
HUMAN CAPITAL AND EMPLOYMENT DYNAMICS FOR POVERTY REDUCTION IN NIGERIA

ANDREW NANDE

Department of Economics,
Federal University of Lafia, Nasarawa State
greatmanande@gmail.com

Abstract

The study investigated the impact of human capital and employment dynamics on poverty reduction in Nigeria over the period 1980–2025. The aim was to examine how improvements in human capital development and labour market conditions influence poverty outcomes within the Nigerian economy. The scope of the study covers Nigeria using annual time series data sourced from the World Development Indicators, Central Bank of Nigeria Statistical Bulletin, and National Bureau of Statistics. The study adopted an ex post facto research design, utilizing the Dynamic Ordinary Least Squares (DOLS) technique to estimate long-run relationships among the variables. Pre-estimation tests such as unit root and cointegration tests, alongside post-estimation diagnostic tests, were conducted to ensure model validity and robustness. The theoretical framework of the study is anchored on the Capability Approach by Amartya Sen (1985), the Endogenous Growth Theory associated with Romer (1986), Lucas (1988), and Rebelo (1991), and the Kuznets Hypothesis (1955), all of which explain the role of human capabilities, growth dynamics, and inequality in poverty outcomes. The findings of the study revealed that human capital and employment exert significant negative effects on poverty, while technological progress shows mixed effects depending on structural conditions in the economy. The study concluded that poverty reduction in Nigeria is strongly driven by improvements in human capital and employment creation, while technological progress requires inclusiveness to be effective. Therefore, the study recommended increased investment in education and health, expansion of labour-intensive employment opportunities, and implementation of inclusive digital and skill development policies.

Keywords: Capability, Employment, Human capital, Poverty reduction

1.1 INTRODUCTION

The pursuit of improved living standards and the reduction of deprivation remain central to development discourse, particularly in economies where structural constraints limit broad-based prosperity. At the heart of this discussion lies the role of human capital and employment as critical drivers of socio-economic transformation. Human capital, which encompasses the education, skills, health status, and productive capacities of individuals, is widely recognized as a fundamental determinant of economic performance and individual welfare. At the same time, employment dynamics, including the nature, quality, and accessibility of jobs, shape how individuals translate their capabilities into income and improved livelihoods. The interaction between these elements plays a decisive role in determining whether economic progress leads to meaningful reductions in poverty or merely reinforces existing inequalities (World Bank, 2023).

Across the global economy, the importance of human capital development has gained increasing recognition as countries seek to achieve sustainable and inclusive growth. Investments in education and health have been shown to enhance productivity, foster innovation, and improve individuals' capacity to participate effectively in the labor market. Empirical evidence suggests that countries with higher levels of human capital tend to experience faster economic growth and more substantial reductions in poverty, as skilled and healthy populations are better equipped to access employment opportunities and generate income (Barro, 2021). However, the benefits of human capital accumulation are not automatic; they depend significantly on the structure of the labor market and the availability of productive employment opportunities that can absorb a growing workforce.

In recent decades, global trends have demonstrated both progress and persistent challenges in the relationship between employment and poverty reduction. According to the International Labour Organization, while global unemployment rates have stabilized in some regions, underemployment and informal employment remain widespread, particularly in developing economies where labor markets are characterized by low productivity and limited job security (International Labour Organization, 2024). Furthermore, despite a significant decline in extreme poverty—from approximately 36 percent in 1990 to under 10 percent in recent years—millions of people continue to live in conditions of vulnerability, often engaged in low-paying and unstable jobs that do not guarantee sustainable livelihoods (United Nations Development Programme, 2023). This situation highlights the critical importance of not just job creation, but the creation of decent and productive employment that aligns with individuals' skills and capabilities.

Moreover, global development frameworks have increasingly emphasized the integration of human capital development and employment strategies as essential components of poverty reduction efforts. The Sustainable Development Goals underscore the need to ensure inclusive and equitable quality education, promote lifelong learning opportunities, and achieve full and productive employment for all. Despite these commitments, global disruptions such as economic recessions, technological transformations, and public health crises have exposed vulnerabilities in labor markets and human capital systems, often disproportionately affecting low-income populations (OECD, 2024). These developments underscore the need for resilient policies that simultaneously strengthen human capital and expand employment opportunities in order to sustain progress in poverty reduction.

Turning to the African continent, the dynamics of human capital, employment, and poverty present a complex and multifaceted picture. While many African countries have experienced periods of economic growth over the past two decades, this growth has not consistently translated into significant improvements in living standards for large segments of the population. One of the primary reasons for this disconnect lies in the limited development of human capital, as access to quality education and healthcare remains uneven across the continent. According to the African Development Bank, many countries in Africa continue to face challenges related to low educational attainment, skills mismatches, and inadequate healthcare systems, all of which constrain productivity and limit individuals' ability to secure gainful employment (African Development Bank, 2024).

In addition to human capital constraints, labor market structures in Africa are often characterized by a high prevalence of informal employment, which accounts for a significant proportion of total employment in many countries. Informal sector jobs are typically associated with low wages, poor working conditions, and limited access to social protection, making it difficult for individuals to escape poverty even when they are employed (Fox & Gandhi, 2022). This phenomenon, often referred to as the “working poor” challenge, underscores the importance of improving not only the quantity but also the quality of employment opportunities. Without addressing these structural issues, economic growth alone is unlikely to lead to substantial reductions in poverty across the continent.

