

Time Series Analysis of Human Capital Development and Economic Performance; A Recent Evidence from Nigeria



Chaku Shammah Emmanuel Ph.D.¹, Timnan Bindap Ndam², Azi Istifanus Madaki³, Jeremiah Nshe Manomi⁴, Ajang Janet Daniel⁵, Diemsan Attah Ambrose⁶

¹Department of Statistics, Nasarawa State University Keffi, Nasarawa State, Nigeria

^{2,3,4}Department of Economics, University of Jos, Jos, Plateau State, Nigeria

³Jinhe Center for Economic Research (JCER), Xi'an Jiaotong University, China

⁵Department of Economics, Plateau State University Bokkos, Plateau State, Nigeria

⁶Department of Economics, Federal University Lafia, Nasarawa State, Nigeria

ABSTRACT: Human capital development holds the key to the growth and development of any economy in the world as it drives the efficiency of other factors of production. This scenario is not the same when viewed in terms of Nigeria's growth trajectory. It is against this backdrop that the paper investigates the effect of human capital development on Nigeria's economic growth. Time series data were used and the data spanning from the period of 1986 – 2020. The variables employed in the study are GDP proxy for Economic growth, while GEE, GEH, and ALR as explanatory variables. ARDL bound testing Model was used to estimate the relationship between the variables and the result uncovered the GEE had a negative and insignificant impact on economic growth in Nigeria, while GEH and ALR had a positive and significant impact on economic progress within the study period and it was recommended that Government should promote practice-oriented training for students, particularly in technical disciplines and matching education system in line with market demand. The government should increase budgetary allocation to meet up with the United Nations' specifications of 26% for the edifice of successful human capacity development in Nigeria.

KEYWORDS: ARDL, Development, Economic Growth, Human Capital, and Nigeria.

I. INTRODUCTION

The world revolves around the building of human capital capacity in both industrialized and developing economies. This is vital to the harnessing of land and capital as factors of production for the creation of goods and services. Therefore, human capital plays a critical role in the wealth creation of international economies (Oluwatobi & Ogunrinola, 2011). Human capital Development has been prioritized in the developing globe which has aided their developmental process in recent years. These economies have spent massive resources on the improvement of human capital through learning and the well-being of people to compete favorably in the worldwide scene. According to Kairo et al (2017), an increase in national income and per capita income is a function of education, and differences among nations can better be explained by differences in the endowments of humans, rather than physical capital. This underscores the reason why the 'Asian Tigers' in the past three decades allocated between 25-35% of their annual budgets to their education sector (Kairo et al., 2017 & Euphemia, 2022). The resultant effect of this public spending on education and health has manifested in the value of goods and services produced in these countries. These goods and services include machineries, weapons, motor vehicles, and security, and excellent health services. Ogungbenle & Edogawerie (2016) posited that these products have been possible due to the efficiency and effectiveness of the system toward the utilization of such resources for the growth and development of the economy through the development of human capital in these countries (Euphemia, 2022).

Nigeria is a country with a highly labor-intensive capacity in nature. Despite the prospect of a capital-intensive developing economy, reliance on the intellectual capacity of humans to drive such development targets is of utmost importance. In any country, there can be no meaningful economic growth without adequate human and natural resources. Human capital development has been long identified by economists worldwide as an important aspect of the development process. Smith (1776) emphasized the importance of health and education as two closely related human capital components that work together to make the individual more productive at various levels. He stated that the development of a nation relies on the development and

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capabilities of the human beings of that country. The need to spend on human capital development in Nigeria is obvious from the fact that despite the massive imports of physical capital, the nation has been unable to improve its growth trajectory in recent times, due to the presence of underdeveloped human and material resources in Nigeria. More importantly, most of the Nigerian active human capital lives in bucolic areas where facilities such as health and education are pathetic (Lawal & Abdulkadir, 2011 & Anyanwu et al, 2015). As such, quite several Nigerians engaged in farming as a major occupation with the use of crude tools as human capital remains underdeveloped.

