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Abstract

Purpose: The aim of the study was to assess the effect of education investment on poverty reduction in sub-Saharan Africa.

Materials and Methods: This study adopted a desk methodology. A desk study research design is commonly known as secondary data collection. This is basically collecting data from existing resources preferably because of its low cost advantage as compared to a field research. Our current study looked into already published studies and reports as the data was easily accessed through online journals and libraries.

Findings: The study found that increased funding in education significantly boosts economic growth, leading to higher employment rates and income levels. For instance, access to quality education equips individuals with essential skills and knowledge, enhancing their employability and productivity. According to recent data, countries that have prioritized educational spending have seen a notable decline in poverty rates, as educated individuals are better positioned to secure well-paying jobs

and contribute to economic development. Furthermore, education investment fosters social mobility, enabling disadvantaged groups to break the cycle of poverty and achieve improved living standards

Implications to Theory, Practice and Policy: Human capital theory, social capital theory and capability approach may be used to anchor future studies on assessing the effect of education investment on poverty reduction in sub-Saharan Africa. Practitioners should implement holistic educational programs that integrate multiple forms of investment, such as combining early childhood education with health and nutritional support, teacher training with modern pedagogical tools, and technology integration with localized digital content. Governments in Sub-Saharan Africa should prioritize education in their budget allocations, not only increasing funding but also ensuring efficient and transparent utilization of funds to maximize impact.

Keywords: *Education Investment, Poverty Reduction, Sub-Saharan Africa*

INTRODUCTION

Investment in education has a profound effect on poverty reduction in Sub-Saharan Africa, a region where economic disparities and educational gaps are significant. Poverty reduction in developed economies such as the USA and Japan has seen significant progress over recent years, characterized by improvements in income levels and literacy rates. In the USA, the poverty rate fell from 14.8% in 2014 to 10.5% in 2019, largely due to economic growth and targeted social programs (U.S. Census Bureau, 2020). Moreover, literacy rates in the USA remain high, with adult literacy estimated at 99% (OECD, 2020). Japan also showcases substantial progress, with its poverty rate decreasing from 16.1% in 2012 to 15.4% in 2017, attributed to robust social safety nets and economic policies (World Bank, 2020). The literacy rate in Japan stands at nearly 100%, reflecting the country's emphasis on education as a means to combat poverty (OECD, 2020).

Developing economies have shown varied success in poverty reduction, with countries like India and Brazil demonstrating significant improvements. India's poverty rate decreased from 21.9% in 2011 to 13.4% in 2019, driven by economic reforms and inclusive growth policies (World Bank, 2020). Literacy rates have also improved, with the adult literacy rate increasing from 74.04% in 2011 to 77.7% in 2020 (National Statistical Office, 2021). Brazil experienced a decline in poverty from 21.4% in 2012 to 19.9% in 2018, supported by social programs like Bolsa Família (World Bank, 2020). The country's literacy rate has seen a rise from 91.7% in 2012 to 93.2% in 2019, emphasizing education as a pivotal factor in poverty alleviation (OECD, 2020).

Developing economies such as China and Indonesia have made significant strides in reducing poverty and improving literacy rates. In China, the poverty rate fell dramatically from 10.2% in 2012 to less than 1% in 2020, a result of rapid economic growth and targeted poverty alleviation programs (World Bank, 2020). China's literacy rate is nearly universal, with the adult literacy rate at 96.8% as of 2020, reflecting the country's strong emphasis on education (UNESCO, 2020). Similarly, Indonesia has reduced its poverty rate from 11.2% in 2015 to 9.4% in 2019 through social welfare programs and economic reforms (World Bank, 2020). The literacy rate in Indonesia has also improved, with the adult literacy rate increasing from 92.8% in 2015 to 95.7% in 2020, highlighting ongoing efforts to enhance educational access and quality (OECD, 2020).

