KAMPALA INTERNATIONAL UNIVERSITY

International Journal of Strategic Research in Public Administration and Organizational Process | **IJSRPAOP**
p-ISSN: 2636-6843 | *e-ISSN: 2636-6851*
Volume 4, Number 1 October, 2024

The Effect of Migrants' Remittances on Poverty Reduction in Some Selected West African Countries

[1]Samuel, Paabu Adda, [2]Abe, Magai & [3]Joel, Emmanuel
[1,2&3]Department of Economics, Faculty of Social Sciences,
Federal University Wukari, Taraba Sate, Nigeria.

Article DOI: 10.48028/iiprds/ijsrpaop.v4.i1.17

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. Data for this study were obtained from secondary sources. The study covered annual data spanning the period 1990 to 2022, employing a panel autoregressive distributed lag (PARDL) co-integration test. The co-integration relationship shows poverty gap index, remittances, economic growth, inflation rate, unemployment and foreign direct investment were co-integrated. 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. Also, unemployment and foreign direct investment were revealed to have negative effect on poverty in the long-run. However, foreign direct investment was not significant. Whereas the short-run result revealed that remittances and economic growth have significant positive effect on poverty. 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. 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. Major policy recommendations from the study were to the extent that: 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; and that 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.

Keywords: *Migrant remittances; Poverty reduction; Economic Growth; Panel ARDL; West Africa*

Corresponding Author: **Samuel, Paabu Adda**

Background to the Study

In recent decades, the complexities surrounding socioeconomic disparities have increasingly drawn scholarly attention, particularly in the context of developing countries. Among these, West African countries stand out due to their unique amalgamation of historical, cultural, and economic factors that have perpetuated poverty. This profound issue affects not only individual's well-being but also hinders regional development and stability. The lingering effects of colonialism, combined with political instability and inadequate infrastructure, contribute to a persistent cycle of poverty that remains challenging to break. Moreover, external factors such as global economic fluctuations and climatic changes exacerbate the situation, creating a multifaceted crisis that demands comprehensive solutions. Understanding the root causes and manifestations of poverty in this region is essential for developing targeted interventions that can address immediate needs while fostering sustainable growth and resilience against future shocks.

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, 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 to developing nations have increased over time and are already three times as large as Official Development Assistance (ODA) flows. The significance of remittances as a primary source of external financing for low- and middle-income countries (LMICs) becomes more evident when China is not included in the analysis (figure 1.1b).

Table 1: Estimates and Projections of Remittance Flows to Low- and Middle-Income Regions

($ billions)	2016	2017	2018	2019	2020	2021	2022e	2023f	2024f
Low- and middle-income countries	435	475	522	548	542	599	647	656	666
East Asia and Pacific	122	128	137	143	131	129	130	131	132
excluding China	61	65	70	74	72	76	79	81	83
Europe and Central Asia	43	52	59	62	58	66	79	80	80
Latin America and the Caribbean	73	81	89	96	103	130	145	150	154
Middle East and North Africa	48	54	55	57	60	67	64	65	67
South Asia	111	117	132	140	147	157	176	177	178
Sub-Saharan Africa	39	42	49	49	43	50	53	54	56
World	590	640	695	727	717	791	831	840	858
Growth rate (percent)									
Low- and middle-income countries	-1.5	9.3	9.8	5.0	-1.1	10.6	8.0	1.4	1.5
East Asia and Pacific	-0.9	5.3	7.0	4.0	-8.0	-2.0	0.7	1.0	1.0
excluding China	3.0	5.8	8.4	6.4	-3.4	5.5	3.8	3.0	2.9
Europe and Central Asia	2.2	21.1	12.9	4.7	-6.9	15.3	19.0	1.0	-0.2
Latin America and the Caribbean	7.2	11.0	9.9	8.3	7.1	26.5	11.3	3.3	2.7
Middle East and North Africa	-1.2	13.4	2.2	4.1	3.7	12.2	-3.8	1.7	1.8
South Asia	-5.9	6.0	12.3	6.1	5.2	6.7	12.2	0.3	0.8
Sub-Saharan Africa	-8.6	9.6	16.9	0.0	-13.0	16.3	6.1	1.3	3.7
World	-1.0	8.4	8.6	4.5	-1.4	10.4	5.1	1.1	2.0
Memo items: Remittances to LMICs according to the 2021 country classification used in MD Brief 36									
($ billion)	442	482	529	556	550	609	656	666	677
(% growth)	-1.3	9.2	9.7	5.1	-1.2	10.8	7.8	1.5	1.5

Source: World Bank–KNOMAD staff estimates. See the appendix to *Migration and Development Brief 32* for forecasting methods (World Bank/KNOMAD 2020).
Note: e = estimate; f = forecast; LMICs = low- and middle-income countries.

*In the 2022 country classification of Brief 37, Panama and Romania moved to the high-income group from the upper-middle-income group. While Palau moved to the upper-middle-income group from the high-income group, Venezuela has been unclassified due to a lack of available data.

Figure 1a: Remittances, Foreign Direct Investment, and Official Development Assistance Flows to Low- and Middle-Income Countries, 2000–2024f

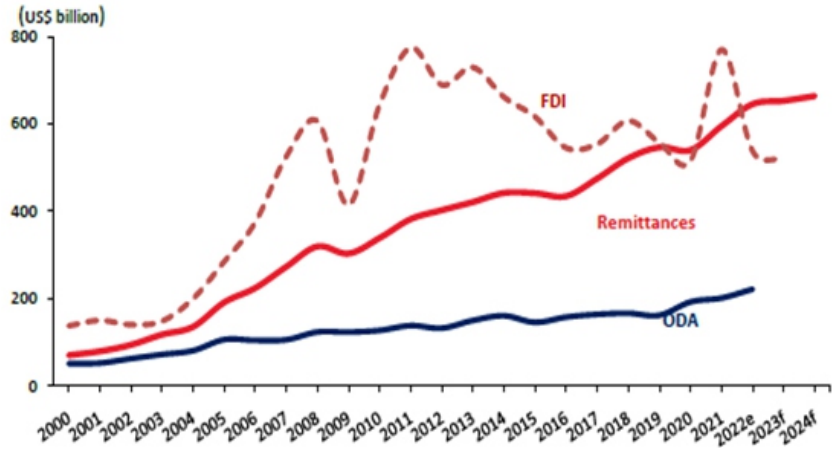
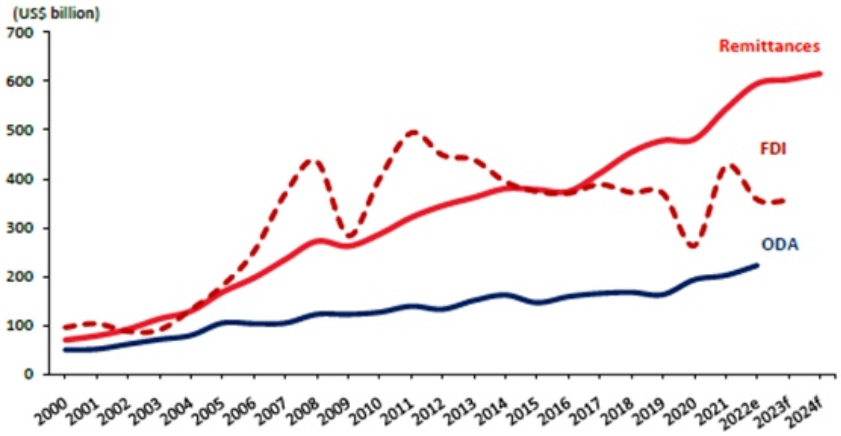


