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Impact of Remittances on Economic Growth: Evidence from Nigeria, Ghana and Kenya

Stephanie Gangas*[1], Olajide Oladipo[2]
1. Nile University of Nigeria, Federal Capital Territory, Abuja
*Email: quimagangas@gmail.com
2. Nile University of Nigeria, Plot 681, Cadastral Zone C, OO, Research & Institution Area, Airport Road, Jabi, Abuja 900108, Federal Capital Territory.

Abstract
The literature has presented opposing findings on the impact of remittances on economic growth thereby creating a research gap to be filled. In this study, the impact of remittances on economic growth of Nigeria, Ghana and Kenya for the period 1990 to 2020 has been explored. The methodology of the research follows the panel autoregressive distributed lag model and the causality test. Findings of the study revealed that there is a long-run relationship between remittances and economic growth in Nigeria, Ghana and Kenya. Meanwhile, the result indicated that remittance has a negative but insignificant effect on economic growth both in the short-run and in the long-run; while the Pairwise (Stacked) Granger Causality Tests and Pairwise Dumitrescu-Hurlin Panel Causality Tests results indicated that there is no causality between remittances and economic growth. The policy implications for Nigeria, Ghana, and Kenya might be that it is critical not just to attract more remittances, but also to give additional incentives for these inflows to be spent on productive investments that contribute to economic growth.
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1. Introduction

Remittance is a financial phenomenon that is popular among migrants especially from developing nations. Remittances can be simply referred to as the funds transferred by migrants to their home countries and it has emerged as a crucial component of the global economy. According to Meyer and Shera (2017), these financial assets are a relatively new financial phenomenon and among the most significant sources of income based on its prevalence and global economic significance. As a result, the role of remittance and its impact on the economy has gathered numerous arguments in the political and economic literature.

Fayissa and Nsiah (2010) argued that remittance has slowly become part of the sources of economic growth especially in developing nations. Thus, remittance has slowly become part of the popularly perceived sources of economic growth such as surplus labor, physical capital investment, foreign aid, foreign direct investment (FDI), investment in human capital and institutional factors (such as the role of political freedom, political instability, voice and accountability). Additionally, Oshota and Badejo (2015) revealed that remittances do not just make up for the brain drain (human capital loss) trend from developing nations, but these international financial assets could spur economic growth. Furthermore, remittances from workers are the second-largest source of finance for developing nations, beside foreign direct investment. They represent an increasingly significant mechanism for the transfer of resources from rich to developing countries (Oshota & Badejo, 2015). Nevertheless, these monetary inflows have the power to change the economic landscape of developing countries and have a substantial impact on the recipient households' quality of life.

Nigeria, Ghana, and Kenya are among the most populous countries in Sub-Saharan Africa, with Nigeria being the largest. These countries have witnessed significant levels of emigration over the years, with citizens leaving their home countries in search of better economic opportunities abroad. According to the World Bank, remittances to Sub-Saharan Africa totalled $46 billion in 2020, with Nigeria, Ghana, and Kenya ranking among the top recipients of remittances in the region.

In Nigeria, emigration has been a longstanding phenomenon, with the country's citizens leaving in large numbers since 1980s. According to data from the United Nations Department of Economic and Social Affairs, there was an estimated 1.9 million Nigerian emigrants in 2020. The top destinations for Nigerian emigrants include the United States, the United Kingdom, Canada and South Africa. Remittances are a crucial source of income for many

households in Nigeria, with the World Bank estimating that remittances totalled $17.2 billion in 2020, accounting for 4% of the country's GDP (World Bank, 2021).

Similarly, Ghana has also experienced significant levels of emigration, with an estimated 1.1 million Ghanaian emigrants in 2020 (United Nations Department of Economic and Social Affairs). The top destinations for Ghanaian emigrants include the United States, the United Kingdom, and Canada. Remittances are an important source of income for many households in Ghana, with the World Bank estimating that remittances totalled $3.6 billion in 2020, accounting for 3.3% of the country's GDP (World Bank, 2021).

Kenya has also witnessed substantial levels of emigration, with an estimated 1.1 million Kenyan emigrants in 2020 (United Nations Department of Economic and Social Affairs). The top destinations for Kenyan emigrants include the United States, the United Kingdom, and Canada. Remittances are a crucial source of income for many households in Kenya, with the World Bank estimating that remittances totalled $3 billion in 2020, accounting for 3.7% of the country's GDP (World Bank, 2021).

Nigeria, Ghana, and Kenya are prominent countries in Sub-Saharan Africa that have witnessed substantial levels of emigration over the years. Remittances have become a critical source of income for many households in these nations, providing a lifeline for families and contributing to poverty reduction. However, it is crucial to note that the impact of remittances on economic growth can vary based on several variables, including the volume and content of remittances, the sophistication of the financial system, and the Caliber of institutions. Remittances, for instance, may have a greater effect on economic growth in nations with less developed banking systems or human capital. Remittance flows may also fluctuate and be vulnerable to outside shocks, such as adjustments to the state of the world economy or changes in immigration regulations (World Bank, 2021).

Against this backdrop, it is pertinent to ask these questions- what is the effect of remittances on economic growth in Nigeria, Ghana, and Kenya? What is the long and short run effect of remittances on economic growth in Nigeria, Ghana, and Kenya? What causal relationship exists between remittances and economic growth in Nigeria, Ghana, and Kenya? and these questions spawned the aim of this study. Thus, the broad objective of this study is to examine the relationship between remittances and economic growth in Nigeria, Ghana, and Kenya using annual data covering the period of 2001 to 2021. Specifically, the study seeks to: investigate the effect of remittances on economic growth in Nigeria, Ghana, and Kenya; analyse the long and short run effect of remittances on economic growth in Nigeria, Ghana, and Kenya; and determine the causal relationship between remittances and economic growth in Nigeria, Ghana, and Kenya.

Understanding the impact of remittances on economic growth is of paramount importance for policymakers and development practitioners. By quantifying the contributions of remittances to economic growth, it becomes possible to formulate policies and strategies that harness the positive effects of these financial inflows and maximize their developmental impact. Moreover, identifying any potential challenges or limitations associated with remittance inflows can guide policymakers in designing measures to address them effectively.

While previous studies have explored the impact of remittances on economic growth in various contexts, limited research has been conducted specifically focusing on Nigeria, Ghana, and Kenya. Therefore, this study aims to contribute to the existing literature by providing empirical evidence on the relationship between remittances and economic growth in these three African countries. Specifically, the study aims at: (i) ascertaining the nature of the causal relationship between remittances and economic growth in Nigeria, Ghana, and Kenya; and (ii) establishing both the short-run and long-run effect of remittances on economic growth of the three countries. The findings of this research can have significant implications for policymakers, governments, and development organizations involved in designing policies and interventions to promote sustainable economic development in Nigeria, Ghana, and Kenya. Understanding the dynamics between remittances and economic growth can facilitate the formulation of strategies that harness the positive effects of remittances while mitigating potential risks and challenges.

2. Literature Review

3. Empirical Literature

Numerous economists and analysts have conducted numerous sizable empirical studies on a variety of remittance-related topics, including the reasons behind remittance senders, the effect of remittances on economic growth, the cost of remittances, etc. Diverse viewpoints exist regarding how remittances affect economic expansion (Meyer

and Shera, 2017). Thus, various empirical works will be examined to reveal the unique economic, social, and political issues that collaborate with remittance to influence the economic growth of Nigeria, Ghana, and Kenya.

