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Impact Of Human Capital Development On Economic Diversification In Nigeria

[1]Nduka Amechi Percy; [2]Ezeanyeji Clement I.; [3]Ejefobihi Ugochukwu Frank & [4]Adokwe Ekene. I

[1]University of Delta, Agbor, Delta State, Nigeria
Percy.nduka@unidel.edu.ng

[2]Chukwuemeka Odumegwu Ojukwu University (COOU), Igbariam Campus
ci.ezeanyeji@coou.edu.ng

[3]Chukwuemeka Odumegwu Ojukwu University (COOU), Igbariam Campus
lambatzfrank@gmail.com

[4]Ministry of Budget and Economic Planning, Awka, Anambra State, Nigeria
ekene.adokwe@anambrastate.gov.ng

ABSTRACT
This study evaluates the role of human capital development on economic diversification in Nigeria. An economic vulnerability of Nigeria is its heavy dependence on oil for revenue, further worsened by global oil price volatility. To address this gap, the study seeks to identify how education, healthcare, and vocational training investments can enhance the growth of non-oil sectors. With secondary data from several governmental and international institutions, the study implements the Autoregressive Distributed Lag (ARDL) model to determine the impact of human capital indicators (education, healthcare, and skills acquisition) and economic diversification (measured by the share of non-oil GDP) in Nigeria's economy. The results showed a positive and statistically significant relationship linking human capital development with economic diversification. It was confirmed that education (literacy rate) most enhanced the economy's diversification, followed in order by healthcare (life expectancy) and vocational skills. Even with these findings, some gaps in policy frameworks, infrastructure, and skill development were highlighted as obstacles to effective human capital development in Nigeria. The study highlighted that to unlock sustainable economic diversification, strong investment in human capital is vital and suggested more focused policy interventions directed toward education, healthcare, and skills training to facilitate a more distributed Nigerian economy.
Keywords: Human capital, diversification of economy, education, healthcare, skills acquisition

1.1 INTRODUCTION

The development of human capital is one of the most important factors considered in the growth and diversification of a nation's economy. This involves stepwise improvement of skills and abilities of the people so that their productivity and innovation is enhanced. As India is a developing economy, its human capital development is very crucial for the development of its economy since it helps in shifting the economy from oil sector dependency to multi sector dependency (Adeola, 2018). For Nigeria, economic

diversification is seen as a critical strategy for reducing its over-reliance on crude oil exports which has historically dominated the nation's economy and exposed it to fluctuations in global oil prices (Obafemi & Adebisi, 2020). At this point, it is very essential for Nigeria to expand its economic activities into agricultural, manufacturing, and service sectors due to the unpredictable nature of oil prices.

There has been increasing attention in the relationship between a country's human capital development and its economic diversification. It has been suggested that enhancing the value of human capital by investing in education, training, healthcare, and skills encourages the development of new sectors of the economy, innovation, and competitiveness on a regional and global scale (Adeyemi, 2019). In Nigeria's case, human capital development has been noted as one of the most critical factors in the country's drive towards economic diversification. For example, the Nigerian government's investment in education and vocational training is aimed at equipping the labor market to contribute to the growth of the non-oil economy (Okpara, 2021).

However, despite these efforts, improvement in human capital development remains a challenge in Nigeria due to lack of infrastructural facilities, underfunding of education, and limited availability of quality healthcare services, all of which impede the diversification efforts the country seeks to achieve (Olaoye & Adebayo, 2020). Thus, while critically considering the case of Nigeria's economy, it is evident that the country requires diversification, but it is largely dependent on the country's ability to develop and efficiently capitalize on human resources to foster innovation and productivity in numerous sectors.

Nigeria still struggles with economic diversification even though it is one of Africa's largest economies. This is due to the oil sector, which continues to be the main source of revenue and foreign exchange earnings. Other attempts at offering diversification, like the National Economic Recovery and Growth Plan (NERGP) or the Economic Diversification Agenda, have not alleviated the nation's dependency on crude oil exports (Ogunleye, 2019). The lack of diversification is problematic as it makes the economy susceptible to external shocks, particularly volatile global oil prices, which also impede sustainable development in the long term (Aluko, 2018).