Figure 1b: Remittances, Foreign Direct Investment, and Official Development Assistance Flows to Low- and Middle-Income Countries, Excluding China, 2000–2024f



Sources: World Bank–KNOMAD staff; World Development Indicators; IMF Balance of Payments Statistics. Also see World Bank/KNOMAD (2016) for sources, methods, and challenges of collecting remittance data.
Note: FDI = foreign direct investment; ODA = official development assistance; e = estimate; f = forecast.

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 (Brian, Ward, Shanta & Alejandro, 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, and 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, and 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.

In constructing a robust theoretical framework for understanding the relationship between economic growth and poverty reduction, it is essential to integrate principles from both public economics and growth theory. This synthesis allows for a more nuanced understanding of how targeted public spending can catalyze growth and alleviate poverty. As noted, the impact of public expenditure on poverty is complex and requires careful consideration of its composition; various studies have established that directing funds to pro-poor sectors can enhance economic outcomes for marginalized populations Paternostro, Rajaram, and

Tandon (2007). Furthermore, examining foreign direct investment (FDI) reveals that while it generally promotes poverty alleviation through job creation and income generation, the effects can also be heterogeneous. Some literature underscores the need for direct analysis of FDI impacts on poverty to develop tailored policy recommendations (Magombeyi & Odhiambo, 2017). Ultimately, a comprehensive theoretical framework must consider these dynamics, enabling policymakers to craft effective strategies for sustainable economic growth and poverty reduction.

In isolation, macroeconomic stability does not guarantee increased levels of economic growth. In the majority of instances, the maintenance of increased growth rates is contingent upon crucial structural measures, including but not limited to regulatory reform, privatization, civil service reform, improved governance, trade liberalization, and banking sector reform. These measures are extensively examined in the Poverty Reduction Strategy Sourcebook, a publication of the World Bank (Balassa, 1981). Additionally, it should be noted that economic growth is insufficient in effectively addressing the issue of poverty reduction. The impact of poverty is more significant when growth is accompanied by gradual distributional changes, as opposed to growth that maintains the existing distribution. Therefore, it can be argued that the implementation of policies aimed at enhancing the equitable distribution of income and assets within a given society, such as land tenure reform, increased allocation of public funds towards poverty alleviation, and initiatives aimed at improving the access of the impoverished population to financial markets, are crucial components of a nation's strategy to reduce poverty (Behrman, Suzanne, & Miguel, 1999).

Given the dominance of remittances in recent times compared to other foreign capital flow into West Africa, the dynamics of the economy, and the persistence of poverty in the region, the need to examine the impact of remittances and economic growth on poverty reduction as it relates to the achievement of the first goal of the United Nations sustainable development goal (i.e., poverty eradication) in this region cannot be overemphasized. Hence, this study examines the effects of remittances and economic growth on poverty reduction in Nigeria, Ghana, and Senegal, as they contribute to increased economic activities, job creation, and improved living standards, thereby reducing poverty levels in these countries. The study shall at the end of the study test the hypothesis formulated, to wit: remittances have no significant effect on poverty reduction in West Africa. The study focused on examining the effect of migrants' remittances and economic growth on poverty reduction in West Africa. This study will cover only three West African countries namely Nigeria, Ghana, and Senegal, and the period of investigation is delineated from 1990-2022: a period of 33 (thirty-three) years. These countries were selected for being the largest recipients of remittances in the region and for which relevant data on the variables of interest are available. And for the time scope, 1990 marks the beginning of globalization, allowing analysis of remittances' impact during this critical period.

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.

The altruism theory posits that migrants may exhibit a willingness to prioritize the welfare of their relations over their own well-being or personal interests. This behavior is driven by the love and concern they have for the well-being of their relations. Comte posited the notion that individuals possess a moral duty to relinquish self-interest and prioritize the welfare of others. In his work, "Catéchisme Positiviste," Comte posits that the social perspective is incompatible with the concept of rights, as it is rooted in individualistic principles. As individuals, we are inherently burdened with a multitude of obligations spanning various domains, including those owed to our forebears, successors, and contemporaries. Following our initial arrival into the world, these responsibilities undergo a process of augmentation or accrual, as a considerable duration elapses before we are capable of reciprocating any form of assistance. The concept of "living for others," which serves as the ultimate principle of human morality, provides a clear endorsement alone of our innate tendencies towards kindness and goodwill. These inclinations, which are the fundamental origins of both happiness and moral obligation, are granted explicit validation through this formula. Individuals must dedicate themselves to the betterment of humanity, to which we are wholly interconnected.

Pure altruism posits that individuals should exhibit benevolence and willingly relinquish personal interests or resources for the betterment of others, without anticipating any reciprocation. The act of sacrifice may manifest through the allocation of tangible resources, temporal commitment, or exertion of effort. An individual who engages in altruistic giving does not anticipate receiving any form of compensation, whether it be direct or indirect, for their actions. The existing work on altruism in migrant remittance decision theory has primarily been based on utility theory (Becker, 1981; Stark & Lucas, 1985; Stark, 1991; Osili, 2007). 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. The following reasons put forth indicate that prospect theory provides a more comprehensive explanation for analyzing migrant remittance decisions compared to utility theory.

