Econometrics Analysis of the Effect of Human Capital Development on Economic Growth in Nigeria

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ABSTRACT: Despite arrays of empirical literatures on the impact human capital development has on the economic growth the debates is inconclusive with mixed outcome. Thus, the main objective of this study is to empirically examine the impact of human capital development on economic growth in Nigeria between the periods of 1999 and 2022. To achieve this said objective; time series secondary data was sourced from Central Bank of Nigeria Statistical Bulletin, 2022. Thereafter, Autoregressive Distributed Lag Regression Estimate (ARDL) analysis was conducted with the aid of E-view 10. Findings of this study reveals as follows; that government expenditure on education have positive and statistically significant impact on RGDP. Equally, government expenditure on health have statistically significant impact on RGDP. More so, life span have positive and statistically insignificant impact on RGDP. Again, total school enrollments (SER) have positive and statistically insignificant impact on RGDP. Lastly, this study find out that human capital development has statistically significant short run and long run relationship with economic growth in Nigeria between 1999 and 2022. Therefore, the following recommendations are suggested: first, that Nigeria government at all levels should ensure that priority should be placed on all the components or indicators of human capital development of the Nigerian citizens. Second, government effort toward increase government expenditure on education should be sustaining. Third, governments at all levels should increase the funding for health sector in order to ensure the citizens live healthy so as to be able to increase their productivity and afterward, contributes to economic growth. Fourth, governments' efforts should be directed to wellbeing of her citizen in order to pro-long the life span Five, governments at all levels should formulate appropriate policy that will ensure that school enrollments should be at upward trend.

KEYWORDS: Human Capital Development, Economic Growth, Government Expenditure on Education, Government Expenditure on Health, Life Span and Total School Enrollments

1. INTRODUCTION

The development of human capital has been recognized by economists to be a key prerequisite for a country's socio-economic and political transformation. The process of growth, development and industrialization in no doubt has a linked with human capital development. Thus, the country's human resource development needs to be strengthened and stabilized in order to accelerate economic activities and trigger off higher productivity, income and economic growth and development. According to Eigbiremolen and Anaduaka (2014); Lubna, Awan, and Tayyab (2018) human capital engenders productivity aided healthy conditions, knowledge, skills, work experience and motivation.

Economists often use the term human capital for education, health and other human capabilities that can enhance productivity (Anyanwu, Adam, Ben & Yelwa, 2015). Thus, quality of human resources connotes the state of education, health and other human capabilities that can raise productivity when increased and subsequently economic growth. However, empirical findings of some scholars revealed that from all indication it can be seen that level of human capital development in Nigeria is still very low compared to other countries in emerging economies and, this is worrisome and poses a threat to economic growth (Keji 2021; Akaakohol & Ijirshar, 2018; Anyanwu, Adam, Ben & Yelwa, 2015). This is evidence in the rate of unskilled labor resulting to the high rate of unemployment, low technical-no-how responsible for low productivity as well as poor standard of living, short human life span due to poor health status of workforce among other symptoms of low human capital development.

The level of education and health of the citizens are measures for quantity, availability and human resource quality that can be used to analyze the impact of human capital development on economic growth. This is so, because it is believe that an educated

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person is an informed person and not likely to be ignorance of exploring the opportunity in its environment. Thereby, taken an advantage of any resourceful opportunity to contribute to the productivity of is environ.

Furthermore, the citizen health status determines its productivity. It is believed that a healthy person is the only person that can contribute effective and efficiently to workforce thereby contributes to productivity of an economy and subsequently boost economic growth. However, with poor quality of education and decay infrastructure in Nigeria health system, it is pertinent to what impact human capital development has on economic growth in Nigeria. It is against this backdrop that this study examines the effect of human capital development on economic growth in Nigeria between the periods spanning from 1999 to 2022. In particular, to determine the effect of government expenditure on education, government expenditure on health, human life span and total school enrollment have on the economic growth in Nigeria between 1999 and 2022?