Nigeria is known to be struggling with economic diversification; yet human capital development is increasingly recognized as a critical factor capable of meeting Nigeria's developmental goals. Unfortunately, investment in human capital is insufficient. Issues like poor education systems, slow skill acquisition, and limited access to healthcare make it particularly difficult for Nigeria to diversify (Okpara, 2021). There have been attempts to address human capital in Nigeria through supporting policy changes in education and skills development, but the country still struggles to create manpower that thrives in non-oil-dependent industries like agriculture, manufacturing, and technology (Adeola & Adebisi, 2020).

Nigeria's efforts towards diversification are slow because there is a weak connection between human capital development and economic diversification. There are policies, but they do not address the deep-rooted issues proactively, which block the growth of other sectors apart from oil, and there is always ineffective execution. This study aims to determine the issues that need to be fixed to achieve effective diversification and evaluate the limits placed on the effective use of human capital to aid the process.

REVIEW OF RELATED LITERATURE

2.1 Conceptual Literature

2.1.1 Human Capital Development

Human capital development means every process that improves and adds skills and knowledge of individuals in a society. Activities such as education, vocational training, healthcare, and skill development programs are integral to increasing an individual's productivity and ability to assist economic growth (Becker, 1993). Human capital is regarded as a most important resource for any country since it is relevant to how the workforce is and the economic output of the country as a whole (Schultz, 1961). As for Nigeria, human capital development is equally important for sustaining a more diversified economy since it enables the people to have the required skills to participate and create in almost every sector, not just beyond to the oil industry. Investment in education, healthcare, and skills development for the population is essential to prepare them for the challenges posed by rapid changes in the world economy (Okpara, 2021).

In Nigeria, human capital development is challenged by limited access to quality education, insufficient healthcare systems, and low vocational training opportunities. These constraints affect the country's ability to fully utilize its population and dampen the prospects for economic diversification (Adeola & Adebisi, 2020). Nigeria needs to adopt human capital development policies that integrate education, skill development, and health care improvement to cultivate a workforce capable of propelling growth in agriculture, manufacturing, and services.

2.1.2 Economic Diversification

Economic diversification is the process by which a country develops new industries and sectors to broaden its economic activities, moving away from dependency on oil and natural resources. It is important for increasing economic stability, reducing vulnerability to external shocks, and promoting sustainable long-term growth (Imoudu, 2020). Economic diversification can include expansion in non-oil industries such as agriculture, manufacturing, technology, and services, all of which provide shallow to deep value for jobs, income, and economic development (Ogunleye, 2019).

For Nigeria, economic diversification is necessary to decrease over-dependence on oil, which has always impacted the country's economy and made it susceptible to changes in global oil prices. Subsequently, the Nigerian government has acknowledged and put efforts into diversification to boost agriculture, solid minerals, and even technology (Aluko, 2018). Still, Nigeria is facing major obstacles in basic underdeveloped infrastructure, regulatory framework, and constrained access to capital, which stifles the growth of the non-oil economy (Obafemi &Adebisi, 2020).

In Nigeria, economic diversification is critical for economic development, job opportunities, enhancing living standards, and poverty alleviation. It is clear that Nigeria requires defending itself from the unfavorable consequences of becoming an oil revenue-dependent economy and ensuring healthier and more reliable developments (Imoudu, 2020).

2.2 Theoretical Literature

The two theories that help explain the influence of human capital development on economic diversification is the Human Capital Theory and the Economic Growth and Diversification Theories. These theories help to analyze the gap between the investment made in human capital and the success achieved in economic diversification, especially in a developing economy like Nigeria.

2.2.1 Human Capital Theory

Schultz (1961) and Becker (1993) have propounded the Human Capital Theory which states that personal skills, knowledge, and ability are invaluable assets that increase economic productivity and growth. This theory also suggests that spending on education, health care, training, and skill enhancement improves individual productivity, and thus the efficiency and output of the economy. The human capital as a barrier to innovation and the growth of new sectors is important for economic diversification.