Rationale for Adopting Pure Altruism Theory

1. This theory is relevant in explaining migrants' motivations for sending remittances, assuming they prioritize family welfare over personal gain.
2. The theory emphasizes the importance of family relationships, consistent with the cultural context of West Africa.
3. Pure Altruism captures the selfless nature of remittances, where migrants sacrifice personal interests for beneficiaries' well-being.
4. Pure Altruism provides a robust theoretical framework for analyzing remittance behavior.
5. This theory is suitable for developing countries like Nigeria, Ghana, and Senegal, where remittances significantly impact household welfare.

Pure Altruism Theory provides a suitable framework for understanding remittance behavior in Nigeria, Ghana, and Senegal, highlighting the selfless motivations driving migrants' decisions.

Study Methodology

Method of Data Analysis

To achieve the research objectives of this study, the study employed Panel Auto-regressive Distributed Lag (Panel ARDL) Model to capture the combined impact of remittances and economic growth on poverty reduction in the context of West African countries. Diagnostic tests, such as the serial independence test for autocorrelation, normality test, functional misspecification, and cross-sectional dependence were carried out to ensure the robustness of the result.

Theoretical Model

Before formulating the empirical model, this section theoretically illustrates the impact of remittances and economic growth on poverty reduction, we need to provide a theoretical background of the model. First, we start with the utility function of the region consisting of remittance-recipient households and non-remittance-recipient households.

$$U = f(C_R C_N L_R L_N) = C_R C_N - L_R L_N \qquad \ldots 1$$

Equation 1 shows the utility (U) function of the region consisting of remittance-recipient households and non-remittance-recipient households. The utility function consists of the consumption of goods and services of the remittance-recipient household (C_R) and non-remittance-recipient household (C_N) subtracting the labour supply of the remittance-recipient household (L_R) and non-remittance-recipient household (L_N), which measures the level of satisfaction in the region. In this function, we assume that the absolute values of the impact of

consumption and labour supply of both households on the region's utility are equal. The budget constraints for both households are then written as:

$$PC_R = W_R L_R + \alpha(REM) \quad \ldots 2$$
$$PC_N = W_N L_N + (1-\alpha)(REM) \quad \ldots 3$$

The income of the remittance-recipient household comes from two sources: first is the wage income, which depends on the wage rate and labour supply of remittance-recipient households and the second source is the inflow of remittances from the household member(s) who work abroad. But for the non-remittance-recipient households there is only one source i.e., the wage income, which depends on the wage rate and labour supply of the non-remittance-recipient households. Each household spends all income on the consumption of goods and services; hence, we assume that households do not save in this model. *P* represents the general price level of goods and services, W_R denotes the wage rate of the remittance-recipient household, W_N denotes the wage rate of the non-remittance-recipient household, α is the proportion of the remittances to the total budget of the region, and *REM* denotes the total inflow of remittances to the region. To determine the optimal level of consumption and labour supply for each household, we develop a Lagrange function as follows:

$$\Gamma = (C_R C_N - L_R L_N) - \lambda\{PC_R -, W_R L_R - \alpha(REM)\} \quad \ldots 4$$
$$\Gamma = (C_R C_N - L_R L_N) - \lambda\{PC_N -, W_N L_N - (1-\alpha)(REM)\} \quad \ldots 5$$

To fulfill the first-order condition with regards to the consumption and labour supply of both households and λ_R and λ_N results in:

$$\frac{\partial \Gamma}{\partial C_R} = C_N - \lambda_R P = 0 \quad \ldots 6$$
$$\frac{\partial \Gamma}{\partial C_N} = C_R - \lambda_N P = 0 \quad \ldots 7$$
$$\frac{\partial \Gamma}{\partial L_R} = -L_N + \lambda_R W_R = 0 \rightarrow \lambda_R = \frac{L_N}{W_R} \quad \ldots 8$$
$$\frac{\partial \Gamma}{\partial L_N} = -L_R + \lambda_N W_N = 0 \rightarrow \lambda_N = \frac{L_R}{W_N} \quad \ldots 9$$
$$\frac{\partial \Gamma}{\partial \lambda_R} = PC_R - W_R L_R - \alpha(REM) = 0 \quad \ldots 10$$
$$\frac{\partial \Gamma}{\partial \lambda_N} = PC_N - W_N L_N - (1-\alpha)(REM) = 0 \quad \ldots 11$$

By substituting λ_R from Equation 8 into Equation 6, we obtained:

$$C_N = \frac{L_N}{W_R} P \quad \ldots 12$$

By substituting λ_N from Equation 9 into Equation 7 we obtained:

$$C_R = \frac{L_R}{W_N} P \quad \ldots 13$$

The labour supply equation for the remittance-recipient household is generated by substituting C_R from Equation 13 into Equation 10 and writing it for L_R results:

$$L_R = \frac{\alpha(REM)}{\left(\frac{P^2}{W_N}\right) - W_R} \quad \ldots 14$$

The labour supply equation for the non-remittance-recipient household is obtained by substituting C_N from Equation 12 into Equation 11 which produces:

$$L_N = \frac{(1-\alpha)(REM)}{\left(\frac{P^2}{W_R}\right)-W_N} \quad \ldots .15$$

The consumption equation for the remittance-recipient household is obtained by substituting L_R from Equation 14 into Equation 13 as follows:

$$C_R = \frac{(\alpha)(REM)}{\left(P-\frac{W_R W_N}{P}\right)} \quad \ldots .16$$

$$where: (P > W_N, P > W_R) \rightarrow P - \frac{W_R W_N}{P} > 0$$

The consumption equation for non-remittance-recipient households is established by substituting L_N from Equation 15 into Equation 12:

$$C_N = \frac{(1-\alpha)(REM)}{\left(P-\frac{W_N W_R}{P}\right)} \quad \ldots 17$$

$$where: (P > W_N, P > W_R) \rightarrow P - \frac{W_R W_N}{P} > 0$$

It is evident from Equation 16 and Equation 17 that, when the remittance inflow to the region increases, the consumption of both households (remittance-recipient and non-remittance-recipient) will also increase. This implies that remittances affect the consumption of remittance-recipient household positively and reduce poverty.