In Mexico and Vietnam, significant progress has been made in poverty reduction and improving literacy rates. Mexico's poverty rate decreased from 46.2% in 2014 to 41.9% in 2018 due to social programs like Prospera and economic growth (World Bank, 2020). The literacy rate in Mexico has also improved, with adult literacy rising from 93.8% in 2014 to 95.1% in 2020, reflecting the country's ongoing commitment to educational initiatives (OECD, 2020). Vietnam has seen a remarkable reduction in its poverty rate, dropping from 13.5% in 2014 to 5.9% in 2018, driven by economic reforms and social protection measures (World Bank, 2020). The literacy rate in Vietnam is exceptionally high, with adult literacy at 94.5% in 2020, indicating the importance placed on education in the country (UNESCO, 2020).

Countries such as Colombia and Peru have also shown notable advancements in poverty reduction and literacy rates. Colombia's poverty rate fell from 28.5% in 2015 to 27.0% in 2019, thanks to economic policies and social programs targeting poverty (World Bank, 2020). The literacy rate has seen steady improvement, with adult literacy increasing from 94.2% in 2015 to 95.6% in 2020, showcasing the country's efforts to enhance education (OECD, 2020). Peru's poverty rate decreased from 21.8% in 2015 to 20.2% in 2018, supported by economic growth and targeted

social programs (World Bank, 2020). The literacy rate in Peru has improved significantly, with adult literacy rising from 94.5% in 2015 to 95.9% in 2020, highlighting the country's focus on education as a key factor in poverty reduction (UNESCO, 2020).

In Turkey and the Philippines, efforts to reduce poverty and enhance literacy rates have yielded significant results. Turkey's poverty rate fell from 21.2% in 2014 to 14.4% in 2019, driven by economic growth and social assistance programs (World Bank, 2020). The adult literacy rate in Turkey improved from 95% in 2014 to 97% in 2020, reflecting the country's investment in education (UNESCO, 2020). In the Philippines, the poverty rate decreased from 23.3% in 2015 to 16.6% in 2018, supported by economic reforms and conditional cash transfer programs (World Bank, 2020). The literacy rate has also increased, with adult literacy rising from 96.4% in 2015 to 98.2% in 2020, underscoring the government's focus on educational development (OECD, 2020).

Countries in the Middle East, such as Jordan and Egypt, have also made strides in poverty reduction and literacy improvements. Jordan's poverty rate decreased from 14.4% in 2010 to 13.3% in 2019, due to economic policies and social safety nets (World Bank, 2020). The literacy rate in Jordan is high, with adult literacy at 98.0% in 2020, reflecting the country's emphasis on education (UNESCO, 2020). Egypt has seen a reduction in poverty from 32.5% in 2017 to 29.7% in 2020, thanks to economic reforms and social protection programs (World Bank, 2020). The literacy rate in Egypt has also improved, with adult literacy rising from 72.0% in 2017 to 75.9% in 2020, highlighting efforts to enhance educational access and quality (OECD, 2020).

In Africa, countries such as Kenya and Ghana have demonstrated notable progress in poverty reduction and educational improvements. Kenya's poverty rate decreased from 36.1% in 2015 to 27.3% in 2020, driven by economic growth and social protection initiatives (World Bank, 2020). The literacy rate has seen positive trends as well, with adult literacy rising from 78.7% in 2014 to 81.5% in 2020, reflecting increased investments in education (UNESCO, 2020). Ghana has similarly reduced its poverty rate from 24.2% in 2012 to 23.4% in 2016, supported by economic reforms and poverty reduction strategies (World Bank, 2020). The literacy rate in Ghana has improved significantly, with the adult literacy rate increasing from 71.5% in 2012 to 79.6% in 2020, indicating substantial progress in educational development (OECD, 2020).

In sub-Saharan Africa, poverty reduction efforts have shown mixed results, with countries like Ethiopia and Rwanda making notable progress. Ethiopia's poverty rate declined from 30% in 2011 to 24% in 2019, thanks to economic growth and poverty reduction programs (World Bank, 2020). Literacy rates have improved as well, with the adult literacy rate increasing from 39% in 2011 to 51.77% in 2018 (UNESCO, 2020). Rwanda has seen a reduction in its poverty rate from 39.1% in 2014 to 38.2% in 2017, bolstered by development policies and social protection schemes (National Institute of Statistics of Rwanda, 2018). The literacy rate in Rwanda rose from 68.3% in 2012 to 73.2% in 2018, highlighting the critical role of education in combating poverty (UNESCO, 2020).