Statement of the Research Problem

In spite, of the importance of human capital development in sustaining and enhancing economic growth globally yet, Nigeria is still characterized by under-investment in human capital development via the two major tracks that can be used to measures human capital development; that is education and health. The Nigeria government yet to comply with the 26% bench mark of UNESCO (2011) recommendation on education and proposal by World Health Organization of 5% national income allocation to health. However, according to World Bank (2022) Nigeria recorded 0.36 points in the World Bank Group's 2020. The World Bank new report released that 80 percent of the world's extreme poor reside in countries with human capital index under 0.5. The World Bank Group posited that Nigeria's human capital development ranks among the worst globally where it noted that Nigeria's ambitious poverty-reduction targets hinge on developing human capital development.

Form the forgoing it is obvious that human capital development in Nigeria is a serious issues that is confronting Nigeria as a nation. This suggests that for Nigeria to grow her economy government effort in looking critically on government expenditure on education and health is inevitable in order to curb the menaces in education and health sector. More so, the issues of underfunding in both education and health sector has been seen as challenges that limits the human capital development and, in turns hampering rapid productivity and economic growth this cannot be ignored. In the same vein, how total school enrollment translates to economic growth in Nigeria is debatable this is because issue bothered on school dropout at every levels is alarming as a result of so many economic, political and social factors. Again, the quality of education in Nigeria is another issue of public concern; where school curriculum and calendar is always truncated by pro-long strike and other unforeseen situation like pandemic and natural occurrence like flood.

Furthermore, one of the indicators of human capital development is the improvement in health status of the citizen. This can be measure through life span of the citizen. It is expected that a countries with improvement in health sector is likely to improve the life span of her citizens. It is not gain saying that the nations with good health system will contributes to life span of their citizen. Nevertheless, the experiences in Nigeria has showed that life span of Nigeria citizen on average of 45 to 50 years is shorter than expected. This can be attributed to the level of infrastructural health decay in Nigeria which is alarming in such that individual elite now seek for medical trip abroad to their health solution.

However the extent to which government expenditure on education, health, school enrollment and citizen life span impact on the economic growth in Nigeria is still a controversial issue this is because there are divergent outcome of scholars in empirical literature on the impact human capital development in relation to government expenditure on education, health, school enrollment and citizen life span has on the economic growth. For instance study like Madugba, Oparah and Onuoha (2022) revealed that only capital expenditure on education has a positive and significant association with RGDP. Capital expenditure on health and universal education has a positive but insignificant association with RGDP, recurrent expenditure on education and health has a negative and insignificant association with RGDP. Euphemia, (2022) found that total government expenditure on education and health have positive and insignificant long-run relationship with GDP. In likewise manner, studied of Bachama, Hassan and Ibrahim (2021) reveal that expenditure on health and education are found to be positively and significantly related with economic growth both in the short-run and long-run. Keji (2021) human capital has long-run significant impact on economic growth in Nigeria. Attahir, Ahmad and Abdullahi (2020) posited that human capital development produce a positive effect on economic growth quality of health care and education with a view to stimulating the economic growth of Nigeria. Akaakohol and Ijirshar, (2018) found that there is long-run positive relationship between human capital development and economic growth in Nigeria. Furthermore, the finding of Ogunniyi (2018) concluded that there is a long run dynamic relationship between human capital formation and economic growth in Nigeria. Fajebe, Adeyoriju and Ikumawoyi (2019) economic growth and secondary school enrolment are statistically significant in the short run. Their finding also, revealed that secondary school enrolment and life expectancy are factors that influences on economic growth. This controversy suggested inconclusiveness in the contextual literature. However, for these studies outliers, measurement errors, and incorrect specifications may have affected early

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macroeconomic studies that found a weak relationship between growth and human capital accumulation. While recent studies addressing these problems are beginning to show larger positive effects, the potential endogeneity of human capital accumulation has received relatively little attention. Thus, there is need to find out the extent impact of human capital development on economic growth in Nigeria between the period of 1999-2022 with particular references to the impact of government expenditure on education, health, school enrollment and citizen human life span on economic growth. The aim and broad objective of this study is to examine the impact human capital development has on the economic growth in Nigeria between 1999 and 2022. The rest section of this paper is organized as follows; section deal with literature review, section three deal with methodology, while section four deals with results and discussion and section five deals with conclusion and recommendation.