The Generalized PARDL (p, q, q, …., q) Model

The generalized PARDL ($p, q, q, \ldots, q_n$) model is specified as

$$y_{it} = \sum_{j=1}^{p} \delta_{ij}\, y_{it-j} + \sum_{j=0}^{q} \boldsymbol{\beta}'_{ij}\, \boldsymbol{X}_{i\ t-j} + \varphi_i + \varepsilon_{it} \quad \ldots 18$$

Where:

y_{it} = the dependent variables;
$(x'_{it})'$ = a kx1vector that are allowed to be purely *I(0)* or *I(1)* or cointegrated;
δ_{ij} = the coefficient of the lagged dependent variable called scalars;
β_{ij} = the kx1 coefficient vectors;
φ_i = the unit-specific fixed effects;
i = *1, …, N;*
t = *1, 2, …, T;*
p, q = optimal lag orders;
$\varepsilon_{i,t}$ = the error term.

The Re-parameterized ARDL (*p, q, q, …., q*) Model

The most important representation is the re-parameterized ARDL ($p, q, q, \ldots, q_n$) model is specified as:

$$y_{it} = \boldsymbol{\theta}_i\left[y_{it-j} - \boldsymbol{\lambda}'_i \boldsymbol{X}_{it}\right] + \sum_{j=1}^{p-1} \xi_{ij}\, \Delta y_{it-j} + \sum_{j=0}^{q-1} \boldsymbol{\beta}'_{ij}\, \Delta \boldsymbol{X}_{it-j} + \varphi_i + \varepsilon_{it} \quad \ldots 19$$

Notes:

$\boldsymbol{\theta_i}$ = -(1-δ_i), is group specific speed of adjustment (expected that $\theta_i < 0$);

$\boldsymbol{\lambda'_i}$ = vector of long-run relationships;

ECT = $\left[y_{i\ t-j} - \boldsymbol{\lambda'_i X_{it}}\right]$, the error correction term;

ξ_{ij}, $\boldsymbol{\beta'}_{ij}$ = the short-run dynamic coefficients.

Model Specification

Although several variables have been identified by the literature as determinants of poverty levels, the study's main priority is to investigate the impact of remittance inflow and economic growth on poverty in the selected West African countries. With poverty gap index (PGI) as the dependent variable, other variables such as remittances, GDP per capita, inflation, exchange rate, and foreign direct investment, will be treated as explanatory variables (see Equation 19). We employ Panel Autoregressive Distributed Lag (PARDL) Model to explore the impact of remittances and economic growth on poverty. We therefore express poverty as a function of remittances and economic growth

$$PGI_{it} = f(REM_{it}, GDPC_{it}) \quad \ldots 20$$

Under this model, the functional form with other control variables for the current analysis is given below

$$PGI_{it} = f(REM_{it}, GDPC_{it}, INF_{it}, UNE_{it}, FDIY_{it}) \quad \ldots 21$$

These variables will be converted into natural logarithms in this study in order to capture their elasticity value and relieve them from the heteroscedasticity problem. The econometric form can be written as:

$$PGI_{it} = \beta_{0i} + \beta_{1i} lnREM_{it} + \beta_{2i} lnGDPC_{it} + \beta_{3i} INF_{it} + \beta_{4i} UNE_{it} + \beta_{5i} lnFDIY_{it} + \mu_i + \delta_t + \varepsilon_{it} \quad \ldots .22$$

Where the subscript *i* stands for the country, subscript *t* is the year, μ_i stands for country-specific effects, δ_t stands for time-varying effects common to all the countries, ε_{it} is the idiosyncratic error term, *PGI* is the poverty indicator, and *REM, GDPC, INF, UNE, FDIY* are remittances, gross domestic product, inflation, exchange rate, and foreign direct investment, respectively.

Equation (22) is transformed into panel autoregressive distributed lag model as follows

$$\Delta PGI_{it} = \alpha_{0i} + \delta_{1i} PGI_{it-1} + \delta_{2i} lnREM_{it-1} + \delta_{3i} lnGDPC_{it-1} + \delta_{4i} UNE_{it-1} + \delta_{5i} INF_{it-1} + \delta_{6i} lnFDIY_{it-1} + \sum_{j=1}^{p-1} \beta_{1i} \Delta PGI_{it-j} + \sum_{j=1}^{q-1} \beta_{2i} \Delta lnREM_{it-j} + \sum_{j=1}^{q-1} \beta_{3i} \Delta lnGDPC_{it-j} + \sum_{j=1}^{q-1} \beta_{4i} \Delta INF_{it-j} + \sum_{j=1}^{q-1} \beta_{5i} \Delta UNE_{it-j} + \sum_{j=1}^{q-1} \beta_{6i} \Delta lnFDIY_{it-j} + \varepsilon_{it} \quad \ldots .23$$

Long-run Model

$$PGI_{it} = \delta_{1i} PGI_{it-1} + \delta_{2i} lnREM_{it-1} + \delta_{3i} lnGDPC_{it-1} + \delta_{4i} UNE_{it-1} + \delta_{5i} INF_{it-1} + \delta_{6i} lnFDIY_{it-1} + \varepsilon_{it} \quad \ldots 24$$

Short-run Model

$$\Delta PGI_{it} = \theta_i\left[y_{it-j} - \lambda'_i X_{it}\right] + \sum_{j=1}^{p-1}\beta_{1i}\Delta\, PGI_{it-j} + \sum_{j=1}^{q-1}\beta_{2i}\Delta\, lnREM_{it-j} + \sum_{j=1}^{q-1}\beta_{3i}\Delta\, lnGDPC_{it-j} + \sum_{j=1}^{q-1}\beta_{4i}\Delta\, INF_{it-j} + \sum_{j=1}^{q-1}\beta_{5i}\Delta\, UNE_{it-j} + \sum_{j=1}^{q-1}\beta_{6i}\Delta\, lnFDIY_{it-j} + \varepsilon_{it} \quad \ldots 25$$

We derived the following equation in order to compute the error correction version of Equation (25)

$$\Delta PGI_{it} = \theta_i ECT_{it-1} + \sum_{j=1}^{p-1}\beta_{1i}\Delta\, PGI_{it-j} + \sum_{j=1}^{q-1}\beta_{2i}\Delta\, lnREM_{it-j} + \sum_{j=1}^{q-1}\beta_{3i}\Delta\, lnGDPC_{it-j} + \sum_{j=1}^{q-1}\beta_{4i}\Delta\, INF_{it-j} + \sum_{j=1}^{q-1}\beta_{5i}\Delta\, UNE_{it-j} + \sum_{j=1}^{q-1}\beta_{6i}\Delta\, lnFDIY_{it-j} + \varepsilon_{it} \quad \ldots 26$$

