International Journal of
Innovative Research in Social Sciences and Strategic Management Techniques
p-ISSN: 2465-728X | e-ISSN: 2467-8155
IJIRSSSMT
April, 2025
Vol. 11, No. 1

Human Capital Development, Unemployment and Economic Growth in Nigeria

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Article DOI:
10.48028/iiprds/ijirsssmt.v11.i1.33

Keywords:
Human Capital Development, Unemployment, Education Investment, Healthcare, Economic Planning, Research and Development

Abstract

This study evaluates the impact of human capital development on economic growth using unemployment rate as the transmission mechanism. The topic is important, given the current macroeconomic challenges faced by Nigeria and the high rate of unemployment, the demand for human capital development is urgently needed. This study adopts mainly quantitative research methods for the evaluation, measurement, experiment, and statistical analysis to answer research questions. It was found that a positive and significant relationship exists between human capital development (explanatory variable) and unemployment rate (dependent variable) in Nigeria. This implies that as more government expenditure is made on education and health investment, the unemployment rate is increasing. This is against the apriori expectation of a negative relationship. This study recommends large scale investment in education and health infrastructure, as well as investment in research and development as critical in reducing unemployment and jump- starting human capital development and economic growth.

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Background to the Study

The level of unemployment and sluggish economic growth in Nigeria has attracted investigations on the quality of human capital development in the country. Nigeria, by virtue of its population and some inherent dynamics has the largest and most vibrant markets in Africa. Only a minuscule proportion of Nigeria's potentials in crude oil, minerals and agriculture have yet been exploited. It has enormous ethnic diversity, wealth of human and natural resources but the development of these resources remains a big challenge and concern. Nigeria is in a special position to influence the development of Africa, it is in fact the pole of development in Africa with a diplomatic, creative and military significance that makes the country a potential regional superpower. The transformation of a modern economy through science and technology rests heavily on human capital development. In Nigeria, given the high rate of unemployment, the demand for human capital development is needed to staff new and expanding government services, to introduce new system of Land use, and new methods of agriculture, to develop new means of communication, to benefit from the trending artificial intelligence (AI), to develop new technologies to carry forward industrialization and to build the education system, constructing roads, dams, power houses, factories involving light and heavy industries, hospitals, schools and colleges.

There is a strong positive relationship between human capital development and economic growth, Adelakun, (2024). Human capital is an intangible asset most valued by nations all over the world. The China's model of rapid transformation from agrarian nation to an industrial country came through innovations and investment in human capital development. The World Development Report (1991) asserts that the challenge of development is to improve the quality of human capital, especially for developing economies. It encompasses as ends in themselves better education, higher standards of health and nutrition, less poverty, cleaner environment, more equality of opportunity, greater individual freedom, and a richer cultural life. It is found that there is a positive and weak transmission between human capital development and economic growth through employment in Nigeria, (Asombo et al.,2023). Human capital produces economic values through quality education and health for all, (Nwaogu and Ikenyiri,2023). Investment in human capital in Nigeria began in 1843 when the different missionaries from European countries started with funding of schools, established by these groups (Adesina, 1988, Fafunwa, 1974, Yesufu, 2000). In the forefront of this were the Wesley and Methodist, the Anglican Christian Missionary Society (C.M.S), The American Baptist and the Roman Catholic Mission. It was indicated on the Human Development Index (2010) that adult literacy rate of at least 65% would be attained by 2019 (UNDP, 2019).

However, overtime, the problems relating to human capital development in Nigeria still remains unresolved. This has brought about uneven distribution of skilled manpower, unemployment, poverty, poor reward system retarding the acquisition and development of human capital. Nigeria is immensely endowed with both natural and human resources. The pool of human resources from one end to the other is unquantifiable to such an extent that economic development would have been thought to be mission

accomplished, but to no avail. A defective incentive system seems to have resulted in a waste of human resources, higher incidence of poverty and greater inequality in the distribution of income and opportunities. Human capital is considered as the stock of competences, knowledge and personality attributes embodied in labour so as to produce economic value. It is the attribute gained by an individual through education and experience mainly with the provision of investment in education and health. The availability of education and health services to the people is one of the major ways of improving the quality of human resources. The active agents of modernization are human beings, for they alone can accumulate capital, exploit natural resources and build political and social institutions. Much of the literature has emphasized on the complementary relationship between human and physical capital, noting how imbalances in these two stocks, can affect economic growth. As a matter of fact, people are the most valuable assets in a country