Within the Nigeria context, Ojapinwa and Odekunle (2013) investigated the relationship between workers' remittance and investment in Nigeria. The study spanned a period from 1980 to 2010 and employed an empirical analysis as the method of analysis. The variables used in the study included workers' remittances as the independent variable and investment as the dependent variable. The study revealed that an increase in workers' remittances led to a corresponding increase in investment levels in the country. The findings suggested that workers' remittances acted as a source of external finance, supplementing domestic savings and stimulating investment activities in Nigeria. Based on the results, the study concluded that workers' remittances had a positive effect on investment in Nigeria, contributing to the country's economic development and suggested that policymakers should focus on creating an enabling environment that encourages remittance inflows and supports the productive utilization of these funds.

Furthermore, Olubiyi (2014) investigated the relationship between trade, remittances, and economic growth in Nigeria. The study covered the period from 1980 to 2011 and employed the autoregressive distributed lag (ARDL) bounds testing approach as the method of analysis. The variables used in the study included real GDP as a measure of economic growth, trade openness to capture trade activities, and remittances as a measure of inflows from Nigerians working abroad. The study found evidence of a bidirectional causal relationship between remittances and economic growth, indicating that an increase in remittance inflows stimulated economic growth, and economic growth, in turn, led to higher remittance inflows. Furthermore, the study found a unidirectional causal relationship from trade to economic growth, suggesting that increased trade activities had a positive effect on economic growth. Based on the findings, the study concluded that both remittances and trade played significant roles in promoting economic growth in Nigeria and recommended that the Nigerian government should prioritize policies that enhance trade competitiveness and create an enabling environment for remittance inflows. This could include measures such as trade facilitation, export promotion, investment in infrastructure, and financial sector development.

Olalekan Oshota and Adeniyi Badejo (2014) explored and analysed the relationship between remittances and economic growth in Nigeria. The study covered the period from 1981 to 2012 and employed an error correction modelling (ECM) approach as the method of analysis. The variables used in the study included real GDP as a measure of economic growth and remittances as a measure of inflows from Nigerians living abroad. The study found that remittances had a positive impact on economic growth, implying that an increase in remittance inflows contributed to higher GDP levels in the long run. The study highlighted the importance of remittances as a stable source of foreign exchange earnings and emphasized their positive effect on investment, consumption, and overall economic activity in the country. The study underscored the need for policies that encourage and facilitate remittance inflows, such as creating an enabling environment for diaspora engagement and promoting financial inclusion for remittance recipients. The study suggested the establishment of efficient and cost-effective channels for remittance transfers and the implementation of financial literacy programs to improve the financial management skills of remittance recipients.

Oluyemi, Dominic, and Lady (2015) analysed the effect of remittances on Nigeria's economic development, focusing on the Nigerian Diaspora in Ghana. They gathered primary data by distributing a questionnaire to 326 people residing in Ghana. The researchers used non-parametric tests and linear regression for their analysis. Their results showed that remittances from Nigerian migrants living in Ghana had a substantial impact on economic growth. The study suggested that implementing suitable infrastructure to encourage more remittances could benefit the country's economy.

Ogunwole (2016) analysed the relationship between remittances, output growth, and household welfare in Nigeria. The study covered the period from 1980 to 2014 and employed the ordinary least squares (OLS) regression analysis as the method of analysis. The variables used in the study included remittances, output growth, and household welfare indicators such as per capita consumption and poverty incidence. The study found that both remittances and output growth had a positive effect on household welfare, indicating that an increase in remittance inflows and overall economic growth contributed to improved welfare outcomes for households. The study also highlighted the role of remittances as a stabilizing factor during periods of economic downturns, as they provided a cushion against income shocks and poverty. The study concluded that remittances and output growth were important drivers of household welfare in Nigeria. Considering these findings, the study recommended that the Nigerian government should adopt policies and programs aimed at attracting and retaining remittance inflows. This could involve creating an enabling environment for diaspora engagement and providing incentives for the formalization

of remittance flows.

Akpan and Atan (2018) investigated the long-run relationship between remittances and economic growth using data from 1981 to 2015. They employed the autoregressive distributed lag (ARDL) approach and included variables such as remittances, real GDP, investment, and human capital. The results showed a negative and insignificant relationship between remittances and economic growth in Nigeria. The authors concluded that remittances may not have a substantial impact on economic growth and suggested the need for targeted policies to enhance the developmental effects of remittances.

Within the Kenya context, Mwega and Ndung'u (2009) examined the impact of remittances on economic growth in Kenya using data covering from 1992 to 2008. The autoregressive distributed lag model was employed. The findings revealed that remittances have a positive and statistically significant impact on economic growth in Kenya. The study recommended that policymakers should encourage the flow of remittances as they have a significant contribution to the economy.

Similarly, Odhiambo (2010) investigated the impact of remittances on economic growth in Kenya for the period 1975-2008 using the autoregressive distributed lag model. The objective of the study is to determine the magnitude and direction of the effect of remittances on economic growth in Kenya. The study reveals that remittances have a positive and significant impact on economic growth in Kenya. The study recommended that policymakers should encourage the inflow of remittances as they contribute significantly to the economy.

However, Munene (2013) examined the impact of remittances on economic growth in Kenya for the period 1975-2011 using the autoregressive distributed lag model. The study aims to investigate the impact of remittances on economic growth in Kenya. The findings reveal that remittances have a negative and statistically significant impact on economic growth in Kenya. The study recommends that policymakers should focus on promoting local investment to reduce the country's reliance on remittances.

Also, Kiio, Soi, and Buigut (2014) examined the relationship between workers' remittances and economic growth in Kenya. The study covered the period from 1980 to 2012 and employed the autoregressive distributed lag (ARDL) bounds testing approach as the method of analysis. The variables used in the study included real GDP as a measure of economic growth and workers' remittances as a measure of inflows from Kenyan migrants abroad. The study found that workers' remittances had a positive impact on economic growth, suggesting that an increase in remittance inflows contributed to higher GDP levels in the long run. Based on the findings, the study concluded that workers' remittances played a crucial role in promoting economic growth in Kenya and recommended that policymakers should adopt policies and strategies to maximize the positive impact of remittances on economic growth. These could include initiatives to enhance financial inclusion, promote entrepreneurship, and support investment in sectors with high growth potential.

Ndirangu (2017) examined the impact of remittances on economic growth in Kenya for the period 1980-2014. The study employs the autoregressive distributed lag model and cointegration techniques. The findings show that remittances have a positive and significant impact on economic growth in Kenya. The study recommended that the government should promote the flow of remittances to the country by providing an enabling environment for the inflow of remittances. However, Omolo (2019) investigated the impact of remittances on economic growth in Kenya for the period 1990-2017. The study uses the autoregressive distributed lag model and cointegration techniques. The findings reveal that remittances have a negative and insignificant impact on economic growth in Kenya. The study recommends that the government should diversify the economy and promote local investment to stimulate economic growth.

Within the Ghana context, Adams and Klobodu (2010) investigated the impact of remittances on economic growth in Ghana from 1970 to 2008. The study employed the Vector Autoregressive (VAR) model and found that remittances have a positive impact on economic growth in Ghana. The study also found that the positive impact of remittances on economic growth is greater than that of Foreign Direct Investment (FDI). The study recommended that policymakers should continue to encourage remittance inflows to support economic growth in Ghana.