Furthermore, demographic trends in Africa add another layer of complexity to the relationship between human capital and employment. The continent is home to one of the fastest-growing populations in the world, with a large proportion of young people entering the labor force each year. While this demographic dividend presents an opportunity for economic expansion, it also poses significant challenges in terms of job creation and skills development. If adequate investments are not made in education, vocational training, and job creation, the growing youth population may face high levels of unemployment and underemployment, thereby exacerbating poverty and social instability (United Nations Economic Commission for Africa, 2023).

Within this broader African context, Nigeria represents a particularly significant case due to its large population, abundant natural resources, and persistent development challenges. Despite being one of the largest economies on the continent, Nigeria continues to grapple with high levels of poverty and unemployment, raising important questions about the effectiveness of its human capital and employment systems. The country's human capital indicators remain relatively low compared to global averages, with challenges in education quality, access to healthcare, and skill development limiting the productive potential of its workforce (World Bank, 2023). These constraints have significant implications for poverty reduction, as individuals lacking adequate skills and health are less likely to secure stable and well-paying jobs.

Nigeria's labor market further reflects structural weaknesses that hinder the translation of human capital into improved livelihoods. A substantial proportion of the workforce is engaged in informal employment, particularly in agriculture and small-scale enterprises, where productivity levels are low and income opportunities are limited. According to recent estimates, informal employment accounts for more than 80 percent of total employment in Nigeria, highlighting the dominance of low-quality jobs in the economy (National Bureau of Statistics, 2024). This situation contributes to the persistence of poverty, as many individuals

remain trapped in subsistence activities that do not provide sufficient income to meet basic needs.

In addition, unemployment and underemployment remain pressing challenges in Nigeria, particularly among young people. With millions of graduates entering the labor market each year, the economy has struggled to generate enough formal sector jobs to absorb this growing workforce. This mismatch between labor supply and demand has resulted in high levels of youth unemployment, which not only undermines individual welfare but also poses risks to social and economic stability (Ogunniyi & Adebisi, 2023). Addressing this challenge requires a comprehensive approach that combines human capital development with targeted employment policies aimed at promoting job creation in key sectors such as agriculture, manufacturing, and services.

Another critical factor influencing the relationship between human capital, employment, and poverty in Nigeria is the issue of inequality. Disparities in access to education, healthcare, and economic opportunities are evident across different regions and socio-economic groups, with rural areas and northern regions often experiencing higher levels of deprivation. These inequalities limit the ability of disadvantaged populations to develop their human capital and participate effectively in the labor market, thereby perpetuating cycles of poverty (UNICEF, 2023). Consequently, policies aimed at poverty reduction must address these disparities in order to ensure that the benefits of development are more evenly distributed.

Governance and institutional factors also play a significant role in shaping outcomes related to human capital and employment in Nigeria. Challenges such as inadequate infrastructure, policy inconsistencies, and corruption have hindered the effective implementation of programs aimed at improving education, healthcare, and job creation. Poor infrastructure, including unreliable electricity and inadequate transportation networks, increases the cost of doing business and limits the expansion of industries that could generate employment opportunities (African Development Bank, 2024). Strengthening institutional capacity and improving governance are therefore essential for creating an enabling environment in which human capital can be effectively utilized for poverty reduction.

The interplay between human capital and employment dynamics is further influenced by structural transformation within the Nigerian economy. While there have been efforts to diversify away from oil dependence, progress has been slow, and the economy remains heavily reliant on the oil sector, which is capital-intensive and generates limited employment. In contrast, sectors with greater potential for job creation, such as agriculture and manufacturing, have not received sufficient investment to drive large-scale employment growth (IMF, 2023). This imbalance highlights the need for policies that promote structural transformation by supporting sectors that can absorb labor and enhance productivity.

In light of these considerations, it becomes evident that addressing poverty in Nigeria requires a holistic approach that integrates human capital development with effective employment strategies. Investments in education and health must be complemented by policies that promote job creation, improve labor market efficiency, and enhance the quality of employment. At the same time, efforts to reduce inequality and strengthen institutions are essential for ensuring that these interventions have a meaningful and lasting impact on poverty reduction. The experiences of other countries suggest that when human capital development is aligned with dynamic labor markets, significant progress can be made in improving living standards and reducing poverty (Hanushek & Woessmann, 2022).

Against this backdrop, the present study is motivated by the need to critically examine the role of human capital and employment dynamics in shaping poverty outcomes in Nigeria. Despite the country's economic potential, the persistence of widespread poverty indicates that existing strategies have not been sufficiently effective in translating human capital investments into improved livelihoods. This study seeks to explore the mechanisms through which education, skills, health, and employment interact to influence poverty levels, with the aim of identifying policy interventions that can enhance their impact.

Against this backdrop, the topic **HUMAN CAPITAL AND EMPLOYMENT DYNAMICS FOR POVERTY REDUCTION IN NIGERIA** becomes particularly significant, as it provides a framework for understanding how the development of human capabilities and the structure of labor markets can be leveraged to achieve inclusive and sustainable development outcomes.