In the past, much of the planning in Nigeria was centered on the accumulation of physical capital for rapid growth and development, with little investment in recognition of the importance of human capital development. In addition, health is regarded as being a fundamental contributor to economic growth and development. It is one of the poorly funded sectors in Nigeria and a key determinant of economic performance both at the micro and macro levels. Health status is also a direct component of human well-being that increases the individual's capabilities. An early research by Schultz (1961), unraveling the importance of human capital in growth process, suggests five categories by which human capital can be developed. These include health care, vocational training, and quality education at all levels including continuing education programme for the adult. Others include extension programs mostly in agriculture and job mobility are all aimed at improving an individual's productive efficiency which lends support to economic growth of nations. In an effort to enhance the contribution of human capital to economic growth among the emerging economies, the United Nations Millennium Development Goals (MDGs, 2010) argued that a reduction by three-quarters in maternal mortality, halting the spread of HIV/AIDS, malaria and other major diseases by 2015 will be the goal of sustainable development for Sub-Sahara Africa.

Statement of the Problem

The main problem is that there seems to be weak contribution of human capital to economic growth in Nigeria. Unemployment challenges, income inequality and the slow unsteady pattern of economic growth in Nigeria could be blamed on human capital development. Nigeria remains abundantly blessed with enormous human and natural resources that if properly harnessed, will launch the nation into the frontiers of fastest economic growth and development. Nigeria is Africa's most populous nation, and the world's fifth largest country, after China, India. the United States, and Pakistan; with about 240 million people. Investment in human capital development has been a major policy target in the overall budgeting process. However, the gross enrolment in schools remains a major concern as less than 30% of eligible secondary school children within 14-17 age are enrolled nationwide. The health sector suffers similar challenges. Though the

primary healthcare facilities account for about 85.8% in the country, they are mainly health posts and dispensaries that provide only basic curative services due to the fact that the facilities are underfunded, the teachers, doctors and nurses are underpaid and undervalued. The private Out-of-Pocket health and education expenditure in Nigeria accounts for more than 60% of the estimated $10 per capital expenditure on health and this deepens none equitable access to quality education and healthcare services. A report from United Nations Development Program (2009), puts Nigeria's human development index (HDI) at 36 percent, below 56 percent global standard, and far below most of the developing countries in Africa and Asia. The United Nations Development Program (2009), rates Nigeria 10th out of 10 developing countries selected and 158th position out of 182 countries assessed globally. In the area of job security, Nigeria faces a serious unemployment and underemployment crises, arising from human capital development deficiencies. Seven out of ten Nigerians in the labour force are either unemployed or unemployable. Six and half in ten graduates of higher education are not career ready, not working and closely as many of those who have completed secondary education, remain unskilled and unemployable, cannot further their education. These have threatened, troubled the security architecture and poverty reduction efforts. The proportion of graduates in technical and professional jobs is also reported to be nose-diving. From the foregoing, it is obvious that human capital in Nigeria has a serious development challenge and this is quite inimical to the realization of Nigeria's dream of sustainable economic development.

There exists a plethora of studies investigating the effects of human capital on growth but most of these studies however, adopt panel techniques where conclusions are often made following a general observation. Besides, much of the observations arising from these studies involve developed economies who do not share common economic and social characteristics with Nigeria. On the other hand, there is a dearth of recent domestic studies in existing literature and most of these treat educations as a sole proxy for human capital and in few others, the health variable is considered but the incorporation of the labour variable is grossly lacking in these studies, hence the need for this present study to bridge the gap.

Research Questions

The following research questions are necessary in achieving the objectives of this study:

i. Is there any significant causal relationship between human capital development, unemployment rate and economic growth in Nigeria?
ii. Does expenditure on education and health significantly impact on human capital development and unemployment rate in Nigeria?
iii. Are there any significant challenges to human capital development in Nigeria?