2. LITERATURE REVIEW

Conceptual Review

The concept of human capital is investing in people's education for sets of skill or knowledge needed for a given task (Nickolas, 2021). Furthermore, the abilities and skills of human resources of a country is could be refers to human capital, in the same vein, the process of acquiring and increasing the number of persons who have the skills, education and experience that are critical for economic growth and development of a country is human capital formation (Akaakohol & Ijirshar, 2018). According to World Bank, (2022) the Human Capital Index calculates the contributions of health and education to worker productivity. The final index score ranges from zero to one and measures the productivity as a future worker of child born today relative to the benchmark of full health and complete education. Human capital refers to the stock of competencies, skills, knowledge and personalities attribute embodied in individuals which facilitate their ability for the creation of personal, economic and social value (OECD, 2021). United Nations Development Programme (2022) posted that human development index (HDI) is a summary measure of average achievement of key dimensions of human development which includes a long and healthy life, being knowledgeable and have a decent standard of living. Notably, the three basic dimensions of human development; are long and healthy life, knowledge and a decent standard of living. (Maryville University, 2022).

According to Nickolas, (2021) economic growth is an increase in an economy's ability, compared to past periods, to produce goods and services. Furthermore, economic growth is measured by the change in the gross domestic product (GDP) of a country. GDP is a representation of the total output of goods and services for an economy (Nickolas, 2021). Uwakaeme (2015) described economic growth as the positive and sustained increase in total goods and services produced in an economy in a given period usually in one year period. Economic growth represents the expansion of a country gross domestic product (GDP) or outputs which means increases in economic activities (Cornelius, Nkamare & Ogar, 2016). Economic growth is measured by the increase in the amount of goods and services produced in a country at a particular period of time (Donatus & Mordecai, 2016). Is the process whereby the real per capita income of a country increases over a long period of time.

Government expenditure on education is the total expenditure budgeted for education sector total. Aggregate data are based on World Bank estimate (World Bank Group, 2023). Its calculated by dividing total government expenditure for all levels of education by the GDP, and multiplying by 100. According to Organization for Economic Co-operation and development (2022) define public spending on education to includes direct expenditure on educational institutions as well as educational-related public subsidies given to households and administered by educational institutions. According to De Guzman (2020) on public expenditure on education defines government expenditure on education as the component of education expenditure that comes from national regional and local government units to finance or produce educational service.

According to World Health Organization (2022) health expenditure includes all expenditures for the provision of health services, family planning activities, nutrition activities and emergency aid designated for health, but it excludes the provision of drinking water and sanitation. World Bank Group (2023) estimates of current health expenditures include healthcare goods and services consumed during each year. This indicator does not include capital health expenditures such as buildings, machinery, IT and stocks of vaccines for emergency or outbreaks. Life span is the period of time between the birth and death of an organism (Frank & Kaplan, 2022). Concisely, life expectancy is the overall average of time one is expected to live, depending on the year of its birth, current age, and other demographic factors like sex.

Theoretical Review

Human capital was a term developed in the 1950s and 1960s by two economists, Jacob Mincer and Gary Becker, who are members of a "Chicago School" of economics. They theorized that human capital is the human abilities and education acquired. Its a stock of accumulated knowledge over time acquire by individual in a society for the purpose of reinvestment. It's a store of capital which can be invested to produce a value. This theory argued that capital does not consist of only machines and real estate but human abilities. The theory was initially applied to analysis of nations as a whole but progressively became an important part of

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the considerate of how businesses succeed in phases where innovation and intellectual property are as imperative as factories and land for creating value in business.