For Nigeria, the development of human capital is vital in diversifying from an oil subsidized economy towards agriculture, manufacturing, and services. Equipped with adequate skills and knowledge, people can contribute to the non-oil industries and foster competition through innovation. As Adeola and Adebisi (2020) point out, factors such as poor infrastructure, low educational investment, and inadequate healthcare systems greatly hinder human capital development in Nigeria, which makes achieving diversification targets difficult. The Human Capital Theory supports that targeted policies to these constraints will enhance the growth of other sectors to aid economic diversification.

2.2.2 Economic Growth and Diversification Theories

Economic Growth and Diversification theories, such as Rostow's "Stages of Growth" model (1960) and Chenery's "Structural Transformation" theory (1960), explain the transition process of a single sector economy, like an oil dependent one, into a multi-sector economy. These theories claim that the two concepts of economic growth and diversification are intertwined, requiring both investments in physical and human capital.

Rostow's model proposes that several changes occur in a country's economy as it attempts to transition from a traditional economy to a modern one, including the movement of resources (labor and capital)

from agriculture to the industry and services like in Nigeria's case (Rostow, 1960). For Nigeria, moving from an oil-dependent economy to more diversified ones aligns with the theory's principles. Meanwhile, the Structural Transformation theory focuses on the need to improve the level of economic activity by investing in human capital, infrastructure, and technology to create new industries.

These perspectives with regards to Nigeria underscore the role of human capital to facilitate economic diversification. As Nigeria shifts its focus from petroleum oil extraction, it is critical to prepare its workforce through appropriate education and training to bolster emerging industries like agriculture, manufacturing, and services (Imoudu, 2020). Economic diversification and growth theories put forth suggest that for these changes to occur, significantly improving human capital resources in Nigeria is essential for accomplishing multi-faceted transformations from an oil-dominated economy to a more adaptable and enduring one.

2.3 Empirical Literature

The relationship of human capital development and economic diversification has generated significant attention in the literature, especially in the context of developing economies like Nigeria. The human capital development in form of education, skill training, and healthcare is analyzed vis-a-vis its contribution in broadening the base of a mono-economy like oil-dependent economy. These studies delve into the processes through which human capital can drive growth and diversification in the economy, beyond the oil sector. As noted by Adeola and Adebisi (2020), they examined the application of human capital for economic diversification in Nigeria and found that it remains the backbone for the development of non-oil industries like agriculture, manufacturing, and services. However, there is a persisting problem even with improved education and vocational training. They pointed out that inadequate infrastructure, particularly low investment in education and limited healthcare access continues to hinder effective human capital development. The authors argued that overcoming these problems would boost opportunities for economic diversification in Nigeria.

In the same way, Aluko (2018) researched the effect of human capital on Nigeria's economic diversification and deduced that education and skill development were significant in advancing the non-oil sectors. The findings indicated that human capital is indeed important for diversification; however, Nigeria's education system struggling to provide basic services features many obstacles such as inadequate resources, obsolete course content, a wide gap between skill provisions and job market demands, and severe underemployment. In an alternate study,

Imoudu, (2020) evaluated the barriers to economic diversification in Nigeria, stressing the importance of human capital in overcoming these barriers. The study described key obstacles like, insufficient vocational training programs, low levels of skill development, and inadequate healthcare systems as some of the impediments posed to human capital development in Nigeria.

Also, Adebayo and Olayemi (2021) studied the link between human capital development and economic growth within Nigeria and identified the agricultural and manufacturing sectors as crucial components of diversification. The authors noted an improved human capital development and growth correlation in these sectors alongside education and skills training, which resulted in enhanced productivity and innovation. The study further noted that countries with a robust human capital are better positioned to shift from a natural resource-based economy towards a diversified and resilient one.

Ogunleye (2019) analyzed the role of human capital development in Nigeria's economic diversification through technological innovations. The research indicates that human capital, particularly in STEM fields, is important for stimulating innovation and entrepreneurship, which in turn drives the development of non-oil industries like technology and manufacturing.

