

Impact of Human Capital Development on Economic Sustainability in Nigeria

Chinelo P. Ohanyere¹, Chidi L. Atueyi² and Ibekwe Angela O.³

¹Department of Business Administration, Chukwuemeka Odumegwu Ojukwu University, Igbariam, Anambra State, Nigeria | E-mail: ohanyerechinelo64@gmail.com | Phone: 08036314505

²Department of Banking and Finance, Chukwuemeka Odumegwu Ojukwu University, Igbariam, Anambra State, Nigeria | E-mail: atuleo410@gmail.com | Phone: 08036354014

³Department of Banking and Finance, Chukwuemeka Odumegwu Ojukwu University, Igbariam, Anambra State, Nigeria | E-mail: atuleo410@gmail.com | Phone: 08033879546

Abstract: *The study examined the impact of human capital development on economic sustainability between the period of 1981-2016. The study adopted multiple linear regression model to statistically establish a relationship between human capital development and economic sustainability in Nigeria. The included variables were Total productivity, Mortality Rate, Tertiary Education Enrolment Rate, Government Expenditure, Domestic Investment. The data was sourced from the Central Bank of Nigeria, 2016. Ordinary least square model was used for the analysis. The study found that tertiary enrollment rate was positive and statistically significant. Investment in education should be taken seriously by developing nations. The bedrock of sustaining economic development has universally been agreed to be education, if investment in education is given more attention, it will increase the nation productivity. It was also observed that mortality rate was negative and statistically insignificant. Increase in mortality rate will decreased total productivity, since is a number of death during a particular period of time. Amongst other the researcher recommends that Budgetary allocations should be channeled towards health delivery schemes and education promoting activities since the likelihood of elongating life expectancy is tandem with such exercises. The government should, increase budgetary allocation and stimulate more funding channels to education and health sectors of the economy.*

Key words: *Total productivity, human capital development, health, education, Tertiary Education Enrolment Rate*

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INTRODUCTION

1.1 Background of the Study

Human capital is considered as the most valuable asset and needs to be mobilized (Awopegba, 2003). Human capital as an economic term encompasses health, education and other human capacities that can raise productivity (Todaro and Smith, 2003). Human capitals are active factors of production. Human capital constitutes the most valuable resource of a country; in its

absence there will be the non performance of physical capital (tools, machinery, and equipment) which will impede economic growth.

Health and education are two closely related human (resource) capital components that work together to make the individual more productive. One component cannot be considered important than the other (Lawanson, 2009). Health connotes the ability to lead a socially and economically productive life (Anyawu et.al, 1997). A healthy populace will be highly productive and the educated have the tendency to apply a degree of sophistication in the production process. In political terms, investment in human capital prepares people for participation in the political processes, particularly as citizens in a democratic society. From the social, economic and cultural points of view, human capital investment helps to lead fuller and richer lives, less bound by tradition. It is a way to empower people; this in turn will help them contribute substantially to the growth process in the economy. In Nigeria, the process of human capital development is carried out in so many ways. The most obvious of them all is by formal education beginning with primary or first level education and then higher education; including teachers training and technical colleges, higher agricultural institution and the universities. On the other hand, it can also be carried out on the job through systematic or informal training programmes, includes the old types of apprentice organized by farms. The trainee is placed on the job and given instructions on what to do He is then made to work satisfactorily and under supervision until he is able to acquire enough skill to work under minimal supervision [Canton, 2007]. In Nigeria, investment in human capital is very crucial for the development of her economy in order to achieve the millennium development goals and objective Nigeria administrator are increasingly emphasizing that the development of Nigeria's human capital should not be left to random market forces but should be coordinated, so as to co-operate with the others factors of production.