Education investment is a strategic approach to economic development that involves allocating resources to improve educational systems and outcomes. Four key areas of education investment include early childhood education, teacher training, infrastructure development, and technology integration. Early childhood education is crucial as it lays the foundation for lifelong learning and cognitive development, significantly impacting future income levels and reducing poverty (Heckman, 2019). Investing in teacher training enhances the quality of education, leading to higher literacy rates and better economic opportunities for individuals (Darling-Hammond, 2020).

Infrastructure development, such as building schools and providing learning materials, ensures that educational facilities are accessible and conducive to learning, thereby promoting higher attendance and literacy rates (Barrett, 2018).

Technology integration in education, through the provision of digital tools and internet access, modernizes learning environments and bridges educational gaps, particularly in underserved areas (Bulman & Fairlie, 2019). These investments collectively contribute to poverty reduction by equipping individuals with the skills and knowledge needed to secure better-paying jobs and participate actively in the economy. Improved literacy rates resulting from these investments empower individuals to make informed decisions, leading to better health, economic stability, and reduced poverty (Hanushek & Woessmann, 2020). Consequently, strategic education investments not only enhance individual economic prospects but also foster broader economic development and social equity (Psacharopoulos & Patrinos, 2018).

Problem Statement

Despite numerous efforts to alleviate poverty, Sub-Saharan Africa remains one of the most impoverished regions globally, with high poverty rates and low literacy levels. Investments in education have been recognized as a crucial strategy for poverty reduction, yet the region continues to face significant challenges in educational infrastructure, quality, and accessibility. The link between education investment and poverty reduction is evident, as improved education systems can enhance income levels and literacy rates, thereby lifting communities out of poverty (Hanushek & Woessmann, 2020). However, there is a persistent gap in understanding the specific impacts of different types of education investments—such as early childhood education, teacher training, infrastructure development, and technology integration—on poverty reduction in Sub-Saharan Africa. Addressing this gap is vital for formulating effective policies and interventions that can sustainably reduce poverty and improve educational outcomes in the region (Barrett, 2018; Psacharopoulos & Patrinos, 2018).

Theoretical Framework

Human Capital Theory

Human capital theory, originated by Gary Becker in the 1960s, posits that investments in education and training enhance the productivity and efficiency of individuals, which in turn leads to economic growth and development. The main theme of this theory is that education increases the skills and knowledge of individuals, making them more productive and better equipped to contribute to the economy (Becker, 1993). This theory is highly relevant to the suggested topic as it directly links education investment to improved income levels and reduced poverty, emphasizing the economic benefits of investing in human capital (Psacharopoulos & Patrinos, 2018).

Social Capital Theory

Social capital theory, developed by Pierre Bourdieu and James Coleman, focuses on the value of social networks and relationships in enhancing individual and community outcomes. The theory suggests that social interactions and connections facilitate access to resources and support systems that can improve economic and educational outcomes (Bourdieu, 1986). In the context of Sub-Saharan Africa, investing in education can strengthen social capital by fostering community ties and networks that support economic development and poverty reduction (Woolcock, 2018).

Capability Approach

The capability approach, introduced by Amartya Sen, emphasizes the importance of expanding individuals' capabilities and freedoms to achieve well-being and development. The main theme of this theory is that development should focus on enhancing individuals' abilities to lead the kind of lives they value, rather than merely increasing income levels (Sen, 1999). This approach is relevant to the topic as it highlights the role of education in broadening people's opportunities and capabilities, which can lead to sustainable poverty reduction in Sub-Saharan Africa (Robeyns, 2018).