Hypothesis of the Study

$\mathbf{H_0}$: Human capital development has no significant impact on unemployment and economic growth in Nigeria.

$\mathbf{H_1}$: Human capital development has significant impact on unemployment and economic growth in Nigeria.

Literature Review

In economics, capital is referred to as "a factor of production used to create goods or services that are not themselves significantly consumed in the production process' while, the human capital takes charge of all knowledge and skill engaged in economic activities such as production, innovation, marketing, management, and transactions necessary to move the products to the consumers (Boldizzoni, 2008). This implies that human capital is a key production factor that adds value to the production process. Adelakun (2024) evaluated human capital development and economic growth in Nigeria using the ordinary least square (OLS) technique. The analysis confirmed a strong positive relationship between human capital development and economic growth. The study recommended institutional framework to look into human capital needs. Similarly, Nwaogu and Ikenyiri (2023) investigated the effect of human capital development on economic growth in Nigeria. They found that human capital development produces economic values through quality education and health for all. It has a positive and significant impact on Nigeria's economy. They recommended that government should privately sectors whose activities have aided human capital development in Nigeria. Asombo et al. (2023) studied human capital development, employment and economic growth in Nigeria. The study used descriptive and inferential statistics, structural vector autoregressive (SVAR) to estimate the transmission mechanism. They found a positive and weak transmission between human capital development and economic growth through employment at the 5 percent level of significance. They recommended that government should increase expenditure on education and encourage and promote academic excellence.

In connection with the concept of human capital, it is necessary to mention concepts of intellectual capital, social capital and organizational capital. Individuals generate, retain and use knowledge and skills (human capital) and create intellectual capital. Their knowledge is extended, increased and enlarged and thus enhanced by the interactions with other individuals (social capital) and it generates the institutionalized knowledge, which is possessed by an organization (organizational capital). The term human capital was first used by Schulz (1961). He developed and explained his concept as follows: "Consider all human abilities to be either innate or acquired, attributes which are valuable and can be augmented by appropriate investment, this will be human capital". Human capital refers to the skills, knowledge and abilities (SKAs) acquired by human resources, mostly through education and training, as well as through experience. Over time, several researchers have indicated that investing in human capital through education is one of the major drivers of economic growth and sustainability (Eigbiremolen & Anaduaka, 2014, Grant, 2017). Igun (2006), defines human capital as 'the total stock of knowledge, skills, competencies, innovative abilities possessed by the population'.

. In terms of factors of production, humans constitute the active factor, human capital is crucial in acquiring, utilizing and maintaining the other factors of production of innovativeness and productivity. Human capital cuts across labour, entrepreneurship and capital, working on other forms of capital and land to produce economic value at a

reward. It is the availability of quality and quantity of human capital that makes the most difference between countries with high economic growth and those with low growth (Eigbiremolen & Anaduaka, 2014). According to Rehman et al, (2018), employees with higher levels of education know what is expected of them in the workplace, they tend to be more innovative, and innovation results in production of better goods and services that can give a country a competitive edge. Nakamura (1981), defines human capital as labour and managerial skills, entrepreneurial and innovative abilities, plus physical attributes such as physical strength and skills. Unemployment, poverty, dependency and crime rates tend to be correlated with the level of human capital development through education and skills acquisition with effects on the macroeconomy; (Krasniq & Topxhiu, 2016, Nowak & Dahal, 2016).

Investment in education can be through formal education as well as informal training and development programs. Quality high school and tertiary education, as well as emotional and intellectual stimulation from early childhood will translate into quality human capital later in life. The investment in early emotional and intellectual stimulation in particular has been associated with emotionally intelligent human resources who can make better decisions in their personal lives and in the workplace, which improves organizational productivity and eventual better economic performance. The training and experience acquired during the working years also constitute an important source of human capital. Early education should not only be through formal education, but should be through informal learning that children acquire as they interact with other people in the family and society within which they operate.