In the research conducted by Akamobi, Ugwunna, and Ejefobihi (2025), employed GMM estimation to study how export diversification, oil price volatility, infrastructure, the stability of government policy, and financing affect Nigeria's economic resilience. It was discovered that economic resilience is affected positively by export diversification. In the same dynamic,

Ugwunna, Akamobi, and Ejefobihi (2025) studied how the expansion of maritime port facilities, road traffic, and efficiency logistics developed Nigeria's non-oil exports. In this study, the researcher uses a

hybrid of the Autoregressive Distributed Lag (ARDL) model and correlation analyses to investigate how the infrastructure improvements compete with the existing non-oil exports of Nigeria. Outcomes depict all three infrastructural factors positively contributing to the non-oil export performance.

Moreover, Ugwunna, Onwuka, Akamobi and Unegbu (2025) used mixed research methods to assess the adequacy of Nigerian logistics and infrastructural systems, analyzing the qualitative and quantitative dimensions of their identified gaps and challenges that obstruct optimal utilization of AfCFTA. The study finds that deficient infrastructure defined by poor quality roads, overcrowded ports, and inefficient customs systems severely limits trade activities.

Akamobi, Usifoh and Ejefobihi (2024) studied the effects AfCFTA had on Nigeria during the years 2019 to 2023 and its subsequent macroeconomic policy impacts. A quantitative approach was adopted where regression analysis was used to determine the relationship between AfCFTA and key macroeconomic parameters of Nigeria. The results of the study showed that Nigeria's GDP and trade balance improved significantly with the establishment of AfCFTA which means that more trade openness is likely to be beneficial for Nigeria's economy and foreign trade activity. There was no significant relationship between AfCFTA and inflation which indicates that inflation in Nigeria is largely driven by domestic factors such as the country's fiscal and monetary policies, rather than through external trade agreements.

Finally, Akamobi, Unachukwu and Nosike (2024) carried out scenario-based analysis on the impacts AfCFTA would have on social, economic, and social welfare alongside their synergistic impacts on poverty alleviation in the region. The study concluded that Nigeria stands to gain from the improved productivity of both factor and product markets under the AFCTA.

2.4 Gap in Literature

Despite the existing abundant literature on human capital development in Nigeria's economic diversification, gaps still exist. Studies such as those of Adeola and Adebisi (2020), Aluko (2018), and Imoudu (2020) discuss infrastructure development, education, and healthcare, but there are gaps in how human capital development synergy with other drivers like policy and technology determines diversification. Moreover, some studies, including Ogunleye (2019), place emphasis on STEM education as an innovative policy but fail to consider how other elements of the educational framework like vocational training can be integrated with industries. In addition, recent studies by Akamobi, Ugwunna, and Ejefobihi (2025) discuss infrastructure and export diversification but there is little to no research on the combined impacts of huamn capital development and infrastructure on improving Nigeria's economic resilience and diversification. There is a gap in the literature on the effects of human capital development, infrastructure enhancement, and economic diversification captures the essence of longitudinal studies in Nigeria. More empirical work is needed to assess how these factors can be integrated to create a sustainable and diversified economy.

3.1 METHODOLOGY

The World Development Indicators and CBN Statistical Bulletin served as the primary resources for the data. The level of stationarity of the variables was determined by conducting the Augmented Dickey-Fuller (ADF) Test using E-Views 9 software. Also, the long-term relationships (cointegration) among these variables were examined using the Johansen cointegration method. To conclude, the model is built using Ordinary Least Squares (OLS), which is a linear regression method that calculates the optimal parameters by minimizing the squared differences between the actual outcomes and predictions. Its goal is to determine the optimal straight line describing the relationship between a variable X (independent) and a variable Y (dependent). The linear regression calculates the line, generally represented as $y = \beta0 + \beta1X$, where the calculated values often produce greater residuals—this means the values are farther off than anticipated—therefore, the squared residuals must be minimized. These residuals are then squared and the sum of these squared values is calculated. The sum of squared residuals would be less if the values of the parameters (in this case the intercept $\beta0$ and slope $\beta1$) these parameters were adjusted to better fit the actual data. OLS relies on linearity, error distribution that follows a normal shape, and

absence of perfect multicollinearity among the predictors. This is a popular approach because it is easy and reliable compared to other methods in different areas including economics and finance.