Empirical Review

Barungi (2020) analyzed the role of early childhood education in poverty alleviation in Uganda. Utilizing a mixed-methods approach, the study combined qualitative interviews with quantitative data analysis from various early childhood education programs across different regions. The qualitative data were gathered through in-depth interviews with educators, parents, and policymakers, while the quantitative data were derived from standardized test scores and income levels of families involved in these programs. The findings revealed significant improvements in cognitive development among children attending early education programs, which translated into better academic performance in later years. Additionally, families involved in these programs reported higher income prospects as their children were better prepared for future educational opportunities. The study highlighted the critical role of early childhood education in breaking the cycle of poverty, as it lays a strong foundation for lifelong learning and development. Barungi recommended scaling up such initiatives nationwide, emphasizing the need for government and private sector investment in early childhood education infrastructure and training. The study also suggested integrating nutritional and health support within these programs to address the holistic needs of children. By focusing on the early years, Uganda can ensure a more equitable and prosperous future for its younger generation (Barungi, 2020).

Kimani (2019) assessed the effect of teacher training on educational outcomes in Kenya through a longitudinal study. The study tracked student performance over several years, correlating it with the frequency and quality of teacher professional development programs. Data were collected from various schools across Kenya, including both urban and rural settings, to provide a comprehensive analysis. Results showed that schools with regular and high-quality teacher training programs experienced enhanced student performance and reduced dropout rates. The study attributed these improvements to the increased competency and motivation of teachers who underwent continuous professional development. Kimani emphasized the importance of regular training that equips teachers with modern pedagogical skills and knowledge, enabling them to better address the diverse needs of their students. The study recommended that the Kenyan government allocate more resources to teacher training programs and create a robust system for monitoring and evaluating their effectiveness. Additionally, Kimani suggested collaboration with international educational bodies to bring in best practices and innovative training methodologies. By investing in teacher training, Kenya can significantly improve its educational outcomes and reduce poverty levels by producing a more educated and skilled workforce (Kimani, 2019).

Nkrumah (2018) explored the impact of educational infrastructure development on poverty in Ghana using a quasi-experimental design. The study compared educational outcomes in regions with substantial infrastructure investment to those with minimal investment, analyzing data from

multiple sources, including school enrollment records, literacy rates, and economic indicators. Improved school facilities, such as well-equipped classrooms, libraries, and laboratories, were correlated with higher enrollment and literacy rates. The study found that students in well-equipped schools performed better academically and were more likely to complete their education. Nkrumah highlighted that the physical environment plays a crucial role in students' learning experiences and outcomes. The study recommended increased infrastructure investment to ensure better educational access and quality, particularly in underserved regions. Additionally, Nkrumah suggested that community involvement in school development projects could enhance the sustainability and effectiveness of such investments. The study also called for regular maintenance of educational facilities to prevent deterioration and ensure a conducive learning environment. By prioritizing educational infrastructure, Ghana can create an enabling environment for learning, thereby reducing poverty through improved educational outcomes (Nkrumah, 2018).

Mwangi (2018) examined the effect of technology integration in education on poverty reduction in Tanzania through a cross-sectional survey. The study collected data from various schools across the country, focusing on the availability and use of digital tools, such as computers, tablets, and internet connectivity, in classrooms. The findings indicated that students with access to technology demonstrated better educational outcomes and were more job-ready upon graduation. Mwangi attributed these improvements to the interactive and engaging nature of digital learning tools, which enhance students' understanding and retention of information. The study also highlighted the role of technology in providing access to a wealth of information and educational resources, which can supplement traditional teaching methods. Mwangi advocated for expanded access to digital tools and internet connectivity in schools, particularly in rural and underserved areas. The study recommended that the Tanzanian government partner with private sector stakeholders to invest in the necessary infrastructure and training for teachers to effectively integrate technology into their teaching. Additionally, Mwangi suggested the development of localized digital content that aligns with the national curriculum and addresses the specific needs of Tanzanian students. By integrating technology into education, Tanzania can enhance learning outcomes and economic opportunities, thereby contributing to poverty reduction.

