Migration and Economic Growth in Nigeria: Do Migrants Remittances Matter?

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Abstract. Nigerians have moved over the years in pursuit of more economic opportunity, security, and improved living conditions. Remittances from migrants are indisputably significant in developing nations; yet, the degree to which they facilitate or impede overall economic growth in Nigeria remains unknown. While most empirical studies concentrated on the individual impact of migration or remittances on economic growth, their combined impact on economic growth in Nigeria remains largely unexplored. This study examines the impact of migration and remittances on economic growth in Nigeria, employing data from 1992 to 2022. This study employed the auto-regressive distributed lag (ARDL) model to analyze the short-run and long-run relationships among the variables under investigation. The results indicated that migration and remittances exerted a significant and positive effect on Nigeria's economic growth during the study period, both in the short and long run. This suggests that migrants allocate their remittances to productive investments that foster economic growth. Based on the findings, the study therefore recommends that policy makers should improve the financial sector and make the process of remittance transfer much easier and less expensive to attract more remittances, as this will promote investments in various economic sectors and enhance the growth of Nigerian economy.

Keywords: Migration, remittances, economic growth, ARDL, Nigeria.

1. Introduction

Migration has emerged as a significant force shaping the global economy, with profound effects on both the countries migrants leave behind and those they move to. In Nigeria, migration is a long-standing phenomenon, influenced by a variety of socio-economic, political, and environmental factors. Over the years, a considerable number of Nigerians have migrated, both within the country and abroad, in search of better economic opportunities, safety, and improved living conditions. This movement of people has given rise to a crucial financial lifeline for many Nigerian households.

Remittances, the funds transmitted by migrants to their home country, have emerged as a vital element of Nigeria's economy. The World Bank reports that remittance inflows to Nigeria have regularly ranked among the largest in Sub-Saharan Africa, constituting a substantial portion of the nation's GDP. These funds often exceed official development assistance and foreign direct investment, underscoring their importance as a source of foreign exchange and household income (World Bank, 2021). Remittances play a vital role in supporting household consumption, funding education and healthcare, and alleviating poverty, thus playing a vital role in improving the welfare of many Nigerians.

Remittances constitute one of the most evident links between migration and development, exceeding both foreign direct investment and official development assistance in low- and middle-income nations. In 2023, these nations received approximately $656 billion in remittances via official channels, an increase from $422 billion a decade prior, according to World Bank estimates.

Remittances can enhance economic growth by augmenting investment in human capital and small enterprises, thereby fostering entrepreneurship and local economic development (Giuliano & Ruiz-Arranz, 2009). However, there is a concern that remittances might lead to economic dependency, reduce labor force participation, and exacerbate income inequality, thereby stifling long-term growth (Chami, Fullenkamp, & Jahjah, 2003). Furthermore, the utilization of remittances predominantly for consumption rather than productive investment could limit their potential to drive sustained growth. The relationship between remittances and economic growth is numerous and diverse, influenced by factors such as the use of remittances for consumption versus investment, the development of financial institutions, and the overall economic environment.

The migration of Nigerians, both within the country and internationally, has generated substantial remittance flows that are crucial for household welfare and poverty alleviation. Report indicates that Nigeria received $17.2 billion in remittances from its diasporas in the year 2020, reflecting a 2.9% increase from the previous year, likely due to the COVID-19 pandemic. Although this figure is the largest in Sub-Saharan Africa, it is significantly lower compared to countries with larger diaspora populations, such as India, which received about $119 billion during the same period. The remittances to Nigeria predominantly came particularly from the United States, Italy, the United Kingdom, and Canada. Additionally, Sub-Saharan Africa has the highest average remittance costs at 7.9%, which is higher than other regions. However, in 2022, remittances to Nigeria totalled approximately $29billion in 2022 according to the World Bank estimates. These funds encompass various fees, including bank charges, money transfer operator percentages, and stamp duties which are vital for supporting household consumption, education, healthcare, and other basic needs, contributing significantly to the socio-economic stability of many Nigerian families.