1.2 Statement of the Problem

Several studies were carried out on human capital development thought with mix findings. Studies carried outside Nigeria such as Appleton and Teal (2007) studied the impact of human capital development in china, discovered that human capital through education and health has a positive and significant impact on the economy. Schultz (2003) studied the important of human capital development in France, his study revealed a positive significant impact on the economy. the studies in Nigeria by authors such as Adetakun (2011) studied the human capital development and economic growth in Nigeria. The research adopted ordinary least (OLS) method the variable used were on total government expenditure on education, total government expenditure on health, tertiary school enrolment, secondary school enrolment, primary school enrolment as well as gross domestic product. The analysis conforms that there was a strong positive relationship between human capital development and Nigeria economic growth. Olatunji, Odeleye & Olunkwa (2014). The study examined the impact of human capital investment on economic development of Nigeria. The finding indicated that there was a negative short run relationship between economic development and human capital investment in Nigeria. Ditimi and Nwosa (2011), it was discovered that there exist negative impact between human capital development and economic. Oluwatoyin (2015) This study looked at Human Capital Investment and Economic Growth in Nigeria. The study finds that a negative relationship exists between government expenditure on health and economic growth. it can be clearly seen that there are divergent views and findings. These can be as a result of short observation, method of analysis, model specification. We also witness the problem of geography this was as a result that most work were done outside the shore of Nigeria. Against this backdrop the study improves the previous studies on the following ground. Firstly the studied uses an updated literature on the impact of human

capital development, secondly it is carried out in Nigeria since most of them are carried outside Nigeria. Thirdly the study sought to adopt OLS to examine the effect of human capital on the economic sustainability of Nigeria.

1.3 Objectives of the Study

The main objective of this study is to investigate the impact of human capital development on the economic sustainability in Nigeria.

. The specific objectives are

- i. To evaluate the help of education on the growth of output in Nigeria
- ii. To determine the help of healthy living on the growth of output in Nigeria

1.4 Scope of the Study

The research work covers the period 1981 to 2016, This period is particularly important because to cover the various reform and regulations in human capital it also cover the period of structural adjustment program of 1986.

REVIEW OF RELATED LITERATURE

2.1 Conceptual Framework

Human capital development has been described as an end or objective 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. The active participation of people in the development process and the consequent need to establish institutions that permit and indeed encourage that participation. The concept of human capital refers to the abilities and skill of human capital of a country (Adamu, 2000). 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). Human capital formation is thus associated with investment in man and his development as a creative and productive resource (Erhuraa, 2007).

In human capital development, education and health are essential. Education is concerned with the cultivation of the whole person including intellectual, character and psychomotor development. It is the human capital of any nation, rather than its physical capital and material capital, which ultimately determines the character and pace of its economic and social development.

The term "human capital" refers to the totality of energies skills and knowledge available in a country. The Directorate of Manpower of the government of India define human capital as the Managerial, Scientific, Engineering, Technical craft and other skills which are employed (or could be employed) in creating designing and developing organization and economic institutions. Walt el al (2000) asserted that human capital consists of all employees

both workers' managers of the organization. Human capital investment, according to Udo-Aka (2007), is also an effective way to meet several challenges including employees turn over, employee's obsolescence and socio technical changes. By meeting these challenges the personnel department can help maintain an effective workforce.

2.2.1 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. Schultz, Becker and Mincer introduced the notion that people invest in education in order to increase their stock of human capabilities which can be found 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 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 consider 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 specialised knowledge increases the marginal productivity of workers in high skill or profession and positions. Moreover, the greater the provision of schooling society and consequently the greater the increase in national productive and economic growth.

2.3 Empirical Review

Early studies on the effects of human capital on growth such as Aderemi (2014) used micro-data to study the empirically relationship between human capital investment and economic development in Nigeria. The variables employed were on real gross domestic product per capital education expenditure, per capital health as well as per capital income the findings reveal that education and health are good components of human capital development in Nigeria. Imoisi (2013) used survey design to study human capital investment as an effective tool for economic development in Nigeria using Edo state higher institution as a case study. The chi-square was used to analyze the data collected from the respondents and the result revealed that investment on human capital has a significant impact on the Nigeria economy. Isola and Alani (2013) studied the human capital development and economic growth empirical evidence from Nigeria. Among their objectives was to examine the contribution of different measure of human capital development to economic growth in Nigeria. They adopted ordinary least squared (OLS) and descriptive statistics analysis. The researcher found out from their result that though little commitment had been accorded health compare to education. empirical analysis showed that both education and health components of human capital development are crucial to economic growth. Abdua (2013) used a simultaneous equation model to study the impact of human capital on economic growth in Sudan. Based on three stage least square technique the empirical result show that quality of the education has a determinant role in the economic growth. Health factor has a positive impact on economic growth as expected and total factor productivity which mainly represents the state of technology. It has adverse effect on economic growth and human capital development due to the obsolete and old fashion. Oluwatoyin (2015) This study looked at Human Capital Investment and Economic Growth in Nigeria – the Role of Education. Even though there are different perspectives to economic growth, there is a general consensus that growth will lead to a good

