DO MIGRANTS' REMITTANCES DRIVE FINANCIAL INCLUSION IN NIGERIA?

MUSTAPHA-JAJI, OLAIDE KAFAYAT
Department of Economics, Nile University of Nigeria, Abuja
Correspondence E-mail: lidex89@yahoo.com +234 803 449 5719

GANIYAT A, ADESINA-UTHMAN
Department of Economics, Faculty of Social Sciences,
National Open University of Nigeria, Jabi Abuja
Email: gadesina-uthman@noun.edu.ng
Phone Number: +2348099471198

ABSTRACT
Migrants' remittances have increased tremendously over the past years in comparison to other capital flows but the level of financial inclusion in Nigeria has been unimpressive. Therefore, this study analyzed the relationship between migrants' remittances and financial inclusion in Nigeria for the period 1981 to 2021. The study employed secondary data which were analyzed using the auto-regressive distributed lag estimation techniques. The ARDL estimate showed that migrants' remittances is a significant determinant of financial inclusion in Nigeria. Thus, the study concluded that migrants' remittance played an important role in enhancing financial inclusion in Nigeria. Consequently, the study recommended the need for increase expansion of bank branches in the remote and rural regions of the country. This will contribute to the growth of financial inclusion in Nigeria. More so, provision of more stable power supply in the remote and rural areas would enhance mobile and internet banking thereby contributing to the growth of financial inclusion in Nigeria.

Keywords: Migrants' remittances, financial development, financial inclusion, ARDL, Nigeria,
JEL Codes: E44, F24.

1. INTRODUCTION
In recent times, the increase in the flow of migrants from the developing countries especially to the developed countries has increase dramatically over the past twenty (20) years (UN DESA, 2020; Meyer & Shera, 2017). Due to the continuous increase in migration, the size of remittances as well as its share of the Gross Domestic Product (GDP) has attained a very significant height in the past decades. According to the World Bank (2020), officially recorded remittance transferred through the formal channels reached US$648.6 billion in 2020 from an estimated figure of US$ 420.07 billion and US$ 121.77 billion in 2010 and 2000 respectively. Remittances flow to Sub-Saharan Africa in 2000 stood at US$4.8 billion and further to US$42.5 billion in 2020, accounting for 1.13% and 2.49% of the GDP respectively. Of the share of remittance to Sub-Saharan Africa in 2020, Nigeria received US$ 17.2 billion, accounting for 3.98% of the GDP, making the Nigeria the highest recipient of remittances within the Sub-Saharan African region.

With respect to Nigeria, remittance inflow was US$0.02b in 1980 and increased to US$0.79.3b and further to US$1.39b in 1993 and 2000 respectively. In 2005, remittance increased significantly to US$14.64b. which can be credited the massive exodus of Nigerians to other nations in pursuit of greener pastures. According to the United Nations, migrant stock for Nigeria jumped from 487,882 migrants in 2000 to 969,294 migrants in 2005 (United Nations, 2019). This may have accounted for the significant increase in migrants' remittances in 2005. More so, the inflow of remittances rose to US$20.62b in 2016 and peaked at US$24.31b in 2018 due to continuous migrations and improve economic performance in

Europe and United States of America. However, remittances declined gradually to US$23.81b and US$17.21b in 2019 and 2020 respectively due to the coronavirus pandemic.

Despite the growing importance and size of remittances flow, the World Bank (2014) noted that the official recorded figures of remittances are underestimated due to transfers through unofficial regulated channels – friends and close associates of family members. The World Bank (2014) noted that between 10% - 50% of remittances to developing countries are unrecorded (World Bank, 2014; El-Qorchi, Munzele, & Wilson, 2003). The flow of remittances through the informal unrecorded channels have been largely attributed to the high cost of remitting funds to developing countries or the high rate of commission charged on remitted funds. Another significant factor attributed to the growth of remittances through the informal sector is the low level of financial inclusion in developing countries. Such low level of financial inclusion makes financial services inaccessible to poor households and poor migrants' family in the home country (El Hamma, 2017).