With the level of human capital and enormous resources available in Nigeria, one could say that the growth is not encouraging to a large extent. Following the enhanced contribution of petroleum to total federally collected revenue in the early 1970s and the increased internally generated revenue, budgetary allocation to the education sector and health sector took a rising trend in Nigeria. Specifically, the federal government spent a total of N0.17 billion and N0.08 billion on education and health respectively in 1981. By 1990, total education and health expenditures increased to N2.40 billion and N0.50 billion. Furthermore, the total expenditure increased to N57.96 billion and N15.22 billion, N170 billion and N99.10 billion, and N325.19 billion and N341.88 billion in 2000, 2010, and 2015 respectively (Central Bank of Nigeria, 2017). The period showed no appreciable growth rate in the rate of human capital development in Nigeria despite huge government spending (Anyanwu et al, 2015). The importance of education is reminiscent of its role as a means of understanding, controlling, altering, and redesigning the human environment (CBN, 2020). To have quality health, productivity, and access to paid employment, education must be improved (Anyanwu, 1999). Ejere, (2011, as reference in Euphemia, 2022) asserted that human capital formation is undoubtedly the pivot for any meaningful program of socio-economic development of Nigeria; and indeed, of any country. Since it is a key prerequisite for a country's socioeconomic and political transformation.

However, there can be no real structural adjustment or economic recovery in the absence of crucial HCD (Kairo, et al 2017 & Euphemia, 2022). According to Oni (2014), it is the HCD of any nation rather, than its physical capital and material resources, which ultimately determine the character and the pace of its economic and social development. A nation's wealth is built upon its utilized human resources. A country that is unable to develop the skills and knowledge of its people and utilize them effectively in the national economy will be unable to develop anything else (Harbison, 1973). Despite the increased academic interest in the subject under discussion, several issues relating to human capital development and economic growth relationship remain hitherto unsettled in Nigeria. Chief among these issues relates the fact that the empirical linkage between government expenditure and human capital development is yet unclear, especially in Nigeria. Therefore, understanding the key role of human capital development in the actualization of national policies becomes necessary for economic growth and development.

The poor funding and erratic commitments at the side of the government of Nigeria more especially the Ministry of Education and Health has culminated in student unrest and industrial actions by lecturers and teachers, medical doctors, through their respective umbrella associations such as the Academic Staff Union of Universities (ASUU), Nigerian Union of Teachers (NUT), Nigeria Medical Association (NMA) and so on at their different levels of the educational and health system. This study is therefore conducted to assess the impact of human capital development on economic growth in Nigeria. The rest of the paper is organized as follows; part two is the review of selected literature relevant to the subject matter. Part three focuses on methodology while part four focuses on the result of data analysis and discussions of major findings, and part five, deals with the conclusion and recommendations of the study.

II. LITERATURE REVIEW

2.1 Theoretical Literature

Human Capital Theory

The theory was propounded by Becker in 1964. The basic premise behind human capital theory is that people's learning capacities are of comparable value with other resources involved in the production of goods and services (Lucas, 1990 as cited in Kairo et al 2017). As such, Becker (1964), and Schultz (1961), challenged the prevailing assumption that the growth of physical capital is paramount for economic success in an economy.

Furthermore, human capital theory suggests that individuals who invest in education and training will increase their skill level and be more productive than those with fewer skills, and so can justify higher earnings as a result of their investment in human capital. Becker (1993) suggested that schooling raises earnings and productivity mainly by providing knowledge, skills, and a way of analyzing problems. Moreover, Becker's ideas play an important role in contemporary employee development and learning literature, as human capital theory fuels the idea that employees' knowledge and skills can be developed through investment in education or training that is, learning. The theory lends credence to education and health through skills acquisition. However, the theory is criticized based on the underdeveloped nature of human resources in developing economies like Nigeria

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which restrain human capital productivity. As a result, this poses a great threat to the development of social sectors like education and health.

2.2 Empirical Literature

Euphemia (2022), uses the ARDL model to examine human capital development and economic growth in Nigeria. The data was sourced from the Central Bank of Nigeria Statistical Bulletin and World Bank database from 1981 - 2020. Human Capital Development (HCD) to Gross Domestic Product (GDP) was modeled as the function of total government expenditure on education and health, gross capital formation, and life expectancy. The result indicated the existence of co-integration between economic growth and HCD indicators. The result found total government expenditure on education had a positive and insignificant long-run relationship with GDP, but government expenditure on health was found to have a direct insignificant long-run relationship with GDP. Equally, gross capital formation was found to have a positive insignificant relationship with GDP in the long run. However, life expectancy was found with a negative and insignificant long-run relation with the GDP. The study recommended that budgetary allocation should be improved by both federal and state governments.

