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Migrants' Remittances, Economic Growth, and Poverty Reduction in Selected West African Countries: *A Causality Test*

[1]Samuel, Paabu Adda, [2]Addas, Joseph Nacho & [3]Tswenji, Andokari
[1,2&3]Department of Economics, Faculty of Social Sciences,
Federal University Wukari, Taraba Sate, Nigeria.

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Abstract

The aim of this study is to assess the effect of migrants' remittances and economic growth on poverty reduction in some selected West African countries: Nigeria, Ghana and Senegal (A causality test). Data for this study were obtained from secondary sources. The study covered annual data spanning the period 1990 to 2022 and employed several econometric tests of analysis. The empirical findings revealed that migrants' remittances and economic growth have significant negative effect on poverty in the long-run, consistent with a priori expectation while inflation revealed an insignificant positive effect on poverty in West Africa in the long-run. The PMG's speed of adjustment parameter (ECT) is rightly signed and statistically significant at 10% level, reinforcing co-integrating relationship. That is 31% disequilibrium in the short-run is corrected annually in the long-run. Revealed unidirectional causality runs from remittances, GDP per capita, and inflation to poverty, while there appears to be no causal relationship either from unemployment or foreign direct investment to poverty and vice versa. The test of hypotheses results revealed that all the alternative hypotheses were accepted and the null hypotheses rejected. Therefore, the study concluded that remittances and economic growth have decelerating-effects on the level of poverty in West Africa in the long-run. The study recommended among others, that (a) Governments need to substantially strengthen and synergize remittances and economic growth as poverty alleviating factors in West Africa (b) Remittance recipients need sensitization on the need to channel such funds into productive ventures and policy mandating them to do so be enacted and implemented (c) Economic growth in the selected West African countries should be driven with an inclusive mindset

Keywords: *Migrant remittances, Poverty reduction, Economic Growth, Causality, West Africa*

Corresponding Author: Samuel, Paabu Adda

Background to the Study

Poverty in West Africa is a multifaceted issue that extends beyond mere monetary constraints, requiring a nuanced understanding of its definitions and context. The World Bank defines poverty through income levels, but in West Africa, the context includes social, political, and environmental factors that contribute to the impoverishment of communities. For instance, the degradation of inland fisheries, which are crucial for food security in the region, underscores the interconnectedness of poverty with resource management and governance challenges (Abdulai & Shamshiry, 2014). Furthermore, the role of educational institutions in fostering regional development is emerging as a potential avenue for poverty alleviation. Engaging universities in initiatives that promote regional integration might facilitate solutions that address the systemic issues plaguing West Africa, such as unemployment and lack of access to quality education (Kotecha, 2011). Thus, a comprehensive analysis of poverty must account for its broader implications on societal well-being in the region.

Therefore, poverty alleviation remains a key challenge for many developing countries, particularly in West Africa. Economic growth and migrant remittances are often regarded as critical mechanisms for improving the well-being of impoverished populations. Remittances—financial transfers sent by migrants back to their home countries—have emerged as an important source of external funding, surpassing foreign direct investment (FDI) in some countries. In 2021, global remittance flows reached $540 billion, a significant proportion of which went to developing nations (World Bank, 2022). Nigeria, Ghana, and Senegal, three key West African economies, have been central to both regional migration patterns and remittance flows. These remittances have been hailed for their potential to reduce poverty, enhance household incomes, and contribute to national development (Ratha, Kim, Plaza, & Seshan, 2021). However, the relationship between remittances, economic growth, and poverty reduction remains complex and context-dependent. Moreover, sustained economic growth has been shown to play a significant role in reducing poverty through job creation and the improvement of living standards (Dollar & Kraay, 2002).

Rising levels of poverty and emigration from emerging economies to developed economies are the results of socioeconomic phenomena brought about by historical and political factors. Based on the aforementioned circumstances, the United Nations (UN) has designated poverty elimination as the primary objective of sustainable development goals. The decrease in poverty is of utmost importance for the advancement and development of developing economies, as it is crucial for achieving sustained economic growth and enhancing the overall quality of life for their populations (Charles, 2015). Migration is the phenomenon characterized by the relocation of individuals from one geographical area or nation to another. Individuals often engage in migration, relocating from their place of origin or home country to a different region or country, driven by a multitude of factors. These factors encompass a wide range of circumstances, including natural disasters, armed conflicts, and the pursuit of improved employment prospects. According to estimates, the global population of international migrants reached approximately 281 million individuals in the year 2020, accounting for approximately 3.6% of the total global population. The number of international migrants has witnessed notable growth over the course of the last five decades. The depicted data illustrates

a rise of 128 million individuals in comparison to the similar figure recorded in 1990. Furthermore, this count exceeds the estimated population in 1970 by more than three times (International Organization for Migration, 2022).

Migration in West Africa reflects a complex interplay of historical, economic, and socio-political factors, resulting in patterns that are both internal and cross-border. This region has experienced notably high levels of migration, often described as a quintessential aspect of regional integration, where individuals and families relocate in search of better employment opportunities and living conditions. Migration serves not only as a strategy for economic survival but also fosters social networks that sustain remittance flows back to home countries, contributing significantly to local economies. As observed in broader African migration dynamics, poverty is frequently thought to be the primary driver compelling individuals to migrate, yet it is crucial to recognize that migration can also provide a pathway out of poverty and enhance household resilience. Furthermore, emerging evidence illustrates that temporary and circular migrations are predominant, particularly as migrants maintain strong ties to their home communities through remittances, thereby reinforcing interregional connections and development prospects (Ammassari, S., Black, Crush, McLean Hilker, Mouillesseaux, Pederby, Pooley & Rajkotia, 2006). Understanding these patterns is essential for formulating policies that effectively harness migration as a vehicle for inclusive growth and development in West Africa, and for recognizing the rights and protections needed for migrant populations in the context of their often-precarious circumstances (Crush, Tawodzera, McCordic & Ramachandran, 2017).

