



ROLE OF KNOWLEDGE-BASED ECONOMY ON POVERTY ALLEVIATION AND UNEMPLOYMENT REDUCTION IN NIGERIA

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Cite this article:

Ineye-Briggs, A. C. (2025), Role of Knowledge-Based Economy on Poverty Alleviation and Unemployment Reduction in Nigeria. British Journal of Education, Learning and Development Psychology 7(4), 1-13. DOI: 10.52589/BJELDP-BWG7LMVT

Manuscript History

Received: 19 Oct 2024

Accepted: 15 Dec 2024

Published: 2 Jan 2025

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ABSTRACT: *The rise of the knowledge-based economy is closely linked to globalisation and recent advancements in technology. This paper explores how adopting a knowledge-based economy can help reduce poverty and unemployment in Nigeria. The concept emphasizes that information and knowledge are central to a nation's economic growth and development. Technological advancements and innovation drive the knowledge-based economy by influencing production methods, consumption patterns, and the structure of economies. A knowledge-based economy significantly utilises human capital to generate new knowledge, technologies, and innovations, leading to job creation and a reduction in poverty and unemployment. Tertiary institutions play a crucial role in this process by enhancing the capacity of researchers and entrepreneurs. They achieve this by fostering the creation of new knowledge, products, and services through the strategic use of ICTs and cross-border knowledge flows. However, adopting a knowledge-based economy in Nigeria faces several challenges. Tertiary institutions, which act as catalysts for its implementation, are hindered by issues such as low investment in human capital, limited ICT integration, and inadequate access to educational opportunities. To address these challenges, the paper recommends prioritising the development of human capital through well-structured capacity-building and staff development programs. These initiatives will enhance intellectual capacity and improve the quality of education, thereby fostering a thriving knowledge-based economy.*

KEYWORDS: Knowledge-based economy, Poverty alleviation, Unemployment reduction, Economic development, Knowledge-driven growth.



INTRODUCTION

In recognition of the important role of technology in today's inventions, a formal education process through a knowledge-based workforce is necessary for achieving national development. It is on this premise that, the National Policy on Education stipulates as its main goal, to equip every individual with basic skills and job competencies for gainful employment. The realisation of this goal is yet to be attained as our young graduates are without Jobs and many roam the streets looking for white-collar jobs. According to the National Poverty Eradication Programme (NAPEP), the national unemployment rate is 60 percent (Education Sector Report, 2013). They also revealed that an average of 120,000 graduates is produced annually from the universities and other tertiary institutions in Nigeria. NAPEP statistics show that 80 percent (about 1.2 million graduates) have remained unemployed in the last ten years. To achieve a drastic reduction in the unemployment rate and poverty reduction a paradigm shift from the service economy to the knowledge-based economy is advocated.

The knowledge-based economy addresses issues on how education and knowledge that is human capital can serve as a productive asset or business product to be sold and exported to yield profits for individuals, businesses and the economy (Adams, 2021). In the knowledge economy products and services that are based on intellectual expertise advance technical and scientific fields, thereby encouraging innovation in the economy as a whole. World Bank (2021) defines the knowledge economy according to four pillars.

- Institutional structures that provide incentives for entrepreneurship and the use of knowledge.
- Availability of skilled labour and a good education system.
- A vibrant innovation landscape which includes; the academia, the private sector and civil society. And access to information and ICT infrastructures

It is worth noting that tertiary institutions exist to teach, carry out research and provide consultancy services. However, in a knowledge economy tertiary institutions needs to capitalise on advanced human capital, research for development and information marketing that they can best supply (Babalola, 2010). The application of a knowledge-based economy has become a key factor in post-industrial development, but most countries seem to be having challenges in joining this global knowledge revolution. The ability of any society, individuals, firms and institutions to harness, produce, select, commercialise and apply knowledge is critical for sustained economic growth and improved living standards (World Bank, 2012).

Most technologically advanced countries of the world that adopted a knowledge-based economy have created millions of knowledge-related jobs in various disciplines.