change manifested in increased capacity of people to have control over material assets, intellectual resources and ideology, and obtain physical necessities of life like food, clothing, shelter, employment,. This study made use of the Unit Root and Augmented Dickey Fuller (ADF) tests and found out that a positive relationship exists between government expenditure on education and economic growth while a negative relationship exists between government expenditure on health and economic growth.

RESEARCH METHODOLOGY

3.1 Research Design

The study adopted analytical and ex-post facto research designs.

3.2 Model Specification

$$TP = F(TER, MR GOVT, DI)$$

Where

TP = Total productivity proxy by

MR = Mortality Rate

TER = Tertiary Education Enrolment Rate

GOVT = Government Expenditure

DI = Domestic Investment

F =Functional Notation

Our model can be restated in an econometric form as:

$$TP - B_0 + B_1MR + B_2TER + B_3 GOVT + B_4DI + u$$

Where

B_0 = Autonomous Intercept

B_1 = Coefficient of parameter MR

B_2 = Coefficient of parameter TER

B_3 = Coefficient of parameter GVOT

B_4 = Coefficient of parameter DI

U = Stochastic error term

The model can be also restated in logarithm form as:

$$TP = Lb_0 + L_1 MR + L_2 TER + L_3 GOVT + L_4 DI + \mu$$

Where

L = logarithm

3.4 Source of Data

The study utilized the central bank of Nigeria statistical bulletin to obtain these data (secondary data) which concern the parameter under study, which covers the period of 1981-2016.

PRESENTATION AND ANALYSIS OF DATA

4.1 Testing for Unit Root

Stationary of variables means that the mean and standard deviations does not change with time. The Result obtained from the analysis is presented in the table 4.1 below.

Table 4.1 Unit Root Result

Variable	ADF	Integration	Significance
TP	-3.693673	1 (1)	1 %
MR	- 5.854093	1 (2)	1 %
TER	-8.785360	1 (1)	1 %
GOVT	- 3.811339	1 (1)	1 %
D1	-5.169236	1 (1)	1 %

Using the augmented Dickey-Fuller tests, the results as presented in Table 1 has shown that all the variables are stationary at the at first and second difference. That is, the result indicates that the variables, are integrated of order one I(1,2).Therefore, a co-integration test shall carried out to confirm and determine the existence of a long-run relationship among the variables as specified in the equation

4.2 Testing for Co-integration

The table 4.2 below gives the summary of co-integration result for the model.

Table 4.2 Co-integration Result

Unrestricted Co-integration Rank Test (TRACE)

Hypothesized	Trace	0.05	Max- Eigen	0.05
No of CE(s)	Statistic	Critical value	Statistic	Critical value
None*	157.3068	69.81889	71.08193	33.87687
At most 1	86.22482	47.85613	40.50082	27.58434
At most 2	45.72400	29.79707	27.45525	21.13162
At most 3	18.26875	15.49471	15.37557	14.26460
At most 4	2.893179	3.841466	2.893179	3.841466

From table 4.2, it is observed that both trace test statistic and the max- Eigenvalue test indicates four co-integrating equation at 5% level of significance. The Johansen co integration test reveals

that there is a long-run relationship dependent and independent variables.. The conclusion drawn from the result is that there exists a unique long-run relationship between the variables.

Table 4.3 Regression Result for the Model.

