 12.71% between 2003-2007, 2008-2012 and 2013-2017 respectively. (CBN 2017). These indicate that the proportion of public expenditure on human capital has not increased as expected. The poor performance of the value of public expenditure as an indicator of human capital development corroborates the position of Schultz (1999) when he noted that several African countries, Nigeria inclusive, have continually recorded very weak indicators in the education and health sectors in comparison to countries in other regions of the world.

The indicators of Nigeria human capital growth thus, remain abysmally low over the years. For instance, in educational attainment, the country ranked 1118$^{th.}$ In this regard, the literacy ratio for the female to male 0.80 for literacy. For primary school enrolment, the ratio was 0.85, 0.86 for secondary school enrolment and for tertiary enrolment, it was 0.55 (Human Development

Report, Nigeria, 2009). Similarly, on the World Bank's Human Capital Index (HCI), she ranked among the lowest performing countries occupying the position of 152nd out of 157 countries. This buttresses how much its losses in economic productivity by not investing in people. According to (UNDP, 2018), the country's HDI has not changed much moving between 0.530 and 0.532 for the two-year period of 2016 and 2017 respectively. This puts the country within the low human development position, placing her 157 of 189 countries.

It is no gainsaying the fact that the slow pace and level of economic growth of Nigeria can be systematically linked to her low human capita status. Given the assumed nexus between human capital development and economic growth, it becomes poignant to examine human capital investment and how it has impacted on economic growth in Nigeria. This study is undertaken to interrogate the extent of this relationship.

Investment in human capital is noted to be a contributory factor to economic growth. The literature is replete with such assumption (Schultz, 1961; Appleton & Teal, 1998; Todaro & Smith, 2006), opined that human capital investment through the health-care services and education yield increasing productivity. They further asserted that economic welfare, knowledge stock and value addition, and poverty reduction are essential for sustainable economic development and achieved through investment in human capital. Therefore, it is apposite to say that the gap between the developed and developing economies lies in the disparity between investment in health and human capital development or the absence thereof. Against the backdrop, of developing nations investment in human capital in order to promote sustainable economic development is a sine qua non. Nigeria still pays lip service in this aspect, thus spends less than one percent of its GDP on Health Investment and less than four percent on Education (World Bank, 2018).

Though government expenditures on Human Capital appear to have increased in the recent years, there seems not to be any commensurate increase in the Human Development Index by the World Bank's Human Capital Index in 2018. As contained in the 2018 report, Nigeria's ranking reflects the position that there has been no seemingly identifiable change, thus ranking country amongst the least. This study is this underscored by the need to determine to what degree has increasing expenditure impacted change in human capital in the country.

CONCEPTUAL REVIEW

Human Capital is used to describe a factor input in the production process other than machines, tools and other immovable assets for further production. That capital cannot think, reason or talk. Human capital basically refers to the totality of the individual's populations' knowledge, skills and experience. It is an intangible asset. Human Capital includes judgment, creativity, wisdom training and abilities. This makes it highly rated among the rest of capital in the production process.

Human capital as a concept emerged in 1776 and is held to be an outcrop of the classical school of thought and eventually developed as a scientific theory (Fitzsimons, 1999). According to Schultz (1961), human capital is integral to a nation's economic growth as well as the development of modern economies.

The concept can variously be examined in the perspectives of academic fields. According to (Schultz 1961; Beach 2009), human capital is akin to property possession typical of knowledge and skills inherent in an individual. Similar to his thought, Rastogi (2002), on the other hand perceived it as knowledge, competency and attitudinal transformation inherent or domiciled in a person. This later perception contends as the knowledge and skills acquired by an individual from educational activities. In the words of Dela Fuente & Ciccone (2002) as cited in Alan et al., (2008), it transcends and spans through all the period of scholarship.

In the words of Schultz (1993), human capital emphasizes increase in skill, education, productivity and the efficiency of the workers in the work place. Higher education and training acquired of an individual relates proportionately to his level of productivity, speed and accuracy. This tendency makes it imperative to promote the human capital disposition of a people to enhance their productivity and resultantly improve the economic growth and increase the per capita income.

Economic growth is an improvement in the critical infrastructure, competitiveness, Health Education and the economic well being of a people through a targeted process. Every economic growth must bring about an elevation or increase in the per capita income of the citizenry and also improve upon their standard of living. Economic growth auspicates economic development and has a qualitative dimension. It brings about progressive changes in the lives of the citizens and prosperity to the economy of a nation.