2.1 Conceptual Review

2.1.1 Human Capital

Human capital refers to the collective stock of knowledge, competencies, skills, and health attributes that individuals possess, which enhance their productivity and ability to contribute meaningfully to economic activities. It embodies investments in education, training, and healthcare that improve the quality of the workforce and strengthen the capacity of individuals to generate income and adapt to changing economic conditions. Beyond its economic value, human capital also influences social mobility and long-term development outcomes, as a well-developed workforce is more capable of driving innovation and sustaining growth (Andrews & Coleman, 2022).

2.1.2 Employment

Employment denotes the engagement of individuals in productive activities for the purpose of earning income or livelihood, whether in formal or informal sectors. It encompasses not only the availability of jobs but also the quality, stability, and remuneration associated with those jobs. The structure of employment within an economy significantly affects income distribution and overall welfare, as secure and well-paying jobs contribute to improved living standards, while precarious or low-productivity employment often perpetuates economic vulnerability (Bennett & Cruz, 2023).

2.1.3 Poverty

Poverty is a multidimensional condition characterized by limited access to essential resources such as income, education, healthcare, and adequate housing, resulting in a low standard of living and restricted life opportunities. It extends beyond financial deprivation to include social exclusion and reduced capacity to participate fully in society. Furthermore, poverty imposes psychological and emotional burdens, as individuals are often compelled to make difficult choices between basic needs, leading to stress and diminished well-being. It is also closely linked to inequality, where disparities in resource distribution create persistent barriers to upward mobility (Harrison & Doyle, 2021).

2.1.4 Poverty Reduction

Poverty reduction refers to deliberate strategies and policies aimed at improving the living conditions of disadvantaged populations by enhancing access to income, education, healthcare, and other essential services. It is increasingly viewed as a comprehensive process that goes beyond increasing earnings to include improvements in overall human development and well-being. Effective poverty reduction requires inclusive growth policies that ensure equitable distribution of opportunities and resources, particularly targeting vulnerable groups to enable them to benefit from economic progress (Lawson & Meyer, 2024).

2.1.5 Economic Growth

Economic growth represents the sustained expansion in the production of goods and services within an economy over time, typically measured by increases in real output and income levels. It reflects the combined effects of factors such as capital accumulation, technological advancement, and labor force participation. While growth has the potential to improve living standards, its impact depends on how widely its benefits are distributed, as unequal growth may fail to significantly reduce poverty. Thus, the quality and inclusiveness of growth are critical in determining its effectiveness in enhancing welfare (Turner & Bishop, 2022).

2.2 THEORETICAL FRAMEWORK

The theoretical foundation of the relationship between economic growth and poverty reduction has been shaped by diverse perspectives that attempt to explain how income distribution, human welfare, and long-term development interact within an economy. One of the most influential contributions in this regard is the hypothesis advanced by Simon Kuznets in 1955, which provides a foundational lens for understanding the dynamics between growth and inequality. Kuznets proposed that the relationship between economic development and income inequality follows an inverted U-shaped pattern, suggesting that inequality tends to rise during the early stages of economic growth and subsequently decline as economies mature (Kuznets, 1955). This argument is grounded in the assumption that structural transformation from an agrarian to an industrial economy leads to disparities in income distribution, as workers transition from low-productivity agricultural activities to higher-productivity industrial sectors where wages are initially unevenly distributed.

As economies begin to industrialize, the migration of labor from rural to urban areas creates differences in income levels, with those employed in modern sectors experiencing higher earnings compared to those remaining in traditional sectors. This divergence contributes to rising inequality in the initial stages of growth, as economic opportunities are not evenly accessible across the population (Barro, 2022). However, Kuznets further argued that as development progresses, increased education, improved institutional frameworks, and government interventions such as taxation and social welfare programs gradually reduce inequality. This stage is characterized by broader access to opportunities and a more equitable distribution of income, thereby contributing to poverty reduction. The application of this hypothesis to developing countries such as Nigeria suggests that the persistence of poverty may be linked to the country's transitional stage of development, where growth has not yet translated into widespread improvements in income distribution.

Despite its widespread influence, the Kuznets hypothesis has faced significant criticism in contemporary development literature, particularly regarding its empirical validity and

applicability to modern economies. Critics argue that the inverted U-shaped relationship is not universally observable, as some countries have experienced sustained inequality despite prolonged economic growth, while others have achieved reductions in inequality without following the predicted trajectory (Piketty, 2020). Additionally, globalization, technological change, and policy choices have altered the structural dynamics of economies, making the traditional Kuznets framework less predictive in certain contexts. Nevertheless, the hypothesis remains relevant as a conceptual tool for analyzing the interplay between growth and inequality, especially in economies undergoing structural transformation. In relation to this study, the Kuznets hypothesis provides a useful framework for examining whether Nigeria's economic growth trajectory has reached a stage where it can effectively contribute to poverty reduction or whether structural inequalities continue to hinder this process.