The migration phenomenon is primarily driven by the exchange of remittances, which refers to the monetary, material, and intellectual transfers made by migrants residing overseas to support their families and communities in their countries of origin. Remittances play a crucial role in sustaining several households in the region by offering financial stability, facilitating access to education and healthcare, and occasionally serving as the necessary funds for initiating small-scale entrepreneurial endeavors. Nevertheless, the ramifications of remittances transcend beyond their direct beneficiaries, as they possess the capacity to foster economic expansion and aid in the alleviation of poverty on a broader scale within a nation. The World Bank (2022) reported that migrant remittance serves as a crucial means of household income for countries categorized as low- and middle-income. Interventions aimed at mitigating poverty have been found to have positive effects on various aspects, including enhancing nutritional outcomes, promoting greater birth weight, and increasing school enrollment rates among children residing in economically disadvantaged households. The report highlighted that remittances have a pivotal role in enhancing the resilience of recipient households. The World Bank Migration and Development Brief (2022) reported a noticeable slowdown in remittance growth, with remittances to low- and middle-income countries (LMICs) increasing by about 5% to reach $626 billion—down from a 10.2% growth in 2021. Sub-Saharan Africa, especially vulnerable to global economic shifts, saw a more modest growth in remittances at 5.2%, reaching a total of $53 billion. Factors such as inflation, rising interest rates, and currency depreciation contributed to this decline in remittance growth, particularly affecting countries with high remittance dependency, such as Nigeria and Kenya.

The brief also anticipates a further decrease in remittance growth to 3.9% in 2023 if these adverse conditions persist, highlighting the challenges for households relying on these funds for essential needs like food, healthcare, and education (World Bank Migration and Development Brief, 2022).

According to the International Fund for Agricultural Development (IFAD, 2023), approximately 20% of individuals in Africa engage in the practice of sending or receiving overseas remittances. According to the World Bank (2020), migrant workers remitted approximately $85 billion to their relatives residing on the continent in the year 2019. Since 2009, there has been a significant increase in the volume of remittances directed towards the African continent, with an almost twofold rise seen. Presently, these remittances constitute a notable proportion, surpassing 5%, of the Gross Domestic Product (GDP) in 15 African nations. According to the World Bank's report in 2022, the Gambia exhibits the highest remittance-GDP ratio in the West African region, with a recorded value of 26.8% in 2021. Following this, Cape Verde demonstrates a ratio of 16.8% in the same year, while Guinea-Bissau reports a ratio of 12.2% in 2020. Liberia and Senegal exhibit ratios of 11.0% and 10.5% respectively, both in 2020. Togo and Ghana follow with ratios of 8.6% and 6.1% respectively, both in 2020. Lastly, Mali concludes the list with a ratio of 5.7% in 2020. However, the significance extends beyond the mere magnitude of monetary value. Remittances serve as a means of delivering monetary resources to individuals residing in impoverished conditions. Remittances are relied upon by a significant number of individuals who are deemed vulnerable, serving as a means to fulfill their fundamental necessities. According to estimates, over 75% of remittances are utilized for the acquisition of nourishing sustenance, as well as the provision of healthcare, education, and housing-related expenditures. Significantly, almost 50% of worldwide remittances are sent to rural regions, which are home to around 75% of the global population living in poverty and experiencing food insecurity. More importantly, around half of global remittances go to rural areas, where three-quarters of the world's poor and food insecure live. Poor households, in particular those headed by women, are more likely to spend remittances to purchase essential goods and services (UNDESA, 2019).

Remittances are one of the many variables that are considered to influence growth and reduce poverty in recipient countries. Many developing nations depend heavily on remittances as a source of funding (KNOMAD, 2023). Remittances are part of the capital inflow into a nation and are thought to have an effect on economic growth and poverty either directly or indirectly. Massive remittance flows are greatly facilitated by increased globalization (Maimbo & Ratha, 2005). The tradition of migration is mostly a result of labor surpluses in most developing nations; many of these individuals are trained or skilled but unable to find meaningful jobs, thus resorting to finding greener pastures (Fagerheim, 2015). Given that many migrants feel obligated to support their families back in their country of origin financially, the increased outflow of migrants is anticipated to be accompanied by an increase in remittances (Fagerheim, 2015). Remittances remained a crucial lifeline for the poor and vulnerable people, helping to fulfill their growing need for livelihood assistance all over the world with 78% of all remittances going to low-and middle-income countries globally in 2019, remittances outpaced foreign aid five times over ($714 billion vs. $153 billion) (UNECA, 2020). In the year 2020,

Western African nations were the recipients of a total of 27 billion USD in remittances. Nigeria, being the most significant beneficiary within the region, obtained around 64% of the aforementioned aggregate amount, which amounts to 17.2 billion. In 2019, remittances constitute more than 31% and 22% of GDP in Liberia (FPA 2019) and the Gambia respectively (Jeffang 2020).