The study of economic growth is systematically an extension of traditional economics. This part of economics focuses on aggregate output of goods and services also referred to as national Product. It looks at how people's capabilities literacy and a host of other socio-economic indicators correspond to their welfare. Economic growth when analyzed from this perspective, is a Keynesian advocacy for government intervention in public welfare and growth.

THEORETICAL REVIEW

Adam Smith's (1776), Wealth of Nations did not exclude Human capital but viewed it as an equipment for use in the manufacturing process. He saw investment in human capital as workers vocational training which relates to production. The larger context of educated workers which contributed to the eventual economic growth, he lost sight of. However, Theodor W. Schultz's work on investment in human capital gained wide acceptance in the early 1960's. His work valued labour for their physical contributions as opposed to intellectual benefits.

Arising from the above postulates, there was the acclamation that education and qualifications are substantial part of human for enhanced productivity and necessary for furthering economic growth. Popular economists like A. Smith, J.B. Say, J.S. Mill, A. Marshall, V. Thunen, W. Roscher, E. Engel etc., theorized on the importance of Human Capital to increased productivity. Classical Economists therefore, accepted that skills acquired by workers forms an integral part of capital and so are classified as human capital and possesses the characteristics of education, training, good healthcare, etc. Their qualities therefore transformed the productivity and output of every work force dexterously.

Human capital theorists opined that through education, workers cognitive skills are improved and as a corollary productivity and efficiency increases. Thus, investment in education therefore develops the cognitive capabilities and abilities of the individual's worker thereby, awakening his innate abilities through superior reasoning, thinking, attitudes and performances. The consequential differences in levels of education and skills acquired by a worker presupposes that he receive different wage (Goncalve 1999). The neo-classist having understood heterogeneity of labour agrees with this position. The compensation view of Smith on labour mobility concedes to wage differences that equalize net advantage and disadvantage of the work. It is Human Capital development that gave rise to labour mobility and creates real wage differences which bring about legal, cultural and social hierarchy (Mincer, 1994). Adam Smith's compensating principle applicable in wage differentials are necessitated by vocational education which is an up surge of human capital. Thus, argued that a person receiving education was in loss because of not working and such qualified person to be paid more wages. It is only then could he fulfill the costs of his education, obtains gains and fulfillment. This view constituted the basis of human capital synthesis or analytics.

EMPIRICAL REVIEW

In Adelakun's (2011) work on the nexus between human capital and economic growth in Nigeria, the author's study shows that there is a positive correlation between expenditure on education and health by the government and human capital. He concluded that human capital development increases economic growth in the country. In arriving at this conclusion, the author applied the OLS technique and using GDP as the proxy for economic growth. Government expenditure on health and education was operationalized using enrolment pattern in tertiary, secondary and primary schools.

Rangongo & Ngwakwe (2019), in their study on human capital investment and how this relates to economic growth in South Africa and Kenya, secondary data was analyzed. World bank panel data on economic and education indicators between 1987 and 2016 was analyzed with fixed effect panel regression using 9RETL. The authors found that there was a correlation between the variables of human capital investment and growth in these countries.

Shobande, Odeleye and Olunkwa (2014), investigated human capital investment and its effect on the economic development in Nigeria. The study spanned between 1970-2011 employed the ordinary least square (OLS), Johansen co-integration and Error Correction Mechanism (ECM). It revealed a short run negative relationship between economic development and human capital investment in Nigeria. Their finding was significant for the advancement of human capital growth. They therefore, recommended increase awareness for worker education amongst others.

Anochiwa and Maduka (2014), carried out a study on human capital, infrastructure and economic growth for the period 1970 to 2011 in Nigeria. For their analysis, the authors employed the co-integration and ECM approach, using human capital stock rate of inflation and infrastructure development. As one of their variables, domestic capital formation was used. The analysis showed a positive relationship of domestic capital formation with economic growth.

Tamura (2003) on his part adopted the ordinary least square (OLS) in his study of general equilibrium model of human capital investment and fertility in the US. The a=variable used by the author included human capital, infant mortality, country population, total fertility rates, and per capita income. The data shows that there is a negative relationship between young adult mortality, education and rate of return to school, while positive to fertility. On total fertility growth and schooling, the relationship was negative.

Onokoro & Dania (2019), studied the human capital investment and economic growth in Nigeria spanning from 1991 to 2017. They applied unit root test with the co-integrated test result indicating a long-term relationship between the two variables tested. The study further recommended investment in human capital holding that it is a key to socio-economic development.