Agbola (2013) examined the role of human capital in shaping the relationship between foreign direct investment (FDI), remittances, and economic growth in Ghana. The study covered the period from 1970 to 2010 and employed the Autoregressive Distributed Lag (ARDL) approach as the method of analysis. The variables used in the study included real GDP as a measure of economic growth, FDI inflows, remittances, and human capital measured by

the gross secondary school enrolment rate. The findings of the study indicated that both FDI and remittances had positive and significant effects on economic growth in Ghana. However, the study also found that human capital played a significant role in moderating the impact of FDI and remittances on economic growth. The findings suggested that countries with higher levels of human capital were better able to leverage FDI and remittances for economic growth. The study concluded that human capital was an important factor in determining the effectiveness of FDI and remittances in stimulating economic growth in Ghana and recommended that policymakers in Ghana should prioritize investments in human capital development to unleash the full potential of FDI and remittances for economic growth. This could involve initiatives such as improving the quality of education, promoting vocational training programs, and strengthening the linkages between educational institutions and industry.

However, Mensah and Ackah (2015) examined the impact of remittances on economic growth in Ghana from 1980 to 2011. The study employed the ARDL model and found that remittances have a negative and insignificant impact on economic growth in Ghana. The study also found that remittances lead to an increase in income inequality. The study recommended that policymakers should create policies that encourage the investment of remittances in productive sectors of the economy to support economic growth.

Peprah, Kwesi Ofori, and Asomani (2019) conducted a study titled "Financial development, remittances and economic growth: A threshold analysis" to investigate the relationship between financial development, remittances, and economic growth. The study covered the period from 1980 to 2017 and employed a threshold analysis as the method of analysis. The variables used in the study included financial development indicators such as credit to the private sector, stock market capitalization, and banking sector development, as well as remittances and real GDP as measures of economic growth. The findings of the study revealed a non-linear relationship between financial development, remittances, and economic growth. Also, it was identified that a threshold level of financial development, beyond which the positive impact of remittances on economic growth became significant. Based on the findings, the study concluded that financial development played a crucial role in determining the impact of remittances on economic growth and recommended that policymakers focus on improving financial development indicators to reach the identified threshold level. This could involve measures to strengthen banking systems, develop capital markets, and enhance financial literacy among individuals and households.

Within the African context, Adams and Page (2003) investigated the effect of remittances on economic growth in several African countries. The study aimed to assess the relationship between remittances and economic growth over a period of 30 years. Using econometric analysis, the study found a mixed impact of remittances on growth, with some countries experiencing positive effects and others exhibiting no significant relationship. The study concluded that the impact of remittances on economic growth is context-specific and recommended further research to understand the underlying mechanisms. However, Osili and Paulson (2008) analysed whether remittances contribute to economic growth and poverty reduction. Using time-series data, the study employed econometric techniques and found a weak and insignificant relationship between remittances and economic growth in Nigeria. The study concluded that other factors, such as governance and investment, play a more crucial role in driving economic growth.

Mkenda (2008) explored the relationship between international remittances and human development in sub-Saharan Africa. The study aimed to analyse the impact of remittances on human development indicators, including education, health, and poverty reduction. Using data from various African countries, the study employed regression analysis and found a positive association between remittances and human development outcomes. The study concluded that remittances contribute to improving human development in the region.

Giuliano and Ruiz-Arranz (2009) examined the relationship between remittances, financial development, and economic growth. The study aimed to assess whether remittances contribute to financial sector development, which in turn affects economic growth. Using data from various countries, the study employed panel regression analysis and found a positive and significant impact of remittances on financial development and economic growth. The study concluded that remittances can stimulate financial sector development and promote economic growth.

Ami (2016) conducted a panel data analysis to examine the impact of remittances on economic growth in sub-Saharan Africa. The study's objective was to assess the relationship between remittances and economic growth over the period of 1980 to 2012. The analysis employed various control variables such as investment, human capital, and trade openness. The findings indicated a positive and significant impact of remittances on economic growth in the region. The study concluded that remittances contribute to economic development and recommended policies to enhance the positive impact of remittances on growth.

Ofori and Grechyna (2021) investigated the relationship between remittances, natural resource rent, and economic growth in Sub-Saharan Africa. The study spanned from 1990 to 2017 and employed panel data analysis as the method of analysis. The variables used in the study included remittances as a measure of financial inflows from migrants, natural resource rent as a measure of income generated from natural resources, and real GDP growth as a measure of economic growth. The study indicated that an increase in remittances and natural resource rent led to higher GDP growth rates in the region.

Additionally, the study found evidence of a complementary relationship between remittances and natural resource rent, suggesting that the simultaneous presence of these two factors had a synergistic effect on economic growth. Based on the findings, the study concluded that remittances and natural resource rent played crucial roles in promoting economic growth in Sub-Saharan Africa. Thus, the study recommended that Sub-Saharan African countries should develop policies that encourage the productive use of remittance inflows and natural resource rent. This could include initiatives to promote investment in productive sectors, improve infrastructure, and enhance human capital development. The study also underscored the importance of good governance, transparency, and accountability in managing natural resources to ensure that the benefits are equitably distributed and contribute to inclusive economic growth.

Within developing nations outside Africa, Ratha and Mohapatra (2007) investigated the impact of remittances on economic growth in Asia over the period 1970 to 2003. The study employed the panel data analysis method, using the fixed-effects model and found that remittances have a positive impact on economic growth in Asia. The conclusion was that remittances can be an important source of financing for economic development in the region. The recommendation was that policymakers should promote policies that encourage the flow of remittances to the region. However, Azam and Khan (2014) examine the impact of remittances on economic growth in Bangladesh over the period 1980 to 2010. The study employed the ARDL bounds testing approach. The study found that remittances have a negative impact on economic growth in Bangladesh. The conclusion was that remittances may not be an effective source of external finance for economic development in the country. The recommendation was that policymakers should focus on other sources of external finance to support economic growth in Bangladesh.

Dang (2015) examined the relationship between remittances and economic growth in Vietnam. The study covered the period from 1986 to 2013 and employed the autoregressive distributed lag (ARDL) bounds testing approach as the method of analysis. The variables used in the study included real GDP as a measure of economic growth and remittances as a measure of inflows from overseas Vietnamese workers. The study found that remittances had a positive effect on economic growth, indicating that an increase in remittance inflows contributed to higher GDP levels in the long run. The study concluded that remittances played a significant role in promoting economic growth in Vietnam. The findings supported the notion that remittances acted as a source of capital inflows that stimulated investment, consumption, and overall economic activity in the country. Thus, the study recommended that the Vietnamese government should implement policies and programs to promote the productive use of remittances. This could include initiatives to channel remittance funds towards investment in key sectors such as infrastructure development, small and medium-sized enterprises, and human capital formation.

Mughal and Siddiqui (2015) examined the effect of remittances on economic growth in Pakistan over the period 1975 to 2012. The study employed the ARDL bounds testing approach and found that remittances have a negative impact on economic growth in Pakistan. The conclusion was that remittances may not be an effective source of external finance for economic development in the country. The recommendation was that policymakers should focus on other sources of external finance to support economic growth in Pakistan. Also, Apergis et al. (2017) investigated the impact of remittances on economic growth in Mexico over the period 1975 to 2014. The study employed the ARDL bounds testing approach. The study found that remittances have a negative impact on economic growth in Mexico. The conclusion was that remittances may not be an effective source of external finance for economic development in the country. The recommendation was that policymakers should focus on other sources of external finance to support economic growth in Mexico.