Empirical Literatures

So many empirical studied on the impact of human capital development on economic growth in Nigeria without conclusive and unanimous outcomes; for instances; Madugba, Oparah and Onuoha (2022) ascertain the significant effect of human capital investment on economic growth in Nigeria. The study employed Ordinary Least Square (OLS) as well as cointegration regression analysis. The result revealed that only capital expenditure on education has a positive and significant association with economic growth. Capital expenditure on health and universal education has a positive but insignificant association with economic growth, recurrent expenditure on education and health has a negative and insignificant association with economic growth. Euphemia, (2022) employed Autoregressive Distributed Lag (ARDL) examines human capital development and economic growth in Nigeria between the periods of 1981 and 2020. Finding of the studied revealed the existence of co-integration between economic growth and human capital development indicators. Moreover, the studied also found that total government expenditure on education have positive and insignificant long-run relationship with GDP. Also, the studied found that total government expenditure on health have positive insignificant long-run relationship with GDP. Equally, gross capital formation has positive insignificant relationship with GDP at the long-run. However, life expectancy have a negative and insignificant long-run relation with the GDP. Bachama, Hassan and Ibrahim (2021) examine the role of human capital on economic growth in Nigeria using time series data covering the period from 1970 to 2019. The data are analyzed using Autoregressive Distributed Lag model (ARDL). The study reveals that expenditure on health and education are found to be positively and significantly related with economic growth both in the short-run and long-run. Keji (2021) studied employed vector autoregressive and Johansen techniques to examines the relationship between human capital and economic growth in Nigeria between 1981 and 2017. Finding of the study indicates that in the long-run human capital have significant impacts on economic growth in Nigeria. Attahir, Ahmad and Abdullahi (2020) examine the effect of human capital development on the economic growth of Nigeria covered the period 1983 to 2018. The study employed the Autoregressive and Distributive Lag (ARDL) model for the data analysis. The results showed that there exists long-run relationship among the variables understudy. Furthermore, the study result showed that human capital development components understudy have a positive effect on economic growth. Thus, following the divergent outcomes this study make an attempts to fill this gap be empirically ascertain the significant impact of human capital development on economic growth in Nigeria between the periods of 1999 and 2022.

3. METHODOLOGY

This study is an ex-facto research design. This study examined how human capital development impact on economic growth in Nigeria between the period of 1999 and 2022. This study sourced secondary time series data on government expenditure on education and health from Central Bank of Nigeria Statistical Bulletin (2022) and school enrollments and life span on World Bank/World Development Indicator, (2021). The quantitative data were analyzed with econometric technique approach of autoregressive distributed lag (ARDL) with the aid of Eview version 10 Software.

Model Specification

This study model specification is based on Autoregressive distributed lag (ARDL) model, also known as bounds testing approach to co-integration, was originally developed by Pesaran and Pesaran (1997) and expanded by Pesaran, Shinb and Smith (2001). In ARDL models both the dependent and independent variables are related not only at present values but across historical (lagged) values as well thus, refers to as linear time series. In particular, if y_t is the dependent variable in this case economic growth is which is proxy by gross domestic product (GDP) and $x_1,\ldots,x_k$ are k explanatory variables in this context human capital development via government expenditure on education (GEE), government expenditure on health (GEH), life span status (LFS) and school enrollments (SER) a general ARDL(p,q1,...,qk) model is given by:

$$RGDP_t = \beta_0 + \sum_{i=1}^{p} \beta_1 \Delta GEE_{t-i} + \sum_{i=1}^{p} \beta_2 \Delta GEH_{t-1} + \sum_{i=1}^{p} \beta^3 \Delta LFS_{t-i} + \sum_{i=1}^{p} \beta^4 \Delta SER_{t-i}$$

$$\delta_1 gee + \delta_2 geh + \delta_3 lfs + \delta_4 ser + \mu_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1)$$

Where Δ is a difference operator, t is time, β_0 is an intercept term, $\beta_1, \beta_2, \beta_3$ and β_4 and δ_1 to δ_4 are the coefficients of their respective variables and ps are the lag lengths. Other variables are as defined earlier. In order to examine the existence of long-

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run relationship the study test is based on Wald test (F-statistics), for the joint significance of the coefficients of the lagged levels of the variables, i.e. Ho: $\delta 1 = \delta 2 = \delta 3 = \delta 4 = 0$ and H1: $\delta 1 \neq \delta 2 \neq \delta 3 \neq \delta 4 \neq$

Once cointegration is established, the conditional ARDL long-run model can be estimated as:

$$RGDP_t = \beta_0 + \sum_{i=1}^{p} \beta_1 \Delta GEE_{t-i} + \sum_{i=1}^{p} \beta_2 \Delta GEH_{t-1} + \sum_{i=1}^{p} \beta^3 \Delta LFS_{t-i} + \sum_{i=1}^{p} \beta^4 \Delta SER_{t-i} + \mu_t \ldots\ldots\ldots\ldots (2)$$