However, despite the substantial inflows of remittances, Nigeria continues to grapple with persistent economic challenges including, high unemployment, insecurity, widespread poverty as well as slow economic growth. While remittances undeniably play a crucial role in supporting households and reducing poverty, the extent to which they contribute to or hinder broader economic growth in Nigeria remains an open question and somewhat contentious. This study aims to address this gap by exploring the interactive role of remittances on the effect of migration-economic growth nexus in Nigeria between 1990 and 2022. By analysing these dynamics, the paper seeks to clarify and provide a better understanding of the role remittances play on Nigeria's economy, offering insights that can inform policies aimed at maximizing the benefits of migration and remittances in enhancing economic growth.

2. Literature Review

The literature found three pathways by which remittances influence growth. First, remittances reduce the cost of capital in the recipient nation by expediting capital accumulation, hence enhancing both physical and human capital rates. This has the potential to stabilize the

economy and mitigate volatility. The second effect pertains to the eventual shift in labor force participation, which happens when remittance income replaces labor income. Furthermore, remittances influence the efficiency of investment by increasing total factor productivity (Oladipo, 2020; Gapenet al.2009). Remittances do, however, depend on supportive governmental policies and an environment that is conducive to investment activity to determine how much they directly or indirectly affect economic growth.

The neoclassical migration theory, proposed by Lewis (1954), highlights that individual's make migration decisions based on the expected costs and benefits of migrating. The neoclassical migration hypothesis posits that people relocate in search of improved living conditions, higher earnings, and better employment opportunities. Furthermore, it emphasizes the impact of push and pull factors such as; regional economic inequalities, employment opportunities, and standards of living on migration choices. According to neoclassical migration theory, the primary factor driving migration is the significant disparities in wages, leading to a net movement of individuals from areas with lower wages to those with higher wages. This theory posits that individuals travel in order to pursue possibilities that will maximize their present or expected income. In summary, the neoclassical migration theory predominantly emphasizes wage disparities as the main driving force for migration and regards remittances as a significant contributor to sustained economic development.

The literature on the independent impact of migration or remittances on economic growth in Nigeria indicates that both migration and remittances exhibit either a positive or a significantly negative effect on economic growth. Akinpelu et al. (2013) utilized the Johansen cointegration method and the Granger causality test to analyze the effect of remittance inflows on Nigeria's economic growth and found a long-term correlation among the variables. The Granger causality test indicated a unilateral causality between gross domestic product and remittance inflows; gross capital formation and remittances; remittance inflows and economic openness. Job and Eugene (2019) examined savings, remittances, and economic growth in Nigeria with the VAR methodology in a comparable study. The research demonstrated that savings and remittances exert a favorable and considerable influence on growth; the impact of savings is enduring and durable throughout the study duration. Conversely, Igbinedion (2020) determined that remittance-driven growth was not inclusive in Nigeria from 2000 to 2018, employing the Fully Modified OLS method.

Adeseye (2021) utilized multiple regression analysis to investigate the correlation between emigrants' remittances and economic growth in Nigeria from 1990 to 2018. The research indicated that remittance inflows exerted a favorable and considerable influence on economic growth over the examined period. Adjei et al. (2020) employed the Vector Error Correction Model to examine the impact of remittances on economic growth, utilizing panel data from seven West African nations spanning from 2003 to 2018. The results indicated that remittances had a substantial beneficial impact on economic growth in Nigeria, Togo, Ghana, Guinea-Bissau, Burkina Faso, Guinea, and Mali.

Ebunoluwa and Ebele (2022) investigated the impact of labor emigration and remittances on Nigeria's economic development, demonstrating that labor migration serves as a supplementary revenue source that positively contributes to economic advancement in Nigeria. Eberechi et al. (2024) and Ikwuakwu et al. (2024) employed the ARDL limits test method and discovered that remittances exert a negative and significant impact on economic growth in Nigeria.