Shirazi, Javed, and Ashraf (2018) examined the relationship between remittances, economic growth, and poverty in African countries that are members of the Organization of Islamic Cooperation (OIC). The study spanned a period of analysis covering the years 1990 to 2014. The panel data analysis techniques were employed, and the following variables considered in the study included remittances, GDP per capita as a measure of economic growth, and poverty indicators such as the poverty headcount ratio and poverty gap. The researchers found that an increase in remittance inflows led to higher GDP per capita, thus contributing to economic growth. Additionally, the study revealed that remittances played a role in reducing poverty in these countries, as they were associated with lower poverty headcount ratios and poverty gaps. The study concluded that remittances played a crucial role in promoting

economic growth and alleviating poverty in the African OIC member countries. Thus, the study suggested that governments and policymakers in the African OIC member countries should create an enabling environment to attract and retain remittance inflows. This could involve promoting financial inclusion, improving access to financial services, and facilitating the transfer of remittances at affordable costs. Additionally, the study recommended investing in sectors that have strong linkages with remittances, such as education, health, and entrepreneurship, to ensure sustainable and inclusive development.

Chami et al. (2018) aimed to examine the impact of remittances on economic growth in Latin America and the Caribbean over the period 1980 to 2015. The study employed the system generalized method of moments (GMM) estimation technique. The study found that remittances have a positive impact on economic growth in the region. The conclusion was that remittances can be an important source of external finance for economic development in Latin America and the Caribbean. The recommendation was that policymakers should continue to promote policies that support the flow of remittances to the region.

Mubinzhon, Bustillo, and Zulfiya (2020) examined the relationship between remittances, economic growth, and poverty reduction in Tajikistan. The study covered a span of analysis focusing on the period from 2001 to 2018. An empirical approach was employed, specifically panel data analysis, to investigate the impact of remittances on economic growth and poverty reduction. The variables used in the study included remittances, GDP growth rate, and poverty rates as the main measures. The study found a positive relationship between remittances and economic growth in Tajikistan. In terms of recommendations, the study proposed the implementation of policies to facilitate the productive utilization of remittance funds. Thus, the study also stressed the need for complementary policies that enhance the linkages between remittances and the broader economy, such as improving the business environment and promoting entrepreneurship, to maximize the developmental impact of remittances.

Sutradhar (2020) explored the relationship between remittances and economic growth in these South Asian countries. The study spanned a period of analysis and comparison from 2000 to 2017. The method of analysis employed was the panel autoregressive distributed lag (ARDL) approach, which allowed for both cross-sectional and time-series analysis. The study utilized remittances as the main variable of interest, capturing the inflows of remittances into the respective countries, and real GDP growth as the measure of economic growth. The study revealed that an increase in remittance inflows positively influenced economic growth in these countries in both the short and long run. Based on the results, the study concluded that remittances had a significant and favourable effect on economic growth in the selected South Asian countries and recommended that policymakers should adopt measures to leverage the positive impact of remittances by focusing on enhancing financial inclusion, promoting productive investment, and facilitating the efficient allocation of remittance funds towards sectors that can generate sustainable economic growth.

3. Methodology

The data for this study cover the period 1990-2020 and were obtained from the World Development Indicators (WDI), a publication of World Bank. Since the study is panel in nature, data were obtained from three countries of interest which are Nigeria, Ghana, and Kenya. These three countries are all lying within the African continent and are on a similar path to growth. Data were obtained from key variables such as growth rate of gross domestic product, remittances received, gross fixed capital formation, labour force, inflation, foreign direct investment, trade openness, financial development, and governance.

3.1 Model Specification

Following prior research such as Freund and Spatafora (2008), Guiliano and Ruiz (2009), and Olayungbo and Quadri (2019), which show that remittances from migrants are mostly spent on productive investment and capital stock, we may be expressed our model as follows:

$$y = Aremt^{\alpha} \quad (1)$$

By expressing Equation (1) in a log-linear form, we have:

$$y = A + \alpha remt \quad (2)$$

In line with Equation (2), the model for this study is adapted from the study of Oteng-Abayie, Awuni, and Adjei (2020) and Olayungbo and Quadri (2019) who explored the impact of inward remittances on the economic growth in Ghana, and for 20 sub-Saharan African countries respectively. In their model, they modelled economic growth as being dependent on capital, remittances, foreign direct investment, inflation rate, population growth and trade openness. By adapting their model, this study incorporates capital and labour into the growth model along with inflation rate, remittances, foreign direct investment, trade openness, broad money supply, and governance. The model is specified thus;

$$gdpr = f(gfcf, labf, infr, remt, fdiv, trdl, bmsg, govr) \quad (3)$$

Where gdpr is the growth rate of real GDP (a measure of economic growth); gfcf is gross fixed capital formation (a measure of capital); labf is the labour force (a measure of labour input); infr is the rate of inflation in the economy; remt is the remittances received; fdiv is the foreign direct investment; trdl is trade openness (measuring trade liberalization); bmsg is broad money supply as a ratio of GDP (measuring financial development); and govr is general government final consumption expenditure (% of GDP). Though some studies utilized credit to the private sector as a ratio of GDP to measure financial development, this study aligns with earlier studies such as Goschin (2013), Kumar and Vu (2014), and Sobiech (2015), Olayungbo and Quadri (2019) among others that have used broad money supply. Besides the fact that earlier studies have typically used the broad money supply to GDP as a measure of financial development, the preference for it over private sector credit to GDP is influenced by the fact that the proportion of broad money (currency outside banks, demand deposits, savings deposits, time deposits and foreign currency deposits in a country) to GDP is bigger.

Transforming Equation (3) to a form which is subjected to estimation, we then have:

$$gdpr_{it} = \beta_0 + \beta_1 gfcf_{it} + \beta_2 labf_{it} + \beta_3 infr_{it} + \beta_4 remt_{it} + \beta_5 fdiv_{it} + \beta_6 trdl_{it} + \beta_7 bmsg_{it} + \beta_8 govr_{it} + \mu_{it} \quad (4)$$

Where β_0 is the constant term in the model; β_1 to β_8 are the parameters to be estimated; μ is the random error term which is expected to be normally distributed; i = 1, 2, 3 which is the number of countries (Nigeria, Ghana, and Kenya), and t is time.

3.2 Method of Data Analysis

The data analysis follows both the diagnostic and econometric approaches.

3.2.1 Diagnostic Test

The diagnostic test in this study will be the test for stationarity. This will follow the deploying of panel unit root test involving both the individual and common unit root test approaches. The individual unit root test will follow the approach of Im, Pesaran and Shin (2003), while the approach of Levin, Lin and Chu (2002) will be deployed for common unit root test. The test Equation is reflected as follows:

$$\Delta Y_{i,t} = \alpha_i + \delta_i t + \gamma_i Y_{i,t-1} + \sum_{j=1}^{m} \beta_{i,j} \Delta Y_{i,t-j} + \varepsilon_{i,t} \quad (5)$$

Where $Y_{i,t}$ are the variables (gdpr, gfcf, labf, infr, remt, fdiv, trdl, bmsg, govr) to be subjected to unit root test; Δ connotes the difference operator; i captures the countries (i = 1, 2, 3); t measures the time trend; and j measures the lag length. The null hypothesis is that Y contains a unit root ($\gamma_i = 1$) against the alternative hypothesis that ($\gamma_i \neq 0$). The test, according to Levin, Lin and Chu (2002) is based on augmented Dickey-Fuller (ADF) test which assumes homogeneity in the dynamics of the autoregressive coefficients for all panel units with cross-sectional independence.

3.2.2 Econometric Analysis

The analysis of the data is premised on the achievement of the stated objectives.