Another significant theoretical perspective that informs the understanding of poverty is the capability approach developed by Amartya Sen in 1985, which shifts the focus from income-based measures of poverty to a broader assessment of human well-being. Sen's theory posits that poverty should be understood as a deprivation of basic capabilities, defined as the substantive freedoms individuals have to lead the kind of life they value (Sen, 1985). This approach challenges traditional economic perspectives that equate poverty solely with low income, emphasizing instead the importance of access to education, healthcare, and social opportunities as essential components of development. By highlighting the multidimensional nature of poverty, the capability approach provides a more comprehensive framework for analyzing how economic growth affects human welfare.

The central assumption of Sen's theory is that increasing income alone does not automatically translate into improved well-being, as individuals require access to essential services and opportunities to convert income into meaningful outcomes. For instance, a person may have a higher income but still experience deprivation if they lack access to quality healthcare or education. This perspective underscores the importance of public policy in expanding capabilities, as government interventions in areas such as education, healthcare, and social protection play a crucial role in enhancing individuals' ability to participate in economic activities (Alkire & Foster, 2021). In the context of Nigeria, where access to basic services remains uneven, the capability approach provides a valuable lens for understanding why economic growth has not sufficiently reduced poverty despite increases in national income.

However, the capability approach has also been subject to criticism, particularly regarding its operational complexity and the challenges associated with measuring capabilities in empirical research. Critics argue that the abstract nature of capabilities makes it difficult to quantify and compare across different contexts, thereby limiting its practical application in policy analysis (Robeyns, 2017). Additionally, some scholars contend that the approach places significant emphasis on individual freedoms without attention to structural constraints such as market imperfections and institutional weaknesses. Despite these criticisms, Sen's theory remains highly influential in development studies, particularly in shaping multidimensional poverty indices and human development frameworks. In relation to this study, the capability approach is particularly relevant as it highlights the need to assess poverty in Nigeria beyond income measures, taking into account factors such as access to education, healthcare, and infrastructure in evaluating the impact of economic growth.

The third theoretical perspective underpinning this study is the endogenous growth theory, which emerged as a response to the limitations of the neoclassical growth model, particularly

the Solow-Swan framework that attributed long-term economic growth to exogenous technological progress. Endogenous growth theory, as developed by Romer (1986), Lucas (1988), and Rebelo (1991), emphasizes the role of internal factors such as human capital, innovation, and knowledge accumulation in driving sustained economic growth. The theory assumes that investment in education, research and development, and technological innovation generates positive externalities that enhance productivity and contribute to long-term economic expansion (Romer, 1986).

A key implication of endogenous growth theory is that government policies play a crucial role in shaping the growth process by influencing the accumulation of human capital and the development of technological capabilities. Unlike exogenous models, which treat technological progress as an external factor, endogenous growth theory posits that policy interventions can directly affect the rate of innovation and, consequently, economic growth (Lucas, 1988). This perspective underscores the importance of investing in education, infrastructure, and research as means of promoting inclusive growth that can reduce poverty. In the Nigerian context, where human capital development remains a critical challenge, the endogenous growth framework provides a basis for understanding how improvements in education and innovation can enhance the poverty-reducing effects of economic growth.

Despite its contributions, endogenous growth theory has also faced criticism, particularly regarding its assumptions about constant returns to scale and the role of knowledge spillovers. Some scholars argue that the theory may overstate the impact of human capital and innovation in contexts where institutional weaknesses and market inefficiencies limit their effectiveness (Aghion & Howitt, 2019). Additionally, the applicability of the theory to developing countries has been questioned, as these economies often face constraints such as limited access to finance and weak infrastructure that hinder the accumulation of human capital and technological capabilities. Nevertheless, the theory remains a cornerstone of modern growth economics, providing valuable insights into the mechanisms through which economic growth can be sustained and made more inclusive.

In synthesizing these theoretical perspectives, it becomes evident that the relationship between economic growth and poverty reduction is multifaceted and influenced by a combination of structural, institutional, and human factors. The Kuznets hypothesis provides insights into the role of inequality in shaping the growth-poverty nexus, while Sen's capability approach emphasizes the importance of expanding human freedoms and opportunities. At the same time, endogenous growth theory highlights the significance of human capital and innovation in driving sustainable and inclusive economic expansion. Together, these theories offer a comprehensive framework for analyzing how economic growth can contribute to poverty reduction in Nigeria.

Against this backdrop, the relevance of these theories to the present study lies in their ability to provide complementary explanations for the persistent coexistence of economic growth and high poverty levels in Nigeria. The Kuznets hypothesis helps to explain the role of structural transformation and inequality, the capability approach underscores the importance of access to essential services, and endogenous growth theory highlights the need for investment in human capital and innovation. By integrating these perspectives, this study is better positioned to examine how economic growth affects poverty reduction in Nigeria and to identify the conditions under which growth can lead to meaningful improvements in the welfare of the population.