In the works of Torruam and Abur (2014), human capital development can be seen to mean developing skills, knowledge, productivity and inventiveness of people through process of human capital formation. Human capital formation refers to the process of acquiring and increasing the number of people who have the skills, good health, education and experience that are critical for economic development. NBEU (2018), defines Human capital as the sum of a population's health, skills, knowledge, experience and habits, and forms the basis for individual and societal well-being. Rosen (1999), considers human capital as 'an investment that people make in themselves to increase their productivity". The shift of the focus by the global economy towards more knowledge-based sectors (such as research and development, pharmaceuticals and ICT-based sectors), has encouraged policy makers to attend.

Health and education are components of human capital development. The human capital theory, views schooling and training as an investment in skills and competences, (Becker, 1993). It holds that earnings in the labour market are dependent upon the individual's information and skills set. It is further argued that, based on rational expectations of returns on investment, individuals make decisions on the education and training they receive as a way of augmenting their productivity that is, the investments in human capital depend on the costs of acquiring the skills and the returns that are expected from the investment.

Economic growth is one of the most important indicators of a healthy economy. It is fundamental for sustainable development, and both seems to be dependent on human capital development. Todaro (2007), defined the term economic growth as a process by which the productive capacity of the economy is increased over time to bring about raising level of national output and income. Agrawal (2019) defines economic growth as an outward shift in its Production Possibility Curve (PPC). Economic growth is measured by the increase in a country's total output or Gross Domestic Product (GDP). However, high levels of income, if not properly managed and equitably distributed, would not necessarily contribute to human development.

There is a large body of theoretical and empirical research on the impact of human capital on economic growth. Oladeji (2015), investigated the relationship between human capital (through education and effective health care services) and economic growth in Nigeria, using annual time series data from 1980 to 2012. The study employed OLS methodology and revealed that there is a significant functional and institutional relationship between the investments in human capital and economic growth in Nigeria. Michael and Oderinde (2012) used vector auto regression model to study public education expenditure and defense spending in Nigeria. The study observed that military spending and public education expenditure in Nigeria between 1970 and 2003 is positive and statistically significant. Hadir, and Lahrech, (2015) examined the relationship between human capital development and economic growth in Morocco using annual data from 1973 to 2011. The ordinary least square regression method was adopted using total government expenditure on health and education, the enrolment data of tertiary, secondary and primary schools as proxy for human capital. The study revealed a positive relationship between them. Improvements in health may increase output not only through labor productivity, but also through the accumulation of capital. Lawanson (2015) investigated the relevance of educational and health components of human capital to economic growth, using a panel data from sixteen West African countries over the period 1980 to 2013. He employed Diff-GMM dynamic panel technique. The empirical findings indicate that coefficients of both education and health have positive statistically significant effects on GDP per capita. Simoes (2006) carried out empirical investigation in a panel data framework of the effects of education and its sub-categories on economic growth emphasizing its complementarities with the other major determinants of technological change and growth.

The study focused on a sample of 23 OECD countries from 1960-2000. Using GMM estimator the results showed the importance of education, and especially tertiary schooling, for growth through technology diffusion and domestic innovation activities. Ibok and Ibanga (2014) investigated the impact of human capital development and economic empowerment on the socio-economic development of Akwa Ibom state. The study adopted a historical and descriptive approach to data analysis and revealed that from 1999 to 2012, the government had made a positive impact on the training and re-training of workers in the public sector. Ogunsola (2016) examined the impact of human capital development on economic growth in Nigeria using time series data from 1980-

2013. The variables used were secondary school enrolment, life expectancy rate, government expenditure on education, gross capital formation and economic growth. Borojo and Jiang (2015), analyzed the impact of education and health on economic growth from 1980 to 2013 in Ethiopia. The Augmented Dickey Fuller test and Johansen's Co-integration technique were used to test unit root and to validate co-integration among variables, respectively. Their study showed that public expenditure on health and education, primary and secondary school enrolment have positive statistically significant effect on economic growth both in long run and short run.

Theoretical Framework

Theodore Schultz (1902-1998) a Nobel prize-winning economist is credited with the term "human capital". Human capital is developed into a social scientific theory. The basic tenet of the human capital development theory is that investment in human capital will lead to improvement in the quality of human capital and in turn yield greater economic outputs, Backer (1993). Schultz was the first to write about the connections between education and productivity.