Objective 1: To determine the nature of causal relationship between remittances and economic growth, the study employs both the Pairwise (stacked) Panel causality test and Pairwise Dumitrescu-Hurlin Panel Causality Test. These approaches are utilized in this study as it offers a comprehensive test geared towards detecting causality in panel data (Lopez and Webber, 2017). The model is specified as follows:

$$gdpr_{it} = \delta_{it} + \sum_{k=1}^{n} \gamma_i gdpr_{i,t-k} + \sum_{j=1}^{n} \pi_j remt_{i,t-j} + \epsilon_{1t} \quad (6)$$

$$remt_{it} = \theta_{it} + \sum_{k=1}^{n} \xi_i remt_{i,t-i} + \sum_{j=1}^{n} \lambda_j remt_{i,t-j} + \epsilon_{2t} \quad (7)$$

It is assumed that k and j, being the lag order, are identical (k = j) for all the countries; and that the analysis is adopted in a balanced panel (Lopez and Webber, 2017). Consistent with the test, the null hypothesis is specified as:

$$H_0: \pi_1 = \pi_2 = \cdots = \pi_j = 0$$

$$H_0: \lambda_1 = \lambda_2 = \cdots = \lambda_j = 0$$

Which in fact states that there is no causality. The rejection of the null hypotheses could result in three scenarios: economic growth causing remittances; remittances causing growth; and the two variables causing each other. In the case of the first two scenarios, we have a situation of unidirectional causality; while in the second scenario, bidirectional causality exists.

Objective 2: To detect the both the short-run and long-run effect of remittances on economic growth in Nigeria, Ghana, and Kenya.

To evaluate this objective, the panel cointegration test is utilized along with panel error correction model. The panel cointegration test is executed using Kao Residual Cointegration Test. In the case where cointegration exists, this study proceeds to estimate the error correction model to ascertain the short-run and long-run effect of remittances on the growth of the selected countries. The estimation follows the panel autoregressive distributed lag (ARDL) vector error correction model. The model to be estimated is specified as follows:

$$\Delta gdpr_{it} = \emptyset_{ij} + \sum_{k=1}^{p} \beta_k \Delta gdpr_{it-k} + \sum_{j=1}^{q} \varphi_j \Delta X_{it-j} + \theta ECM_{t-1} + \mu_{it} \quad (8)$$

Where ECM is the error correction mechanism which is the one-period lag of the error term; θ measures the speed of adjustment of the short-run disequilibrium, p and q are the optimal lag length to be automatically selected using AIC and SIC; X is the vector of the explanatory variables in the model:

$$X_{it} = \{gfcf_{it}, labf_{it}, infr_{it}, remt_{it}, fdiv_{it}, trdl_{it}, bmsg_{it}, govr_{it}\};$$

θ is the error correction term which measures the speed of adjustment of the model from the short-run distortions to a long-run equilibrium; and μ is the error term. It is expected that $\theta < 0$ and statistically significant.

4. Discussion of findings

The graphical representation of data is done based on the two variables of interest – remittances and economic growth (annual growth rate of real GDP). The trend analysis of these variables is presented in Figure 1 where the three panels capture the behaviour of the variables for the three countries – Nigeria, Ghana, and Kenya. In the first panel where the behaviour of remittances (remt) and economic growth (gdpr) is captured in regard to Nigeria, it can be observed that remittances received (% of GDP) has been a bit stable in the 1990s though with a peak recorded in 1992 followed with a downward trend up to 1995. In the 2000s, the variable exhibited some form of minute fluctuations reaching its peak in 2005 and started to decline steadily up to 2015. Thereafter, a slight increase was recorded up to 2018 before plunging back to a downward trend till 2020. The measure of economic growth in Nigeria was quite volatile throughout the period. This volatile nature continued through the 1990s and in the 2000s where the variable reached its peak in 2002 before maintaining a downward trend thereof. This downward trend

continued with some ups and downs movements over the subsequent years reaching a lower position in 2020.

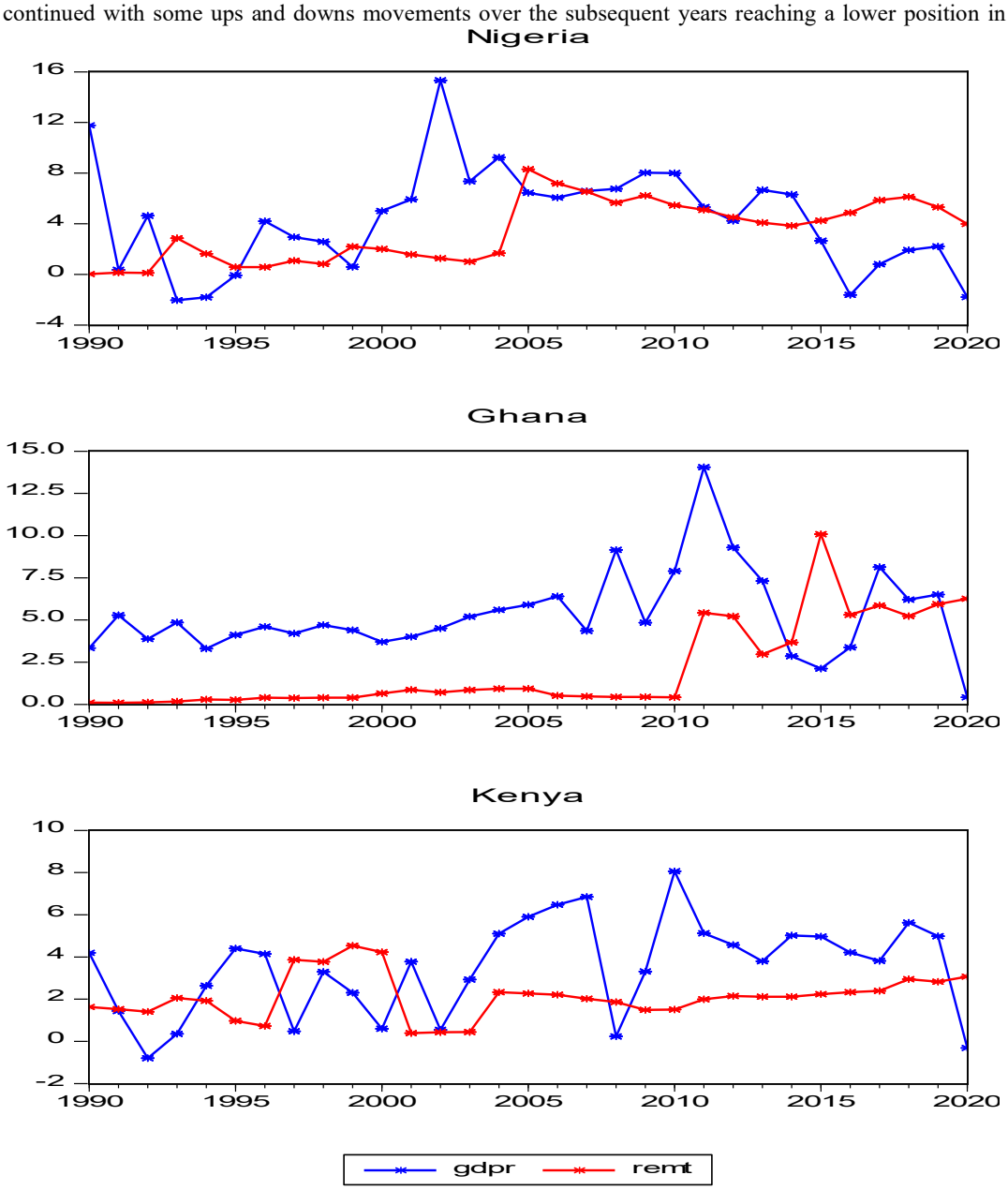

Figure 1: Trend of gross domestic product (annual growth, %), and remittances (% of GDP) 1990 – 2020.