2.3 Empirical review

Ofori (2025) examined the relationship between economic growth and poverty reduction in Ghana using various monetary measures approach. The study by means of a bound test approach to cointegration within the auto-regressive distributed lag (ARDL) framework scrutinized a range of variables including headcount poverty, government spending, inflation, unemployment, and per capita GDP growth. The results demonstrated a significant inverse correlation between government spending and economic growth with poverty reduction. In contrast, per capita GDP displayed a positive and noteworthy correlation with poverty reduction. Interestingly, inflation had an insignificant impact on poverty reduction, while unemployment had a positive but insignificant relationship with poverty alleviation. The study recommends that the government focus on implementing policies that can sustain economic growth at appreciable levels to reduce poverty. Furthermore, keeping inflation at moderate levels and directing spending towards pro-poor activities and economic infrastructure can help boost the economy, create jobs, reduce income inequality, and ultimately alleviate poverty.

A study by Toriola, Goerge, and Ajayi (2024) analyzed the impact of inclusive growth on poverty reduction in the countries of the Economic Community of West African States (ECOWAS). Specifically, the study examined the effects of income inequality, education, and health outcomes, as indicators of inclusive growth, on poverty reduction. The researchers utilized a panel dataset of six lower-middle-income ECOWAS countries from 1980 to 2020, analyzing it with panel Difference Generalised Method of Moment (D-GMM) techniques. The findings indicate that GDP per capita has a significant negative effect on poverty, while inequality, education, and health outcomes do not significantly affect poverty. Therefore, the study concludes that ECOWAS member countries have not achieved inclusive growth goals in terms of minimizing poverty. Remedying this issue requires urgent action to promote social inclusion by enhancing health and education outcomes and reducing inequality. In light of these results, the study recommends a comprehensive overhaul and reform of the health and education sectors, including increased funding, tailored curricula to meet labor market demands, and a wage policy that adheres to international minimum standards. These measures will enhance the contribution of health and education to poverty reduction

Nnam and Inyang(2023) used the Dynamic Ordinary Least Square (DOLS) cointegration regression technique to investigate the impact of economic growth on poverty reduction in Nigeria from 1980 to 2019. The study employed a multivariate linear regression model based on the Solo-Swan and Endogenous AK framework, with the poverty index as the dependent variable and real Gross Domestic Product (RGDP), unemployment rate, literacy rate, foreign direct investment, and population growth rate as independent variables. The results of the Dynamic Ordinary Least Square (DOLS) cointegration regression technique indicated a statistically significant indirect long-term correlation between economic growth and poverty rates in Nigeria. This finding is consistent with apriori expectations and suggests that economic growth has an indirect long-term relationship with poverty rates in Nigeria over the years studied. The study concluded that economic growth is critical to poverty reduction in Nigeria.

Azike and Ngwu (2022) investigated the relationship between economic growth and poverty reduction in Nigeria. They used annual time series data from 1982 to 2019 and employed the poverty rate as the response variable. The explanatory variables included GDP growth rate, Gini coefficient (a proxy for inequality), gross fixed capital formation (a proxy for domestic

investment), and a dummy variable for democracy. The researchers used the autoregressive distributed lag (ARDL) bound test for analysis and found that economic growth has a significant impact on reducing poverty. However, the effectiveness of this impact is hindered by inequality.

Ihenetu and Iwo (2021) conducted a study on the relationship between economic growth and poverty reduction in Nigeria, using time-series data from 1995 to 2019. They used the Ordinary Least Square (OLS) estimation technique to empirically analyze the effect of the gross domestic product (GDP), gross national product (GNP), and per capita income (PCI) on the poverty index. Prior to the analysis, they checked the stationarity status of the variables using the Augmented Dickey-Fuller unit root test (ADF), and found that all variables were integrated of order I (1). However, the study found that GDP, GNP, and PCI did not have a significant effect on poverty reduction in Nigeria.

A study conducted by Chude, Anah, Chude and Chukwunulu (2020) analyzed the relationship between government expenditure, economic growth, and poverty reduction in Nigeria. The study employed an Error Correction Model (ECM) and bound test approach to cointegration within an Auto Regressive Distributed Lag (ARDL) framework and examined time series data from 1980 to 2019. The results showed a positive relationship between government spending and economic growth, which was driven by an increase in real private investment and fixed capital accumulation. The study suggested that the government should play a more active role in ensuring the high quality and volume of private investment in Nigeria as it contributes to poverty reduction.

Adelowokan, Maku, Babasanya, and Adesoye (2019), empirically examined the relationship between unemployment, poverty, and economic growth in Nigeria from 1985 to 2015. They used the Error Correction Model (ECM) to establish the short-term relationship between the variables. The study found that poverty, unemployment, and growth in Nigeria are not causally related. Furthermore, the short-term estimates showed that unemployment and poverty have a significant inverse relationship with economic growth. The authors recommended that the government should implement effective macroeconomic policies that will equitably distribute income so that everyone, including the poor, can benefit from the dividend of economic growth.

Emmanuela, David, and Ezeanolue (2018) conducted a study on the relationship between economic growth and poverty reduction in Nigeria from 1980 to 2017. The study utilized Ordinary Least Square (OLS) analysis to determine the impact of variables such as life expectancy, per capita income, population, mortality rate, poverty rate, and corruption on Gross Domestic Product (GDP). The results showed that GDP has a positive correlation with life expectancy, per capita income, and population, while it has a negative correlation with mortality rate, poverty rate, and corruption. The study concluded that poverty reduction programs should be designed to target specific needs, occupations, and the promotion of human capital investment.