Variable	Coefficient	Std. Error	t- statistics	Prob
C	14.78089	1.253754	11.78931	0.0000
DLMR(-1)	-0.560182	0.255300	-2.194208	0.0367
DTER(-1)	0.050763	0.016327	3.109253	0.0043
DLGOVT(-1)	0.015383	0.017022	0.903687	0.3739
DLDI(-1)	0.031633	0.010894	2.903834	0.0071
ECM(-1)	-0.333362	0.193205	-1.725428	0.0955

R- Squared 0.985533
Adjusted R- squared 0.982950
F – Statistics 381.4883
Prob (F- statistics) 0.000000
Durbin- Watson stat 1.926461

Interpretation of the Result

Coefficient of determination, This is also called the goodness of fit. This explain the percentages, proportion or total amount of variations in the regreesand or dependent variables as a result of changes in the regressors or independent variables included in the model. This will portray the usefulness significance of the regression. The closer its values is ti 1 the better the fit since it is usually 0-1. From our regression result, R^2 is 0.98%. This implies that the independent variables can explain about 98% of the variable in the dependent variable, leaving the remaining 2% which would be accounted for by other variable outside the model.

The adjusted R^2 is 98% meaning that even with an adjustment in the independent variables, they can still account for about 98% of the changes in the dependent variables.

The F- statistics, this is use to test for the overall significant of the model. . From the result in table 4.3 above, our computed value of F- statistics is 381.4883, while the probability is 0.000000. Since the probability of the F- statistics in the computed output is less than the desired 0.05 level of significance, we accept and state that there is a significant relationship between the variable of the estimate and that of the dependent variable

The a’ priori criteria which is determined by the existing economic theories and indicates the signs and magnitude of the economic parameter under regression.

in table 4.3 above, we find out that mortality rate has a negative sign given its value as - 0.560182, this implies that a unit decrease in MR decreases the total productivity by 56%, this conform to our a’ priori expectation. Tertiary education enrolment has a positive sign given its value as 0.050763, this implies that a unit increase in TER increases total productivity by 5% government expenditure has a positive sign given its value as 0.015383, this implies that a unit increases in government expenditure decrease the TPP by 0.15%. Lastly, it was observe that increase in domestic investment increases the TP by 31%.

T- Statistics, this is carried out to know the significant of individual explanatory variables

in the model. That is to find out the significant influence of explanatory variables on the dependent variables at chosen level of significant. It is used to test or reject the hypotheses of the study from our regression model, it was discovered that mortality rate, tertiary enrollment rate and domestic investment are statistically significant at 5% level of significant, this implies they contributed to total productivity in Nigeria, respectively. Meanwhile, government expenditure is not statistically significant.

Test for autocorrelation, this is to test whether errors corresponding to difference observation are uncorrelated. It checks the randomness of the residuals. If the value of the durbin-watson from the regression result is close to 2 no autocorrelation in that regression result but if it deviates significantly then there is autocorrelation. The Durbin-Watson statistic (D.W) of 1.9 reveals no autocorrelation in the models. Hence, the result is good for econometric analysis.

The coefficient of the error correction term carries the correct sign and it is statistically significant at 5 per cent level with the speed of convergence to equilibrium of 33 per cent.

CONCLUSION AND RECOMMENDATIONS

Conclusion

Based on the quantities exploration of the relationship between human capital development through education and health, and the findings thereof, this study concludes that there is a clear-cut relationship between human capital development through education and health and economic growth over time in Nigeria, also education and health jointly exert positive effect on economic growth.

However, the contribution of human capital development to economic growth in Nigeria has been less than satisfactory and there is much room for improvement the education and health sector need increased government funding in order to further enhance their role in the growth process further, the government has the major responsibility of providing quality education and satisfactory health care delivery with the private sector playing a complementary role since these sectors, are non profit incentive for private individuals. Genuine action to backup, meaningful human capital development effort needs to be put in place to give effect to the importance of human capital development noted in the past and present national economic plans of the country

Recommendations

- i. Budgetary allocations should be channeled towards health delivery schemes and education promoting activities since the likelihood of elongating life expectancy is tandem with such exercises
- ii. The government should, increase budgetary allocation and stimulate more funding channels to education and health sectors of the economy.
- iii. More encouragement should be given to the private sector to increase its participation in provision of education and health services to the people of Nigeria.
- iv. Government should create friendly environment that will encourage investors through provision of loan and low interest rate .