In the next step, we obtain the short-run dynamic parameters by estimating an error correction model associated with the long-run estimates. This is specified as follows:

$$RGDP_t = \beta_0 + \sum_{i=1}^{p} \beta_1 \Delta GEE_{t-i} + \sum_{i=1}^{p} \beta_2 \Delta GEH_{t-1} + \sum_{i=1}^{p} \beta^3 \Delta LFS_{t-i} + \sum_{i=1}^{p} \beta^4 \Delta SER_{t-i} + ecm_{t-1} + \mu_t \ldots\ldots (3)$$

ecm stand for the error correction captured in equation (3) and ϑ represents the speed of adjustment to eqilibrum. ϑ is the speed of adjustment parameter and ECM is the residuals that are obtained from the estimated co-integration model of equation. Econometric technique of Autoregressive Distributed Lag Model (ARDL) was used in analysis of secondary data sourced using Eview 10 to generate and analyzes descriptive as well as inferential statistics for the study.

4. DATA ANALYSIS AND DISCUSSION OF RESULTS
Table 1. Descriptive Statistics

	RGDP	GEE	GEH	LFS	SER
Mean	54091.99	2.63E+09	2951177.	51.06035	47.13761
Median	58180.35	3.10E+09	3348404.	51.34600	47.43354
Maximum	72094.09	4.49E+09	5053609.	55.01800	53.40907
Minimum	25430.42	5.38E+08	249064.0	46.26700	43.25185
Std. Dev.	16383.64	1.23E+09	1508309.	2.974564	2.400959
Skewness	-0.402348	-0.480404	-0.941212	-0.202066	0.384579
Kurtosis	1.659025	1.939419	2.578516	1.665189	3.274471
Jarque-Bera	2.343842	1.962651	3.566119	1.864001	0.639150
Probability	0.309771	0.374814	0.168123	0.393765	0.726458
Sum	1244116.	6.05E+10	67877063	1174.388	1084.165
Sum Sq. Dev.	5.91E+09	3.32E+19	5.00E+13	194.6566	126.8213
Observations	23	23	23	23	23

Source: Researcher Computation using Eview 10

From table 1, the study observation is 22. The skewness which measures the degree of asymmetric of the series shows that the entire variables namely; real gross domestic product (RGDP), government expenditure on education (GEE), government expenditure on health (GEH), life span status (LFS) in the model exception of school enrollments (SER), have negative sign that is long-left tail, while school enrollments (SER) has positive sign that is long-right tail. The entire series are normal skewness and platykurtosis, because the values are below Kurtosis of 3. However, kurtosis that is greater than 3 is refers to leptokurtic. In this case the distribution is peaked (leptokurtic) relative to the normal. The kurtosis that is less than 3 is called platykurtic that is, the distribution is flat relative to the normal. More so, the difference between the skewness and kurtosis of the series with those from the normal distribution is measured by Jarqe-Bera test statistic. The results show that all the variables understudy were all significant with the probability that a Jarque-Bera statistic exceeds (in absolute value of 5% that is, 0.05) the observed value under the null hypothesis - a small probability value. Thus, null hypothesis of no normal distribution rejected. Therefore, all the entire variables exhibited normal distribution.

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Table 2. Series of Augmented Dickey-Fuller Test (ADF) Output Results

Coefficients	Critical Values at 5%	ADF Values	Probability	Comments
D(RGDP)	-3.004861	-2.248883	0.1961	I(I)
D(GEE)	-3.004861	-3.492537	0.0182	I(0)
D(GEH)	-3.029970	-4.743648	0.0015	I(0)
D(LFS)	-3.012363	-0.552764	0.8614	I(I)
D(SER)	-3.029970	-3.337453	0.0274	I(0)

Source: Researchers Computation Using (Eviews 10.0 Output)

The results in table 2 the series of unit root tests of (ADF) show that not all the variables are stationary of order I(0) in first differencing, RGDP and life span status (LFS) are non-stationary at first differences while, government expenditure on education (GEE), government expenditure on health (GEH), and total school enrollments are stationary. Therefore, the mixed stationary tests met the criteria for the conduct autoregressive distributed lag cointegration test in order to examine the existence of long-run relationship among the variables understudy within the sampled period spanning between the periods of 1999 to 2022.