***A Priori* Expectation**

The *A priori* expectations for the explanatory variables in the model are guided by economic theory to ascertain if the parameter estimate conforms to expectations. These are presented as

$$\beta_0 > 0, \beta_1 > 0, \beta_2 < 0, \beta_3 < 0, \beta_4 > 0, \beta_5 < 0, and\ \beta_6 < 0$$
$$\delta_1 > 0, \delta_2 < 0, \delta_3 < 0, \delta_4 > 0, \delta_5 < 0, and\ \delta_6 < 0$$

We will be using the poverty gap index (PGI) which measures how intense poverty is. The poverty gap measure possesses a distinct benefit in comparison to the headcount ratio. This analysis demonstrates the extent of poverty by approximating the average distance between individuals living in poverty and the poverty line. The poverty line utilized in this index is set at 1.9 (PPP, current international $) per day, which is regarded as the benchmark for measuring absolute extreme poverty.

Remittances, economic growth, and foreign direct investment (FDI) are negatively related to poverty reduction, while exchange rate and inflation rate are positively related. According to the Resource Transfer Hypothesis (Ratha, 2005), remittances increase household income and living standards thereby reducing poverty. Trickle-Down Economics (Kuznets, 1955) suggests economic growth creates jobs and income opportunities thereby reducing poverty. The Investment-Led Growth Hypothesis (Solow, 1956) posits FDI transfers technology and develops human capital, driving economic growth and poverty reduction. Conversely, the Currency Devaluation Hypothesis (Krugman, 1998) indicates exchange rate depreciation increases import costs and prices, exacerbating poverty. The Inflation Tax Hypothesis (Friedman, 1969) shows inflation reduces purchasing power and savings, increasing poverty. These relationships are supported by empirical studies and theoretical frameworks, providing a foundation for understanding the complex interactions between economic factors and poverty reduction.

Data Analysis and Interpretation

Descriptive Statistics

Table 2 presents a comprehensive overview of the descriptive statistics. Based on the data shown in the Table, it can be inferred that the average PGI value is 17.5. The findings indicate that, on average, around 17.5% of individuals living in poverty within the three nations

analyzed in this study are well below the poverty line and experiencing severe levels of deprivation. Moreover, it is noteworthy that the mean remittance amount for the aforementioned nations is at $4.50 billion, constituting approximately 4% of the overall remittance influx to the African continent in the year 2022, as reported by the International Fund for Agricultural Development (IFAD, 2023). In a similar vein, it is noteworthy that the average growth rate of GDP per capita throughout the study period stands at approximately 1.79%. This figure can be deemed quite modest, given the substantial influx of remittances and the abundant availability of natural resources in these nations. The mean unemployment rate for the three countries is approximately 5.4%, which is lower than the unemployment rate of 9.53% observed across the African continent in 2022. Nonetheless, the average inflation rate for the aforementioned countries stands at 13.2%, above the average value of 12.2% observed across African nations in the year 2022. The average foreign direct investment inflow as a percentage of GDP in these nations is approximately 2.57%, a figure that can be deemed rather low. This suggests a lack of significant interest from foreign investors in these economies, despite the presence of substantial investment opportunities.

In addition, Table 2 provides the kurtosis distribution for each variable. In order to determine the normality of a variable, it is often accepted that a kurtosis value of 3 indicates normal distribution. If the kurtosis value exceeds 3, the distribution is considered leptokurtic, indicating relative normality. Conversely, if the kurtosis value is below 3, the distribution is considered platykurtic, indicating negative excess kurtosis or less normality. As a result, the data shown in Table 2 demonstrates that REM, GDPC, UNE, INF, and FDIY exhibit leptokurtic distributions, as their respective values exceed 3. Conversely, PGI is characterized by a platykurtic distribution, as its value falls below 3. The Jarque-Bera statistics indicate that, among the variables examined only PGI exhibits a normal distribution. Conversely, REM, GDPC, UNE, INF, and FDIY are found to deviate from a normal distribution. Therefore, it can be inferred that the research series may demonstrate non-stationarity, specifically due to the inclusion of study regressors that do not follow a normal distribution. Therefore, it is very justifiable to conduct a unit root test on each variable for the purpose of this study.

Table 2: Descriptive Statistics Result

	PGI	**REM**	**GDPC**	**UNE**	**INF**	**FDIY**
Mean	17.501	4.500	1.789	5.400	13.237	2.565
Std.Dev.	8.187	7.450	2.928	2.081	14.438	1.792
Kurtosis	2.877	3.889	4.750	3.195	6.967	4.095
Jarque-Bera	1.550	46.964	17.531	19.555	126.660	36.375
Probability	0.461	0.000	0.000	0.000	0.000	0.000
Obs.	99	99	99	99	99	99

Source: Author's estimated output.

Correlation Test

Captured in Table 3 is the correlation matrix for the study variables. It could be observed that while REM, GDPC, and FDIY have negative correlations with the dependent variable PGI, INF and UNE demonstrated positive correlations. Furthermore, a positive correlation from

GDPC and FDIY is revealed with REM, while INF and UNE have negative correlations. Similarly, INF and FDIY showed positive correlation with GDPC while UNE revealed otherwise. UNE and FDIY were also captured to have negative and positive correlations with INF, respectively; while FDIY was negatively correlated with UNE. Generally, the correlation matrix in Table 3 demonstrates low multi-collinearity between the study regressors since their correlation values are relatively low.

Table 3: Correlation Matrix of Variables

	PGI	*logREM*	*GDPC*	*INF*	*UNE*	*FDI*
PGI	1					
logREM	-0.595	1				
GDPC	-0.124	0.015	1			
INF	0.240	-0.291	-0.196	1		
UNE	0.121	-0.239	-0.239	-0.075		
FDIY	-0.424	0.068	0.284	0.021	-0.187	1

Source: Author's Estimated Output.

Unit Root Test

Table 4 shows the unit root test conducted on the variables in level form. Four different panel unit root tests were conducted and they are Levin, Lin and Chu (LLC), Fisher-Augmented Dickey Fuller (Fisher-ADF), Fisher-Phillips Perron (Fisher-PP), and Im, Pesaran and Shin (IPS) W-statistic. The output reveals that GDPC and inflation rate are the only variables stationary in level form, and at 5% and 1% significance levels. While GDPC was stationary at the 5% significance level using the LLC, and IPS W-stat, the Fisher-PP reported stationarity at the 1% significance level. However, the four tests techniques demonstrated INF is stationary in level form at 1% significance level.