Theory of Human Resources

This is a management-related theory. Miles, (1965) posits that all workers come into an organization with a variety of resources(potentials) that management can tap into if they try. These resources include not only physical skills and energy, but also creative talent, ability and the capacity for responsible, self-controlled behavior. In this perspective managers should not be focused on controlling employees or getting them to "buy-in" to decisions, which are hallmarks of scientific management and human relations. Instead, the primary task of management should be the creation of a working environment that fosters employee's innovation, creativity and risk taking in an effort to maximize and tap into the resource's employees bring to the job. As such, communication in this perspective must be constant and bi-directional and participation in decision-making must include both management and the employees.

Endogenous Growth Theory

The endogenous growth models have been developed by Romer (1986), Lucas (1988), Rebelo (1991), Arrow, and Lucas (1994), among other economists. Economic development is endogenously determined by the quality of human capital and other related variables. It attributes economic growth and development to forces within the region or country as against external dependence to achieve development. These internal variables of development include education, health status, technology, specialization, economies of scale and the existence of growth stimulating institutional, socio-cultural, economic, political and administrative arrangements. The message of this theory is that the requirements of growth and development can be deliberately created or modified internally via human capital development. The theory holds that changes in technology are endogenous, economic growth is primarily the result of endogenous and not the external forces. Endogenous theory also holds that investment in human capital; innovation and knowledge are significant contributors to economic growth. The theory

states that for any country to experience economic growth, investment in human capital is key. The theory also emphasizes why it is very important for both the public and private sector to motivate people to be innovative.

The Human Capital Investment in Nigeria

The Harbison Commission (1959) was charged with the responsibility of preparing suitable manpower needs for Nigeria. The revelations from the commission's report placed education at the apex of relevance to development. Investment in human capital in Nigeria began in 1843 when the different missionaries from European countries started with funding of schools, founded by these groups (Adesina, 1988, Fafunwa, 1974, Yesufu, 2000). In the forefront of this were the Wesley and Methodist, the Anglican Christian Missionary Society (C.M.S), the American Baptist and the Roman Catholic Mission that established and funded schools and hospitals, with some assistance from merchants and immigrant businessmen up 1882. Funding and management of schools and hospitals was not solely government responsibility. The enactment of the 1882 education ordinance made provision for colonial government to run schools and finance them and subsequently to avail grants-in aids to private schools.

Those involved in decision making for the production of human capital through educational and health services are in three groups. They include the public sector, private sector and the international development assistance (Akangbou, 1985). The bulk of expenditure and day to day policy formation and implementation lend heavily on the federal, state and local government. Sources of investment resources in education from foreign investors are glaring with a host of agencies like the United Nations Education, Scientific and Cultural organization (UNESCO), German Academic Exchange Services (DAAD.), the Ford and Carnegie Foundation, the Canadian International Development Agency (C.I.D.A) (Callaway and Musone 1968, Akangbou, 1987), the Commonwealth Scholarships Scheme, the Fulbright Scholarship, the Chinese Government Scholarship, the Bureau for External Aid Programme for various countries, the European Economic Community (EEC) Scholarship Schemes, the United Nations Development Programme (UNDP) etc. As the demand for education and health increased with the population growth over the years, funding generally has remained lopsided, with sharp fluctuations. These translate to a neglect of developing the expected quality manpower to cater for the needs of the economy in terms of sustainable development. T he main thrust of policy in Nigeria's development plans have been among other things, to increase the nation's stock of trained manpower through the expansion of existing educational and training facilities; and the establishment of new ones. This has been sadly inadequate in Nigeria; as less emphasis has been placed on quality, and the government has not provided the enabling infrastructure and environment to develop the required skilled manpower to make invention and innovation practicable.

Methodology

Bogdan and Biklen (2017), consider methodology as the general logic and theoretical perspective of a study, whereas Eneji, (2014) considers methods as specific tools,

procedures, and techniques of analysis. This study adopts mainly quantitative research methods for the evaluation, measurement, experiment, and statistical analysis to answer the research questions. The study used time series secondary data set, sourced from the World Bank database, Central Bank Statistical Bulletin, National Bureau of Statistics, Central Bank Annual Reports and Statistics, Ministry of Education documents, journals and books to evaluate the impact of human capital development on economic growth in Nigeria.