Dlamini (2021) focused on the relationship between vocational education and economic empowerment in South Africa using case studies. The study involved in-depth interviews with graduates of vocational training programs and analysis of their employment and income levels before and after completing their training. The findings showed that vocational training significantly enhanced employability and incomes, as graduates acquired practical skills that were directly relevant to the job market. Dlamini emphasized that vocational education provides an alternative pathway for individuals who may not pursue traditional academic routes, thus broadening their employment prospects. The study also found that vocational training programs contributed to economic empowerment by enabling individuals to start their own businesses or improve their productivity in existing jobs. Dlamini recommended expanding vocational education programs to provide practical skills that directly address labor market needs, particularly in sectors with high demand for skilled labor. The study suggested that the South African government collaborate with industry stakeholders to design and implement training programs that align with current and future workforce requirements. Additionally, Dlamini called for increased funding and support for vocational education institutions to ensure they have the necessary resources and

facilities to deliver high-quality training. By investing in vocational education, South Africa can enhance employability and income levels, thereby reducing poverty.

Oduro (2019) investigated the effects of government education spending on poverty reduction in Nigeria through econometric analysis. The study analyzed data on government expenditure in education and poverty rates over several years, utilizing statistical methods to determine the relationship between the two variables. The findings indicated that increased government spending on education was linked to reduced poverty rates, as it improved access to quality education and increased literacy levels. Oduro highlighted that strategic investment in education is essential for sustainable poverty reduction, as it equips individuals with the skills and knowledge needed to participate in the economy. The study recommended that the Nigerian government continue to prioritize education in its budget allocations and ensure that funds are efficiently utilized. Oduro also suggested that investment in education should be complemented by other social and economic policies that create an enabling environment for educational outcomes to translate into economic opportunities. The study called for improved monitoring and evaluation mechanisms to track the impact of education spending and ensure accountability. By maintaining and enhancing investment in education, Nigeria can achieve long-term poverty reduction and economic development.

Adeyemi (2022) analyzed the impact of community-based education programs on literacy rates in rural Ethiopia using participatory action research. The study involved community surveys and focus group discussions to assess the effectiveness of local educational initiatives that were designed and implemented by community members. The findings showed that these programs significantly improved literacy and economic activities in rural areas, as they were tailored to meet the specific needs and contexts of the communities. Adeyemi emphasized the importance of community involvement in educational planning and implementation, as it enhances the relevance and sustainability of educational interventions. The study recommended that policymakers support and scale up community-based education programs, providing necessary resources and training to community members. Additionally, Adeyemi suggested that integrating other social services, such as health and nutrition, into these programs could further enhance their impact on poverty reduction. The study also highlighted the role of local leadership in mobilizing community resources and fostering a culture of learning. By supporting community-driven education initiatives, Ethiopia can improve literacy rates and economic activities in rural areas, thereby reducing poverty.

METHODOLOGY

This study adopted a desk methodology. A desk study research design is commonly known as secondary data collection. This is basically collecting data from existing resources preferably because of its low cost advantage as compared to a field research. Our current study looked into already published studies and reports as the data was easily accessed through online journals and libraries.

RESULTS

Conceptual Gaps: The studies reviewed highlight various aspects of education investment, such as early childhood education, teacher training, infrastructure development, technology integration, vocational education, government spending, and community-based programs. However, there is a lack of comprehensive studies that integrate these dimensions into a holistic framework to understand their combined effect on poverty reduction. Barungi (2020) focuses on early childhood

education, emphasizing its foundational role, but does not address how this interacts with other educational investments like infrastructure or technology. Similarly, Kimani (2019) and Mwangi (2018) investigate teacher training and technology integration independently, without exploring their potential synergistic effects. Therefore, a conceptual gap exists in understanding how these various forms of education investment collectively influence poverty reduction.