Table 4: 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 4b. Evidence from the four different unit root tests in Table 4b 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 4b: 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 5 is the panel co-integration test output. Three residual-based panel co-integration tests approach were used including the Kao, Pedroni, and Westerlund tests. While the Kao test has five test components, the Pedroni and Westerlund tests have three and one test elements, respectively. Furthermore, all three tests expressed their null hypothesis as having no co-integration and their alternative hypothesis as all panels co-integrated. Thus, based on the result presented in Table 5, four of the five test components of the Kao technique confirm co-integration at 5% and 1% significance levels. Similarly, two of the three elements of the Pedroni test approach approve co-integration at 5% significance level; and the only element of the Westerlund test (variance ratio) further confirms co-integration at 10% significance level. Hence, it is evident that the alternative hypothesis which states that all panels are co-integrated is being accepted in the three tests procedures.

Table 5: 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.

Long-run Estimated Output

Contained in Table 6 are the long-run estimates for the PMG and the MG. The PMG outputs showed that remittance has a significant negative long-run effect on poverty. The result demonstrates that a percentage rise in remittance level in the long-run, will lead to a 2.79%

decline in the level of poverty in these countries. Furthermore, the output is revealed to be significant at the 1% level. Likewise, GDP per capita exhibits inverse long-run effect with poverty, its coefficient shows that a percentage rise in GDP per capita will decline poverty by 0.65 at the 5% significance level in the three economies. However, inflation was revealed not have any significant long-run effect on poverty, although its coefficient suggests a percentage rise in its value will increase poverty by 0.07%. Similarly, unemployment expressed insignificant adverse effect on poverty; indicating that a percentage increase in the unemployment rate will produce an insignificant 0.30% fall in poverty levels in the long-run. Furthermore, foreign direct investment showed an insignificant negative effect on poverty in the long-run. The result revealed that a percentage increase in FDIY in the long-run will decline poverty levels insignificantly by 0.09% in these economies.

Also captured in Table 6 is the MG long-run estimated outputs which significantly mirrored the PMG results but with minor deviations in the coefficient values and significance levels. The result however revealed that a unit rise in remittance will produce a 6.75% fall in poverty levels in the long-run, significant at the 10% level. Likewise, a unit increase in GDP per capita will yield a significant drop of 1.5% in poverty levels in the long-run at the 5% statistical significance level. Although inflation and unemployment showed adverse long-run effects on poverty, their impact was not significant. While a percentage rise in inflation and unemployment will produce a deceleration of poverty by 0.83% and 0.74%, respectively, these effects were reported to be statistically insignificant. Similarly, a percentage rise in FDIY in the long-run shows poverty also rising by 0.58%, however the effect is statistically insignificant.

Table 6: Long-run Estimates

	PMG estimates			MG estimates		
Variable	**Coefficient**	**Std. Err.**	**z-stat.**	**Coefficient**	**Std. Err.**	**z-stat.**
logREM	-2.792***	0.248	-11.27	-6.745*	3.732	-1.81
GDPC	-0.654**	0.324	-2.02	-1.502**	0.642	-2.34
INF	0.067	0.042	1.60	-0.827	0.856	-0.97
UNE	-0.302	0.233	-1.30	-0.735	2.969	-0.25
FDIY	-0.086	0.195	-0.44	0.582	1.458	0.40

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

Source: Author's Computation.

Short-run Estimated Results

Presented in Table 7 are the PMG and MG short-run estimates. Contrary to the long-run PMG output, remittance is shown to have a significant positive effect on poverty level. The result expressed that a percentage increase in remittance will yield a 0.93% increase in poverty levels in the short-run at 10% significance level. Similarly, a percentage increase in GDP per capita will produce a 0.24% rise in poverty at 10% significance level in the short-term. However, short-term inflationary effects are revealed to be insignificant. Table 7 demonstrates that a percentage rise in inflation will produce a statistically insignificant 0.09% decline in poverty level in these economies in the short-run. In contrast, unemployment has a significant positive short-term effect on poverty in these economies. Specifically, a percentage rise in

unemployment will yield a 0.02% rise in poverty levels in the short-run, which is statistically significant at 10% levels.

On the other hand, FDIY has an insignificant positive short-term effect on poverty. The result expressed that although a percentage increase in FDIY will produce a 0.02% rise in the level of poverty in these economies, however, the output is revealed to be statistically insignificant. In addition, the PMG's speed of adjustment parameter (ECT) is revealed to be rightly signed and statistically significant at 10% level. The value of the coefficient which is approximately -0.31, indicates that about 31% disequilibrium is being corrected for annually before long-run equilibrium can be achieved in these economies. Thus, it is estimated that about thirty-nine months will be required for adjustment to long-run equilibrium path in the event of short-term distortions.

Further revealed in Table 7 is the MG short-run output and contrary to its long-run estimate, remittance is shown to have a significant positive effect on poverty level. The result expressed that a percentage increase in remittance will yield a 1.17% increase in poverty levels in the short-run at 1% significance level. Likewise, a percentage increase in GDP per capita will produce a 0.35% rise in poverty at 1% significance level in the short-term. However, short-term inflationary effects are revealed to be insignificant. Table 7 demonstrates that a percentage rise in inflation will produce a statistically insignificant 0.02% decline in poverty level in these economies in the short-run. Similarly, UNE and FDIY have insignificant adverse and positive short-term effects, respectively on poverty in these economies. Specifically, a percentage rise in unemployment and FDIY will yield a 0.31% decline and 0.08% rise in poverty levels, respectively in the short-run, which are not statistically significant. Also, Table 7 showed that the MG's ECT is rightly signed and statistically significant at 10% level. The value of the coefficient which is approximately -0.35, suggests that about 35% short-run disequilibrium is being corrected for annually before long-run equilibrium can be achieved in these economies. Thus, it is estimated that about thirty-three months will be required for adjustment to long-run equilibrium path in the event of short-term disequilibrium.