Model Specification

GDP= f(HCD, UNEMPR) ----------(1a)

$GDPt = \beta_0 + \beta 1GDP_{t-1} + \beta_2 HCD_{t-1} - \beta_3 UNEMPR_t + U_t$ ---------- (1b)

$HCD_t = \beta_0 + \beta_1 GDP_{t-1} + \beta_2 HCD_{t-1} - \beta_3 UNEMPR_{t-1} + U_t$ ---------- (1c)

$UNEMPR_t = \beta_0 + \beta_1 GDP_{t-1} + \beta_2 HCD_{t-1} - \beta_3 UNEMPR_{t-1}$--------- (1d)

Applying the ARDL Model

$A_0 Y_t = A_1 Y_{t-1} - A_2 Y_{t-2} + A_p Y_{t-p} + U_t$---------- (1e)

The multiple linear regression model is specified to determine the impact of human capital development on economic growth. The model is presented thus:

GDP=f(HCD)----------(1f)

The RHS represents the proxy of HCD thus:

GDP = f (GEH, GEE, LAF, PER, SER, TER)…….. (1g)

Where:

GDP = Gross Domestic Product

GEH = Government Expenditure on Health

GEE = Government Expenditure on Education

LAF = Labour Force

PER = Primary School Enrolment

SER = Secondary School Enrolment

TER = Tertiary School Enrolment

GDP is used as a proxy for Economic Growth, while Federal Government Expenditure on Health, Education and Enrolment Rates into the three levels of education are chosen as proxy for human capital development. In the secondary data collection, some of the variables are measured in (N)millions while some are measured in (%) percentage. The logarithm of the model is undertaken in order to bring all the variables to common base thus:

$GDP = \beta_0 + \beta_1 LOGGEH + \beta_2 LOGGEE + \beta_3 LAF + \beta_4 LOGPER + \beta_5 LOGSER + \beta_6 LOGTER + \mu_t$…… (2)

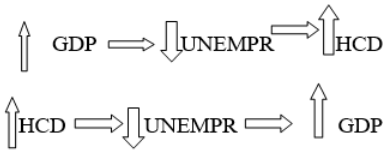
Where: **LOG=** logarithm β_0 = Intercept of the model, β_1, β_2, β_3, β_4, β_5, β_6, are parameter estimates; μ_t = Stochastic error term. The apriori expectations are positive for all the independent variables, i.e $\beta_1 > 0; \beta_2 > 0; \beta_3 > 0; \beta_4 > 0; \beta_5 > 0; \beta_6 > 0$

Model Estimation and Interpretation

From equations 1a-1e, in order to determine the shock spillovers, the transformation of the matrix from the correlated error terms is thus:

$$\begin{pmatrix} GDPt \\ HCDt \\ UNEMPR_t \end{pmatrix} = \begin{pmatrix} a_{11} & a_{12} & a_{13} \\ a_{21} & a_{22} & a_{23} \\ a_{31} & a_{32} & a_{33} \end{pmatrix} \begin{pmatrix} GDP_{t-1} \\ HCD_{t-1} \\ UNEMPR_{t-1} \end{pmatrix} + \begin{pmatrix} U_{1t} \\ U_{2t} \\ U_{3t} \end{pmatrix}$$

$$\begin{pmatrix} U_t^{GDP} \\ U_t^{HCD} \\ U_t^{UEMPR} \end{pmatrix} = \begin{pmatrix} \beta_1 & 0 & 0 \\ 0 & \beta_2 & 0 \\ 0 & 0 & \beta_3 \end{pmatrix} \begin{pmatrix} U_{1t} \\ U_{2t} \\ U_{3t} \end{pmatrix}$$



These explain the response of Gross Domestic Product (GDP) representing economic growth to unemployment (UNEMPR) shocks, response of UNEMPR to Human Capital Development shocks, response of UNEMPR to GDP shocks, response of HCD to its own shocks, UNEMPR to own shocks and GDP to own shocks.