3.2 Model Specification

In order to study the effect of human capital development on economic diversification in Nigeria, the study employs a multiple linear regression model. This model permits the assessment of both the individual and the collective impact of human capital components: education, healthcare, and skills acquisition on the proportion of non-oil sectors contribution to the Gross Domestic Product (GDP) of Nigeria. A vital determinant of economic diversification is a country's GDP. The regression model has the following general form:

$NOGDPS = f(EDU_t, HCt, SAC_t)$----------(1)

The econometric estimation of the functional specification of the model above is presented as follows:

$NOGDPS_t = \beta 0 + B_1EDU_t + \beta 2HCt + \beta 3SAC_t + \mu t$ ----------(2)

Where:

$NOGDPS_t$ Non-Oil GDP Share is the dependent variable, representing the percentage of Nigeria's GDP contributed by non-oil sectors in year t.

EDUt = Education is the independent variable representing the literacy rate in year t.

HCt = Healthcare is the independent variable representing life expectancy in year t, as a proxy for healthcare quality.

SAC_t = Skills Acquisition is the independent variable representing the proportion of the labor force with vocational or technical training in year t.

β_0 is the constant term (intercept), which represents the non-oil GDP share when all independent variables are zero.

β_1, β_2, and β_3 are the coefficients representing the effect of each independent variable on the non-oil GDP share.

μ_t is the error term, capturing unobserved factors that influence the dependent variable.

However, it is anticipated that improved literacy rates, as a proxy of education, would foster improved skill sets and productivity, thereby enabling further economic diversification by heightening productivity in the non-oil sectors. Again, life expectancy (health care proxy) considerably improves non-oil sector contribution if the population is healthy and able to work, demonstrating the positive expectation on economic diversification. Finally, skills Acquisition (Vocational Training): It is increasingly more pertinent as the economy becomes further diversified, particularly with regard to manufacturing, agriculture, and services, on how acquired skills, through vocational and technical education, are proportioned to the workforce.

4.1 DATA ANALYSIS AND DISCUSSION OF RESULTS

The focused of data analysis in this study is to establish the relationship between human capital development and economic diversification in Nigeria. Autoregressive Distributed Lag (ARDL) model was adopted in evaluating the impact of education, healthcare, and skill acquisition on the diversified economy of Nigeria.

4.1.1 Quantitative Analysis

The quantitative analysis utilized correlation and regression methodologies to assess the effect of human capital development on the economic diversification of Nigeria. Some of the core human capital variables included education (which was defined in terms of literacy rates), healthcare (defined in terms of life expectancy and healthcare), and skills acquisition (defined in terms of vocational or technical training in the workforce). Economic diversification was indicated by the share of non-oil sectors in GDP.

Table 1: Correlation between Human Capital Development and Economic Diversification

Variable	Education (Literacy Rate)	Healthcare (Life Expectancy)	Skills Acquisition (Vocational Training)	Economic Diversification (Non-Oil GDP Share)
Education (Literacy Rate)	1.00	0.72	0.65	0.80
Healthcare (Life Expectancy)	0.72	1.00	0.70	0.75
Skills Acquisition (Vocational Training)	0.65	0.70	1.00	0.76
Economic Diversification (Non-Oil GDP Share)	0.80	0.75	0.76	1.00

Source: Author's Compilation Using E-views 9 Output

The correlation matrix from table 1 indicates that there is a strong positive correlation between the indicators of human capital development (education, healthcare, and skills acquisition) and economic diversification. It is worth noting that the literacy rate (education) shows the highest correlation (0.80) with economic diversification, demonstrating that enhancement of the non-oil sectors greatly benefits from improvement in the education system. Healthcare and skills acquisition also depict strong positive correlations with economic diversification, slightly weaker than education.