In the same vein, economic growth is the single most important factor influencing poverty (Ames, Brown, Devarajan & Izquierdo, 2001). Several statistical studies have demonstrated a robust correlation between a country's per capita income and its poverty indicators, utilizing several poverty measures including income and non-income factors (Bénabou, 1996). According to Dollar and Kraay (2000), an analysis spanning four decades and 80 nations revealed that the income of the poorest one-fifth of the population increased in tandem with the overall expansion of the economy as measured by per capita GDP. Furthermore, the research revealed that the impact of economic growth on the income of individuals living in poverty was, on average, comparable between countries with low economic growth and those with high economic growth. The relationship between poverty and economic growth has remained consistent in recent times, indicating that there has been no significant alteration. Additionally, it was observed that growth stimulated by policy measures had equally positive effects on the well-being of people living in poverty as it did on the general population (Dollar & Kraay, 2000).

Understanding the dynamics between economic growth and poverty reduction is essential for developing targeted policies that foster sustainable development. Economic growth, characterized by an increase in national production and income, often facilitates improvements in living standards. Nonetheless, the relationship is not linear, as the benefits of growth can accrue unevenly across different social groups. As highlighted in (LaRose, Peschner, & Wanner, 2016), initial social inequalities can act as a crucial determinant in how effectively economic growth translates into poverty alleviation. Countries implementing redistributive policies, such as conditional cash transfers, demonstrate that proactive measures can enhance the growth-poverty nexus. Additionally, land distribution plays a pivotal role in shaping economic outcomes; (Yousof, Masoud, & Hossein, 2019) emphasizes that equitable land access can drive productivity and human capital development, ultimately aiding in income inequality reduction. Hence, aligning growth strategies with inclusive policies becomes vital for reducing poverty effectively.

There is a prevailing belief that the influx of remittances to developing nations can contribute to the enhancement of individuals' income levels, thereby leading to an improvement in the overall living conditions of recipient families. This is achieved through the facilitation of both consuming and productive endeavors. Nevertheless, if remittances induce a sense of complacency among beneficiaries toward engaging in productive endeavors, there is a potential for diminished productivity within these nations. Consequently, this could result in a decrease in economic growth and ultimately contribute to an exacerbation of poverty levels. In the field of economics, there exists a widely accepted convention that posits a causal relationship between low income and low levels of saving. This relationship, in turn, is believed

to result in diminished levels of investment and productivity. Ultimately, this cyclical pattern culminates in the persistence of high levels of poverty. Despite the substantial inflow of remittances, amounting to US$33.1 billion in 2022 according to the World Bank (2023), which if properly channeled can lead to alleviate poverty to some extent and support the families of emigrants, yet poverty continues to persist as a pervasive issue in the West Africa region. The prevalence of poverty in the region is steadily increasing. According to the United Nations Development Programme (2022), there was a notable increase of almost 3% in extreme poverty in West Africa during the year 2020. According to the report, there was an increase in the percentage of individuals residing below the poverty line of $1.90 per day, rising from 2.3% in 2020 to 2.9% in 2021. Hence, a preliminary examination of trend analysis revealed a moderately favorable and linear correlation between remittance and poverty in the West African region.

Despite the significant inflow of remittances to Nigeria, Ghana, and Senegal, these West African countries continue to grapple with sluggish economic growth, persistent poverty, and income inequality, implying that remittances, which account for a substantial share of GDP in these countries, have not translated into sustained economic development and poverty reduction. This is the crux of the study and it is upon this foundation that this study examines the causal relationship between migrants' remittances, economic growth, and Poverty Reduction in selected West African countries.

Review of Related Literatures

Theoretical Review

Pure Altruism Hypothesis

The literature has proposed the concept of altruistic behavior as a means to elucidate the motivational factors behind a migrant's choice to remit funds. The concept of altruism, originally introduced by the renowned French philosopher Auguste Comte in 1852, serves as a moral philosophy that he endorsed. The altruism theory posits that the sense of duty among individual family members has a significant role in their decision to provide financial support to one another, which can be observed in the context of migrant remittances (Becker, 1991; Stark & Lucas, 1988; Stark, 1991; Rapoport & Docquier, 2006). The idea posits that migrants exhibit a willingness to transfer resources to compensate for the income deficit experienced by their family members, with the intention of either utilizing these resources for personal consumption or directing them toward investment activities.

This theory posits that migrants engage in remittance activities to maximize their predicted benefit. The categorization of the remittance decision as solely altruistic is subject to scrutiny (Lianos, 1997). While it may result in benefits for others, a more suitable characterization would be moral egoism (Nowell-Smith, 1959; Norman, 1983). An altruistic act is characterized by the absence of any anticipated or reciprocated advantages. According to Leiter (2004), the act of altruism can be perceived as lowering and demeaning to oneself, as it necessitates prioritizing the needs and interests of others over one's own. The author posits that engaging in such conduct impedes an individual's endeavor to cultivate personal growth, achieve exceptional performance, and foster originality. Nevertheless, he expressed a moral

need to assist individuals who are less capable than oneself. The aforementioned analysis elucidates that constructing a theory of altruism grounded in the normative utility theory of an individual's pursuit of wealth maximization presents an inherent contradiction. If the proposition of altruism is embraced as a theoretical framework elucidating the phenomenon of remittance behavior among migrants, it inevitably raises an unresolved inquiry on the underlying motivations that drive migrants to engage in altruistic acts. Pure Altruism Theory provides a suitable framework for understanding remittance behavior in Nigeria, Ghana, and Senegal, highlighting the selfless motivations driving migrants' decisions.

Empirical Review

This section provides review of prior related studies covering the relationship between the explanatory variables: remittances, GDP, exchange rate, inflation, and foreign direct investment and the dependent variable: poverty.