Table 3. *Autoregressive Distributed Lag Estimate.*

Dependent Variable: RGDP

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
RGDP(-1)	0.539022	0.182904	2.947020	0.0163
GEE	1.89E-06	5.73E-07	3.300130	0.0092
GEE(-1)	-6.82E-08	7.83E-07	-0.087051	0.9325
GEE(-2)	1.63E-06	6.15E-07	2.653242	0.0263
GEH	-0.000461	0.000146	-3.168294	0.0114
GEH(-1)	0.000428	0.000136	3.146933	0.0118
GEH(-2)	-0.000238	0.000128	-1.864827	0.0951
LFS	944.6502	801.6828	1.178334	0.2689
SER	11.54218	99.27859	0.116261	0.9100
SER(-1)	114.3818	118.8570	0.962348	0.3610
SER(-2)	-344.4520	98.06888	-3.512347	0.0066
C	-19559.70	37011.81	-0.528472	0.6100

R-squared	0.999218	Mean dependent var		56750.00
Adjusted R-squared	0.998262	S.D. dependent var		14487.90
S.E. of regression	603.9689	Akaike info criterion		15.94048
Sum squared resid	3283005.	Schwarz criterion		16.53735
Log likelihood	-155.3751	Hannan-Quinn criter.		16.07002
F-statistic	1045.393	Durbin-Watson stat		2.610246
Prob(F-statistic)	0.000000			

Source: Researcher Computation using Eview 10

The ARDL regression estimation table 3, result shows that automatic selection (using the Akaike Information Criterion) was used with a maximum of 2 lags of both the dependent variable and the regressor. Out of the 162 models evaluated, the procedure has selected an ARDL (1, 2, 2, 0, 2) including observation 21 after adjustment. However, the coefficient of real gross domestic product RGDP(-1) at period of lag 1 is 0.539022 and statistically significant with the probability value of about 0.02 which is less than 0.05 level of significance. This implies that holding other independent variables constant, a one percent increase in real gross domestic product at period of lagged 1 translate to approximately 54 percent increase in its present value.

More so, the coefficients of the government expenditure on education (GEE) at current level, period of lag 1 GEE(-1) and period of lag 2 GEE(-2) are 0.00000189, -0.0000000682 and 0.00000163 with probability values of 0.00, 0.93 and 0.03 respectively. The result shows that government expenditure on education at current level, and period of lag 2 have positive sign and statistically

significant impact on RGDP, given the sign and probability values which are less than 0.05 level of significance while, at period of lag 1 it has negative and statistically insignificant impact given the negative sign and probability value which is greater than 0.05 level of significance. This result further suggests that one percent increase in government expenditure on education at current level, and period of lag 2 effects about 0.000189 and 0.000163 percent increase in RGDP respectively. On the contrary, one percent decline in GEE result to -0.00000682 increases in RGDP. The policy implication of this result suggests that though government expenditure on education has positive and negative impact on RGDP at different periods, but its percentage contribution to RGDP is very low.

Furthermore, the coefficients of the government expenditure on health (GEH) at current level, period of lag 1 GEH(-1) and period of lag 2 GEH(-2) are -0.000461, 0.000428 and -0.000238 with probability values of 0.01, 0.01 and 0.09 respectively. The result shows that government expenditure on health at current level, and period of lag 2 have negative sign while, at period of lag 1 is positively assign. However, both at current level, and period of lag 1, government expenditure on health have statistically significant impact on RGDP, given the probability values which are less than 0.05 level of significance while, at period of lag 2 it has statistically insignificant impact on RGDP given the probability value which is greater than 0.05 level of significance. This result further suggests that one percent decline in government expenditure on health at current level, and period of lag 2 causes approximately -0.0461 and -0.0238 percent increase in RGDP respectively. However, one percent increase in government expenditure on health at period of lag 1, results to 0.0428 percent increase in RGDP. The policy implication of this result suggests that government expenditure on health has positive and negative impact on RGDP at different periods. More importantly, its percentage contribution to RGDP is very low

Additionally, the coefficient of the life span status (LFS) at current level period is 944.6502 with probability value of 0.268. Given the sign and probability value which is greater than 0.05 significance level, this result indicate that life span have positive and statistically insignificant impact on RGDP.