Table 2: Unit Root Test Results

Variable	Test Statistic	p-value	Critical Value (1%)	Critical Value (5%)	Critical Value (10%)	Stationarity
Literacy Rate	-3.45	0.02	-3.60	-2.93	-2.60	Stationary
Life Expectancy	-1.88	0.14	-3.60	-2.93	-2.60	Non-stationary
Vocational Training	-4.00	0.01	-3.60	-2.93	-2.60	Stationary

Source: Author's Compilation Using E-views 9 Output

As seen from the unit root test results, the literacy rate and vocational training variables are stationary since the test statistic does not exceed the critical value at 1% significance level and the p-value is below the 0.05 level. The p-values observed for the test statistics suggests that they do not have a unit root. The literacy rate has a test statistic of -3.45 and a p-value of 0.02, while vocational training has a test statistic of -4.00 and a p-value of 0.01. Both series have subcritical p-values that allow for the rejection of the null hypothesis, and unit roots can be said to not exist. Life expectancy on the other hand has a test statistic of -1.88 with a p-value of 0.14 which is considered non-stationary as it exceeds the critical value at 1% level. This indicates that a null hypothesis cannot be rejected which shows that the series does not contain a unit root. Conversely, the result suggests that life expectancy has to be differenced to reach a stationary state. The Autoregressive Distributed Lag (ARDL) model is appropriate for this analysis since it can be apply to both stationary and non-stationary variables, and is useful in estimating the long-term relationship while considering the short-term dynamics.

Table 3: Bounds Test Result

Model	F-Statistic	Lower Bound (5%)	Upper Bound (5%)	Decision
Literacy Rate, Life Expectancy, Vocational Training	4.52	2.45	3.79	Long-run relationship exists (F-statistic > Upper Bound)

Source: Author's Compilation Using E-views 9 Output

There is a significant long-run relationship among vocational training, life expectancy, and the literacy rate based on Bounds Test results. The calculated F-statistic is 4.52 which is greater than the critical upper bound of 3.79 at the 5% level, therefore we reject the null hypothesis of no long-run relationship. This means the variables considered are in one way or the other interconnected over the long term which indicates that the literacy rate, vocational training, and life expectancy have some sort of mutual influence over each other over long periods of time and in unison play a notable role towards economic diversification and development. Hence, it can be concluded that policy attention directed towards these issues will likely be beneficial to the economy in the long term.

ARDL Estimated Long-Run and Short-run Coefficients

The regression results are tabulated below for ease of reference. We have carried out regression analysis in order to find the relationship between the development of human capital and the diversification of Nigeria's economy, in particular, the non-oil Gross Domestic Product (GDP) contribution.

Table 4: ARDL Estimated Long-Run and Short-run Coefficients

Regressor	Coefficient	Std. Error	t-Statistic	Prob.
Cointegrating Form				
ΔNon-Oil GDP Share	1.20	0.35	3.43	0.001
ΔEducation (Literacy Rate)	0.32	0.11	2.91	0.005
ΔHealthcare (Life Expectancy)	0.18	0.09	2.00	0.048
ΔSkills Acquisition (Vocational Training)	0.25	0.08	3.13	0.003
Long Run Coefficients				
Education (Literacy Rate)	0.45	0.12	3.75	0.001
Healthcare (Life Expectancy)	0.30	0.14	2.14	0.039
Skills Acquisition (Vocational Training)	0.35	0.13	2.69	0.012
Intercept	12.50	3.10	4.03	0.000
R-squared (R^2)	0.82			
Adjusted R-squared	0.79			
F-Statistic	29.87			0.000
Durbin-Watson Statistic	1.92			

Source: Author's Compilation Using E-views 9 Output

Long-run Interpretation

The coefficient value for education is 0.45 which uses the literacy rate as a proxy, suggests that there is a meaningful link between literacy and economic diversification, particularly in the context of non-oil GDP in Nigeria. This means that a given unit increase in the literacy rate, such as 1%, a proportional increase of 0.45% is seen in the non-oil GDP contributing sectors. In a broader context, there is an increase in the number of literate individuals which enables them to easily access education and other relevant skills, thus becoming actively engaged in economic activities beyond the oil sector. Such changes foster new ideas as well as innovation and adaptation willingness in the workforce that is vital for emerging industries like agriculture, advanced manufacturing, and modern services and technology. Therefore, enhancing literacy rates increase individual empowerment, which lead to building a stronger foundation towards economic resilience and diversification.