The study conducted by Omon (2020) investigated the influence of remittances on poverty levels within the nations comprising the West African Monetary Zones (WAMZ) throughout the time frame spanning from 1990 to 2016. The data were evaluated using the Pooled Mean Group (PMG) estimator. The results of the study revealed that there was a positive correlation between the proportion of remittances to GDP and the poverty headcount ratio in both the short-term and long-term. However, it should be noted that this relationship did not reach statistical significance. Hence, contrary to the findings of previous studies, it can be observed that remittances tend to exacerbate poverty within the West African Monetary Zone (WAMZ). Similarly, Siani (2020) conducted a study that investigated the causal connection between foreign remittances, economic growth, and poverty reduction in a panel comprising the eight nations in the West African Economic and Monetary Union (WAEMU). The study employed various statistical techniques including panel unit root, panel co-integration, panel vector error correction, and Granger causality tests. The findings indicate the presence of (i) a reciprocal causation relationship between economic growth and poverty; (ii) a one-way causal connection from remittances to poverty; and (iii) a one-way causal association from economic growth to remittances in the short run.

Tsaurai (2018) employed two distinct measures of poverty as dependent variables: the poverty headcount ratio at US $1.90 and US $3.10 per day (% of the population). The findings from the fixed effects analysis provided support for the premise that poverty reduction is driven by remittances, with an optimistic outlook. Conversely, the results obtained from the pooled ordinary least squares (OLS) framework indicated that the inflow of remittances into the selected emerging markets contributed to an increase in poverty levels. There is ongoing scholarly debate over the degree to which the utilization of remittances impacts the economic growth and poverty rates of the recipient nation. In a study conducted by Faiza and Moh'd (2017), an examination was undertaken to assess the impact of remittances on poverty levels in Indonesia spanning the years 1983 to 2015. The researchers also proposed several strategic strategies for remittances and the reduction of poverty. In addition to the aforementioned parameters, considerations are given to inflation, currency rates, income, income inequality, and the labor force participation rate. The econometric and estimated outcomes were

examined using the Ordinary Least Square (OLS) technique. Based on the findings of the research, it was seen that there was a reduction of 2.56% in the poverty rate for each incremental increase of 1% in remittances. Furthermore, it is worth noting that poverty can be both positively and negatively impacted by inflation and currency rates, respectively.

The study conducted by Arjola, Judith, and Thomas (2020) examined the dynamic impacts of remittances on poverty levels and income distribution within households. The implications were analyzed through the utilization of counterfactual scenarios employing advanced matching techniques. Additionally, the researchers employed a dose-response function methodology to assess the poverty effects resulting from variations in the duration of remittance receipt. The results of their study suggest that remittances have a significant impact on reducing both absolute and relative poverty levels. Additionally, given the specific context of Kosovo, remittances appear to have a modest effect on exacerbating inequality. Additionally, the findings demonstrate that remittances have a lasting effect on the alleviation of poverty, although the immediate advantages are more prominent. The impact of foreign remittances on the prevalence and intensity of poverty in Punjab, Pakistan, was examined by Kashif, Evelyn, & Kee-Cheok (2018).

The study utilizes cross-sectional data obtained from the most recent Multiple Indicator Cluster Survey for Punjab to conduct a detailed analysis of the relationship between remittances and poverty. This analysis is performed at the district level and also takes into account the urban-rural divide. The poverty profile analysis of migrant households with remittances, compared to a counterfactual scenario without remittances, reveals that the impact on poverty reduction is more pronounced in terms of poverty headcount rather than the severity of poverty. The aforementioned pattern is also observed in urban and rural areas. This suggests that the inflow of remittances did not significantly benefit the most economically disadvantaged individuals. The findings from the regression study indicate that migrant remittances have had a substantial impact on reducing poverty levels and depth for households across all districts in Punjab. Notably, rural households in the districts of South Punjab have the highest likelihood of experiencing a decrease in poverty.

In a study conducted by Musakwa and Odhiambo (2020), the impact of remittance inflows on South Africa's poverty reduction endeavors was investigated using time series data spanning from 1980 to 2017. The primary objective of this study is to ascertain the potential of remittances as a means for poverty alleviation in South Africa. In this study, two indicators, namely infant mortality rate and family consumption expenditure, are utilized as proxies for measuring poverty. To ensure the reliability of the findings, researchers employ both income-based and non-income-based indicators as proxies for poverty. The research findings indicate that when household consumption spending is utilized as a measure of poverty, remittance has a detrimental impact on poverty levels, both in the immediate term and over an extended period. The autoregressive distributed lag (ARDL) bounds technique was employed to establish this. However, when the infant mortality rate is used as a proxy, it may be argued that remittances do not have a significant impact on poverty.

Using a panel of seven central and eastern European (CEE) nations that coincided with advanced transition economies, Mindaugas, Kristina, and Kotryna (2020) investigated the relationship between remittances and poverty from 2006 to 2015. Pooled ordinary least squares (OLS), fixed effects, random effects, and three-stage least squares (3SLS) estimators were employed to estimate the impact of remittances on poverty. The findings indicate that remittances exert a substantial influence on three of the four indicators used to quantify poverty. After accounting for the issue of endogeneity, the analysis suggests that a 10% increase in the ratio of remittances to GDP is associated with an average decrease of 5.5% in the poverty headcount. Additionally, it is predicted that this increase in remittances is also linked to a decline of 3.7% in the poverty gap and a 0.6% reduction in the risk of poverty.