Table 7: Short-run Estimates

	PMG estimates			MG estimates		
Variable	**Coefficient**	**Std. Err.**	**z-stat.**	**Coefficient**	**Std. Err.**	**z-stat.**
ECT	-0.309*	0.158	-1.96	-0.355*	0.1641	-2.16
ΔlogREM	0.931*	0.492	1.89	1.174***	0.384	3.06
ΔGDPC	0.235*	0.132	1.78	0.348***	0.093	3.74
ΔINF	-0.091	0.073	-1.24	-0.015	0.010	-1.46
ΔUNE	0.016*	0.009	1.74	-0.311	0.549	-0.57
ΔFDIY	0.019	0.265	0.07	0.080	0.346	0.23
C	22.678**	11.407	1.99	38.995***	5.644	6.91

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

Source: Author's Computation.

Cross-section Output

Contained in Table 8 are cross-sectional estimates for the three countries. Evidence from the output revealed that for Nigeria, the speed of adjustment is significant and rightly signed. The

coefficient has a value of -0.23, indicating that about 23% of short-run distortion is annually being corrected for in the Nigerian economy. Hence, about 51 months may be required for long-run equilibrium path restoration in the country. While, remittance, inflation, unemployment, and FDIY have no significant effects on poverty levels, GDP per capita had a significant positive effect for Nigeria. The result shows that a percentage rise in GDP per capita will produce a 0.43% increase in poverty levels for Nigeria at the 1% significance level. The estimates for Ghana also expressed a significant and rightly signed ECT component. By having a coefficient value of -0.61, Ghana seems to be adjusting faster than Nigeria to long-run equilibrium path from short-term distortions. Specifically, the value suggests that about 61% short-run distortion is annually being corrected, hence, it may require about 18 months for long-run equilibrium path to be restored. In addition, remittance demonstrates a significant positive effect on poverty level. Its coefficient shows that a percentage rise in remittance will generate a 1.9% increase in poverty level at the 1% significance level. Likewise, GDP per capita has an aggravating effect on poverty levels. Evidence from its coefficient indicates that a percentage rise in GDP per capita will accelerate poverty by 29% at 1% significance level for Ghana. Other measures such as inflation, unemployment, and FDIY were shown not to have statistically significant effects on poverty level for Ghana.

Results for Senegal are presented in the fourth column of Table 8, and although its ECT coefficient is rightly signed, the value is statistically insignificant. Thus, indicating that there is no short-run association between the regressor variables and poverty for the country. However, inflation appears the only variable with significant short-run effect on poverty. The result suggests that a percentage rise in inflation will generate a 0.24% decline in poverty, which is significant at 1% level.

Table 8: Short-run cross-section estimates

	Nigeria	**Ghana**	**Senegal**
ECT	-0.228***	-0.613***	-0.086
$\Delta logREM$	0.666	1.885***	0.244
$\Delta GDPC$	0.430***	0.291***	-0.016
ΔINF	-0.010	-0.025	-0.236***
ΔUNE	0.030	0.019	-0.001
$\Delta FDIY$	0.538	-0.147	-0.333
C	18.138***	44.309***	5.586

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

Source: Author's Computation.

Test of Hypothesis

In this sub-section, the hypothesis stated earlier in the study is tested.

Ho_1: Remittances have no significant effect on poverty reduction in West Africa

By applying the estimates for remittance in Tables 6 and 7, the z-statistic is further deployed for this analysis. While output in Table 7 represents the long-run estimate, Table 7 captures the short-run result. Table 6 which represent the long-run estimates, have the estimated z-statistic

value for remittance coefficient as -11.27 and this value lie within the 0.05% confidence intervals of –1.96 z – value 1.96. Therefore, since the calculated z-value for this table falls within this confidence interval, the alternative hypothesis that there is a significant negative relationship between remittance and poverty in West Africa is validated and the null hypothesis rejected.

To examine the effect of remittances on poverty reduction in West Africa, Table 6 had expressed a significant adverse effect of remittance on poverty in the long-run; implying that remittance has the capacity to reduce the number of poor individuals in West African economies in the long-run. However, Table 7 showed a significant positive effect of remittance on poverty in the short-run for West Africa. The positive effect of remittance in raising poverty levels in the short-run indicates that increase in remittance inflow to the West African economy can promote a tradition of dependency. Individuals and households who receive such funds may find it de-motivating to contribute their labour into productive activities that can generate stable income for them.

In addition, such recipients may choose to engage in conspicuous consumption in anticipation that the flow will continue rather than investing in future income yielding assets or ventures. Given these conditions in the short-term, poverty level may be promoted in West African economies. However, the cross-sectional estimate presented in Table 8 indicated that in the short-term, remittance may have the potential to aggravate poverty levels for Nigeria and Senegal. However, the effect was insignificant, indicating that it may take the long-run for the manifestation of the substantial effect of remittance on poverty in both economies to be expressed. Nevertheless, Table 8 showed that remittance can significantly exacerbate poverty for Ghana in the short-run which aligned with the works of Kashif, Evelyn & Kee-Cheok (2018) and Kafayat & Aras (2022).

Conclusion

Based on the empirical findings in this study, it is concluded that remittance and economic growth have a decelerating-effect on the level of poverty in West African countries in the long-run. However, while remittance has a significant tendency to lower the level of poverty in the long-run, its short-term effect is significantly poverty-enhancing in West African economies due to the culture of dependency and failure to invest their remittance receipts in profitable ventures that can help to reduce poverty.

In the light of the foregoing conclusion, it is recommended that a campaign to sensitize remittance recipients on the need to channel such funds into productive ventures 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. 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.

References

Abdulai, A. M. & Shamshiry, E. (2014). *Theory and practice on the nexus between poverty*, Natural Resources and Governance. Springer Link.

Ammassari, S., Black, R., Crush, J., McLean Hilker, L., Mouillesseaux, S., Pederby, S., Pooley, C., & Rajkotia, R. (2006). *Migration and development in Africa: An overview (No. 1),* Scholars Commons @ Laurier.

Auguste C. (1852). *Catéchisme positiviste*, Paris: *self-published; reprinted*, Paris: Garnier Freres, 1966. Translated as: *The Catechism of Positive Religion*, London: Trubner, 1891.

Balassa, B. (1981). The newly industrializing developing countries after the oil crisis, *Weltwirtschaftliches Archive, 117*(1), 142-94.

Becker, G. S. (1991*). A treatise on the family,* Harvard University Press, Cambridge, MA.

Behrman, J., Suzanne D., & Miguel, S. (1999). *Schooling investments and macroeconomic conditions: A micro-macro investigation for Latin America and the Caribbean*, (Unpublished; Washington: Inter-American Development Bank).