Amadi and Abe (2024) employed the ARDL estimating method to analyze the effect of migrants' remittances on Nigeria's economic growth from 1986 to 2022. The research demonstrated a substantial and positive correlation between remittances and economic growth, applicable in both the short term and the long term. Foreign direct investment and private investment significantly contribute to growth, suggesting that remittances, FDI, and private investment bolster economic development in Nigeria.

Mbadiwe and Egesimba (2024) utilized the Error Correction Mechanism to analyze the influence of remittances on Nigeria's economic growth from 1986 to 2021. The results indicate that remittances substantially bolstered economic growth in Nigeria during the study period. Omoniyi and Owoeye (2024) employed the error correction process to analyze the impact of remittance inflow on Nigeria's economic growth, utilizing time series data from 1981 to 2021. The study revealed that remittance inflow has a minor negative impact on Nigeria's GDP growth in the near term, while demonstrating a strong positive correlation with GDP in the long term.

3. Methodology

3.1 Theoretical Framework

The neoclassical growth theory proposed by Lewis (1954) posits that labor emigration results from imbalances in the labor market and discrepancies between labor supply and demand. The theory posits that individuals migrate from low-wage areas to regions offering higher income, improved infrastructure, and enhanced socioeconomic advantages, primarily driven by incentives such as remittances and foreign income. This incentivizes labor, as remittances serve as valuable alternative income sources for participating households; the inflow enhances productivity and stimulates economic growth in the emigrants' country of origin. The emigrants' immediate household directly benefits from remittances at the micro-level, while the broader economy also gains from investments made by remittance-receiving households (Afen-Okhai, 2023). The neoclassical theory is utilized in this context due to its emphasis on the significance of remittances within the migration-economic growth relationship.

3.2 Model Specification

The empirical model is based on the work of Oladipo (2020), Gapen et al. (2009), and other contributors to the extended neoclassical economic growth model. The model is adjusted to include relevant variables in order to assess the impact of migration and remittances on output growth.

$$GDP_t = \beta_0 + \beta_1 MIG_t + \beta_2 REMI_t + \sum_{j=2}^{n} \beta_1 X_{it} + \mu_t \dots\dots\dots\dots (1)$$

Where; X is a vector of other control variables (GCF, FDI & EXCH) that affects economic growth (GDP), see Table 1.

The estimation model is defined in linear form as follows:

$$RGDP_t = \beta_0 + \beta_1 MIG_t + \beta_2 REMI_t + \beta_3 MIG * REMI_t + \beta_4 GCF_t + \beta_5 FDI_t + \beta_6 EXCH_t + U_t \dots\dots\dots (2)$$

Where;$RGDP_t$ represents the real gross domestic product per capita at year t, MIG_t is the net migration rate, $REMI_t$is the personal remittances received,$MIG * REMI_t$is the interaction term between migration and remittances, GCF_t shows the stock of capital formation

as a proxy for investment, FDI_t is the foreign direct investment, EXC_t is the real exchange rate and U_t is the error term. See Table 1.

Table 1.Definition, measurement and sources of variables

Variables	Definition and Measurement	A priori Sign	Source
RGDP	Annual Real Gross Domestic Product pet capita measured at constant prices		WDI
MIG	Net Migration rate	Negative	WDI
REMI	Personal remittances received % of GDP	Positive	WDI
MIG*REMI	The interaction term between migration and remittances	Positive	Constructed
GCF	Gross Fixed Capital Formation (% of GDP) as a proxy for investment in physical capital	Positive	WDI
FDI	Foreign direct investment % of GDP	Positive	WDI
EXCH	Real exchange rate LCU per US $	Positive	WDI

Source: Authors' Compilation, 2024

4. Results and discussion

4.1 Test for Stationarity

An augmented Dickey-Fuller (ADF) test and Phillips-Perron (PP) test were performed on all relevant variables to assess the stationarity of the dataset utilized in this study. The unit root test is built on the standard regression model.

$$\triangle X_t = \alpha + \beta X_{t-1} \sum_{j=1}^{p} \gamma_j \triangle X_{t-j} + \mu_t \ldots\ldots\ldots\ldots\ldots\ldots(3)$$

Where;$\triangle$ is the difference operator,X consists of each of the five variables in the model, t = 1, ……. , represents the time index; $\triangle X_{t-j}$ the lagged first differences are included to address serial correlation in errors; and μ_t denotes the error term.