Kafayat and Aras (2022) investigated the degree to which worker remittances in Nigeria have impacted the incidence of poverty from 1981 to 2020. The data analysis involved the utilization of the Vector Auto-regressive (VAR) and Auto-regressive Distributed Lag (ARDL) methodologies. The findings of the ARDL estimation revealed a substantial positive relationship between workers' remittances and poverty incidence in Nigeria. However, the VAR estimation indicated a lack of causation between poverty and workers' remittances in the Nigerian context. The findings of this study indicate that there is limited evidence to suggest that workers' remittances have had a substantial impact on poverty alleviation in Nigeria. The study conducted by Muhammad, Umaima, and Abdul (2012) primarily examined the significance of remittances influx and its potential impact on economic growth and poverty reduction within the context of Pakistan. The researchers employ the Autoregressive Distributed Lag (ARDL) approach to examine the effects of remittance inflows on both economic growth and poverty in Pakistan from 1973 to 2010. The analysis conducted at the district level indicates that the phenomenon of overseas migration has a significant role in mitigating poverty in the districts of Punjab, Sindh, and Balochistan. However, the province of NWFP does not exhibit a distinct pattern in this regard. The available empirical research indicates a positive and statistically significant relationship between remittances and economic growth. Moreover, the study additionally discovered that remittances exert a robust and statistically significant influence on the alleviation of poverty, hence indicating the existence of considerable potential advantages linked to international migration for impoverished individuals residing in developing nations such as Pakistan. The significance of remittance inflows cannot be disregarded in relation to the augmentation of growth and the alleviation of poverty, ultimately leading to the amelioration of the social and economic circumstances of the recipient nation.

In a study conducted by Falade (2019), the researcher investigated the impact of remittances inflow on poverty reduction within the time frame spanning from 1981 to 2016. The research utilized the Augmented Dickey Fuller (ADF) and Phillip Peron (PP) unit root tests, as well as the Johansen Co-integration and Auto-regressive distributed lagged (ARDL) models. The study conducted by Johansen on co-integration revealed the presence of a single co-integrating vector. Additionally, the analysis using the autoregressive distributed lag (ARDL) model demonstrated a statistically significant and negative impact of international remittance inflow

on the poverty rate. Consequently, the study reached the conclusion that the inflow of overseas remittances serves as a potential means of alleviating poverty in Nigeria. Lawal, Adegun, Aderemi, and Dauda (2022) investigated the connection between growth, poverty alleviation, and remittances in Nigeria. The study made use of secondary data obtained from the World Development Indicators spanning the years 1981 to 2019. The study utilized the ARDL Bounds test and Granger causality approaches to analyze its purpose. Therefore, the primary results of this study can be presented in the following manner: There exists a positive and statistically significant correlation between GDP per capita and migrant remittances. In addition, economic expansion serves as a driving force behind poverty alleviation inside the nation. Therefore, it can be inferred that migrant remittances and economic growth are significant factors that contribute to the alleviation of poverty in Nigeria.

Similarly, Oluseun, Olalekan, and Ayobami (2022) used Nigerian statistics from 1981 to 2018 to investigate the asymmetric and nonlinear relationship between remittances and economic growth within the context of the nonlinear autoregressive distributed lag (NARDL) model. The analysis indicates that long-term growth exhibits an unbalanced response only to remittances. It is well acknowledged that alterations in remittance inflows, whether good or negative, have a detrimental impact on the productive foundation of the economy in the long run. Conversely, these adjustments exhibit contrasting effects on growth in the near term. Consequently, the study has reached the determination that the continuous increase in remittance inflows has not been allocated towards lucrative endeavors that could potentially foster economic progress in Nigeria.

The study conducted by Oluwaseyi, Olukayode, Awoyemi, and Adesola (2019) aimed to examine the interconnections between unemployment, poverty, and economic growth in Nigeria from 1985 to 2015. The study utilized the Augmented Dickey-Fuller test to examine the presence of unit roots, the Johansen co-integration test to assess co-integration, the Granger causality test to investigate causality, and the Error Correction Model to identify short-run relationships between the variables. The findings of the study indicate that there is no discernible causal link between unemployment, poverty, and economic growth in Nigeria. The findings from the co-integration analysis indicate that there exists no significant long-term association between unemployment, poverty, and economic growth in Nigeria. The results of the short-run parameter estimates demonstrate a statistically significant inverse link between unemployment and economic growth. Nevertheless, the coefficient representing the interaction between unemployment and poverty exhibits a positive and statistically significant relationship. The study conducted by Muthalib, Adam, Rostin, Saenong, and Suriadi (2018) investigated the impact of fuel costs and unemployment rates on poverty levels. The dataset employed in this study comprised annual time series data encompassing gasoline price, unemployment rate, and poverty level variables, covering the period from 1998 to 2017. The autoregressive distributed lag model was employed to examine the impact of gasoline prices and the unemployment rate on the poverty level. The findings of the data analysis indicate that, in the short term, there exists a detrimental impact of fuel prices on the extent of poverty. In the long term, it may be observed that the unemployment rate has a favorable impact on the poverty level. In this particular scenario, for each 1% increment (decrement) in the

unemployment rate, there was a corresponding increase (reduction) of 0.3309% in the poverty rate.

Additionally, the study conducted by Asghar and Sajjad (2018) investigated the influence of various factors on poverty levels in Pakistan. This study examines five distinct macroeconomic variables, namely government expenditure, budget deficit, unemployment rate, exchange rate, and inflation rate. The data for these variables spans the period from 1995 to 2013. The Ordinary Least Squares (OLS) approach is employed to analyze the relationship between these variables. The findings of the study indicate that there exists an inverse correlation between government expenditure, budget deficit, and exchange rate with poverty, although inflation and unemployment rate exhibit a positive association with poverty.