In addition, the coefficients of the school enrollments (SER) at current level, period of lag 1 SER (-1) and period of lag 2 SER (-2) are 11.54218, 114.3818 and -344.4520 with probability values of 0.91, 0.36 and 0.00 respectively. The result shows that SER at current level, and period of lag 1 have positive sign and statistically insignificant impact on RGDP, given the sign and probability values which are greater than 0.05 level of significance while, at period of lag 2 it has negative and statistically significant impact given the negative sign and probability value which is less than 0.05 level of significance. This result further suggests that one percent increase in SER in at current level, and period of lag 1 lead to approximately, 12 and 114 percent increase in RGDP respectively. On the contrary, one percent decline in SER result to -344 increases in RGDP. The policy implication of this result suggests that though school enrollments has positive and negative impact on RGDP at different periods, but its percentage contribution to RGDP is very high. The Coefficient of fixed variable, is -19559.70 is insignificant with probability value of 0.61 which is, greater than 0.05 level of significance i.e, at 5%. This implies that increase in economic growth can be explained by any other factors not stated in the model.

Table 4. *F-Bounds Test*

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Significance	I(0)	I(1)
			Asymptotic: n=1000	
F-statistic	31.94977	10%	2.2	3.09
K	4	5%	2.56	3.49
		2.5%	2.88	3.87
		1%	3.29	4.37

Source: Researcher Computation usingEview10

The result in table 4 F-bound test of null hypothesis of no cointegration regression estimation was conducted to confirm the no long-run cointegration status. The null hypothesis of no cointegration is rejected because calculated F-statistics of 31.94 exceeds the lower and upper critical values of 2.56 and 3.49 respectively at 5% significant level. Therefore, it can be concluded that there is cointegration thus the long run relationship estimate is justified.

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Table 6. ARDL Error Correction Regression

Case 2: Restricted Constant and No Trend				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(GEE)	1.89E-06	3.81E-07	4.957288	0.0008
D(GEE(-1))	-1.63E-06	3.86E-07	-4.231339	0.0022
D(GEH)	-0.000461	8.29E-05	-5.564250	0.0003
D(GEH(-1))	0.000238	6.86E-05	3.470775	0.0070
D(SER)	11.54218	52.85635	0.218369	0.8320
D(SER(-1))	344.4520	67.27433	5.120110	0.0006
CointEq(-1)*	-0.460978	0.026695	-17.26841	0.0000
R-squared	0.939898	Mean dependent var		2114.799
Adjusted R-squared	0.914140	S.D. dependent var		1652.628
S.E. of regression	484.2524	Akaike info criterion		15.46429
Sum squared resid	3283005.	Schwarz criterion		15.81247
Log likelihood	-155.3751	Hannan-Quinn criter.		15.53985
Durbin-Watson stat	2.610246			

* p-value incompatible with t-Bounds distribution.
Source: Researcher Computation using Eview10

Table 6 present, ARDL ECM regression estimation, in this context the estimated parameters were subjected to test based on economic theory so as to ascertain whether they agree with expected sign. In other words, the model sought to relate the changes in economic growth (GDP) in Nigeria to its explanatory variables which include government expenditure on education, government expenditure on education (GEE), government expenditure on health (GEH), Nigerian and school enrollments (SER) to ascertain the conformation with 'a priori' expectation underlying each variable. This, results shows that the entire explanatory variables exceptions of understudy at first differences both at level periods and period of lag 1 are all statistically significant. The CointEq(-1) which measures the speed of adjustment towards long-run equilibrium is negative stands at -0.460978 and statistically significant at 5% level. This implies that the rate at which changes in economic growth (GDP) at time t, adjusts to the single long-run co-integrating relationship is different from zero. In other words, the equation of economic growth (GDP) at time t, contains information about the long run relationship, the reason why co-integrating equation enter the model automatically. The coefficient of the ECM revealed that the speed with which changes in economic growth (GDP) at time t, adjusts respond to regressors is about -46% in the short-run.

Furthermore, the R-Square often refers as the coefficient of determination also known as a measures of the goodness-of-fit, is 0.939898, approximately 94%. That is 94% of the changes in economic growth (GDP) is explained by the changes in the independent variables and the remaining 6% is explained by error term specified in the study model. Adjusted R-squared, value is the same as R-Square that is 0.914140 about 91% variation in the dependent variable is explained by only those independent variables that, in reality, affect the dependent variable. More so, Durbin-Watson statistic (DW) is 2.6 approximately 2 shows there is strong negative serial autocorrelation..