The diagnostic test results are summarized thus:

Table1: Diagnostic Test Results

Transmission Channels	Diagnostic Tests	F-Statistic	df	Chi-Sqaure Statistics	Prob
GDP-UNEMPR -HCD	Serial Correlation	0.45743	36.0	28.773	0.8651
	Residual Normality	0.00868	2.0	75.3238	0.5466
	Residual Heteroskedasticity	0.0001	34.0	63.8784	0.8536

Source: Authors' computation, E-views 10

Consequent upon the mixed order of integration discovered in the pre-estimation tests of equation 2, this study applied an autoregressive distributed lag (ARDL) model which is

applicable to both non-stationary time series as well as for times series with mixed order of integration (Pesaran & Bahram 1997, Pesaran & Shin 1999). This model takes sufficient numbers of lag to capture the data generating process in a general-to specific modeling framework. Also, a dynamic error correction model (ECM) was derived from ARDL through a simple linear transformation. The ECM integrates the short-run dynamics with the long-run equilibrium without losing long-run information and avoids problems such as spurious relationship resulting from the non-stationary time series data.

Since there is evidence of existence of long run relationship (co-integration) of the variables, the following long run model (equation 3) is estimated:

$$GDP_t = \beta_0 + \sum_{i=0}^{1} \delta_1 GDP_{t-i} + \sum_{i=0}^{1} \delta_2 GEH_{t-i} + \sum_{i=0}^{1} \delta_3 GEE_{t-i} + \sum_{i=0}^{1} \delta_4 LAF_{t-i} + \sum_{i=0}^{i} \delta_5 PER_{t-1} + \sum_{i=0}^{i} \delta_6 SER_{t-i} + \sum_{i=0}^{i} \delta_7 TER_{t-i} \dots\dots (3)$$

The Error Correction Model Result

Table 2: ARDL Error Correction Result

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DLOG(GEH)	0.046446	0.145068	0.320168	0.7539
DLOG(GEE)	0.097852	0.159509	-0.613456	0.5502
D(LAF)	-0.711001	0.295481	2.406249	0.0317
DLOG(PER)	0.393679	0.345946	1.137978	0.2757
DLOG(SER)	-0.094347	0.129742	-0.727192	0.4800
DLOG(TER)	0.129872	0.094311	1.377071	0.1917
C	0.583385	11.01076	0.052983	0.9586
CointEq(-1)	-0.390391	0.149293	-2.614939	0.0214

R-squared	0.835395	Mean dependent var	0.098056
Adjusted R-squared	0.800741	S.D. dependent var	0.177189
S.E. of regression	0.079094	Akaike info criterion	-2.053298
Sum squared resid	0.118863	Schwarz criterion	-1.807870
Log likelihood	29.63957	Hannan-Quinn criter.	-1.988186
F-statistic	24.10690	Durbin-Watson stat	2.165540
Prob(F-statistic)	0.000000		

Source: Authors computation Using Eviews.

The error correction parameter CointEq (-1)* is negative and significant at 5% as expected. The ECM is an error correction term in the model to restore equilibrium and validate that there exists a long-run equilibrium relationship between human capital development and economic growth.

The coefficient of determination (R^2) with a value of 0.835395 revealed that 84% variation in economic growth (GDP) is explained by investment in human capital development. The F-statistics value of 24.10690 and prob(F-statistics) of 0.00000, shows that the model is statistically significant. A Durbin-Watson of 2.165540 shows that the model is free from serial correlation and that the error term of the present period has no relationship with the preceding error term.

The coefficient of government expenditure on health (GEH), from the results above, showed a positive and significant relationship with GDP, with a value of 0.046446 and a P-value of 0.7539, at 5% level of significance. This implies that 1% increase in government expenditure on health will cause 4.6446% increase in economic growth. Similar and even higher impact is found for government expenditure on education (GEE) with the coefficient value of 0.097852. The impact could have been greater if not for inadequate funding or poor state of education and healthcare infrastructure in Nigeria. Government expenditure on education and health is a smaller percentage of GDP and mostly not well utilized in providing the necessary equipment and infrastructure. This is evidential that most public schools in Nigeria neither have sufficient buildings, nor are they well equipped with instructional materials. However, every year funds are allocated to the education and health sectors, even with foreign intervention funds which should facilitate human capital development. The negative coefficient of the Labor Force (LAF) at -0.711001goes against apriori expectation. This is not surprising, given the high unemployment rate in Nigeria which is a loss to the gross domestic product.