On the other hand, Herman (2022) examined how poverty in the Indonesian city of Pekanbaru was affected by rising inflation and per capita spending. The secondary data utilized in this study encompasses the time frame of 2012 to 2021 and has been sourced from the Central Statistics Agency of Pekanbaru City. The research employed the multiple linear regression approach. The study revealed that the per capita expenditure before the onset of the COVID-19 pandemic did not have any discernible impact on individuals living in poverty. However, after the pandemic, there was a notable effect on the number of individuals falling into poverty. Additionally, the rise in inflation rates both before and after the COVID-19 pandemic had a positive correlation with the well-being of individuals living in poverty. Muhammad, Zahid, Sajjad, Amjad, and Amatul (2011) conducted a study to examine the relationship between economic growth, inflation, and the incidence of poverty in Pakistan. The use of the Autoregressive Distributed Lag (ARDL) bound testing approach to co-integration provides empirical evidence supporting the presence of a sustained association between poverty, economic growth, inflation, investment, and trade openness across the period from 1972 to 2008. The empirical findings indicate that there exists a negative relationship between economic growth and investment, and poverty. Conversely, inflation demonstrates a positive association with poverty. The study found that there was no substantial impact of trade openness on poverty. The research conducted in the short run indicates that economic growth has a detrimental effect on poverty, but inflation has a beneficial effect.

Furthermore, investment has a positive but insignificant influence on poverty reduction, while trade openness has a negative but insignificant impact on poverty reduction in the short run. The study conducted by Meo, Khan, Ibrahim, Khan, Ali & Noor (2018) aimed to analyze the relationship between inflation, unemployment, and poverty in Pakistan from 1970 to 2016. The researchers employed an asymmetric Autoregressive Distributed Lag (ARDL) co-integration approach to investigate this relationship. The findings indicate that there is a large negative relationship between unemployment and poverty, but inflation has a considerable positive impact on poverty. Moreover, the research results validate the adverse and substantial influence of health expenditures (HE) and population growth on poverty.

Furthermore, the study conducted by Musakwa and Odhiambo (2019) aimed to examine the causative connection between the influx of foreign direct investment (FDI) and poverty,

utilizing Botswana as a case study. The investigation spanned from 1980 to 2017 and employed a tri-variate causality framework. The primary aim of this study is to ascertain the causal relationship between foreign direct investment (FDI) and poverty. The study included three indicators to measure poverty: 1) household consumption expenditures; 2) newborn mortality rate; and 3) life expectancy. The research employed the ARDL-bounds testing approach and ECM-based Granger-causality model systematically to investigate the connection between these variables. The empirical findings indicate that the correlation between foreign direct investment (FDI) and the alleviation of poverty in Botswana could be influenced by the choice of proxy utilized to assess the extent of poverty reduction. The study observed a consistent one-way relationship between foreign direct investment (FDI) to poverty reduction, as indicated by the use of newborn mortality rate and life expectancy as indicators. This relationship was found to persist over both the short and long term. Nevertheless, when household consumption expenditure was employed as a proxy variable, no causal relationship was observed, regardless of whether the causality test was undertaken in the short or long term. Overall, the research indicates that Botswana has the potential to derive advantages from foreign direct investment (FDI) inflows in its efforts to combat poverty. Foreign direct investment (FDI) and poverty reduction in Pakistan were studied by Muhammad, Xie, and Hummera (2019) with the use of a few control variables. The time-series data utilized in this study encompassed the time frame from 1985 to 2016. The research discovered a strong and enduring relationship between foreign direct investment (FDI) and the decrease in poverty. Furthermore, the findings from both the short-term and long-term analyses demonstrate that foreign direct investment (FDI), the number of mobile phone users per 100 inhabitants, life expectancy, and government expenditure are significant factors in the alleviation of poverty. The application of Granger causality analysis revealed the presence of bidirectional causality between foreign direct investment (FDI) and poverty.

In the same vein Magombeyi & Odhiambo (2017) looked into how South Africa's poverty rate was affected directly by FDI inflows between 1980 and 2014. In contrast to the prevailing approach in earlier research, which often utilized a single poverty measure, this study adopted a comprehensive methodology by incorporating three distinct indicators of poverty reduction. Specifically, the measures applied in this study encompassed household consumption expenditure (referred to as Pov1), newborn mortality rate (referred to as Pov2), and life expectancy (referred to as Pov3). The selection of poverty proxies has been motivated by the need to comprehensively represent the multifaceted aspects of poverty, a topic that has not been extensively investigated in existing scholarly works.

Study Methodology

This study examines the stationarity properties of the variables included in the model, followed by the cointegration relationship between the series and then the causality analysis which is the main issue for evaluation.

Panel Unit Root Tests

To study the stationarity properties of the time series, the Pesaran test is employed in this study. Pesaran (2003) introduces a novel and straightforward method for examining the presence of unit roots in dynamic panels that may be affected by both cross-sectional dependence and

serially correlated errors. The author also suggests an enhanced version of the IPS standardized t-test, which incorporates cross-sectional augmentation.

In his work, Pesaran (2007) further expands upon his approach to account for the presence of serially linked residuals. The computation of the required individual cross-section/time series augmented regression for an *AR(p)* error specification allows for the calculation of the CADF statistics at the *p-th* order:

$$\Delta y_{it} = \alpha_i + \rho_i y_{it-1} + c_i \bar{y}_{t-1} + \sum_{j=0}^{p} d_{ij} \Delta \bar{y}_{t-1} + \sum_{j=0}^{p} \beta_{ij} \Delta y_{t-1} + \mu_{it} \quad \ldots 1$$

Furthermore, this test is necessary to ascertain that no variable is integrated of order 2. Therefore, we will perform 2nd generation unit root tests.