Table 2 presents the findings of the Augmented Dickey Fuller (ADF) and Phillips Perron (PP) unit root tests for each time series at both the level and first difference. The null hypothesis $Ho: \sigma = 0$ posits that the variable is non-stationary, whereas the alternate hypothesis $H1: \sigma = 0$ asserts that the variable is stationary.

Table 2. Unit root test

	ADF			PP		
Variable	**T-Statistics**	**Critical Value**	Order	**T-Statistics**	**Critical Value**	Order
RGDP	-3.2370	-4.3098	I(1)	-3.0679	-3.6793	I(1)
MIG	-3.9896	-4.2967	I(0)	-3.8615	-4.2967	I(0)
REMI	-7.4003	-3.6793	I(1)	-7.1462	-3.6793	I(1)
GCF	-3.8458	-3.6793	I(1)	-3.8699	-3.6793	I(1)
FDI	-6.6772	-4.3098	I(1)	-6.8447	-3.6793	I(1)
EXCH	-5.3119	-3.6793	I(1)	-5.2478	-4.3098	I(1)

Source: Authors' Compilation, 2024

From Table 2, the result of the stationarity test indicated that RGDP, REMI, GCF, FDI and EXCH are stationary at first difference for both ADF and PP with inferences drawn at 5% significance level. However, MIG is significant at levels for both ADF and PP test at 5% level of significance. Consequently, the variables in our study are classified as I(0) and I(1). Given that all series are linked in different orders, there exists a potential for a cointegrating relationship among the variables. The ARDL bound testing approach was employed to ascertain this.

Peseran, *et al.,* (2001) highlighted that ARDL allows the estimation of the cointegration, as well as the short-run and long-run relationship for variables of different orders simultaneously. It also tests for the non-existence of all regressors of order 2 or above to avoid an invalid F-statistics computation and the possibility of spurious regression. The The ARDL model is characterized by its autoregressive nature, incorporating *p* lags of the dependent variable, and its classification as a distributed lag model, which includes *q* lags of independent variables.

It is typically presented as follows:

$$y_{it} = \sum_{j=1}^{m} \alpha_{ij} y_{it-j} + \sum_{j=0}^{n} \beta_{ij} x_{it-j} + u_i + \varepsilon_{it} \ldots\ldots\ldots\ldots\ldots\ldots\ldots (4)$$

i= 1,2,……..n, t denotes time, *t* = 1,2,3,…….T, *j* denotes number of lags

Thus, Eq. (4) becomes

$$\begin{aligned} GDP_{it} = {} & \beta_0 + \varphi GDP_{it-1} + \beta_1 MIG_{it-1} + \beta_2 REMI_{it-1} + \beta_3 MIG * REMI_{it-1} \\ & + \beta_4 GCF_{it-1} + \beta_5 FDI_{it-1} + \beta_6 EXCH_{it-1} + \sum_{j=1}^{m-1} \alpha_{ij} \triangle GDP_{it-j} \\ & + \sum_{j=0}^{n-1} \beta^1{}_{ij} \triangle MIG_{it-j} + \sum_{j=0}^{n-1} \beta^2{}_{ij} \triangle REMI_{it-j} \\ & + \sum_{j=0}^{n-1} \beta^3{}_{ij} \triangle MIG * REMI_{it-j} + \sum_{j=0}^{n-1} \beta^4{}_{ij} \triangle GCF_{it-j} \\ & + \sum_{j=0}^{n-1} \beta^5{}_{ij} \triangle FDI_{it-j} + \sum_{j=0}^{n-1} \beta^6{}_{ij} \triangle EXCH_{it-j} + \varepsilon_{it} \ldots\ldots\ldots\ldots\ldots (5) \end{aligned}$$

The variables with the differences are the short-run variables while those without the difference are the long-run while the summation signs in the model represent the error correction dynamics.