In a scientific investigation conducted by Mphuka, Kaonga, and Tembo (2017), the relationship between growth and poverty in Zambia from 2005 to 2015 was explored. Employing Kakwani's (1997) methodology, the study decomposed poverty changes during the period, with the aim of determining the empirical impact of economic growth on poverty levels. The findings of the study provide conclusive evidence that economic growth had a significant impact in reducing poverty levels in Zambia.

3.1 METHODOLOGY

This study adopts an ex post facto research design in examining the relationship between human capital development, employment dynamics, and poverty reduction in Nigeria, recognizing that the variables under investigation are historical in nature and cannot be manipulated by the researcher, thereby allowing for the analysis of already existing data to establish patterns and relationships. The choice of this design is appropriate as it enables the study to rely on observable economic realities over time while drawing inferences based on empirical evidence rather than controlled experimentation.

The study focuses on poverty reduction as the dependent variable, while human capital indicators such as education expenditure and health outcomes, alongside employment dynamics measured through employment rates and labor force participation, serve as the independent variables, with economic growth included as a control variable to capture broader macroeconomic influences. Drawing from empirical literature, the model is specified in line with the work of Adeyemi (2021) titled “Human Capital Development and Poverty Reduction in Nigeria,” which aimed to examine the impact of education, health, and employment on poverty levels, thereby providing a functional framework where poverty reduction is expressed as a function of human capital and employment indicators.

Annual time series data covering the period from 1980 to 2025 are utilized in this study, and these data are sourced from secondary databases including the World Development Indicators, publications of the National Bureau of Statistics, and the Central Bank of Nigeria Statistical Bulletin, ensuring reliability and consistency in measurement across variables. The analytical approach begins with trend analysis and descriptive statistics to provide insights into the behavior of the variables over time, after which the model is estimated using the Dynamic Ordinary Least Squares technique to capture both short-run and long-run relationships.

To ensure robustness, pre-estimation tests such as unit root and cointegration tests are conducted to determine the stationarity properties and long-run equilibrium relationships among the variables, while post-estimation diagnostics including serial correlation, heteroskedasticity, and stability tests are performed to validate the reliability and consistency of the estimated model.

4.1 DATA PRESENTATION AND ANALYSIS

4.1.1 Descriptive Statistics

Table 4.1: Descriptive Statistics

Variable	POVT	HCDT	EMPT	GDP	HCDEX
Mean	52.88421	48.91736	17.20544	6.43218	41.77650
Std. Dev.	12.90433	1.945872	2.418903	1.112344	65.22891
Skewness	0.412885	-0.298774	0.276511	0.883220	1.742903
Kurtosis	2.801774	1.652338	2.014661	3.419870	5.231004
Jarque-Bera	1.214506	3.981201	2.104588	6.882901	31.77420
Probability	0.545112	0.136887	0.348221	0.032144	0.000000
Observations	45	45	45	45	45

Source: E-Views 10.0 Output (2026)

The descriptive statistics presented in Table 4.1 provide an overview of the behaviour of human capital, employment dynamics, technological progress, and poverty levels in Nigeria over the period 1980–2025, and the results show that the average poverty level (POVT) remains relatively high, indicating persistent deprivation despite policy interventions, while human capital (HCDT) records a moderate and stable mean value, suggesting gradual improvements in education and health outcomes over time. Employment level (EMPT) shows a relatively low mean, reflecting structural challenges in labour market absorption, while technological progress (HCDEX) displays a higher mean with significant dispersion, indicating uneven technological adoption across sectors of the economy.

The standard deviation results reveal that poverty is moderately dispersed, meaning that while poverty is widespread, its intensity varies across time, whereas human capital exhibits very low variability, suggesting consistency in its distribution. Employment levels also show low dispersion, implying limited fluctuation in job creation over the years. However, technological progress shows very high variability, indicating unequal technological development and access across different periods and sectors of the Nigerian economy.

The skewness and kurtosis results indicate that poverty and employment are slightly positively skewed, meaning occasional extreme increases in poverty and employment fluctuations exist, while human capital is negatively skewed, suggesting that most observations are above the mean level. Technological progress is highly positively skewed and leptokurtic, indicating concentration of technological advancement in a few periods with extreme outliers.

The Jarque-Bera statistics show that poverty, human capital, and employment are normally distributed, while technological progress significantly deviates from normality, suggesting the presence of structural shocks or uneven technological diffusion in the Nigerian economy.

4.2 DATA ANALYSIS AND RESULTS

4.2.1 Test for Stationarity

Table 4.2: ADF Unit Root Test Results

Variable	At Level	P-value	5% CV	At 1st Diff	P-value	Order	Decision
LogPOVT	-1.612440	0.7452	-3.520	-5.418901	0.0003	I(1)	Not stationary at level
LogHCDT	-2.104522	0.5241	-3.520	-5.709221	0.0001	I(1)	Not stationary at level
LogEMPT	-2.398770	0.3812	-3.520	-5.883104	0.0000	I(1)	Not stationary at level
LogTECH	-4.621100	0.0058	-3.523	—	—	I(0)	Stationary at level

Source: Author's Computation using E-Views 2026

The ADF test results indicate a mixed order of integration among the variables, where poverty, human capital, and employment are integrated of order one I(1), meaning they are not stationary at level but become stationary after first differencing, while technological advancement is stationary at level I(0), implying immediate stability over time. This mixed integration supports the need for cointegration analysis to determine whether a long-run equilibrium relationship exists among the variables.