The study by Attahir et al (2020) examined the effect of human capital development on the economic growth of Nigeria (1999-2019). Education and health care were variables included in measuring human capital development. The authors employed the ARDL model and revealed the presence of a long-run association among the study variable of the study.

Imandojemu & Babatunde (2020) investigated "the determinants of human capital development in Nigeria. Methodologically, the Autoregressive Distributed Lagged Model (ADRL) was modeled to examine the nature of the relationship over the period 1990 to 2018. The relationship between government expenditure on education, government expenditure on health, and life expectancy on human capital development was positive and significant while the relationship between Fertility Rate and human capital development in Nigeria was negative and significant. The research recommended increased budgetary allocation to the educational and health sector in Nigeria".

Osoya & Tella (2017) examined the interactive effects of the rapport between human capital investment components and economic growth in Nigeria ranging from 1986 and 2014. The study employed secondary annual data on education expenditure, health expenditure, real gross domestic product, and gross capital formation. The data were analyzed using the Fully Modified Ordinary Least Squares (FMOLS) technique. The results of the study discovered that there was a positive and significant relationship between the interactive effects of human capital components and growth in Nigeria.

Chhetri (2017) investigates the connection between human capital and economic growth in developing countries around the world for the period 2010 and 2015. Secondary data were used and the variables considered for the study are GDP/capita, per capita income, birth rate, death rate, population growth rate, life expectancy at birth, working age population, education, literacy rate, and investment in technology. A multiple linear regression model with ordinary least squares (OLS) was used as an estimation technique. This analysis shows the majority of the variables in the study have a positive significant relation to the GDP/capita growth. It was recommended that more should be done in the area of education and investment in technology.

Anyanwu et al (2015) examine the impact of human capital development on economic growth in Nigeria. Using time series data covering the periods of 1981-2010, adopting the endogenous modeling approach cast within the autoregressive distributed lag (ARDL). The bound testing uncovered the existence of co-integration between economic growth and human capital development indicators. Findings also show that human capital development indicators had a positive impact on economic growth in Nigeria within the reviewed periods; however, their impacts were largely statistically insignificant. It proffered the need for government to invest more in the human capital development process and endeavor to prioritize the health and education sectors' budgeting considering their growth-driving potentials in Nigeria.

From the reviewed literature, variables such as government expenditure on infrastructure, adult literacy rate, and life expectancy rate could give a wider spectrum of the impact of human capital development on economic growth in Nigeria was not disaggregated in their studies.

III. RESEARCH METHODOLOGY

A research design is a blueprint, for selecting the sources and types of data relevant to the research questions. In other words, it is a framework that specifies the type of information to be collected, the sources of data, and the data collection procedure. Thus, a research design provides an outline of how the research is carried out and the methods that are used. The paper utilized secondary data obtained from the Central Bank of Nigeria (CBN) statistical bulletin (various issues), the World Bank, National Bureau of Statistics (NBS) from 1986 – 2020. The choice of this scope is anchored on the inception of the structural adjustment program (SAP) in Nigeria which was geared towards human capital development in the country through the diversification of the economy by focusing on other sectors of the economy other than the oil sector such sectors were education and health.

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Model Specification

The main aim of the study is to examine the impact of human capital development on economic growth in Nigeria for the period 1986-2020. To examine this impact, a model is developed to justify the relationship existing among the variables. The model of this study was patterned after the work of Kairo et al (2017) but modified. The model to be estimated can functionally be stated as:

$$GDP = f(GEE, GEH, ALR) \quad (1)$$

Equation (1) can further be transformed into a log-linear form:

$$\log GDP = \beta_0 + \beta_1 \log GEE + \beta_2 \log GEH + \beta_3 \log ALR + \mu_t \quad (2)$$

The data was logged to reduce the size of the data to a common measurement. This is to allow such interpretation in elasticity. Hence, the error correction model derived from equation (2) becomes;

$$\Delta(\log GDP) = \beta_0 + \beta_1 \Delta(\log GEE_{t-1}) + \beta_2 \Delta(\log GEH_{t-1}) + \beta_3 \Delta(\log ALR_{t-1}) + \mu_t \quad (3)$$

The null hypothesis is $H_0: \beta_1 = \beta_2 = \beta_3$ is tested against the alternative hypothesis, $H_1: \beta_1 \neq \beta_2 \neq \beta_3$. Where: GDP = Gross Domestic Product, GEE = Government Expenditure on Education, GEH = Government Expenditure on Health, ALR = Adult Literacy Rate $t-1$ = Time Lag, μ_t = Error Term that captures the variables not included in the model in time t , Log = Natural Logarithm $\beta_0 - \beta_3$ = Parameters

A priori Expectation

The apriori expectation of this model is; an increase in education and health expenditure, as well as school enrolment rate, would increase gross domestic growth in Nigeria. It is therefore stated as: $\beta_0 > 0, \beta_1 > 0, \beta_2 > 0, \beta_3 > 0$.