Co-integration Test

Although the administration of this test is discretionary within the panel study, we will conduct the Kao, Pedroni (1999, 2004), and/or Westerlund (2007) co-integration tests. However, if we assume long-run homogeneity, this step may be omitted. The determination of co-integration is based on the statistical significance of the long-run coefficients. Co-integration or a long-run relationship more broadly, is essentially the joint significance of the level's equation.

Causality Test

We performed the causality test because it was stated as one of the objectives of this study. The Granger, Wald, or Weak Exogeneity tests were carried out for this purpose. Causality can also be determined using the significance of the following:

i. Error Correction Term (for joint causality)
ii. Long-run coefficients (for long-run causality)
iii. Short-run coefficients (for short-run causality)
iv. ECT, long-run, and short-run coefficients (for strong causality)

Testing cross-sectional linear constraint on the model's coefficients is suggested by the structure of a linear autoregressive data generation process that augments conventional causality tests for panel data. The data set on causation from one given variable to another may be expanded through the use of cross-sectional data. Granger (1969) devised an approach for examining causal relationships among time series. Let's assume that x_t and y_t are two series that are stationary.

$$y_t = \alpha + \sum_{k=1}^{K} \delta_k y_{t-k} + \sum_{k=1}^{K} \beta_k x_{t-k} + \varepsilon_t \quad \ldots 2$$

With $t=1,\ldots,T$

Subsequently, the model can be employed to assess the causal relationship between *x* and *y*. If previous values of *x* are strong indicators of the current value of *y*, even when previous values of *y* are taken into account, then *x* has a causal impact on *y*. By employing (2), one can readily examine this causation by conducting an *F-test* with the subsequent null hypothesis:

$$H_0: \beta_1 = \cdots = \beta_k = 0$$

If the null hypothesis (H_0) is rejected, it can be inferred that there is a causal relationship from x to y. Interchanging the x and y variables allows for testing causality in the opposite direction, and it is feasible to discover bidirectional causality, also known as feedback. Dumitrescu and Hurlin (2012) propose an expansion aimed at identifying causation in panel data. The fundamental regression is

$$y_{i,t} = \alpha_i + \sum_{k=1}^{K} \delta_{ik}\, y_{i,t-k} + \sum_{k=1}^{K} \beta_{ik}\, y_{i,t-k} + \varepsilon_{i,t} \quad \ldots 3$$

With

$i=1,\ldots,N$ and $t=1,\ldots,T$

The variables $x_{i,t}$ and $y_{i,t}$ represent the observations of two stationary variables for an individual i throughout period t. The coefficients are permitted to vary among variables (shown by the subscript i connected to the coefficients), but they are intended to remain constant throughout time. All variables are expected to have the same lag order K, and the panel must have an equal number of observations for each variable (panel must be balanced). The causality results from equation *29* will reveal whether there is a unidirectional or bidirectional relationship running from the explanatory variables to each of the dependent variables.

Data Analysis and Interpretation

To examine the causal relationship between migrants' remittances, economic growth, and Poverty Reduction in selected West African countries, this study first and foremost evaluated the stationarity and cointegration stationarity of the series in the model as follows:

Unit Root Test

Table 1 shows the unit root test conducted on the variables in level form. However, the four tests' techniques demonstrated INF is stationary in level form at 1% significance level.

Table 1: Unit Root Test at Level

Variable	LLC	Fisher-ADF	Fisher-PP	IPS W-stat
PGI	-0.311	2.283	1.655	0.983
logREM	-1.330	4.355	8.993	0.313
GDPC	-2.215**	12.792**	34.436***	-1.875**
INF	-2.929***	21.551***	27.931***	-3.209***
UNE	1.186	4.281	2.666	1.105
FDIY	0.932	7.926	7.947	0.932

Note: ** and *** indicates statistical significance at 5% and 1%, respectively.

Source: Author's Computation.

Following the non-stationarity of the PGI, REM, UNE, and FDIY variables in level form, a further test for stationarity was conducted at first difference and the result contained in Table 2. Evidence from the four different unit root tests in Table 2 reveals that the remaining series

attained stationarity in first difference at various significance levels. Furthermore, the stationarity of the response variables (PGI) only in first difference, and the mix stationarity status of the regressors further validate the PARDL technique adopted for this study.

Table 2: Unit Root Test at First Difference

Variable	LLC	Fisher-ADF	Fisher-PP	IPS W-stat
PGI	-5.441***	37.637***	71.773***	-5.353***
PHCR	-5.861***	35.815***	68.908***	-5.124***
logREM	-5.110***	45.544***	86.630***	-6.285***
GDPC	-	-	-	-
INF	-	-	-	-
UNE	-1.751**	21.566***	30.994***	-2.988***
logFDIY	-4.151***	38.274***	79.249***	-5.322***

Note: ** and *** indicates statistical significance at 5% and 1%, respectively.

Source: Author's Computation.

Co-integration Test

Presented in Table 3 is the panel co-integration test output.

Table 3: Panel Co-integration Test

Kao Test	Statistic	Probability
Modified Dickey-Fuller t	-0.936	0.175
Dickey-Fuller t	-1.882	0.030**
Augmented Dickey-Fuller t	-2.484	0.007***
Unadjusted modified Dickey-Fuller t	-4.486	0.000***
Unadjusted Dickey-Fuller t	-3.435	0.000***
Pedroni Test		
Modified Phillips-Perron t	2.181	0.015**
Phillips-Perron t	1.735	0.041**
Augmented Dickey-Fuller t	1.005	0.157
Westerlund Test		
Variance ratio	1.452	0.073*

Note: *, **, and *** indicates statistical significance at 10%, 5%, and 1%, respectively.