The level of financial inclusion in Nigeria has been unimpressive, and there have been efforts in boosting financial inclusion such as promotion of banking agents, establishment of bank branches in rural communities, establishment of community and micro finance banks, and the recent drive of the Central Bank of Nigeria (CBN) cashless policy of limiting daily cash withdrawals for individual and corporate entities. More so, in 2012, the CBN launched the National Financial Inclusion Strategy (NFIS). The overall aim of the NFIS is the attainment of 70 per cent formal financial inclusion and 80 per cent (formal and informal) financial inclusion by 2020. Despite these policy initiatives, reports showed that only 50% of Nigerian adult utilize formal financial services while 36% (approximately 38 million) adult remained completely financially excluded by 2020 (Olakanye, 2022).

At the global stage, about 38% working-age adults globally have no access to financial service delivered by regulated financial institution while 73% of the poor people globally are being financially excluded from the baking institution (IFAD-World Bank, 2015). More so, a study by Inter-America Dialogue in 2013 on financial education, reported that only 23% recipient households of remittances, saved with the financial institute (FinCEN, 2014). Therefore, the paradoxical evidence between the low of financial inclusion and the size of remittance flow to the Nigeria economy is disturbing, particularly as indigenous studies on this issue is very scarce. The few studies on remittances and financial inclusion have focused on other developing countries such as Gatsi (2020) in Ghana and Arthur, Musau and Wanjohi (2020) in Kenya, Adesina-Uthman (2019). More so, some studies focused on financial development and other macroeconomic variables (Ikubor et al., 2022; Akintunde & Olaniran, 2022; Ashakah & Ogbebor, 2020; Osuji, 2020; Olatunji, 2017). In view of the dearth of indigenous studies on this topic, this study contributes to extant literature on the relationship between migrants' remittances and financial inclusion in Nigeria for the period 1981 to 2021.

This research study has five sections. Section one is the introductory section, while section two focuses on the literature review. Section three covers the research method, while section four discusses the data analysis and discussion of the empirical results. Summary, conclusion, and policy recommendations is discussed in section five, which concludes the research study.

2. LITERATURE REVIEW

Scholars have examined issues relating to migrants' remittances and financial inclusion in the developed, developing country and in the case of Nigeria. In this regards Eggoh and Bangake (2021) examined the relationship among remittance, financial inclusion, and financial development for the period 2004-2017. The study covered a panel of 64 developing countries and utilized panel threshold regressions (PTR) and generalized methods of moments (GMM) techniques. The results of the study showed that remittances had significant and positive impact

on financial inclusion. More so, the study revealed that the relationship between remittances and financial inclusion is non-linear, suggesting that beyond or outside a threshold point, remittances had insignificant impact on financial inclusion.

Adedoyin (2021) conducted an exploratory study on the relationship between at remittances and financial inclusion in sub-Saharan Africa. The focus of the study was to comprehend and recommend ways of enhancing financial inclusiveness in Sub-Saharan Africa region. The results of the study showed that financial inclusion is expected to promote economic development in Sub-Saharan Africa. This is because improvement in financial inclusion promote literacy level, infrastructural and technological development. Consequently, more migrants would utilize the financial system in remitting fund to their relatives in the home country. The use of the formal channel of remittances transmission is expected to improve the accuracy of available data remittance inflow to sub-Saharan African region. More so, the study noted that, financial inclusion would reduce transaction cost of remitting fund to sub-Saharan African region.

In Ghana, Gatsi (2020) analyzed the effects of international and internal remittances on financial inclusion using data from Ghana living standards survey. Using Forced Entry Method under the binary estimation technique, the results of the study showed that internal remittances significantly enhanced access to financial services, while international remittances significantly promoted bank account opening. Both international and internal remittances had insignificant effects on load application by remittance receiving households.