ARDL Long Run Relationship

Table 3: ARDL Long Run Relationship Result

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG(GEH)	0.118973	0.350931	0.339021	0.7400
LOG(GEE)	0.206487	0.477222	0.432685	0.6723
LAF	0.377845	0.300630	1.256847	0.2309
LOG(PER)	-0.892581	1.254104	-0.711728	0.4892
LOG(SER)	-0.241674	0.326958	-0.739159	0.4729
LOG(TER)	0.332672	0.237140	1.402852	0.1841
C	1.494359	28.554030	0.052334	0.9591

Source: Authors computation using E-views 10

The Long Run Model Equation

ECM = LOG(GDP) – (0.119*GEH + 0.2065*GEE + 0.3778*LAF -0.8926*PER – 0.2417*SER + 0.3327*TER + 1.4944).

From table 2 above shows that in the long-run, only the log of Government Expenditure on Health, log of Government Expenditure on Education, log of Tertiary School

Enrolment rate and Labour Force has a positive but non-significant relationship with gross domestic product (GDP) in the long-run. While the log of Primary School Enrolment Rate and Secondary School Enrolment Rate have a negative and insignificant relationship with GDP. From the a priori expectation, it is expected that GEH, GEE, PER, SER, TER, and LAF should have a positive relationship with GDP.

Primary School Enrolment Rate (PER), from table 2 above, revealed a negative and non-significant relationship with GDP, with a coefficient value -0.89258 and a P-Value of 0.4892 at 5% level of significance. This implies that 1% decrease in PER will bring about 98.258% decrease in economic growth. This is not in line with the apriori expectation of a positive relationship. It rather implies that most out of school children have no means of going to school due to aggregate social, political and economic constraints. Most children living in war zones who once were in school have now experienced the violence of the known terrorist group (Boko Haram) are now not willing to go back to school due to the trauma of such happenings, which have negative impacts on economic growth. The same is applicable to Secondary School Enrolment Rate (SER) with a negative coefficient value of -0.241674.

Conclusion

The main objective of this study was to evaluate the impact of human capital development on economic growth using unemployment rate as the transmission mechanism. In the analysis and from the findings, we conclude that the efficiency and growth of any economy depend on the competitiveness of its human capital. This research has obviously revealed the impact of human capital development on economic growth in Nigeria. Nigeria has human capital development constraints and this has also been a major growth limiting factor. There is a weak causal relationship between human capital development and economic growth. Education and health have had minimal impacts on human capital development due to social, political and economic constraints. It is obvious from our findings that for Nigeria to achieve sustainable economic growth it must tend to the needs of human capital development. The future of the Nigerian economy depends largely on increased investment in human capital and physical capital.

Recommendations

Based on the findings of this research, the following recommendations were made:

i) This study recommends innovation in HCD that is employable, strategic health and education planning, triple percentage expenditure on education and health, improved primary and secondary school enrolment rates and curriculum innovation. Government expenditure is necessary but not sufficient without curriculum innovation.

ii) Checks and balances: funds which are disbursed to various sectors of the economy should be monitored by the legislature to prevent mismanagement, underfunding and misappropriation, while the judiciary should arrest and punish public officers who mismanaged public funds allocated to human capital development.

iii) **Infrastructural Development**: Large scale investment in education and health infrastructure, as well as investment in research and development is critical in reducing unemployment and jump-starting human capital development and economic growth. Government should focus on building and equipping more schools and hospitals; this will help in the development of human capital.

iv) **Free Education**: the implementation of free education policy will create room for more enrolment into the various levels of education, especially for the disadvantaged segments of the population. Protect health and education infrastructure; it is a constitutional mandate of government to provide security of lives and property.

v) **Welfare of Workers**: government must improve the working condition of its teachers and doctors and the entire labor force by organizing training and re-training, giving necessary allowances and grants to motivate the country's labor force, also invest in research and development.

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