4.2 ARDL Bound Test for Cointegration

The Bound test for co-integration is conducted to assess the joint significance of the coefficients in the specified conditional ARDL model. The Wald test is performed for this equation by applying restrictions to the estimated long-run coefficients of all lagged level variables. The F-statistic of 9.71575 exceeds the upper bound critical value of 2.88 at the 1 percent significance level, indicating that the null hypothesis of no co-integration can be rejected at this level of significance. Consequently, evidence supports a long-run relationship between RGDP and the independent variables in the model, as shown in Table 3. Therefore, we will estimate the long-run coefficients of our model.

Table 3. Bound Test

F- Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	**Value**	**Significance**	**I(0)**	**I(1)**
F-Statistics	9.71575	10%	1.99	2.94
K	6	5%	2.27	3.28
		2.5%	2.55	3.61
		1%	2.88	3.99

Source: Authors' Compilation, 2025

4.3 Long-Run Model Estimation

Following the confirmation of a long-run relationship among the study variables, the subsequent step in the ARDL approach is to estimate the long-run coefficients. The Schwarz-Bayesian criteria was employed, selecting a maximum lag order of two, resulting in the ARDL (2, 1, 2, 2, 1, 2, 2) equation. The long-run relationship illustrated in Table 4 indicates that 99 percent of the variation in RGDP is significantly accounted for by the independent variables in the model. The F-statistic suggests that the model is statistically significant overall.

Table 4. Long Run Regression Result

Dependent Variable: RGDP			
Variable	**Coefficient**	**t-statistic**	**Prob**
MIG	-0.0136	-2.6001	0.0265**
REMI	0.0054	3.8179	0.0034***
MIG*REMI	0.0136	4.2290	0.0017***
GCF	-0.1973	-5.0674	0.0005***
FDI	0.0045	1.7182	0.1165
EXCH	0.0004	0.0001	0.6770
C	3.3273	5.7524	0.0002
Adjusted R-Squared	0.99		
S.E. of Regression	0.0051		
Prob(F - statistic)	0.0000		

, * indicate that the series are significant at 5 and 1 percent respectively

Source: Authors' Compilation, 2025.

Remittances exert a positive and significant effect on economic growth in Nigeria, with conclusions drawn at the 1 percent level of significance, aligning with the a priori expectation. An increase of 1 percent in remittances is linked with a 0.5 percent increase in long-term economic growth. Migration exerts a significant adverse impact on economic growth, indicated by an expected sign of (-0.0136), with inferences established at a 5 percent significance level in the long run. This indicates that, ceteris paribus, a one percent rise in net migration corresponds to a one percent decline in economic growth during the study period.

Although migration adversely affects economic growth, its relationship with remittances mitigates this effect. Therefore, a positive and significant long-run relationship with remittances is observed, with inferences made at the 1 percent significance level. Remittances have significantly contributed to household income, investments, and human capital development, including

education funding and healthcare improvements, positively impacting Nigeria's economic growth. The long-run relationship between gross capital formation and economic growth is negative and statistically significant at the 1 percent significance level during the study period. An increase of 1 percent in gross capital formation is associated with a 19 percent reduction in economic growth. The outcome is inconsistent with the anticipated positive correlation between capital and economic growth. This may result from widespread corruption in the public sector or misallocation of resources, which subsequently diminishes productivity and overall economic growth. Conversely, foreign direct investment and exchange rates do not have a significant effect on economic growth in the long run during the study period. This contradicts the a priori expectation, which may arise from investments that are not economically efficient or from corrupt practices in the public sector.