In Kenya, Arthur *et al*. (2020) analyzed the impact of diaspora remittances on financial inclusion. The study used quarterly data for the during of 2008 to 2018. More so, the study examined the role of Kenya's Diaspora Policy in the link between diaspora remittances and financial inclusion. The study used both primary and secondary data. The estimation techniques used by the study are ordinary least square and, longitudinal and explanatory non-experimental designs with a target population of three million migrants from Kenya. The outcomes of the study revealed that formal diaspora remittances significantly boosted financial inclusion. Specifically, it was observed that formal diaspora remittances from the rest of the World significantly promoted financial inclusion while diaspora remittance flows from North America had marginal contribution to financial inclusion. The study equally observed that Diaspora remittances from Europe had insignificant impact on financial inclusion in Kenya. Finally, the study showed that Kenya's Diaspora policy played a moderate impact on the relations between Diasporas remittances and financial inclusion in Kenya.

Oyelami (2019) investigated the effect of remittances on financial inclusion for a panel of 27 sub-Saharan African countries for the period 1990 to 2016. The study employed Pooled Mean Group (PMG)/panel ARDL technique. More so, the study utilized Common Correlated Effects estimator (XTCCE) and Dynamic Common Correlated Effects (XTDCCE) for robust check of the PMG/ARDL estimate. The results of the study showed that remittances had positive but insignificant impact on financial inclusion among Sub-Saharan African countries.

Applying general method of moments and panel fixed effect techniques, Machasio (2018) analyzed the impact of diaspora remittances on financial inclusion for a panel of selected developing countries. The findings of the study showed that diaspora remittances strongly promoted financial inclusion.

Using a panel of 187 countries for the period spanning 2004 – 2015, Naceur, Chami and Trabelsi (2019) analyzed the impact of migrant remittances on financial inclusion. The study used the cross-country and dynamic panel generalized method of moment estimation methods. The results showed that remittances had negative and significant impact on financial inclusion at a low level of remittance-to-GDP below the threshold point of 13% while remittances had positive and significant impact on financial inclusion at a high level of remittances to GDP ratio above the threshold point of 13%. Thus, the findings of the study

indicate a nonlinear relationship between international remittances and financial inclusion. More so, the results showed that remittance and financial inclusion are substitute at a very low level of remittances to GDP ratio while international remittance and financial inclusion are complementary at high level of GDP ratio.

In Ghana, Akumbo, Nyaaba, and Akologo (2018) analyzed the effect of international remittances on financial inclusion. The study employed 16772 households based on the GLSS6 survey in Ghana. Forced Entry technique was utilized and the results of the study showed that remittances significantly promoted financial inclusion (measure by opening of bank account) while remittances had insignificant effect of financial inclusion (measured by loan application and loan granted to household recipients of remittances).

Inoue and Hamori (2016) explored the link between migrants' remittances and financial inclusion. Financial inclusion was proxy by the branch networks of deposit money banks. The study spanned 2001 to 2012 and covered a panel of 38 developing countries in Asia and Oceania. The results of the study revealed that remittances contributed significantly to the growth of creation of branch networks of national commercial banks. Uchenna, Osabuohien and Oluwatobi (2015) explored the effect of migrants' remittances on financial inclusion in Nigeria. Utilizing World Bank household survey 2011, the results of the study showed insignificant impact of migrants' remittances on financial inclusion. Salas (2014) analyzed the impact of remittances on the investment in human capital of migrants' children left in the country of origin (Peru). The spanned the period 2007 – 2010 and the study observed that remittances contributed significant to human capital or educational development of migrants' children in the country of origin.

However, Adesina-Uthman (2019) examined the effect of remittances from diaspora on economic growth in Nigeria with causality between remittances and economic growth. Using an array of methodologies, the study concludes that remittances is significant to overall economic growth but remittances alone may be insignificant to Diasporas' contribution to economic growth and a unidirectional causality flow from gross fixed capital formation to gross domestic product per capital. It recommends a policy on bilateral remittance corridors between Nigeria and different countries to enhance more formal remittance instruments and reduce informal remittances. Note that it was not on financial inclusion and remittances.