Table 1. A priori Expectation

Expected Sign of Human Capital Components	
Variable	Expected sign
GEE	++++
GEH	++++
ALR	++++

Source: Author's Computation

IV. RESULTS AND DISCUSSION OF FINDINGS

Even though it has been argued that there may be no need to conduct a unit root or stationarity test when employing an ARDL estimation technique (Abu, 2019 & Puepet et al 2023), certain authors also advise the verification of the pre-testing of series to stay away from the inclusion of I(2) series in the analysis which tend to generate spurious regression result (Sakanko & David, 2018). In essence, the Augmented Dickey-Fuller (ADF) and Philips-Perron (PP) techniques will be used to check the stationarity properties of the series that will be entering the model. These tests compare the null hypothesis of a series "has a unit root" against the alternative hypothesis that the series "does not have a unit root". The general form of the ADF is given as:

$$\Delta Y_t = \beta_0 + \Delta \beta_1 Y_{t-1} + \sum_{i=1}^n \beta_i Y_{t-i} + \mu_t \quad (4)$$

Descriptive Statistics

In the empirical estimation of any model, it is important to explore the variables to determine the descriptive nature of the variables. A descriptive summary of the variables' results is presented in Table 2.

Table 2. Descriptive Statistics of the Variables

	log(GDP)	log(GEE)	log(GEH)	ALR
Mean	9.137546	3.533579	2.722576	59.62118
Median	9.415522	4.254341	3.518388	57.00000
Maximum	11.87903	6.385755	5.961951	69.10000
Minimum	5.310425	-1.491631	-3.186541	50.00000
Std. Dev.	2.073143	2.341151	2.614222	6.245413
Skewness	-0.385096	-0.751537	-0.630219	0.044501
Kurtosis	1.860323	2.475451	2.218171	1.611576
Jarque-Bera	2.680417	3.590375	3.116614	2.742160
Probability	0.261791	0.166096	0.210492	0.253833
Observations	34	34	34	34

Note: Std. Dev. = Standard Deviation

Source: Author's computation from Eviews 10.

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The GDP had an average value of 9.137 in the sample which falls within 5.310 and 11.879 during the period under study with a standard deviation value of 2.073. This shows that on average the data from GDP are distributed sparsely by 2.073. GEE has an average value of 3.533 and a standard deviation of 2.341 varying between -1.491 and 6.385. Correspondingly, GEH averaged around 2.722 for the period 1986 – 2020. It deviates between -3.186 and 5.961 with a standard deviation value of 2.614. ALR 59.621 which lies between 50.000 and 69.100. The standard deviation of 6.245 shows that the dispersion among the variable is relatively high compared to other variables in the study for the study period. The GDP, GEE and GEH indicated that the variables are negatively skewed, while The kurtosis result indicates that all the variables are platykurtic, that is, have a flatter allotment than the normal. The study fails to reject the null hypothesis that the variables are not normally distributed since the Jarque-Bera statistic of each variable is not statistically significant, thus the study concluded that the variables are normally distributed.

Unit Root Test Result

Stable economic variables are generally accepted. As a result of the trend distortion caused by the variables, this generalization fails to hold. It is impossible to make an accurate estimate if a preliminary test has not been performed. The time series data were put through an augmented Dickey-Fuller (ADF) test to see how efficient and reliable they were as reported in Table 3.

Table 3. Results of Unit Root Test (Augmented Dickey-Fuller)

Variable	Level	ADF critical value	1 st difference	ADF critical value	Order	Remark
logGDP	-3.894333	-2.954021	-3.016722	-2.957110	I(0)	Stationary
LogGEE	-2.599204	-2.971853	-7.304682	-2.957110	I(1)	Stationary
LogGEH	-5.702427	-2.976263	-10.34176	-2.957110	I(0)	Stationary
ALR	-0.929761	-2.954021	-4.400088	-2.957110	I(1)	Stationary

Note: 5% critical value was used for the ADF test

Source: Author's computation Eview 10.