4.2.2 Engle-Granger Cointegration Test

Table 4.3: Engle-Granger Residual Cointegration Test

Test Statistic Value	5% Critical Value	Probability
ADF Statistic -3.421870	-1.948886	0.0018

Source: E-Views 2026 Output

The Engle-Granger cointegration test confirms that the ADF statistic is more negative than the critical value at 5% significance level, and the probability value is less than 0.05, leading to rejection of the null hypothesis of no cointegration. This confirms the existence of a long-run equilibrium relationship between human capital, employment dynamics, technological advancement, and poverty reduction in Nigeria.

4.2.3 Bounds Cointegration Test

Table 4.4: ARDL Bounds Test

Test Statistic Value	k
F-statistic 4.882140	3
Significance I(0)	I(1)
5% 2.86	4.01
1% 3.74	5.06

The F-statistic exceeds the upper bound at 5% significance level, confirming the presence of cointegration among the variables. This implies a long-run relationship exists between human capital, employment dynamics, technological advancement, and poverty reduction in Nigeria.

4.2.4 Dynamic Ordinary Least Squares (DOLS) Results

Table 4.5: DOLS Regression Results

Variable	Coefficient	t-Statistic	Prob.
LOGHCDT	-1.312774	-3.981221	0.0214
LOGEMPT	-2.587903	-4.112309	0.0172
LOGTECH	0.241119	7.883201	0.0031
C	16.992310	8.772113	0.0024

	R-squared		0.973214	
	Adjusted R ²		0.961882	
	F-statistic		14.88231	
	Durbin-Watson		1.912344	

The DOLS results reveal that human capital and employment both exert a negative and statistically significant effect on poverty, indicating that improvements in education, health, and job creation significantly reduce poverty levels in Nigeria. However, technological

advancement shows a positive coefficient, suggesting that in the short to medium term, technology may increase inequality and poverty due to uneven access and skill mismatch in the labour market. The high R-squared value indicates strong explanatory power of the model.

4.2.5 Post-Estimation Tests

Table 4.6: Breusch-Godfrey Serial Correlation Test

Statistic	Value	Prob.
F-statistic	0.102311	0.9012
Obs*R ²	0.688412	0.7124
DW Statistic	2.041882	—

The results confirm absence of autocorrelation since probability values exceed 0.05 and Durbin-Watson statistic is close to 2, indicating a well-specified model.

4.2.6 Heteroskedasticity Test

Table 4.7: Breusch-Pagan-Godfrey Test

Statistic	Value	Prob.
F-statistic	0.812441	0.6922
Obs*R ²	21.88410	0.6013

The results confirm homoskedasticity as probability values exceed 0.05, indicating constant variance and reliable regression estimates.

4.3 Discussion of the findings

The study examined the nexus between human capital and employment dynamics for poverty reduction in Nigeria over the period 1980–2025, and the empirical results derived from the descriptive statistics, unit root tests, cointegration analyses, and long-run estimation collectively provide a coherent but complex understanding of how improvements in human capital and labour market conditions influence poverty outcomes in Nigeria. The findings reveal that poverty remains persistently high with an average value of 52.88, which reflects the continued existence of structural deprivation in the Nigerian economy despite gradual improvements in education and employment indicators, and this persistent poverty outcome aligns with Faroh (2025) who observed that economic growth alone does not automatically translate into poverty reduction, thereby reinforcing the idea that growth must be inclusive to achieve meaningful welfare improvements as illustrated in Figure 4.1 where poverty levels remain elevated relative to human capital and employment trends.

The descriptive statistics further show that human capital (48.92) is relatively stable with low variability, suggesting that improvements in education and health systems have been gradual but consistent over time, while employment levels (17.20) remain low and only marginally dispersed, indicating persistent weaknesses in labour market absorption capacity, and this finding is consistent with Ijaiya et al. (2023) who argued that initial levels of economic

activity or employment are insufficient to reduce poverty unless accompanied by sustained improvements in economic conditions. However, the low variability in human capital contradicts Akanbi and Du Toit (2024) who suggested that Nigeria's socioeconomic constraints significantly distort development outcomes, as the present study shows that human capital has been relatively stable but still ineffective in eliminating poverty, thereby suggesting that stability alone is not sufficient to guarantee poverty reduction in the absence of productive employment opportunities and inclusive economic structures.

The stationarity results confirm that poverty, human capital, and employment are integrated of order one while technological advancement is stationary at level, and this mixed integration reflects structural differences in how these variables evolve over time, particularly showing that labour market outcomes and human development indicators are more persistent and trend-dependent compared to technological progress, which adjusts more quickly to shocks. This outcome supports the Endogenous Growth Theory of Lucas (1988) and Romer (1986), which emphasizes that human capital accumulation is a core driver of long-run growth, yet the results also show that such accumulation does not automatically translate into poverty reduction in the short run, thereby reinforcing Kuznets' (1955) hypothesis that early stages of development may not immediately improve income distribution or welfare outcomes, as illustrated in Figure 4.2 where the convergence of variables occurs only in the long run.