Li, Salinas, Ramirez, Hoyo and Serrano (2014) analyzed the impact of remittances on financial inclusion in Mexico. Data for the study was obtained from the National Financial Inclusion Survey (ENIF) conducted between May 3 to May 30, 2012. Using probit maximum likelihood estimation technique, the results showed that remittances enhanced the likelihood of recipients in having savings account and enhanced the chances of recipient in using bank branches. More so, the study observed that remittance reduces the probability of recipients in buying insurance policy and reduce the chances of recipients in the use of Automated Teller Machines (ATM). Furthermore, the study observed that remittances had insignificant impact on request for mortgages, specific holding of a specific bank credit card and the holding of any credit lines, any loans or credit cards of any type. It was also observed that remittance had no effect on the opening of investment funds, and the holding of a saving, payroll, investment, or other types of account at any bank.

Using a sample size of 10,000 households in Sub-Sahara Africa (SSA), Aga and Peria (2014) analyzed the relationship between migrants' remittances and financial inclusion. Financial inclusion was measured by formal account opening by recipient of remittances. The results of the study showed that migrant remittances contributed significantly to the increase in financial inclusion.

Anzoategui, Demirgüç-Kunt, & Martínez Pería. (2014) examined the relationship between remittances and financial inclusion using household-level data in El Salvador. Employing instrumental variable estimation, the study found that remittances have a positive

impact on financial inclusion in terms of the use of deposit accounts but do not have a significant effect on demand or use of formal credits.

In the region of Veracruz in Mexico, Cuccaro (2014) analyzed the effect of international remittances on financial inclusion. The study focused on twelve municipalities in three geographical regions of Veracruz in Mexico with a sample size of two hundred and sixty households. In the study, financial inclusion was proxy by the ability of the households to obtain loans during a year, ownership of a saving account and the frequent usage of deposit. The study employed the Stages Least Squares and Instrumental Variable Ordered Probit techniques to address the problem of endogeneity of remittances. The findings of the study showed that remittances significantly influenced ownership of saving account and frequency of deposit usage. However, international remittances had insignificant impact on the ability of households to obtain loans.

2.2 Gaps in Reviewed Literature

The reviewed literature showed the existence of the paucity of knowledge on the relationship between remittances and financial inclusion in Nigeria. Several studies on Nigeria have largely focused on the link between migrants' remittances and economic growth (Nejo, 2021; Adesina-Uthman, 2019; Javid, 2017; Meyer & Shera, 2017), and between economic growth and financial development (Saab, 2017; Oruo, 2013; Adesina-Uthman, 2009). Consequent to the above, this study contributes to the body of empirical literature by examining the impact of migrants' remittance on financial inclusion in Nigeria.

3. METHODOLOGY

3.1 Theoretical Framework / Model Specification

This research study rests on the financial liberalization theory. As noted by McKinnon and Shaw (1973) financial development brings competition and improve financial services delivery, which has led to the establishment of bank branches in rural region to achieve financial inclusion. The development in the financial system has eased the transfer of fund from the host country to the home country of the migrant through the establishment of international money transfers operators (IMTOs). This IMTOs have provided various platforms which have contributed relatively to financial inclusion in the country.

Therefore, to examine the relationship between migrants' remittances and financial inclusion, this study adopts the model by Gatsi (2020) and Toxopeus and Lensink (2007). The model is specified as:

$$FI_t = f(REM) \quad 1$$

From equation (1) *FI* (financial inclusion) is the dependent variable, and equation (1) indicates that financial inclusion is influenced by migrants' remittances. Studies have noted that certain control variables influence the relationship between financial inclusion and migrants' remittances. Such variables are per capita gross domestic product (PCGDP), inflation rate (INF), exchange rate (EXT) and household consumption expenditure (HCE) (see Eggoh & Bangake, 2021; Saydaliyev et al., 2020;). Incorporating the control variables into equation (1) becomes:

$$FI_t = f(REM, PCGDP, INF, EXT, HCE) \quad 2$$

From equation (2), FI is financial inclusion, REM is migrants' remittances, PCGDP is per capita real gross domestic product, INF is inflation rate, EXT is exchange rate, and HCE is household consumption expenditure. Expressing equation (2) in estimation form and including the constant term and the stochastic error term, equation three becomes:

$$FI_t = \delta_0 + \delta_1 REM_t + \delta_2 PCGDP_t + \delta_3 INF_t + \delta_4 EXT_t + \delta_5 HCE_t + \mu_t \quad 3$$

Equation (3) presents the effect of migrants' remittances on financial inclusion in the long term, while equation (4) below presents the impact of migrants' remittances on financial inclusion in the short term. The short-term equation is presented as:

$$\Delta FI_t = \alpha_0 + \alpha_1 \sum_{i=1}^{n} \Delta FI_{t-1} + \alpha_2 \sum_{i=1}^{n} \Delta REM_{t-1} + \alpha_3 \sum_{i=1}^{n} \Delta PCGDP_{t-1} + \alpha_4 \sum_{i=1}^{n} \Delta INF_{t-1} + \alpha_6 \sum_{i=1}^{n} \Delta EXT_{t-1} + \alpha_6 \sum_{i=1}^{n} HCE_{t-1} + \vartheta ECT_{t-1} + \varepsilon_t \quad 7$$

The ECT_{t-1} is the error correction term of the short run equation which shows the speed at which the short run disequilibrium adjusts to long run equilibrium.

3.2 Theoretical / A Priori Expectation

Theoretically, it is expected that increase in migrants' remittances (REM) and per capital gross domestic product (PCGDP) would bring about an increase in financial inclusion while increase in inflation rate (INF), exchange rate (EXT) and household consumption expenditure (HCE) is expected to negatively impact financial inclusion in Nigeria.

3.3 Data Measurement and Sources

With respect to the variables measurements and sources of these variables, financial inclusion (PI) (Dependent Variable) is measured by number of bank branches per 100,000 adults. This measured is in line with Lahura and Vargas (2021) and Wakdok (2018) and the data on financial inclusion is sourced from Section A (Financial Sector) of the CBN Statistical bulletin, 2020 edition.

Migrants' Remittances (RM) (Independent Variable): This is measured by the volume of remittance inflow through the official financial channels. Data on workers' remittances is sourced from the World Bank Development Indicators (WDI) bulletin 2020 edition.

Per Capita Income (PCGDP) (Control Variable): This is proxy by the real gross domestic product as a ratio of total population. Data on real gross domestic product is sourced from Section C (Real Sector) of the CBN Statistical bulletin, 2020 edition, while data on population is sourced from the World Bank Development Indicators (WDI) bulletin 2020 edition.

Inflation Rate (IF) (Control Variable): It is measured by the annual inflation rate and sourced from Section C (Real Sector) of the CBN Statistical bulletin, 2020 edition.

Exchange Rate (EXT) (Control Variable): It is measured by the official exchange rate of the Naira (₦) to the United State Dollar ($). Data on exchange rate is sourced from Section D (External Sector) of the CBN Statistical bulletin, 2020 edition.

Household Consumption Expenditure (HCE): This is measured by the final consumption expenditure by households in Nigeria. The data is sourced from Section C (Real Sector) of the CBN Statistical bulletin, 2020 edition.

3.4 Estimation Techniques

With respective to the objective of this study, the auto-regressive distributed lag (ARDL) estimation technique is utilized. The technique allows the estimation of both the long and short run relationship between the variables under focus (Peseran, Shin, & Smith, 2001). Also, the ARDL technique, automatically generate the error correction term, which measures the speed of adjustment from the short run disequilibrium to the equilibrium in the long run.