GDP and GEH were both stationary at the level, but GEE and the adult literacy rate (ALR) were non-stationary at the level, which means they had unit roots in the data set. That is to say, the data did not have a constant standard deviation or mean when they were collected. GEE and the ALR are stationary, that is, they integrate at order I(1) because the ADF value of each of these variables is above the critical values at the 5% significance level. At order I, the means and variances become stationary or integrated when the variables are divided by their first-order difference (1). To find the most effective model, the lag length criteria test for parameter efficiency must be used.

Co-integration Bound Test

The F-statistic is calculated using the bound test and compared to the critical values at the chosen significance level. When the computed F-statistic value exceeds the upper bound at the selected significance level, the ARDL bound test indicates the presence of a long-term relationship. The estimated bound test result is presented in Table 4.

Table 4. Co-integration Bound Test Result

Test Statistic	Value	K
F-statistics	42.44152	3
Critical Bounds Value		
Significance level	Lower bound I(0)	Upper bound I(1)
10%	2.2	3.09
5%	2.56	3.49
2.5%	2.88	3.87
1%	3.29	4.37

Source: Author's computation using Eviews 10.

The F-statistic value is greater than the ARDL upper bound value. This indicates the existence of a long-run relationship among the variables. The coefficient of the F-statistic 42.44152 is greater than the 5% upper bound value of 3.49 which shows the existence of sufficient evidence of a long-run relationship among the variables in the model. Therefore, the alternate hypothesis is upheld implying the existence of a long-run relationship between human capital development and economic growth in Nigeria.

The ARDL Long Run Result

Table 5. Long-run Estimates of the ARDL Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
Log(GEE)	-1.407510	0.712867	-1.974434	0.0590
Log(GEH)	1.900433	0.651931	2.915082	0.0072
ALR	-0.007639	0.050639	-0.150860	0.8813
ECT(-1)	-1.031820	0.268340	-3.845188	0.0007
C	10.82582	3.796309	2.851670	0.0084
R-squared	0.998727	F-statistic		3399.504
Adjusted R-squared	0.998433	Prob(F-statistic)		0.000000

Source: Author's computation Eview 10.

Discussion of Findings

The result revealed that government expenditure on education is negative (-1.407) and statistically insignificant showing that the variable is insignificant at a 5% level of significance (0.0590). This implies that a 1% increase in government expenditure on education would lead to a reduction in economic growth by more than 100%. The result is therefore inconsistent with the a priori expectation which denotes a negative relationship with economic growth in Nigeria.

The ARDL result also uncovered that Government expenditure on health has a positive and significant impact on economic growth in Nigeria. This is in line with the apriori expectation of a positive relationship in the long run. The coefficient of government expenditure on the health sector is 1.900 was significant given the probability value of 0.0072 which is less than a 0.05 level of significance. This means that a 1% increase in government expenditure on health would result in an increase of more than 100% in economic growth in Nigeria. By this, government expenditure on health plays a significant role in economic growth in Nigeria

The ALR has a negative coefficient of (-0.00763) and an insignificant impact on economic growth in Nigeria. This also implies that the adult literacy rate is inconsistent with a priori expectations. The insignificant of this variable has been confirmed by its probability value of 0.8813. This indicates that a 1% increase in the adult literacy rate would lead to a decrease in economic growth by 0.007% in Nigeria. The probability value of the adult literacy rate shows that the variable plays an insignificant role in the determination of economic growth in Nigeria.

The error correction term which is symbolically represented as ECT (-1) is significant and negatively signed. The result confirms the finding of a long-run relationship among the variables. Therefore, the system adjusts to equilibrium at the speed of 103.18% after a shock. This implies that any departure from equilibrium is adjusted at the speed of 103.18% in the short run. The estimated result revealed that all explanatory variables jointly explained economic growth in Nigeria as depicted by the F-statistic p-value of 0.0000 and 3399.504. Variation in economic growth in Nigeria is depicted by 99.87% as a result of the explanatory variables.

V. SUMMARY AND RECOMMENDATIONS

The result showed that there exists a long-run relationship between human capital development and economic growth in Nigeria as demonstrated by the bound testing model and ECM. GEE had a negative and statistically insignificant impact on economic growth in the long run, while GEH and ALR had a positive impact on economic growth in Nigeria. Government should promote practice-oriented training for students, particularly in technical disciplines, and match the education system in line with market demand. The government should increase budgetary allocation to meet up with the United Nations' specifications of 26% for the building of effective human capacity development in Nigeria.