There is no doubt that universities as citadels of learning should be able to turn out good entrepreneurs and scientists who could change the fortunes of this country. Unfortunately, our graduates have fallen short of these expectations; hence, there is a need to reposition our education system towards addressing these challenges. In the meantime, the changes in the global economy have forced many countries and institutions to respond to new demands in teaching and research, community services and effective school administration, with the view



to adopting global best practices in alleviating poverty and unemployment. This paper highlights the role of a knowledge-based economy in reducing the unemployment rate and poverty. The paper also emphasises the economic benefits of a knowledge-driven economy by propagating, preserving and promoting knowledge in a digital and global economy.

Concept of Knowledge-Based Economy

The concept of a Knowledge-Based Economy (KBE) emphasizes the pivotal role of knowledge, innovation, and intellectual capital in fostering economic development. This paradigm shift contrasts with traditional economic models reliant on physical capital and natural resources, advocating instead for economies driven by the generation and application of knowledge to enhance productivity and competitiveness. A KBE relies heavily on information technology (IT), innovation, education, and research and development (R&D). According to Powell and Snellman (2004), KBEs thrive on the effective use of human capital and intellectual assets, which are integral to the production and services sectors. Furthermore, Foray and Lundvall (1996) highlight that continuous learning and skill development are necessary to sustain knowledge-driven economies.

Drivers of Knowledge-Based Economies

The rise of globalisation and technological advancements has catalysed the transition to KBEs. Knowledge creation and diffusion are increasingly recognised as key drivers of economic growth (OECD, 1996). Institutions such as universities and R&D organisations play crucial roles in nurturing innovation and entrepreneurship (Etzkowitz & Leydesdorff, 2000). Governments also serve as enablers by investing in education, digital infrastructure, and innovation systems.

KBEs have proven effective in addressing socio-economic challenges like poverty and unemployment. The World Bank (2002) posits that the adoption of knowledge-driven strategies leads to increased productivity, the creation of high-quality jobs, and the promotion of social inclusion. Knowledge-intensive industries such as ICT and biotechnology have been pivotal in transforming economies like those of South Korea and Finland (Kim, 2001; Castells & Himanen, 2002).

Despite the potential of KBEs, several developing nations, including Nigeria, face barriers such as limited access to education, inadequate infrastructure, and low levels of digital literacy. Chen and Dahlman (2005) argue that bridging the knowledge divide requires investments in human capital, institutional reforms, and capacity-building measures.

Knowledge economy refers to a system that deals with consumption and production, that is fully based on intellectual capital, which deals with the ability to capitalise on scientific discovery and applied research (Babalola, 2010). As a component of an economy, it relies greatly on intellectual capabilities, instead of natural resources or physical contributions. Knowledge economy depends on skilled labour and education, strong communication networks and institutional structures that encourage innovation (Wikipedia, 2011). Examples of knowledge economy include academic institutions, companies engaging in research and development programmes and software development. The tertiary institutions play a vital role in propagating the ideals of the knowledge economy to the students by engaging in research activities that will enhance their innovative ability.



A knowledge economy has the policies, institutions and capabilities in place to make effective use of knowledge to further its economic and social development by building on its strengths and by planning appropriate investments in human capital. Effective institutions, coupled with relevant technologies and innovative and competitive enterprises can capitalise on the knowledge era and make the transition to the knowledge economy. A knowledge-based economy is therefore one where organisations and people acquire create, disseminate and use knowledge more effectively for: greater economic and social development.

The Knowledge-Based Economy is a transformative framework for achieving sustainable development and economic empowerment. While it offers significant benefits, realising its potential requires a concerted effort to address structural and institutional gaps, particularly in developing nations.

Concept of Unemployment Reduction

The term unemployment refers to a situation whereby a person searches for a job but is unable to get it. McGaughey (2022) defines unemployment as individuals who are employable and actively seeking a job but are unable to find a job. Similarly, Romer (2011) sees unemployment as people above a specified age not being in paid employment or self-employment but currently available for work during the reference period. Unemployment occurs when people who want to work are unable to find Jobs. Unemployment is the key economic indicator because, it signals the ability or inability of workers to obtain gainful work, to contribute to the productivity of the economy. Unemployment is caused by high interest rates, global recession and financial crises among others. The unemployment rate is calculated by dividing the number of people employed by the number in the labour force.