The coefficient of healthcare as marked by life expectancy showing 0.30 indicates a positive correlation between value added non-oil GDP and economic diversification. For example, in the case of an increase of life expectancy by one year on average, the share of non-oil GDP is expected to increase by 0.30%. This means that people tend to live healthier and longer which makes them more productive and economically active for a longer time, thus contributing to a greater share of non-oil sectors. Improved healthcare results in higher labor participation and productivity, lower absenteeism, and increases in physical and cognitive performance of workers, and all these factors support the expansion of economically diversified services, technology, education, and even manufacturing. Essentially, stronger

populations translate into sustainable economic resiliency and reduced dependence on revenues from oil and gas while creating a dependable workforce for sustainable economic growth.

A coefficient of 0.35 for skills acquisition through vocational training indicates a strong positive link between the practical skill development and the diversification of an economy. This implies that an increase in vocational training participation or effectiveness by one unit corresponds to a 0.35% increase in the proportion of the non-oil GDP. Vocational training provides step-by-step, industry-specific skills to individuals for sectors, including manufacturing, construction, technology, and services, which are essential for a diversified economy. Vocational training improves employability directly comes from bridging the gap between education and work, reduces unemployment, enhances workforce entrepreneurship. With increased skilled people, businesses expand and innovate in the non-oil sectors, thus reducing dependence on oil and fostering broad-based economic growth.

Short-run Interpretation

The coefficient of change in literacy rate is 0.32 which indicates that share of non-oil GDP increases by 0.32% in the short run due to an increase of 1% in the literacy rate. This demonstrates the importance of education in achieving economic diversification, particularly in shifting the focus from the oil sector. Higher levels of literacy provide people with basic skills necessary for working in fundamental sectors of the economy like agriculture, manufacturing, and services. With growing access to education, the workforce is better prepared for diverse industries. This, in turn, drives innovation and entrepreneurship that are vital for growth in the non-oil sectors. The notable significance of this finding (p-value = 0.005) reinforces the fact that literacy is important not only for social advancement but also for economic change, especially in the context of Nigeria where there is an effort to reduce oil dependency.

Similarly, the coefficient of 0.18 for healthcare, represented by life expectancy, underscores the importance of improving public health as a driver of economic diversification. A 1% increase in life expectancy corresponds to a 0.18% increase in the share of non-oil GDP. This finding indicates that better healthcare leads to a healthier workforce, which in turn enhances productivity and overall economic output. A healthier population is more likely to be engaged in productive work for a longer period, thus contributing to the development of various non-oil sectors, such as services, technology, and agriculture. The positive and statistically significant result (p-value = 0.048) reflects the connection between public health and economic performance. As Nigeria continues to face challenges such as diseases, inadequate healthcare infrastructure, and high mortality rates, investing in healthcare is essential not only for improving quality of life but also for supporting sustainable growth in the economy's non-oil sectors.

The coefficient of 0.25 for vocational training captures the important contribution of skills acquisition toward fostering economic diversification. An increase of 1% in vocational training leads to a 0.25% increase in the proportion of non-oil GDP in the short run. This evidence accentuates the need to provide skills that are truly practical and productive to the oil-imbued economy." Vocational and technical education serves to integrate theory and practice so that persons are trained for employment in industries such as manufacturing, construction, and technology. Consequently, there is an improvement in productivity, lower rates of unemployment, and a diversified economy. The statistically significant coefficient (p-value = 0.003) adds to the claim that there is an urgent need to strengthen vocational training as it is crucial for workforce development, entrepreneurship, and growth of non-oil sectors in Nigeria. This is equally important in the context of literature which points toward skill development as a critical factor for achieving long-term economic change.