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**APPENDIX
REGRESSION RESULT**

Dependent Variable: LTP
Method: Least Squares
Date: 08/20/18 Time: 08:30
Sample (adjusted): 1982 2016
Included observations: 35 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	14.78089	1.253754	11.78931	0.0000

DLMR(-1)	-0.560182	0.255300	-2.194208	0.0367
DTER(-1)	0.050763	0.016327	3.109253	0.0043
DLGOVT(-1)	0.015383	0.017022	0.903687	0.3739
DLDI(-1)	0.031633	0.010894	2.903834	0.0071
ECM(-1)	-0.333362	0.193205	-1.725428	0.0955
<hr/>				
R-squared	0.985533	Mean dependent var	12.94510	
Adjusted R-squared	0.982950	S.D. dependent var	0.432440	
S.E. of regression	0.056467	Akaike info criterion	-2.751542	
Sum squared resid	0.089278	Schwarz criterion	-2.482184	
Log likelihood	52.77622	Hannan-Quinn criter.	-2.659683	
F-statistic	381.4883	Durbin-Watson stat	1.926461	
Prob(F-statistic)	0.000000			

DATA FOR THE MODEL

	LTP	LMR	TER	LGOVT	LDI	ECM
1981	12.43763	4.852030	0.740000	8.436200	6.066572	0.014978
1982	12.43342	4.836282	0.810000	8.462505	4.999911	0.036322
1983	12.41604	4.828314	1.030000	8.568285	4.310799	0.026132
1984	12.34749	4.820282	1.160000	8.431766	3.693867	-0.030811
1985	12.33383	4.820282	1.600000	8.481172	4.283587	-0.089824
1986	12.44120	4.828314	1.830000	8.434029	4.592085	-0.001657
1987	12.45988	4.828314	2.310000	8.651934	5.215479	-0.033102
1988	12.45292	4.836282	2.660000	8.880919	5.230039	-0.057921
1989	12.52601	4.836282	2.350000	9.004619	7.021263	-0.031355
1990	12.59504	4.836282	2.990000	9.502077	7.437324	-0.016352
1991	12.70261	4.836282	3.390000	9.672331	7.644536	0.060467
1992	12.70273	4.836282	3.550000	9.941761	7.910114	0.040235
1993	12.72869	4.836282	3.480000	10.30223	7.132737	0.094287
1994	12.74415	4.828314	3.850000	10.53933	9.275004	0.008534
1995	12.75196	4.828314	4.120000	10.88091	8.866271	0.012910
1996	12.77322	4.820282	4.350000	10.91190	8.990342	0.012952
1997	12.81371	4.812184	4.410000	10.98455	9.827702	0.016302
1998	12.84220	4.795791	5.130000	11.22690	6.974292	0.094813
1999	12.86997	4.744932	5.300000	11.53947	10.14916	-0.025184
2000	12.88184	4.718499	5.390000	12.18986	10.00487	-0.031462
2001	12.92958	4.691348	6.090000	12.59375	10.53298	-0.057417
2002	12.97568	4.663439	6.210000	12.95795	10.60315	-0.036993
2003	13.02096	4.634729	7.020000	13.20911	9.900598	-0.027952
2004	13.11233	4.605170	6.080000	13.22998	9.260368	0.123199
2005	13.17605	4.574711	9.640000	13.57868	9.944874	-0.051489
2006	13.23914	4.543295	9.850000	13.70382	11.47871	-0.069975
2007	13.29770	4.510860	10.40000	14.01226	12.28553	-0.088359
2008	13.36020	4.477337	10.53000	14.22472	12.59531	-0.061942
2009	13.41831	4.442651	11.12000	14.17042	11.68435	-0.021017
2010	13.48559	4.418841	11.36000	14.31532	11.73546	0.018417
2011	13.56234	4.382027	12.22000	14.53615	13.91383	-0.048290
2012	13.63399	4.356709	12.25000	14.32490	11.71363	0.088068
2013	13.69773	4.356709	12.50000	14.33039	14.28624	0.047975
2014	13.70293	4.382027	12.94000	14.32490	14.29322	0.040977
2015	13.70410	4.406719	13.11000	14.33039	14.29870	0.044531
2016	13.70580	4.073719	13.12000	14.35059	14.34270	0.045571

Souces: CBN BULLETIN 2016