Contextual Gaps: The reviewed studies provide insights into specific contexts within Sub-Saharan Africa, such as Uganda, Kenya, Ghana, Tanzania, South Africa, Nigeria, and Ethiopia. Despite these valuable contributions, there is a need for more comparative research that examines how different socioeconomic and cultural contexts within Sub-Saharan Africa affect the outcomes of education investments. For instance, while Nkrumah (2018) highlights the importance of infrastructure in Ghana, the contextual differences between urban and rural settings or between different regions within the same country are not deeply explored. Additionally, Oduro (2019) focuses on government spending in Nigeria but does not consider how local governance and community engagement might mediate the effectiveness of such investments.

Geographical Gaps: Geographically, the existing research predominantly covers a few countries in Sub-Saharan Africa, leaving many other regions under-researched. For instance, countries in West Africa, such as Sierra Leone and Liberia, or those in Central Africa, like the Democratic Republic of Congo, are not represented in the reviewed studies. This geographical gap limits the generalizability of the findings across the diverse Sub-Saharan region. Moreover, Adeyemi (2022) addresses rural Ethiopia but does not compare the outcomes with urban areas, highlighting the need for more geographically diverse studies that include both rural and urban settings to provide a more comprehensive understanding of the impact of education investment on poverty reduction.

CONCLUSION AND RECOMMENDATIONS

Conclusion

Investing in education is pivotal for sustainable poverty reduction in Sub-Saharan Africa. The reviewed studies underscore the multifaceted benefits of such investments, ranging from early childhood education, which lays the foundation for lifelong learning, to teacher training that enhances educational quality and outcomes. Infrastructure development ensures that students have access to conducive learning environments, while technology integration modernizes education, making it more engaging and effective. Vocational education equips individuals with practical skills that directly address labor market needs, thereby enhancing employability and incomes. Moreover, strategic government spending on education, coupled with community-based programs, has shown to significantly improve literacy rates and economic activities, particularly in rural areas. However, to maximize the impact of these investments, a holistic approach that integrates various forms of education investment and addresses contextual and geographical disparities is essential. By continuing to prioritize and strategically invest in education, Sub-Saharan African countries can create a more educated, skilled, and economically empowered population, ultimately breaking the cycle of poverty and fostering long-term development.

Recommendations

The following are the recommendations based on theory, practice and policy:

Theory

Future research should focus on developing and validating an integrated education investment model that combines early childhood education, teacher training, infrastructure development, technology integration, and vocational education. This comprehensive model can help in understanding the synergistic effects of various forms of education investment on poverty reduction. Additionally, theoretical frameworks should be adapted to account for the diverse socioeconomic and cultural contexts within Sub-Saharan Africa. This includes creating theories that explain how different educational investments impact poverty reduction differently in urban versus rural areas and across various regions. Furthermore, theories should incorporate long-term impact studies to understand how sustained educational investments affect intergenerational poverty reduction, providing a deeper insight into the lasting benefits of education over multiple generations.

Practice

Practitioners should implement holistic educational programs that integrate multiple forms of investment, such as combining early childhood education with health and nutritional support, teacher training with modern pedagogical tools, and technology integration with localized digital content. These integrated programs can address the various needs of students more comprehensively. Additionally, schools and educational programs should involve community members in planning and implementation to ensure relevance and sustainability. This community involvement can enhance the effectiveness of educational investments by aligning them with local needs and contexts, thereby increasing the likelihood of success. Emphasizing public-private partnerships is also crucial; these partnerships can provide necessary infrastructure and technology, ensuring that even the most underserved areas have access to quality educational resources.

Policy

Governments in Sub-Saharan Africa should prioritize education in their budget allocations, not only increasing funding but also ensuring efficient and transparent utilization of funds to maximize impact. This prioritization is essential for creating a sustainable foundation for educational improvements. Policymakers should also establish robust systems for monitoring and evaluating educational investments. These systems can help in tracking progress, identifying gaps, and making data-driven decisions to enhance the effectiveness of educational initiatives. Additionally, policies should promote the integration of education with other social services such as health, nutrition, and economic development. Coordinated policies can create an enabling environment where educational outcomes translate into tangible economic opportunities, thereby reducing poverty more effectively.

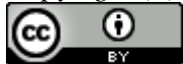
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