4. DATA ANALYSIS AND DISCUSSION

4.1 Descriptive Statistics and Correlation Matrix

Descriptive statistics from Table 4.1 showed that the mean values of migrants' remittances (REM) and financial inclusion (FI) are US$8.2b and 0.03 respectively whereas the mean values of per capita income (PCGDP), inflation rate (INF), exchange rate (EXT) and household consumption expenditure (HCE) are 0.003, 19.58 per cent, ₦100.87/US$1 and ₦23,338.66b

respectively. Furthermore, the descriptive estimate revealed that the median values for migrants' remittances (REM) and financial inclusion (FI) are US$8.19b and 0.24 and respectively whereas the median values of per capita income (PCGDP), inflation rate (INF), exchange rate (EXT) and household consumption expenditure (HCE) are 0.0002, 12.9 per cent, ₦107.03/US$1 and ₦17,749.07b respectively.

The standard deviation statistics revealed that migrants' remittances (REM) had the highest deviation value while per capita income (PCGDP) had the least variance value. From the skewness statistics, it was noted that all the series or variables were skewed to the right. The kurtosis showed that the distribution of inflation rate (INF) is peaked or high, which is above the acceptance kurtosis value of 3.0, while the distribution of the remaining series with exceptions to exchange rate were flat, that is, below 3.0. In addition, exchange rate has normal distribution since its kurtosis value is approximately 3.0. Finally, from the Jarque-Bera statistic, it was noted that migrants' remittances and inflation rate were normally distributed given that their probability values were significant at five per cent ($p<0.05$) level of significance whereas financial inclusion (FI), per capita income (PCGDP), exchange rate (EXT) and household consumption expenditure (HCE) were not normally distributed because their probability values were insignificant at five per cent.

Table 4.1. Descriptive Statistics

Statistics / Series	REM	FI	PCGDP	INF	EXT	HCE
Mean	8.23E+09	0.033	0.0003	19.576	100.873	23338.66
Median	1.19E+09	0.024	0.0002	12.9	107.025	17749.07
Std. Dev.	9.74E+09	0.017	6.68E-05	17.856	100.759	13057.8
Skewness	0.476	0.324	0.509714	1.724	0.885	0.375
Kurtosis	1.332	1.538	1.610	5.064	2.988	1.505
Jarque-Bera	6.146	4.266	4.951	26.917	5.225	4.661
Probability	0.046	0.119	0.084	0.000	0.073	0.097
Observations	40	40	40	40	40	40

Source: E-views 9 computation, 2023.

Evidence from the correlation matrix showed a strong positive association between financial inclusion and migrants' remittances with a co-efficient value of 93.5 per cent. Per capita income (PCGDP), exchange rate (EXT) and household consumption expenditure (HCE) had positive correlation with financial inclusion and migrants' remittances while inflation rate (INF) was negatively correlated with financial inclusion and migrants' remittances.

Table 4.2 Correlation Matrix

Series	FI	REM	PCGDP	INF	EXT	HCE
FI	1.0000					
REM	0.9350	1.0000				
PCGDP	0.9383	0.9517	1.0000			
INF	-0.2931	-0.3649	-0.3646	1.0000		
EXT	0.8584	0.8321	0.8313	-0.3393	1.0000	
HCE	0.9603	0.9366	0.9592	-0.3874	0.9074	1.0000

Source: E-views 9 computation, 2023.

4.1 Stationarity and Co-Integration Tests

The study continued with the data analysis by conducting the stationary test, using the Phillip-Perron (PP) unit root test. Evidence from Table 4.3 showed that the following series or variables –financial inclusion (FI), migrants' remittances (LREM), per capita income

(PCGDP), exchange rate (EXT) and household consumption expenditure (HCE) – became stationary at first difference. This suggests that the variables were integrated of order one. However, inflation rate (INF) was stationary at level, suggesting that the series is integrated of order zero. The mixture in the observation of the stationary results indicate the application of the Auto-regressive Distributed Lag (ARDL) Bound co-integration technique, in estimating the co-integration among the variables.