4.4 Short-run Error Correction Estimates

Following the results presented in Table 4, which estimate the long-run coefficient and confirm the existence of a long-run relationship among the study variables in the ARDL equation, the short-run ECM is subsequently estimated. The Adjusted R-squared indicates that approximately 96.15% of the variation in RGDP is explained by variations in the explanatory variables within the short-run model.

Table 5 ARDL ECM Result

Dependent Variable: DRGDP			
Variable	**Coefficient**	**t-statistic**	**Prob**
DMIG	-0.0136	-4.9963	0.0005
DREMI	0.0054	8.8134	0.0000
DMIG*REMI	0.0134	8.4852	0.0000
DGCF	-0.1973	-9.5706	0.0000
DFDI	0.0045	3.4569	0.0062
DEXCH	0.0004	0.9985	0.3416
ECM (-1)	-0.8695	-11.4949	0.0000
Adj R-Squared	0.92		
S.E. of Regression	0.0039		

Source: Authors' Compilation, 2025

The lagged error correction term coefficient is negative (-0.8695) and significant at the 1 percent level, aligning with the results of the bound test for co-integration. In particular, 86.9 percent of the disequilibria resulting from the previous year's shock return to long-run equilibrium in the current year, indicating a high speed of adjustment. A highly significant error correction term suggests a stable long-run relationship among the study variables (Tolcha & Rao, 2016). The findings are consistent in both the short term and the long term. Migration exerts a notable negative influence on economic growth at the 1 percent significance level; however, when interacting with remittances, it positively and significantly contributes to economic growth in the short run during the study period. A 1 percent increase results in a 1.3 percent rise in economic growth. Gross capital formation exhibits a significant negative impact on economic growth in the short run during the study period, at a 1 percent level of significance. A 1 percent change in gross

capital formation is associated with a reduction in economic growth of approximately 19.7 percent. Conversely, both foreign direct investment and exchange rate demonstrate a positive correlation with economic growth. However, the exchange rate shows an insignificant relationship, whereas foreign direct investment is significant, with inferences drawn at the 1 percent significance level. A 1 percent increase in foreign direct investment is associated with a 4.5 percent improvement in economic performance, aligning with prior expectations.

4.5 Diagnostic Tests

To assess the validity of the estimated model in the long run, several diagnostic tests were performed. The findings presented in Table 6 demonstrate that the residuals exhibit a normal distribution, as evidenced by the p-value of the Jarque-Bera statistic. The Breusch-Godfrey LM test similarly indicates the absence of serial correlation in the model, and the coefficients are estimated efficiently. The Breusch-Pagan-Godfrey test results indicate homoscedasticity, suggesting that the standard errors and coefficient estimations are robust and efficient. The Ramsey reset test confirms that the model is correctly specified. The inferences were derived from the decision rule, as the corresponding p-values are significant at the 1%, 5%, and 10% significance levels.

Table 6. Diagnostic tests

Test	Null Hypothesis	Value	*P*-Value
Jaque-Bera	Residuals are normally distributed	0.9178	0.6319
Breusch-Godfrey LM	Absence of serial correlation	1.2886	0.3698
Breusch–Pagan-Godfrey	Homoscedasticity	0.8626	0.6355
Ramsey RESET	Model is correctly specified	1.0175	0.3556

Source: Authors' Compilation, 2025

5. Conclusion and Recommendations

This study analyzes the effects of migration and remittances on Nigeria's economic growth during the period from 1990 to 2000, employing the autoregressive distributed lag (ARDL) methodology. The validity of the estimation technique was established through credible indices, including adjusted R^2, t-tests, and F tests, alongside diagnostic tests to assess the model's validity. The study concludes that migration significantly negatively impacts economic growth; however, the interaction with remittances mitigates this effect. The interaction between migration and remittances significantly contributes to economic growth in Nigeria during the study period. The study recommends that policymakers enhance the financial sector and simplify the remittance transfer process to reduce costs and attract more remittances, thereby promoting both short-term and long-term investments across various economic sectors and fostering the growth of the Nigerian economy.

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