With respect to the trend of the two variables in Ghana, panel II of Figure 1 captures the behaviour over the years. Both remittances received and growth rate of GDP maintained high level of stability throughout the 1990s and early 2000s, with remittances received being stable up to 2010 while GDP growth being stable up to 2006. After these periods for the respective variables, both GDP growth rate and remittances received exhibited a high degree of volatility throughout the remaining periods up to 2020 where growth exhibited a sharp downward trend.

In the case of Kenya which is captured in panel III of Figure 1, it can be observed that the growth rate of GDP has been quite volatile throughout the years with a sharp downward trend being observed as of 2020. For remittances received, high volatility was observed in the 1990s up to 2004 after which the variable maintained a stable trend till 2020. Given the pattern of movements of these two variables over the years, whether such translates to any form of significant relationship between them will be examined subsequently.

Descriptive Statistics

The descriptive statistics reflects on the measures of central tendency (mean, median, maximum, and minimum), measures of dispersion (standard deviation, skewness, kurtosis), and a test for the normality of the variables (Jarque-Bera statistic). These measures give us information on how the data concentrates around the mean as well as how they deviate from the mean.

Table 4.1: Descriptive Properties of the Panel Data

	gdpr	*gfcf*	*labf*	*remt*	*infr*	*fdiv*	*trdl*	*bmsg*	*govr*
Mean	4.377	22.465	3.040	2.541	16.465	2.153	54.547	26.877	9.737
Median	4.400	20.180	2.968	2.004	11.666	1.552	52.931	25.717	9.722
Maximum	15.329	53.122	4.309	10.085	72.836	9.467	116.048	42.819	18.642
Minimum	-2.035	11.764	2.376	0.019	1.554	0.041	20.723	9.063	0.911
Std. Dev.	3.125	8.326	0.430	2.215	13.714	2.212	20.607	9.368	4.893
Skewness	0.525	1.616	1.112	0.962	2.039	1.613	0.770	-0.184	-0.268
Kurtosis	4.479	5.416	4.304	3.307	7.016	4.939	3.279	1.968	2.129
Jarque-Bera	12.754	63.099	25.768	14.720	126.957	54.885	9.480	4.649	4.050
Probability	0.002	0.000	0.000	0.001	0.000	0.000	0.009	0.098	0.132
Observations	93	93	93	93	93	93	93	93	93

Source: Researcher's Computation.

The gdpr for the three countries over the period of 1990 and 2020 averaged 4.377% and possess a standard deviation of 3.125%. This gives rise to the coefficient of variation being 71.40%. The maximum and minimum value of the variable is reported to be 15.329% and -2.035% respectively and the distribution is positively skewed given the skewness coefficient of +0.525 and it is leptokurtic as the coefficient of kurtosis being 4.479 is greater than 3. The variable is therefore not normally distributed given that the J-B statistic of 12.754 is statistically significant at the 5% level ($p < .05$).

For gfcf, its mean value is 22.465% and its standard deviation is 8.326%. The variable has a maximum and minimum value of 53.122% and 11.764% respectively. On the shape of the distribution, gfcf is positively skewed given its coefficient of skewness being +1.616 and it is leptokurtic as the skewness coefficient of 5.416 is greater than 3. As a result, the variable is not normally distributed since its J-B statistic is significant at the 5% level.

The labf and remt averaged 3.040% and 2.541% respectively and possesses the respective standard deviation of 0.430% and 2.215% respectively. The maximum values are 4.309% and 10.085% respectively, while their respective minimum values are 2.376% and 0.019%. Both labf and remt are positively skewed while in regards to kurtosis, labf is leptokurtic while remt is slightly platykurtic. The two variables are not normally distributed since their J-B statistic are significant at the 5% level.

For bmsg and fdiv, their respective mean values are 26.877% and 2.153% respectively while their respective standard deviation are 9.368% and 2.212%. Their respective maximum values are 42.819% and 9.467%, while their minimum values are 9.063% and 0.041% respectively. In regards to the shape of the distribution, bmsg is negatively skewed and platykurtic while fdiv is positively skewed and leptokurtic. While fdiv is not normally distributed as could be seen from the significance of their respective J-B statistic, bmsg is normally distributed given that the J-B statistic is not significant. For infr, its mean value is 16.465% while its standard deviation is 13.714%. Its maximum value across the panels is 72.836% while its minimum value is 1.554%. For the shape of the distribution, infr is positively skewed, platykurtic, and is not normally distributed.

Then for trdl and govr, their average values are 54.547% and 9.737% respectively; while their respective standard deviation are 20.607% and 4.893%. The maximum value of the two variables is 116.048% and 18.642% respectively, while their respective minimum value during the study period is 920.607% and 0.911%. The distribution of trdl is positively skewed, slightly leptokurtic, and not normally distributed; while the distribution of govr is positively skewed, platykurtic, and normally distributed.

Correlation Analysis

In ascertaining the nature of the correlation among the variables utilized in the study, the correlation analysis is conducted on country basis and on the panel basis. The analysis is conducted to detect the possibility of multicollinearity in the model. As a requirement, the explanatory variables are not required to be perfectly linearly correlation in order to avoid the problem of multicollinearity.

Table 4.2: Correlation Matrix

	gdpr	*gfcf*	*labf*	*remt*	*infr*	*fdiv*	*trdl*	*bmsg*	*govr*
gdpr	1								
gfcf	-0.107	1							
labf	-0.297	-0.264	1						
remt	0.017	-0.223	-0.393	1					
infr	-0.308	0.323	0.069	-0.270	1				
fdiv	0.306	-0.024	-0.315	0.195	0.080	1			
trdl	0.205	-0.180	0.123	-0.203	0.121	0.362	1		
bmsg	-0.123	-0.575	0.589	0.005	-0.317	-0.125	0.268	1	
govr	-0.068	-0.625	0.668	-0.126	-0.183	-0.211	0.350	0.815	1

Source: Researcher's Computation.

The correlation matrix captured in Table 4.1 reflects on the nature of co-variability between variables utilized in the study. As per the correlation between the dependent and explanatory variables, it can be observed that there is a weak negative correlation between gdpr and gfcf as indicated by the correlation coefficient of -0.107; gdpr and labf with correlation coefficient of -0.297; gdpr and infr with the correlation coefficient of -0.308; gdpr and bmsg with a correlation coefficient of -0.123; and gdpr and govr with the correlation coefficient of -0.068. Also, a weak positive correlation exists between gdpr and remt with the correlation coefficient of +0.017; gdpr and fdiv with the correlation coefficient of +0.306; and gdpr and trdl with the correlation coefficient of +0.205. Among the explanatory variables, there exist no perfect linear correlation between any two variables, and this is an indication of absence of multicollinearity among the independent variables in the model. The fact that the explanatory variables have weak correlation with the dependent variable does not in any way imply that they do not affect the dependent variable since correlation does not imply causation. Establishing a cause-effect relationship will involve further use of econometric approach of regression analysis which will be executed in subsequent segment of this paper.

Unit Root Test

The unit root test is to ascertain the order of integration of the variables in the panel. The analysis follows both the individual unit root as developed by Im, Pesaran and Shin, and the common unit root test as developed by Levin, Lin and Chu. Table 4.3 reflects on the result of the test so conducted.

Based on the unit test result, the variables exhibited different order of integration between levels and first difference. Under the individual unit root test result, gdpr, remt, bmsg, fdiv, and infr are all stationary at level (they are I(0) series) while gfcf, labf, trdl, and govr only become stationary at first difference (they are I(1) series). In regard to common unit root test result, only gfcf, labf, and govr were stationary at first difference while all other variables were stationary at levels. The fact that some of the variables are integrated at levels while others at first difference is a pointer that the panel autoregressive distributed lag (PARDL) model will be utilized in the study, and this is done first by examining the existence of cointegration among the variables.