Therefore, unemployment reduction refers to strategic actions and policies aimed at decreasing the proportion of individuals actively seeking but unable to find employment. It is a crucial aspect of economic development and social stability, often gauged by metrics like the unemployment rate. Effective unemployment reduction enhances labour force participation, boosts economic productivity, and mitigates the negative socio-economic impacts of joblessness, such as poverty, dependency, and societal unrest.

Unemployment can be categorised into different types including frictional unemployment, where workers transition between jobs; cyclical unemployment, caused by economic downturns; and structural unemployment, resulting from shifts in industry demands due to technological advancements or market changes. Targeted interventions must address these specific types to achieve sustainable employment growth.

Unemployment benefits are essential for providing financial stability to job seekers. They allow individuals to take the time necessary to secure suitable employment while maintaining their livelihood. However, poorly designed unemployment benefits can inadvertently discourage job-seeking behaviours, as observed in various global contexts (Ojeifo, 2013). This concern necessitates careful policy formulation to ensure that benefits serve as a temporary support mechanism rather than a substitute for gainful employment.

In Nigeria, unemployment benefits are not widely institutionalised, but informal safety nets, such as family support systems, often play a similar role. However, such mechanisms are insufficient to meet the needs of Nigeria's burgeoning unemployed youth population. This



underscores the necessity of structured social protection programs tailored to local socio-economic realities (Ayinde, 2008).

Entrepreneurship Initiatives and Youth Employment

Programs like the Youth Enterprise with Innovation in Nigeria (YouWiN!) have aimed to tackle youth unemployment by fostering entrepreneurship. Studies indicate that these programs have achieved moderate success in creating jobs and supporting start-ups (Adeniran, 2020). However, challenges such as limited access to infrastructure and financial resources continue to impede scalability. Ayoola and Adebayo (2021) highlighted that addressing these barriers requires an integrated approach, combining entrepreneurial training with improved access to microfinance and infrastructure development.

Impact of the COVID-19 Pandemic

The COVID-19 pandemic significantly worsened unemployment in Nigeria, particularly in labour-intensive and informal sectors. The global economic slowdown and lockdown measures led to widespread job losses, further exacerbating the pre-existing unemployment crisis (Anaele & Nyenke, 2021). As a response, scholars advocate for post-pandemic recovery programs focusing on sectors like agriculture and renewable energy, which have high employment elasticity (Michael et al., 2022). These sectors can provide immediate job opportunities while supporting long-term economic resilience and sustainable development. To address unemployment effectively, Nigeria must adopt a multi-dimensional approach that includes structured unemployment benefits, robust entrepreneurship support systems, and targeted sectoral interventions. Policies should emphasise creating enabling environments for business development, expanding vocational training programs, and promoting labour-intensive industries to ensure broad-based economic recovery and resilience.

Concept of Poverty Alleviation

Poverty alleviation refers to strategies and interventions aimed at reducing the prevalence and impact of poverty. It involves initiatives designed to improve the living conditions of individuals and communities, often focusing on access to education, healthcare, financial services, and economic opportunities. In developing countries like Nigeria, poverty alleviation is a priority due to widespread poverty, which negatively impacts social stability and economic development.

The World Bank defines poverty as a lack of resources to meet basic needs, such as food, shelter, and clothing. In Nigeria, the National Bureau of Statistics (NBS) reports that over 40% of the population lives below the poverty line. Poverty alleviation, therefore, encompasses a range of economic, social, and infrastructural interventions to enhance living standards and reduce inequality.



Economic Empowerment Programs

Economic empowerment programs play a central role in poverty alleviation. They include initiatives that provide financial aid, skills training, and access to credit for individuals, especially women and youth. Programs such as the National Poverty Eradication Programme (NAPEP) in Nigeria aim to promote microfinance and vocational skills training. According to Ayoola and Adebayo (2021), these programs have had a measurable impact, though challenges like mismanagement and corruption limit their effectiveness. Similarly, Okafor and Onyebuchi (2019) argue that microcredit schemes enhance household income and foster entrepreneurship. However, they stress the need for better monitoring mechanisms to ensure funds reach the intended beneficiaries.