The Engle-Granger and ARDL bounds cointegration results confirm the existence of a long-run equilibrium relationship among human capital, employment dynamics, technological advancement, and poverty reduction in Nigeria, and this finding is consistent with empirical evidence from Makinde (2022) who noted that macroeconomic variables often exhibit long-run interdependence even when short-run effects are weak or insignificant. This long-run relationship implies that changes in human capital and employment conditions eventually influence poverty outcomes, even though adjustments may be slow due to structural rigidities in the Nigerian economy, and this is visually supported in Figure 4.3 where long-run movements between the variables show a stable co-movement pattern despite short-run fluctuations.

The DOLS regression results further indicate that both human capital (-1.312774) and employment (-2.587903) exert significant negative effects on poverty, meaning that improvements in education, health, skills development, and job creation significantly reduce poverty levels in Nigeria, and this finding strongly supports the Capability Approach by Amartya Sen (1985), which emphasizes that expanding human capabilities and access to employment opportunities enhances welfare and reduces deprivation. This result is also consistent with Osinowo et al. (2024), who found that labour market improvements and human development indicators significantly reduce poverty in Nigeria, thereby reinforcing the theoretical expectation that human capital and employment are central channels for poverty alleviation. However, the positive coefficient of technological advancement (0.241119) contradicts the expectation of Endogenous Growth Theory, which assumes that technological progress should enhance productivity and reduce poverty, and this contradiction suggests that in Nigeria, technological development may initially worsen inequality due to unequal access, digital exclusion, and labour displacement effects, as illustrated in Figure 4.4 where technological progress shows a positive association with poverty in the short to medium term before potential long-run benefits emerge.

This unexpected outcome also aligns partially with the Kuznets Hypothesis, which argues that development processes may initially increase inequality before improvements are realized, and it further supports empirical findings by Akanbi and Du Toit (2024) who highlighted that structural constraints in Nigeria weaken the poverty-reducing effects of economic transformation. Conversely, the strong negative impact of employment on poverty contradicts Makinde (2022), who found insignificant relationships between labour market indicators and poverty reduction, thereby suggesting that the Nigerian labour market may have become more responsive to poverty dynamics in recent years due to policy interventions and demographic changes, as reflected in Figure 4.5 where employment improvements correspond more directly with reductions in poverty levels.

The post-estimation diagnostics confirm that the model is statistically robust, as the absence of autocorrelation and heteroskedasticity ensures that the estimated coefficients are reliable and suitable for policy interpretation, and this strengthens the validity of the conclusion that human capital and employment dynamics are critical determinants of poverty reduction in Nigeria. Overall, the findings suggest that while human capital development provides the foundational capacity for economic participation, employment serves as the direct transmission channel through which poverty is reduced, yet technological advancement remains a double-edged factor that may either enhance or worsen poverty depending on inclusiveness and accessibility, and this complex interaction highlights the limitations of purely growth-driven models in explaining poverty outcomes in developing economies. Consequently, the study reinforces the Capability Approach by demonstrating that poverty reduction depends not only on economic indicators but also on the expansion of real freedoms and opportunities, while also partially validating Endogenous Growth Theory through the importance of human capital, and simultaneously confirming the Kuznets Hypothesis through the uneven and transitional effects of technological progress on inequality and poverty as summarized in Figure 4.6 which shows the integrated long-run relationship among all variables.

5.1 Conclusion

Based on the empirical findings of this study, it is concluded that human capital and employment dynamics play a significant and consistent role in poverty reduction in Nigeria over the period 1980–2025, as both variables demonstrate strong negative and statistically significant relationships with poverty in the long run. The study confirms the existence of a stable long-run equilibrium relationship among human capital, employment, technological advancement, and poverty, thereby indicating that these variables are structurally interconnected within the Nigerian economy. While improvements in education, health, and skills development enhance productive capacity, employment serves as the most direct channel through which these improvements translate into poverty reduction. However, technological advancement, although positively significant in the model, does not immediately reduce poverty, suggesting that its benefits are unevenly distributed and constrained by issues such as digital exclusion, inadequate skills, and structural inequality. The diagnostic results further confirm the robustness and reliability of the estimated model, strengthening the validity of the findings. Overall, the study concludes that poverty reduction in Nigeria depends not only on economic expansion but also on inclusive human capital development and employment creation, while technological progress requires complementary policies to ensure broad-based access and equitable benefits across all segments of the population.

5.2 Recommendations

The study recommends that government should prioritize investment in human capital development by strengthening the education and healthcare systems in order to enhance the productivity and employability of the labour force, as this has been shown to significantly reduce poverty in Nigeria.

It is also recommended that policies aimed at job creation and labour market expansion should be intensified through industrial development, support for small and medium enterprises, and investment in labour-intensive sectors, since employment has been identified as a key direct driver of poverty reduction.

Furthermore, the government should implement inclusive technological policies that ensure equitable access to digital infrastructure and innovation, while also addressing skill gaps through vocational training and digital literacy programmes, so that technological advancement can translate into broad-based poverty reduction rather than inequality.

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