In examining the existence of long-run relationship (cointegration) among the variables in the model, the study utilized the Kao cointegration test which makes use of the ADF test obtained from the residuals. Table 4.4 captures the result so obtained, whose significance of the ADF statistic portrays the existence of long-run relationship in the model.

Table 4.3: Panel Unit Root Test Result for Common and Individual Unit Root Process

	Individual Unit Root Test			Common Unit Root Test		
Variable	Im, Pesaran and Shin W-stat at Level	Im, Pesaran & Shin W-stat at Level at First Difference	Order of Integration	Levin, Lin & Chu t* at Level	Levin, Lin & Chu t* at First Difference	Order of Integration
gdpr	-2.54406 (0.0055)**	----------	I(0)	-2.35504 (0.0093)**	----------	I(0)
gfcf	0.85047 (0.8025)**	-5.88065 (0.0000)**	I(1)	0.30134 (0.6184)**	-6.68654 (0.0000)**	I(1)
labf	0.03389 (0.5135)	-3.02245 (0.0013)**	I(1)	-0.82824 (0.2038)	-3.98343 (0.0000)**	I(1)
remt	-2.21630 (0.0133)**	----------	I(0)	-3.54244 (0.0002)**	----------	I(0)
bmsg	-1.74286 (0.0407)*	----------	I(0)	-1.77833 (0.0377)*	---------	I(0)
fdiv	-2.34670 (0.0095)**	----------	I(0)	-1.88618 (0.0296)*	----------	I(0)
infr	-2.56014 (0.0052)**	----------	I(0)	-2.80294 (0.0025)**	---------	I(0)
trdl	-0.99296 (0.1604)	-5.64009 (0.0000)**	I(1)	-2.30688 (0.0105)*	----------	I(0)
govr	-0.91454 (0.1802)	-6.02793 (0.0000)**	I(1)	-0.34412 (0.3654)	-6.15629 (0.0000)**	I(1)

*Note: * and ** respectively denotes significance at 5% and 10% respectively; p-values are enclosed on the brackets.*
Source: Researcher's Computation.

Table 4.4: Kao Cointegration Test Result

			t-Statistic	Probability
ADF			-6.0458	0.0000**
Residual variance			8.4235	
HAC variance			3.7069	
Variable	Coefficient	Std. Error	t-Statistic	Probability
RESID(-1)	-0.8627	0.1012	-8.5271	0.0000**
R-squared	0.4470	Akaike info criterion		4.5120
Adjusted R-squared	0.4470	Durbin-Watson stat		1.7424

*Note: ** denotes significance at the 1% level.*
Source: Researcher's Computation.

Based on the result presented in Table 4.4, it is observed that the ADF statistic of -6.0458 is statistically significant at the 1% level given the p-value of 0.0000 which is smaller for the acceptance of the null hypothesis of no cointegration. Consequently, the null hypothesis of no cointegration is rejected at the 1% level and we conclude that there is a long-run relationship among the variables in the model. Consequently, this prompts the estimation of both the short-run and the long-run estimates using the panel ARDL technique.

Panel Autoregressive Distributed Lag (PARDL) Model

Given that cointegration exists in the model, we move ahead to estimate both the short-run and the long-run model to ascertain the impact of remittances on the economic growth of Nigeria, Ghana and Kenya. The result is showcased in Table 4.5 where the long-run result is shown on the upper segment of the Table and the short-run result is indicated in the lower segment.

Table 4.5: The ARDL Short-Run and Long-Run Estimates

Dependent Variable: Δ(GDPR)
Method: ARDL
Selected Model: ARDL (1, 1, 1, 1, 1, 1, 1, 1, 1)

Variable	Coefficient	Std. Error	t-Statistic	Probability
		Long Run Equation		
gfcf	-0.2568	0.0570	-4.5074	0.0000**
labf	0.0315	1.8590	0.0169	0.9866
remt	***-0.1010***	***0.1934***	***-0.5222***	***0.6036***
infr	-0.0587	0.0277	-2.1168	0.0388*
fdiv	0.3857	0.1304	2.9575	0.0046*
trdl	0.1224	0.0291	4.2074	0.0001**
bmsg	-0.3014	0.1039	-2.9019	0.0053*
govr	0.1019	0.1374	0.7415	0.4616
		Short Run Equation		
ECM_{t-1}	-0.7391	0.2192	-3.3721	0.0014*
Δ(*gfcf*)	0.0870	0.2673	0.3254	0.7461
Δ(*labf*)	-0.7173	1.8703	-0.3835	0.7028
Δ(remt)	***-0.1388***	***0.1174***	***-1.1824***	***0.2421***
Δ(*infr*)	-0.0228	0.0280	-0.8153	0.4184
Δ(*fdiv*)	0.3453	0.2109	1.6375	0.1072
Δ(*trdl*)	-0.0537	0.0148	-3.6390	0.0006**
Δ(*bmsg*)	-0.3856	0.0606	-6.3663	0.0000**
Δ(*govr*)	0.2383	0.0949	2.5116	0.0150*
C	7.5792	2.0898	3.6268	0.0006**
Mean dependent var	-0.2333	S.D. dependent var		3.1575
S.E. of regression	2.2189	Akaike info criterion		4.5475
Sum squared residuals	270.7945	Schwarz criterion		5.5823
Log likelihood	-173.4565	Hannan-Quinn criterion		4.9653

*Note: * and ** respectively denotes significance at 5% and 10% respectively; p-values are enclosed on the brackets.*
Source: Researcher's Computation.

In the long-run, remittance is observed to exert a negative but insignificant effect on economic growth within the three countries under investigation. It follows that remittances could not spur the needed growth within the countries given the pattern of its usage and inflows. This similar negative but insignificant effect is observed is also noticeable in the short run. Consequently, remittances have no significant impact on economic growth of Nigeria, Ghana, and Kenya during the study period.

The negative and significant long-run effect of capital-output ration (gross fixed capital formation, % of GDP) is consistent the a priori expectation as enshrined in the Harrod-Domar growth model. It follows that a unit percent decrease in the capital-output ratio will lead to a 0.2568% increase in economic growth in the long-run. Meanwhile,

the effect of the capital-output ratio on growth is positive but insignificant in the short-run. Labour exerts a positive but insignificant impact on growth in the long-run while such effect is positive but insignificant in the short-run.

The rate of inflation recorded during the period of analysis is observed to have a negative and significant long-run effect on economic growth while its effect is negative but insignificant in the short-run. Thus, a unit percent increase in inflation leads to a 0.0587% decrease in economic growth in the long-run. The impact of foreign direct investment on economic growth in the short-run is observed to be positive but insignificant but its effect becomes positive and significant in the long-run. It follows that a unit percent increase in foreign direct investment will lead to 0.3857% increase in economic growth.

The effect of trade openness (trade liberalization) is observed to exert a positive and significant effect on economic growth in the long-run while its effect is negative and significant in the short-run. From the coefficient, a unit percent increase in trade openness will lead to a 0.0537% decrease in economic growth in the short-run but will lead to a 0.1224% increase in economic growth in the long-run. This signifies that to gain from trade liberalization, Nigeria, Ghana and Kenya will have to pass through the learning curve before the desired effect could be achieved.