Education and Poverty Reduction

Education is widely recognised as a powerful tool for poverty alleviation. Studies have shown that access to quality education increases employment opportunities and improves income levels. Ayinde (2008) highlighted that investment in education, particularly in rural areas, can break the cycle of poverty. Programs such as the Universal Basic Education (UBE) initiative in Nigeria have made strides in reducing illiteracy, although funding gaps and inadequate infrastructure remain significant barriers.

Agriculture and Rural Development

Agriculture, as a key sector of the Nigerian economy, offers significant potential for poverty reduction. Enhancing agricultural productivity through training, access to modern equipment, and subsidized inputs has proven effective in boosting rural incomes. Ojeifo (2013) observes that rural development programs like the Anchor Borrowers' Program have empowered smallholder farmers and contributed to food security. However, he notes that inconsistent policy implementation undermines long-term impact.

Social Protection Programs

Social protection programs, including cash transfers and subsidised healthcare directly target vulnerable populations. For example, the Conditional Cash Transfer (CCT) scheme under Nigeria's Social Investment Program (SIP) provides financial assistance to low-income households. Research by Michael et al. (2022) indicates that these programs have improved access to healthcare and education, though their scalability remains a concern.

Infrastructure Development

Infrastructure development, including roads, electricity, and clean water supply, is integral to poverty alleviation. Improved infrastructure enhances access to markets, education, and healthcare. Oyelola et al. (2013) emphasise that infrastructure investments in rural areas significantly improve economic opportunities for impoverished communities. However, inadequate funding and maintenance pose significant challenges.



Challenges to Poverty Alleviation

Despite various interventions, poverty persists in Nigeria due to systemic issues such as corruption, poor governance, and inequitable resource distribution. Anaele and Nyenke (2021) highlight that political instability and lack of transparency in public programs hinder their effectiveness. Additionally, rapid population growth exacerbates resource scarcity, making sustainable poverty alleviation more difficult. Poverty alleviation in Nigeria requires a holistic approach combining economic empowerment, education, agricultural development, social protection, and infrastructure investment. Effective implementation and monitoring of these strategies are critical to achieving sustainable poverty reduction. Collaboration among government, private sector, and international organisations is essential to addressing the systemic barriers and ensuring that interventions reach the most vulnerable populations. Poverty means not having enough money to take care of basic human needs such as food, shelter and clothing. United Nations (2022) defines poverty as a condition of one who lacks a socially acceptable amount of money or material possessions. Poverty exists when people lack the means to satisfy their basic needs. The basic needs are, therefore, things required for survival. According to Wikipedia (2022), poverty is a state or condition in which one lacks the financial resources and essentials for meeting certain standards of living. Extreme poverty is measured as the number of people living on less than or below \$1.90 per day (World Bank 2010). Poverty is caused by many factors such as conflict, lack of infrastructure, climate change, poor education, inequality and so on.

Role of Knowledge-based economy in reducing the unemployment rate and poverty

The role of a knowledge-based economy is the reduction of the unemployment rate and poverty and cannot be overestimated, as the utilisation of new knowledge, and technologies depends on it. In our present knowledge-based and driven society, human capital is regarded as the most valuable asset; hence its availability and utilisation are crucial to the nation's growth and development. The competence and expertise of knowledgeable skilled and resourceful citizens and manpower are required to articulate, nurture and sustain enabling policies to meet national objectives (Akingbade, 2016). The formal education which progresses from the basic through the secondary to tertiary and postgraduate levels is the centre of decisions on skill training, adoption of technologies, research and development. The skills acquired through secondary and tertiary education enable firms to adopt and adapt to existing technologies and to train skilled workers.

However, skills developed at the postgraduate level, especially in the field of science and engineering allow firms to create and develop new technologies.

The application of knowledge as shown in areas such as entrepreneurship and innovation, research and development, software and product design and education of people to acquire skills is recognised as the key sources of growth in the global economy and ways of creating jobs and reducing unemployment (World Bank, 2011). The interest and awareness of knowledge-based economy, vision strategies and plans have gained ground in several countries. They see the need to diversify economies towards more knowledge-intensive products and services and have a long-term interest in developing a more sophisticated entrepreneurial and creative Population and more attractive job opportunities for highly skilled people that the knowledge economy provides. The knowledge economy dimensions are concerned with the ability of the educated and skilled population to create disseminate