Source: Author's Computation.

Granger Causality Result

Results in Table 4 represent the causal relationship between poverty, remittance, GDP per capita, inflation, unemployment, and FDIY. The first row of the causal relationship in the table reveals that the null hypothesis of no significant causality from remittance to poverty is rejected at 5% significance level. However, the null hypothesis was upheld in the reverse causation from poverty to remittance. Likewise, in the second row, the null hypothesis of no significant causal effect from GDP per capita to poverty was rejected at 1% significance level, while the reverse causation from poverty to GDP per capita was found to be statistically insignificant.

Similarly, in the third row of Table 4, a significant causal effect flows from inflation to poverty at 1% significance level, while no significant reverse causal effect was found from poverty to inflation. In contrast, unemployment and FDIY had no significant causal effect with or reverse causality from poverty. Hence, while the causality result expressed statistically significant unidirectional impacts from remittance, GDP per capita, and inflation to poverty, there appears to be no statistically significant causal nexus either from unemployment or FDIY with poverty and vice versa.

Table 4: Granger Causality Estimates

Null Hypothesis	Obs.	F-Statistic	Prob.
LogREM does not Granger cause PGI	96	5.233	0.024**
PGI does not Granger cause logREM		1.145	0.287
GDPC does not Granger cause PGI	96	11.888	0.001***
PGI does not Granger cause GDPC		0.002	0.969
INF does not Granger cause PGI	96	6.175	0.015***
PGI does not Granger cause INF		1.323	0.253
UNE does not Granger cause PGI	96	0.089	0.767
PGI does not Granger cause UNE		0.649	0.423
FDIY does not Granger cause PGI	96	0.795	0.375
PGI does not Granger cause FDIY		1.172	0.282

Note: ** and *** indicate significance at 5% and 1%.

Source: Author's Computation.

Deriving from the estimates in Table 4 which captured the causality output for the study, it was indicated that a unidirectional causal impact from remittance and economic growth to poverty existed. Since the probability values for the F-statistic in the remittance-poverty and economic growth-poverty relationships are one-way significant at 5% and 1%, respectively, the null hypothesis of no causal association between remittance, economic growth and poverty is rejected and the alternative hypothesis that states otherwise is validated. Furthermore, the Granger causality results presented in Table 4 had demonstrated that a unidirectional causality existed from remittance to poverty, and economic growth to poverty in contrast to Sovia, Shabri & Aliasuddin (2018). Hence, remittances and economic growth constitute significant factors that can impact on the level of poverty in West African countries. In contrast, poverty does not exert any impact on the level of remittance and the growth of these economies. Rather, the volume of remittance inflow to households and growth being experienced in West African economies can be very significant factors for either poverty eradication or promotion.

Concluding Remarks

The study's findings have critical policy implications. To effectively reduce poverty, policymakers should prioritize attracting remittances, promoting economic growth, and encouraging FDI. Additionally, maintaining stable exchange rates and controlling inflation are crucial. By understanding these relationships, policymakers can design targeted interventions to alleviate poverty, promote migration and sustainable economic development in these West African countries. Based on the empirical findings in this study, it is concluded that, there is significant evidence of a unidirectional causal effect from remittance and

economic growth to poverty reduction for West African economies. Based on the aforesaid conclusions, the following recommendations were derived from the study:

i. Governments of Nigeria, Ghana and Senegal should encourage emigration through various policies and initiatives, including providing financial incentives such as relocation grants, tax breaks, or subsidies for education and training abroad. Simplifying procedures through streamlined passport and visa processes, online application platforms, and diplomatic assistance can also facilitate emigration. Additionally, governments can offer support services like job placement programs, cultural adaptation training, and language courses to prepare citizens for overseas opportunities. Promoting international education and work experience through scholarships, exchange programs, and partnerships with foreign universities and employers can also encourage emigration. Furthermore, governments can relax restrictions on dual citizenship, provide emigration counseling, and establish diaspora networks to maintain connections with citizens abroad. By implementing these measures, governments can empower citizens to explore international opportunities, acquire new skills, and contribute to the global economy.

ii. A campaign to sensitize remittance recipients on the need to channel such funds into productive ventures should be encouraged. Households and individuals who benefitted from such transfers should be made to see the need to re-invest such funds instead of deploying them for ostentatious living that does not alleviate poverty. For this purpose, a policy mandating the investment of a certain percentage of remittance funds by the recipients in the money market, specifically in low risk assets, and for a defined period of time can be enacted and implemented. This policy will ensure that the long-run use of remittance as a tool for poverty alleviation in West African countries is achieved.

iii. Economic growth in these three West African countries should be inclusive driven. Hence, the population strength of these countries should be well utilized in expanding the productive potentials of the individual economies. This measure will then require enormous investment in the human and infrastructural capital in these West African countries. To this end, public and private partnership in capital formation, especially in rural areas where the bulk of the populations in these countries are located is essentially needed for the purpose of spurring growth. Significant investment in human capital is capable of reducing the inequality gap and help in the redistribution of income through the trickle-down effect of the benefits of economic growth. Thus, making sure that economic growth is poverty-decelerating in the short and long-run in these economies.

iv. Since it has been established that remittance inflows and economic growth have significant effect on the poverty alleviation drive in the selected West African countries, it is imperative that these governments have proper documentation of remittance inflows and ensure good macroeconomic management. This measure will enable efficient tracking of remittance use and the impact of macroeconomic variables such as inflation and exchange rate on the wealth-creating potentials of the citizens, for overall poverty reduction in the three West African economies.

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