The effect of financial development (captured as broad money supply, % of GDP) is observed to exert a negative and significant effect on economic growth both in the short-run and in the long-run. Consequently, a unit percent increase in financial development leads to a 0.3014% and 0.3856% decrease in economic growth in the short-run and in the long-run respectively. This is an indication that an underdeveloped financial sector will have a dampening effect on the overall economic growth of a nation. While governance is observed to have a positive but insignificant long-run effect on economic growth, its effect is positive and significant in the short-run. It follows that a unit increase in government effectiveness will lead to a 0.2383% increase in economic growth in the short run. The constant term in the model signifies that the economic growth of Nigeria, Ghana, and Kenya will be an average of 7.5792% in the short run if all the explanatory variables are held constant.

4.6 Causality Test

In detecting the nature of the causal relationship between remittances and economic growth in Nigeria, Ghana and Kenya, the causality test based on both the Stacked and the Dumitrescu-Hurlin techniques. Table 4.6 captures the result of the causality test based on the aforementioned approaches.

Table 4.6: Causality Test Result

Pairwise (Stacked) Granger Causality Tests			
Null Hypothesis:	Observations	F-Statistic	Probability
remt does not Granger Cause *gdpr*	78	1.1184	0.3591
gdpr does not Granger Cause *remt*		4.7874	0.0008*
Pairwise Dumitrescu-Hurlin Panel Causality Tests			
Null Hypothesis:	W-Stat.	Zbar-Stat.	Probability
remt does not homogeneously cause *gdpr*	8.00237	0.82868	0.4073
gdpr does not homogeneously cause *remt*	11.5302	2.13782	0.0325*

*Note: * denotes significance at the 5% level.*
Source: Researcher's Computation.

In the first segment of Table 4.6, the pairwise (Stacked) Granger causality test result is presented where it is observed that remittances do not Granger causes economic growth rather, it is economic growth that Granger causes remittances. This same result is replicated in the second segment of the Table where the Pairwise Dumitrescu-Hurlin Panel Causality tests result is presented. Consequently, there is no causal relationship between remittances and economic growth in the three countries under consideration, but there is a unidirectional causality flowing from economic growth to remittances.

4.7 Discussion of Major Findings

The major findings of this study are as follows:

Remittances do not exert any significant impact on the economic growth of Nigeria, Ghana and Kenya and its effect is negative both in the short-run and in the long-run.

There is no causal relationship between remittances and economic growth of Nigeria, Ghana and Kenya.

Foreign direct investment is the potent external capital that could influence the economic growth of Nigeria, Ghana and Kenya as it exerted a positive and significant effect on growth in the long run.

The negative and insignificant impact of remittances on economic growth is associated with the inefficient utilization of resources to productive activities. Remittances received can likely culminates to extravagant form of consumption instead of being channelled to productive investment that could boost domestic output. It should be expected that remittances should trigger growth based on its role in filling the savings-investment gap as stipulated in the two-gap model of Harrod-Domar where it is stated that majority of emerging nations struggle with either a lack of domestic saving to match investment possibilities or a lack of foreign currency to fund the purchase of capital and intermediate products (Todaro and Smith, 2012; Olayungbo and Quadri, 2019). A two-gap study of international finance suggests that external financing (that is, loans, grants, or remittances) can be crucial in boosting domestic resources and easing savings or foreign exchange constraints. The reverse being observed from this study can likely be linked to the Implicit Family Contract (Loan Repayment Theory), where migrants may be sending money home to repay the debt they incur to travel abroad, and not for investment.

The effect of foreign direct investment on economic growth is positive and significant in the long-run The positive effect of foreign direct investment on growth could be viewed in terms of its capacity in filling the savings-investment gap which is highly pronounced in developing economies. Such investments could promote domestic production, increase capital formation, employment generation, technological transfers, and overall increase in domestic production which are the pathway to growth. The reason for this is that that spill over occurs through foreign direct investment and bring about output efficiency of indigenous firms (Blomstrom and Kokko, 1998); and that technology spill overs from multinational businesses to indigenous enterprises in the host country can come through diverse channels such as observational learning, competition, labour transfer, and links (Giwa et al., 2020).

5. Conclusion

The argument on the relationship between remittances and economic growth have produced conflicting evidence in different studies both at regional, cross-country, and country-specific analysis. In this study, the impact of remittances on economic growth of Nigeria, Ghana, and Kenya have been explored for the period 1990 to 2020. In doing so, this study employed the panel autoregressive distributed lag (PARDL) approach in the analysis as the unit root test reported stationarity of variables at levels and first difference in some cases; and the Kao cointegration analysis reported the existence of cointegration in the model. The result of the study revealed that remittances exerted a negative but insignificant impact on economic growth of the countries under investigation. Put differently, remittances had a negative effect on economic growth though such effect has not been substantial. Thus, increased remittances inflows could not spur growth within the period of analysis. This negative and insignificant effect of remittances on economic growth can be linked to the result of the causality test where no causality flows from remittances to growth. Another key finding observed from the study is the fact that foreign direct investment has a positive and significant long-run impact on the economic growth of the countries under analysis. Thus, increased foreign direct inflows will spur economic growth. This study therefore concludes that remittances is not a catalyst for growth as it fails to exert a desirable impact on economic growth over the study period. The policy implications for Nigeria, Ghana, and Kenya might be that it is critical not just to attract more remittances, but also to give additional incentives for these inflows to be spent on productive investments that contribute to economic growth. As a suggestion for further research, it is pertinent to conduct a country-specific studies on these three economies to ascertain the impact of remittances inflows on growth. Such studies will account for structural and institutional differences embedded in these countries that could lead to varying results on how remittances impact growth.

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Appendix

Description of Variables and A Priori Expectation

Given the variables captured in the model, Table 16 presents their description and a priori expectation.

Table 3.1: Description of Variables in the Model

Variable	Measurement	Description	a priori expectation
gdpr	Economic Growth	It is the growth rate of real gross domestic product.	
gfcf	Capital	This is the gross fixed capital formation. It is captured as a ratio of GDP.	It is expected that the level of capital should have a positive effect on economic growth. Thus, $\beta_1 > 0$.
labf	Labour	It is the total working population (population aged 15 -65 years) It is represented in terms of its growth rate.	It is also expected that labour should have a positive effect on economic growth as well. Hence, $\beta_2 > 0$.
infr	Inflation	Measured as consumer price index, a proxy for inflation.	Inflation is expected to have a negative effect on economic growth, thus $\beta_3 < 0$.
remt	Remittances Received	It is the sum of money and the monetary value of goods received from migrant workers abroad. It is expressed as a ratio of GDP.	It is expected to have a positive influence on economic growth. As such, $\beta_4 > 0$.
fdiv	Foreign Direct Investment	It is the total of equity and other long- and short-term capital reported in the BOP. It is expressed as a ratio of GDP.	Foreign direct investment can aid in bridging the savings-gap within an economy. By doing so, it makes room for more investments to be done in the domestic economy which is a catalyst for growth. Consequently, $\beta_5 > 0$.
trdl	Trade Openness	It is the total trade as a ratio of GDP. It is also known as trade liberalization.	Trade openness has been pointed out to increase competition that can spur growth. Therefore, it is expected that $\beta_6 > 0$.
bmsg	Financial Development	It is the total of broad money supply as a ratio of GDP. It is an indicator of the financial depth in the economy.	A developed financial system is perceived to have a positive effect on the growth of an economy. Consequently, $\beta_7 > 0$.
govr	Governance	It is a representation of government effectiveness in an economy. It is measured as general government final consumption expenditure (% of GDP).	An economy with an effective government will likely perform better given that sound policies will be put in place. Consequently, $\beta_8 > 0$.

Source: Researcher's Compilation.