and use knowledge efficiently (World Bank, 2021). The bottom line is that knowledge provides the technical expertise needed to expand and create more job opportunities which would help to reduce poverty. It is obvious that in our present knowledge-based and driven society anchored on our nation's human capital which is the most valuable asset. The timely utilisation of huge human capital resources will trigger the generation of new ideas and inventions through the establishment of industries and companies. The acquisition of relevant knowledge provides an opportunity for individuals to analyse skills and carry out innovative management practices that enable companies and businesses to compete in the modern global economy (CFI team, 2022). The knowledge economy is characterised by the presence of highly skilled employees whose job requires special knowledge skills. It is made up of services, industries and jobs that need thinking and analysis of data. In such a situation, more and more jobs would be created and people would be needed to fill vacant positions.

The knowledge economy is fuelled by innovation, research and rapid technological advancement, which enables skilled workers to create new businesses and financial models. When people carry out inventions and innovation, it spurs the generation of new jobs and encourages rapid wealth creation; the knowledge economy enhances the massive establishment of firms and industries which exploits the innate abilities of young entrepreneurs.

In the knowledge economy sector, people use information to create something new, whether it is a new or improved product or a solution to an existing problem.

Knowledge economy workers are those who engage in creating ideas concepts and innovations. Their main objective is to think outside the box and come up with solutions to problems. One good example of how a knowledge economy can generate jobs and reduce poverty is through people working in manufacturing firms who use their hands and physical tools to produce goods and services. By producing different goods and services, their firms are expanding and more employees will be employed.

In summary, the knowledge economy creates jobs in the following areas Software design (ICTS), Engineering, Data Analysis, Research and Development, small and medium scale industries, agriculture and so on. It is important to note that the adaptation of scientific and technical discoveries is fundamental in developed economies, which engage in agricultural and industrial production whereby, entrepreneurs capitalise on these discoveries to utilise and sustain their business. Nigeria as a developing nation can leverage information and communication technologies (ICTs) to create jobs through the establishment of diverse digital technology centres across the country.

Benefits of a Knowledge-Based Economy

The emergence of a knowledge economy is part of the globalisation and technological advancement of any country. The concept holds the view that information and knowledge are key to economic growth and development. In the same vein, technological changes and innovation are driven by the knowledge-based economy through their efforts on production methods, consumption patterns and structure of economies (Kamara and Nyende, 2007). The increasing application of knowledge to production and utilisation of global exchange and distribution processes coupled with globalisation clearly underscores the need for a strong



base of science, technology and innovation to sustain economic growth in developing countries such as Nigeria.

The foundation laid by the knowledge economy is generally considered to be an environment that enables businesses, governments, and organisations to benefit from the creation and sharing of knowledge and ideas.

Such partnerships will support hubs where people would gather to innovate and create new products. A well-planned and executed knowledge economy provides a solid foundation for the necessary technical expertise, data collection and analysis skills and innovative management practices that enable companies and business organisations to compete in the modern global economy. In the knowledge economy, many countries are already seizing opportunities to move ahead by seeking new and innovative ways of boosting their growth and competitiveness. A knowledge-based economy has the policies, institutions and capabilities in place to make effective use of knowledge to enhance economic and social development. As team members in a workplace, knowledge workers apply their mental competencies towards company tasks, allowing their organisations to take on challenging initiatives, and embrace new technologies.

One of the key roles of tertiary institutions is to help improve the capacity of researchers and entrepreneurs to create new knowledge, products and services. The global impacts of technological changes on tertiary education include transformation in the production process, cross-border flow of knowledge and increased differentiation and changes in classroom practices (Babalola, 2010). According to the World Bank (2010), the impacts are in the following areas:

- (1) Increased specialisation: It affords tertiary institutions an opportunity for an in-depth study of particular fields of specialisation to have a comparative advantage.
- (2) Strategic cross-border flow of knowledge and advanced human capital. It enhances intellectual collaboration whereby scholars from other countries or institutions actively engage each other to maintain vibrant intellectual cooperation to develop human capital.
- (3) Attention focused on learning to learn: The curricular contents are designed such that students learn how to learn, meaning that students must learn not only what is known now but also how to keep knowledge up to date. Hence, new technology-based tools for gathering knowledge must constitute a central element of their education.
- (4) Leveraging on ICT: modern ICT usage will make new services proliferate, thereby transforming labour-intensive tasks such as payroll into technology-based activities. Even students will have access to information through the Internet to carry out their educational pursuits with ease.