Bénabou, R. (1996). Inequality and growth. *NBER Macroeconomics Annual, Volume II*, ed. by Ben Bernanke and Julio Rotemberg (Cambridge, Mass.: MIT Press).

Charles, K. (2015). Beyond 2015: Goal 1 - end poverty in all its forms everywhere, UN Chronicle, *51*(4). Retrieved January 24, 2023, from https://www.un.org/en/chronicle/article/goal-1-end-poverty-all-its-forms-everywhere

Crush, J., Tawodzera, G., McCordic, C., & Ramachandran, S. (2017). *Refugee entrepreneurial economies in Urban South Africa*, Waterloo, ON: Southern African Migration Programme. SAMP Migration Policy Series No. 76.

Dollar, D. & Kraay, A. (2000). *Growth is good for the poor*, World Bank Development Research Group (unpublished; Washington, D.C., World Bank). 1-56.

Dollar, D., & Kraay, A. (2002). Growth is good for the poor. *Journal of Economic Growth*, 7(3), 195-225.

Fagerheim, M. G. (2015). *Impact of remittances on economic growth in ASEAN*, Thesis for Master of Philosophy in Environmental and Development Economics, OSLO University, May 2015, 1-59.

Friedman, M. (1969). *The optimum quantity of money and other essays*, Chicago: Aldine.

International Fund for Agricultural Development (2023). *Improving the management of remittances and their use for development impact in Africa,* Retrieved February 21, 2023, from https://www.ifad.org/en/prime-africa

International Organization for Migration (IOM) (2022). *Migration and migrants: A global overview. In M. McAuliffe and A. Triandafyllidou, eds*, IOM, Geneva.

Jeffang, K. (2020). *COVID-19: Gambia faces brunt with looming cut in remittances,* The Chronicle. 9 April.

Kashif, I., Evelyn, S. D. & Kee-Cheok, C. (2018). Do migrant remittances reduce poverty? micro-level Evidence from Punjab, Pakistan, *Malaysian Journal of Economic Studies, 55*(1), 19-47.

KNOMAD (2023). *Remittances remain resilient but are slowing*, Migration and Development Brief 38. Retrieved on 03/08/2023 from https://knomad.org/sites/default/files/publication-doc/migration_development_brief_38_june_2023_0.pdf

Kotecha, P. (2011). Research Networks in Africa. *International Higher Education*, (65). https://doi.org/10.6017/ihe.2011.65.8571

Krugman, P. (1998). *Fire-sale FDI*, University of Princeton, Mimeo.

Kuznets, S. (1955). Economic growth and income inequality. *American Economic Review, 45*(26), 1–28.

LaRose, A., Peschner, J., & Wanner, P. (2016). Inequality and poverty reduction in the context of economic growth, *In Poverty Reduction and Economic Growth* (pp. 19-45). International Labour Office.

Leiter, M. P., & Maslach, C. (2004). Areas of Work life: A structured approach to organizational predictors of Job Burnout. In P. Perrewé, & D. C. Ganster (Eds.), *Emotional and Physiological Processes and Positive Intervention Strategies* (Vol. 3, pp. 91-134). Oxford: Elsevier. https://doi.org/10.1016/S1479-3555(03)03003-8

Lianos, T. P. (1997). Factors determining migrant remittances: The case of greece, *International Migration Review, 31* (1), 72–87.

Magombeyi, M. T. & Odhiambo, N. M. (2017). Dynamic Impact of FDI Inflows on Poverty Reduction: Empirical Evidence from South Africa, *UNISA Economic Research Working Paper Series, 3*.

Maimbo, S. & Ratha, D. (2005). *Remittances: Development impact and future prospects*, World Bank, Washington DC. https://doi.org/10.1596/0-8213-5794-8

Norman, R. J. (1983). *The moral philosophers: an introduction to ethics.* Oxford University Press, New York.

Nowell-Smith P.H. (1959). *Ethics.* Middlesex: Penguin.

Osili, U. O. (2007). Remittances and savings from international migration: Theory and evidence using a matched sample, *Journal of Development* Economics*, 83*(2), 446-465, https://doi.org/10.1016/j.jdeveco.2006.06.003.

Paternostro, S., Rajaram, A., & Tandon, P. (2007). *Public spending and poverty in Mozambique,* World Bank.

Rapoport, H. & Docquier, F. (2005). *The economics of migrants' remittances*, Available at SSRN: https://ssrn.com/abstract=690144 or http://dx.doi.org/10.2139/ssrn.690144

Ratha, D. (2005). Remittances: A lifeline for development, *Finance and Development: A Quarterly Magazine of the IMF, 42*(4). Retrieved January 14, 2023, from https://www.imf.org/external/pubs/ft/fandd/2005/12/basics.htm

Ratha, D., Kim, E. J., Plaza, S., & Seshan, G. (2021). *Resilience: COVID-19 crisis through a migration Lens* (migration and development brief 34), World Bank. https://www.knomad.org/sites/default/files/2021-05/Migration%20and%20Development%20Brief%2034_1.pdf

Solow, R. M. (1956). A contribution to the theory of economic growth, *Quarterly Journal of Economics, 70*(1), 65-94.

Stark, O. & Lucas, R. E. B. (1988). Migration, remittances, and the family, *Economic Development and Cultural Change, 36* (4), 465–81.

Stark, O. (1991). *The migration of Labour*, Cambridge: Basil Blackwell.

United Nations Department of Economic and Social Affairs (UNDESA) (2019). *International migrant stock 2019. United Nation reports,* Retrieved January 7, 2023, from https://www.un.org/en/development/desa/population/migration/data/estimates2/estimates19.asp

World Bank (2020, May 28). *Nigeria releases new report on poverty and inequality in country.* January 19, 2023, from https://www.worldbank.org/en/programs/lsms/brief/nigeria-releases-new-report-on-poverty-and-inequality-in-country

World Bank (2022). *Migration and development brief.*

World Bank (2022). *Remittances Grow 5% in 2022, Despite global headwinds. press release*, Retrieved January 25, 2023, from https://www.worldbank.org/en/news/press-release/2022/11/30/remittances-grow-5-percent-2022

Yousof A., Masoud Y. & Hossein M. (2019). Understanding smallholder farmers' adaptation behaviors through climate change beliefs, risk perception, trust, and psychological distance: Evidence from wheat growers in Iran. *Journal of Environmental Management, 250*https://doi.org/10.1016/j.jenvman.2019.109456.