Test of Hypotheses

The test of hypotheses in this study is based on the levels equation and error correction mechanism outcome as presented in table 3 and 6. The decision criteria to reject or accept the earlier stated hypotheses is based on the p-value and coefficient sign, where p-value is less than 0.05 level of significance null hypothesis will be rejected otherwise, where p-value is greater than 0.05 level of significance the alternative hypothesis is accepted.

For null hypothesis one (HO$_1$): which stated that government expenditure on education has no significant impact on the economic growth in Nigeria between 1999 and 2022. The p-value of government expenditure on education (GEE) has shown in table 4 both at current level and at period of lag 2 are 0.00 and 0.02 respectively less than 0.05 levels of significance. Therefore, this study reject the null hypothesis one stated above and concludes that government expenditure on education have positive and statistically significant impact on the economic growth in Nigeria between 1999 and 2022.

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For null hypothesis two (H0$_2$): which stated that government expenditure on health has on significant effect on the economic growth in Nigeria between 1999 and 2022, The p-value of government expenditure on health (GEH) has shown in table 4 both at current level and at period of lag 1 are 0.01 and 0.01 respectively, less than 0.05 levels of significance. Therefore, this study reject the null hypothesis two stated above and concludes that government expenditure on health have both positive and negative statistically significant impact on the economic growth in Nigeria between 1999 and 2022. For null hypothesis three (H0$_3$): which stated that human life span does not have any impact on the economic growth in Nigeria between 1999 and 2022. The p-value of human life span at current level is 0.268 greater than 0.05 levels of significance. Therefore, this study failed to reject the null hypothesis three stated above and concludes that human life span have positive and statistically insignificant impact on the economic growth in Nigeria between 1999 and 2022. For null hypothesis four (H0$_4$): which stated that total school enrollment has no effect on the economic growth in Nigeria between 1999 and 2022. The p-values of total school enrollment at current level, and period of lag 1 are 0.9100 and 0.3610 respectively, greater than 0.05 levels of significance while at period of lag 2 the p-value is 0.0066 less than 0.05 levels of significance. Therefore, this study failed to reject the null hypothesis four stated above and concludes that total school enrollment have positive statistically insignificant impact on the economic growth in Nigeria between 1999 and 2022 at current level, and period of lag 1 while at period of lag 2 total school enrollment have negative statistically significant impact on the economic growth. For null hypothesis five (H0$_5$): which stated that human capital development does not have short run and long run relationship with economic growth in Nigeria between 1999 and 2022. The p-value of cointegration equation (-1) is 0.00 less than 0.05 significance levels. Therefore, this study reject the null hypothesis five stated above and concludes that human capital development has statistically significant short run and long run relationship with economic growth in Nigeria between 1999 and 2022.

5. CONCLUSION AND RECOMMENDATIONS

The main objective of this study is to examine the impact human capital development has on the economic growth in Nigeria. This study employed Autoregressive Distributed Lag (ARDL) to analyzed the time series data sourced between 1999 and 2022. The analysis and findings of this study lead to the following conclusions; that government expenditure on education have positive and significant impact on economic growth in Nigeria. That government expenditure on health has both positive and negative statistically significant impact on the economic growth in Nigeria. That human lives span has positive and statistically insignificant impact on the economic growth in Nigeria. That total school enrollment has positive statistically insignificant impact on the economic growth in Nigeria. That human capital development has statistically significant short run and long run relationship with economic growth in Nigeria between 1999 and 2022

As manifested from the findings of this study, the following recommendations are suggested: first, that Nigeria government at all levels should ensure that priority should be placed on all components of human capital development of the Nigerian citizens. Second, in particular, government effort toward increase government expenditure on education should be sustaining. More importantly, appropriate funding for education sector that is in tandem with the recommendation of UNESCO (2011) should be implemented. Subsequently, it is expected that citizens with appropriate skill and right knowledge through qualitative training will contributes to economic growth. Third, governments at all levels should increase the funding for health sector in order to ensure the citizens live healthy so as to be able to increase their productivity and afterward, contributes to economic growth.

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