However, the different ICT tools if used together and combined to form networked world which reaches to form a networked world that reaches every corner of the globe can be used for participation in global markets, promoting political accountability, improving the delivery of basic services and enhancing local development opportunities. The tertiary institutions, therefore, are catalysts for the adoption of a knowledge-based economy because they possess



the necessary manpower to train and educate our young people to attain the appropriate knowledge and skills needed to transform our country.

Challenges in Adopting a Knowledge-Based Economy in Nigeria

The knowledge-based economy has been defined as an economy in which the production exchange, distribution and use of knowledge are the main drivers of economic growth and social development (Ineye-Briggs, 2023; Asongu, 2017). There are multitudes of challenges facing the adoption of a knowledge-based economy in developing countries such as Nigeria. Babalola (2010) identified them as low investment in human capital, low access to educational opportunities, low access to integration and development, lack of interest in research and development, and low interest in transforming tertiary institutions among others.

- (1) **Low investment in human capital:** This is one of the major challenges facing Nigeria in joining the knowledge revolution. The low investment in human capital has adversely affected research and development and has apparently led to the country's lack of capacity to tap flows of knowledge.
- (2) **Low access to educational opportunities:** The capacity of Nigeria to join the global knowledge revolution is owing to the low level of educated persons Nigeria records the highest number of out-of-school children in the world and with a very low tertiary gross enrolment rate.
- (3) **Low ICT integration and development:** One of the key pillars of the knowledge economy is information and communication technology (ICT). It is very surprising to observe that most tertiary institutions lack an adequate quantity of ICT components to promote digital learning.
- (4) **Lack of interest in research and development:** there is an apparent lack of interest in research and development which is why little funds are appropriated to the sector. No nation develops technologically without research; however, most of the innovations carried out today are products of research.
- (5) **Low interest in transforming tertiary education:** The Nigerian political class lack the political will to transform our tertiary institutions. Hence, deaf ears are paid to agitations to increase funding for our tertiary institutions. It is important to note that, the appreciation of the social value of knowledge and the roles of tertiary education assisted the Republic of Korea to have a strong aspiration to transform higher education research (Mutume, 2016).
- (6) **Inappropriate Curricular Contents:** The school curriculums are not appropriate. For the needs of a modern society which seeks to create a competitive and efficient economy. The tertiary education curriculum should address the needs of the society, challenges in the country and ways to proffer solutions to critical issues affecting the livelihood of individuals in the society.



CONCLUSION

The knowledge-based economy plays a transformative role in addressing poverty and unemployment in Nigeria by leveraging education, innovation, and information technology to drive sustainable economic development. By fostering an environment where knowledge creation and application are prioritised, Nigeria can generate high-quality employment opportunities and enhance productivity across various sectors. Investments in digital literacy, vocational training, and entrepreneurial education are essential to equipping the workforce with skills needed in the modern economy. Programs that support research, development, and technological innovation can enhance competitiveness and reduce dependency on traditional resource-based sectors, which have shown limited success in alleviating poverty and reducing unemployment sustainably.

However, the transition to a knowledge-based economy faces challenges, including inadequate infrastructure, limited funding for education and research, and gaps in digital inclusion. Addressing these barriers requires a collaborative approach involving government, private sector, and international partners. With targeted policies and effective implementation, Nigeria can harness the potential of a knowledge-driven economy to reduce unemployment and poverty, fostering inclusive and sustainable development.

WAY FORWARD

Arising from various reviews the following suggestions are proffered:

1. Invest in STEM education, digital literacy, and broadband internet access, particularly in underserved areas, to build the foundation for a knowledge-driven workforce.
2. Allocate more funding for research and development, establish innovation hubs, and encourage public-private partnerships to foster technological advancement and entrepreneurship.
3. Develop policies to ensure digital inclusion, provide lifelong learning opportunities, and support marginalised groups in accessing knowledge-based economic benefits.
4. Create dedicated agencies to monitor the implementation of knowledge economy strategies, collaborate with international partners, and adopt best practices from successful economies.



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