Vinod and Kaushik (2007), focusing on OECD countries, interrogated the nexus between human capital and economic growth. Time series and panel regressions was adopted for the dataset for the period 1982-2001. They argued for expanded educational opportunities. The authors emphasized education and technology in these countries following their finding which reveals a positive correlation of the regression result.

Iyoboyi and Muftau (2014), in their assessment of human capital development in Nigeria, through the Lens of Education proxy education for human capital. The study adopted secondary sources of data and applied basic statistics analysis. It found that human capital development in Nigeria is inadequate to sustain long term stable economic growth. The study recommended with emphasis that deliberate human resources development through investment in education should be pursued vigorously.

RESEARCH METHODOLOGY

Given that Solow Growth Model is an improvement of the augmented Solow human capital growth model and by the explicit introduction of human capital, it thus become imperative to apply the later version of the model in this study. This is because human capital displayed non-homogeneity of labour in the production process. This is as a result of varying degree of education, skills and competencies. On the other hand, it is factual to believe that physical capital and that human capital depreciates at equal and constant rate. Over time, the application of Augmented Solow's human capital growth model is necessary for the study. Augmented Solow model are expressed thus:

The augmented Solow model (Mankiw, Romer, Weil 1992), is represented below:

$$Yt = AK_t^{\alpha} H_t^{\beta} \quad (1)$$

Linearizing equation (1), we have;

$$InYt = InA + \alpha InKt + \beta InHt + \mu \quad (2)$$

Where Y is real GDP,
K is physical capital and
H is human capital,
α and β are parameter coefficients and
A is efficiency parameter or constant.

Model Specification

The main objective of this study is to examine the relationship between human capital investment and economic growth in Nigeria. In so doing, the following variables were adopted as specified:

$$\text{GDPPC} = \alpha_o + \alpha_1 INLER + \alpha_2 InPEE + \alpha_3 InPEH + \alpha_4 InPSE + \alpha_5 HDI + \mu \quad (3)$$

Where;
GDPPC = GDP per capita as proxy for economic development
LER = Life Expectancy
PEE = Public expenditure on education
PEH = public expenditure on health
PSE = primary school enrolment
HDI = Human Development Index, used as proxy for Human Capital Development
μ = Error term (or stochastic term)
In: Natural logarithm
α_o = The intercept or autonomous parameter estimate
$\alpha_1 \ldots \alpha_5$ = Parameter estimate associated with economic development in Nigeria

Estimation Techniques:

Time series techniques DOLS were adopted in the study for the estimation of the variables. The stochastic properties of the variables were investigated with two traditional unit roots tests, thus, the Augmented Dickey Fuller (ADF) and Phillips – Perron (PP). This is to ascertain their consistency

RESULT PRESENTATION AND DISCUSSION OF FINDINGS

Discussion of Findings

In order to establish the possible relationship between the key variables of human capital investment and economic growth in Nigeria, we present below the results from the data analysis.

Table 1: Unit Root Test Results (Trend & Intercept)

Variables	PP	Critical values	Order of Integration	ADF	Critical values	Order of Integration
GDPPC	-4.070	-4.234*	1(1)	-5.553	-4.308*	1(1)
LER	-5.609	-4.234*	1(0)	-4.364	-4.283*	1(0)
PEE	-7.896	-4.234*	1(1)	-4.867	-4.416*	1(1)
PEH	-6.620	-4.234*	1(1)	4.150	-3.486**	1(1)
PSE	-4.327	-4.234*	1(1)	-4.417	-245*	1(1)
HDI	-6.701	-4.234*	1(1)	-6.085	-4.245*	1(1)

* Indicates Stationary at 1% level
** Stationary at 5% level
Source: Research Computation

As the above data and result shows, the unit root test indicates that all the variables tested exhibited non-stationary except life expectancy (LER) which was stationary at level 1(0). After the first difference however, they were stationary. Similarly, the Augmented Dickey Fuller (ADF) unit root exhibited all the variables non-stationary and with the exception of the LER. Our Dynamic Ordinary Least Squares regression result shows the following for the variables when regressed.

Table 2: Dynamic Ordinary Least Square Log Results

Variables	Coefficient	T-statistic
C	-42.762*	-2.384 (0.01)
Log(LER)	13.626*	4.502 (0.00)
Log(PEE)	0.075	0.226 (0.74)
Log(PEH)	0.096	0.207 (0.74)
Log(PSE)	-2.232	-1.348 (0.18)
Log(HDI)	-4.633*	4.045 (0.00)
R^2	0.96	
Adjusted R^2	0.92	
SER	0.200168	
Long run variance	0.020011	

* Indicate Significance at 1.P- values are reported in brackets.