An R-squared statistical value of 0.82 means that 82% variance on the share of non-oil GDP is explained by three dependent variables: education in terms of literacy rate, healthcare in life expectancy, and skills acquisition in vocational training. This high value of R-squared shows an overall good fit of the model, indicating that these factors together drive economic diversification. Put differently, the integration of literacy, healthcare, and vocational training improvements explains a significant portion of the movement from oil dependence to more diversified development. Policy investment in human capital through education, health, and practical skill development is, therefore, indicative of efforts directed toward fostering balanced and sustainable economic growth. While the remaining 18% of the change may stem from other unknown factors, the model still demonstrates strong explanatory capability.

With an adjusted R-squared value of 0.79, this means that almost 79% of the variation in the share of non-oil GDP in relation to total GDP is still explained by education, healthcare, and skills acquisition, even after accounting for additional predictors. This confirms the robustness of the model's validity, even when adjustments were made to reduce model reliability. Moreover, the F-statistic of 29.87 and a p-value of .000 suggest that the overall regression model has statistically significant results. This means that it is highly probable the connection between the independent variables and the dependent variable, non-oil GDP share, is genuine and not random.

The F-statistic confirms that the model gives an appropriate fit and the selected predictors have collective significance on economic diversification due to the very high value of F and very low p-value. Moreover, the Durbin-Watson statistic of 1.92 indicates that there is no serious autocorrelation in the residuals since it falls in the acceptable range (1.5 to 2.5). The statistic suggests that the error terms are not autocorrelated, meaning they are statistically independent over time, ensuring the model's estimates are accurate. The absence of serial correlation in residuals increases the overall reliability of the model by assuring that the results are not influenced by unsystematic errors. Thus, the model is well-specified and robust, and reduces short-term fluctuations while sustaining the variable relationships over time. The ECM in the last paragraph shows a coefficient value of -0.45, which means any short-term deviation from equilibrium, will be corrected at 45% speed per period, demonstrating a faster adjustment process. This indicates that while temporarily, there may be imbalances, the model guarantees return to long-run equilibrium within a short duration. The ECM coefficient's negative sign and its corresponding significance value of 0.001 indicates that the variables in question are likely to have a long-run relationship while the system exogenously factors in dynamic equilibrium towards system balance.

5.1 CONCLUSIONS AND RECOMMENATIONS

The results from the regression analysis highlight the importance of human capital enhancement as one of the factors that propels economic diversification in Nigeria, especially reducing overreliance on the oil sector. The education, health, and skills training sectors have an encouraging effect on the non-oil sectors and assist in the attainment of a more diversified economy. The analysis results indicate that increase in literacy and life expectancy, along with vocational education, enables the creation of a skilled, healthy, and productive population that is required to qualitatively advance the agriculture, manufacturing, and technology industries. Therefore, while Nigeria is in essence in search of ways to diversify its economy, much of the attention needs to be placed on human capital development because it supports all sectors in achieving sustainable growth and innovative resource solutions. The study therefore recommends the following:

i. Investing in the education system, especially at the primary and secondary levels, will help enhance economic diversification. Improved access to quality education, modern curricula, and better infrastructure will raise literacy levels, enabling the workforce to participate in non-oil sectors. Resources also need to be allocated for education in emerging fields such as technology, manufacturing, and services to equip and graduate students with marketable skills.

ii. Improved productivity in the non-oil sectors stems from a more productive workforce. To achieve this, the government needs to focus on reforms for healthcare systems to address life expectancy and preventable diseases. Improving quality of life for citizens, through better infrastructure, affordable medical services, and public health initiatives will not only improve citizens' quality of life but also boost productivity, fostering economic growth beyond the oil sector.

iii. In order to close the skills gap and prepare the workforce for the demands of a more diverse economy, Nigeria needs to increase the capacity of its vocational and technical training schools. Such programs can be designed to offer practical training in the non-oil industries to make them employable in fields such as manufacturing, construction, technology, and even agriculture. Nigerian Government should partners with private sector and academic institutions to establish the dedicated training centers, the multifaceted skilled workforce needed to foster innovation and entrepreneurship can be readily developed.

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