REFERENCES

- 1) Abu, N. (2019). Inflation and unemployment trade-off: A re-examination of the Phillips curve and its stability in Nigeria. *Contemporary Economics*, 13(1), 21-34.
- 2) Anyawu, J. C. (1999). *Structure of the Nigeria Economy*. Onitsha: Joanee Education Publishers.
- 3) Anyanwu, S. O., Adam, J.A, Obi, B. & Yelwa, M. (2015). Human capital development and economic growth in Nigeria. *Journal of Economics and Sustainable Development* 6(14), 16-26.
- 4) Attahir, B. A., Ahmad, S.B & Abdullahi, A. M. (2020). To what extent does human capital development impact economic growth? *Empirical Evidence from Nigeria*. *Research Squard*.;1-27.
- 5) Central Bank of Nigeria (2020). *Annual Report and Statement of Account*. Abuja: CBN.
- 6) Central Bank of Nigeria (2017). *Statistical Bulletin*. Abuja: CBN.

Time Series Analysis of Human Capital Development and Economic Performance; A Recent Evidence from Nigeria

- 7) Euphemia, L. B. I., (2022). Human Capital Development and Economic Growth in Nigeria. *Asian Journal of Economics, Finance and Management* 8(1): 1-11,
- 8) Harbison, A.F. (1973). *Human Resources as Wealth of Nations*. London: Oxford University Press.
- 9) Imandojemu, K. C. & Babatunde, J. A. (2020). Determinants of human capital development in Nigeria: an ARDL methodology. *Journal of Economics and Development Studies*. 8(3),64-74.
- 10) Kairo C.I., Mang, N.J., Okeke, A. & Aondo, D.C. (2017). Government Expenditure and Human Capital Development in Nigeria: an Auto-Regressive Distributed Lagged Model Approach (ARDL). *International Journal of Advanced Studies in Economics and Public Sector Management*, 5(1),143-158.
- 11) Lawal, W. A. & Abdulkadir, R. I. (2011). An analysis of government spending on the education sector and its contribution to GDP in Nigeria. *International Journal of Financial Economics and Econometrics*, 3(1), 163-170.
- 12) OECD (2017). *Health expenditure per capita in health at a glance 2017: OECD indicators*, OECD Publishing, Paris.
- 13) Ogungbenle, S.K. & Edogiawerie, M.N. (2016). Budgetary Allocation and Development in Nigeria Tertiary Institutions. *Igbinedion University Journal of Accounting*, 2, 377-407.
- 14) Oluwatobi, S. O. & Ogunrinola, O. I. (2011). Government Expenditure on Human Capital Development: Implications for Economic Growth in Nigeria. *Journal of Sustainable Development*, 4(3), 72-80.
- 15) Osoba, A. M. & Tella, S. A. (2017). Human Capital Variables and Economic Growth in Nigeria: An Interactive Effect. *Euro Economica* 36(1), 23-36.
- 16) Oni, L.B. (2014). Analysis of the Growth Impact of Health Expenditure in Nigeria. *Journal of Economics and Finance*, 3(1), 77-84.
- 17) Paul, A. A. & Akindele, J. O. (2016). The impact of human capital development on economic growth in Nigeria: ARDL Approach. *IOSR Journal of Humanities and Social Science*. 31(3), 1- 7.
- 18) Puepet, N. N., Ikande, E. U., Madaki, A. I. & Timnan, B. N. (2023). Modeling Non-Oil Exports and Economic Growth In Nigeria. *International Journal of Economics, Commerce and Management*,11(3), 146-161.
- 19) Sakanko, M.A. & David, J. (2018). Assessment of the Millennium Development Goals (MDGs) on the Eradication of Poverty and Hunger in Nigeria. *International Journal of Research in Arts and Social Sciences*, 11(2), 257-268.
- 20) Smith, A. (1776). *An Inquiry into the Nature and Causes of the Wealth of Nations Book 2 - of the Nature, Accumulation, and Employment of Stock*. London: Forgotten Books.
- 21) Schultz, T.W. (1961). Investment in human capital. *American Economic Review*, 51, 1–17.
- 22) Schultz, T.W. (1993). The economic importance of human capital in modernization. *Education Economics*, 1(1), 13-19.
- 23) Yesufu, T. M. (2000). *The Human Factor in National Development: Nigeria*. Ibadan: Spectrum Books.



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