Results as regressed portrays that coefficient of life expectancy show positively and is statistically significant, indicating that any percentage increase in the life expectancy of the individual will lead to estimated 13% increase in the economic growth. Conversely, public expenditure on education and health proved positive but paradoxically and statistical insignificant to the country's economic growth. This signifies their importance in the variables but low in impact to the economy. However, it is reasoned that huge investment in this sector will bring achieve the desired result.

Human Development Index shows negative sign and proves statistical significant which infers that a percent increase in the Human development Index will translate to about 5% in the growth decrease of economic growth which contradicts findings in the related literature of the study and the perceived or prevailing phenomena having experienced consistent low Human Development Index for some times in the country.

Primary school enrolment was negatively skewed showing in the coefficient thus statistically insignificant. However, this confirms to our finding in the reviewed literature.

Our presentation of the Error Correction Model (ECM) will indicate the long run relationship between the variables in the study. This will help us to determine the absolute positions of the variables vis-a-vis their implication for economic growth. Below are the results of the Error correction and the long run models.

Table 3a: Error Correction and Long Run Models
Dependent Variable Log(GDPPC)

Variable	Coefficient	Statistic	Prob
DLog(LER)	97.105**	2.618	0.01
DLog(PEE)	-0.233	-1.338	0.19
DLog(PEH)	0.220	1.314	0.20
DLog(PSE)	1.667	1.504	0.14
DLog(HDI)	7.013*	2.882	0.00
ECM(-1)	-0.760*	-4.156	0.00

Table 3b: Long Run Coefficients

Variable	Coefficient	Statistic	Prob
Log(LER)	9.164**	2.623	0.01
Log(PEE)	-0.319	-1.386	0.17

Log(PEH)	0.298	1.375	0.18
Log(PSE)	0.523	-0.367	0.70
Log(HDI)	-0.857	-0.780	0.43
C	-26.841	-1.585	0.10

E-views 9.5 *, X** indicates level of significance at 5 and 10 percent respectively

From our above Table 3b, it is correct to say that there exists long run relationships between the dependent and independent variables of our study. This further implies a high speed of adjustment to the equilibrium and confirms to the position expressed in Banneilee, Dolado and Mestre (1998), wherein they opined that highly significant lagg error correction terms is a proof of the presence of long run relationship among variables, except LER which was stationary at level.

It can therefore be deduced that improved health condition of a work force positively affect labour output thus encourages human capital investment.

The Human Development Index HDI shows significant and negative relationship with economic growth deviating from theoretical literatures reviewed in the study. The development appears to be a far cry from the Nigeria situation given that fore classification of the country has been that of low human development. This trend was equally observed in the result of primary school enrolment which shows a negative relationship with economic growth; however, in concert with the research findings of Jaiyebo (2015), it establishes a decreasing trend in primary school enrolment.

Summary of Findings and Conclusion

The study was to profile Human capital investment and Nigeria economic growth from 1989-2019. This study was undertaken against the background that human capital is one of the contributors to economic growth and the need to identify the extent of the impact. Five variables selected for the study showed positive correlation except Human Development Index and Primary school enrolment that were found to have negative relationship with the Nigeria economic growth. These findings of the two variables are paradoxical, even though they were negatively signed in contrast with literature observations and theoretical propositions.

Our Philip Peron and ADF unit root test show that all the variables proves non-stationary but for the LER at level.

Thus far, it is proper to conclude that life expectancy, primary school enrolment, human development index and public expenditure on education majorly determines economic growth in the long run in Nigeria. This position also agrees with our reviewed literatures. This therefore proves that human capital investment is a determinant in the economic growth of Nigeria. Arising from these findings, the study makes the following recommendations.

Recommendations

i. Priority attention should be given to education and health to assure the socio-economic wellbeing of citizens
ii. Government should continue with vigorous pursuit of Basic Education in the country as a veritable guarantee for literacy and human capital development
iii. Government at all levels of governance should increase budgetary allocation for health and provision of Basic Education. Deliberate effort should be made to sustain the policy.
iv. Aside the foregoing, there should be proper economic and social orientation of the citizenry to key into government policy on education and adequate sanitation to guarantee good health of the people.

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