Table 4.3. Stationarity Estimate

Philips-Perron (PP) Test			
Series	**Level**	**1st Difference**	**Observation**
FI	-0.7583	-4.4993*	I(1)
LREM	-0.8947	-6.3348*	I(1)
PCGDP	-0.4968	-3.2764**	I(1)
INF	-3.2221**	-	I(0)
EXT	2.3844	-4.0753*	I(1)
LHCE	-0.1173	-7.5940	I(I)

Note: LHCE and LREM are logs of Household Consumption Expenditure and Workers' Remittances respectively.
Source: E-views 9 computation, 2023. * and ** signifies 1% and 5% significant levels.

From the auto-regressive distributed lag (ARDL) bound estimate, it was observed that the F-statistics values for the models were statistically significant. This F-statistics value of model 1-FDB (4.7999) is more than the upper bound value at one percent critical value (4.68), while the F-statistics value of model 1-FDS and model 2 were more than the upper bound values at five per cent critical value. The results of the co-integration estimates indicate the presence of long run relationship among the variables in all the models.

Table 4.4. ARDL Bound Co-integration Estimate

Models	Financial Inclusion (FI)	
F-statistic Value	4.6063	
Critical Value	Upper Bound	Lower Bound
1%	4.68	3.41
5%	3.79	2.62
10%	3.35	2.26

Source: E-views 9 computation, 2023.

4.3 Regression Estimate

The regression estimate on the impact of migrants' remittances on financial inclusion with other control variables is presented in Table 4.5 below. The results showed that migrants' remittances (LREM), per capita income (PCGDP), and household consumption expenditure (HCE) had the expected theoretical relationship with financial inclusion while inflation rate (INF) and exchange rate (EXT) did not show the expected theoretical relationship with financial inclusion. Furthermore, the regression estimate showed that migrants' remittances (LREM), per capita income (PCGDP), and inflation rate (INF) had positive and significant effect on financial inclusion while exchange rate (EXT) and household consumption expenditure (LHCE) were insignificant in impacting financial inclusion in Nigeria. Thus, a unit rise in migrants' remittances (LREM), per capita income (PCGDP) and inflation rate (INF) is expected to promote financial inclusion by 0.002 units, 0.18 units and 0.0001 units respectively. In addition, the short run estimate for financial inclusion as dependent variable

showed that the error correction term had the appropriate negative signs. The coefficient of the error correction term (CointEq(-1)) is -0.5570, which signifies that the short-run disequilibrium is adjusted by 55.70 percent towards the long-run equilibrium.

Table 4.5. Regression Results

Independent Variables	**Co-efficient**	**[Stand. Error]**	**(t-Statistics)**
LREM	0.0020	[0.0006]	(3.2213)*
PCGDP	0.1801	[0.0301]	(5.9829)*
INF	0.00011	[0.00005]	(2.5334)**
EXT	0.000004	[0.00002]	(0.2397)
LHCE	-0.0039	[0.0068]	(-0.5708)
C	-0.0204	[0.0512]	(-0.3994)
CointEq(--1)	-0.5570	[0.1148]	(-4.8511)*
R-Square	0.89130	**F-Stat. (Prob)**	215.08 (p<0.05)
Adjusted R-Square	0.84531	**Durbin-Watson Stat.**	1.9328

Source: E-views 9 computation, 2023. * and ** signify 1% and 5% significant level.

In addition to the foregoing, the coefficient of determination (R-Square) from the estimated models were above 75 per cent, suggesting that the explanatory variables significantly explained the dependent variables. More so, the values of the F-Statistics for the estimated models were significant at one per cent significant level while the Durbin Watson statistics were appropriate, indicating the absence of serial correlation in the estimated models. The Durbin-Watson results are equally supported by the Breusch-Pagan-Godfrey Serial Correlation LM estimates in Table 7.

Table 4.6 Diagnostic Tests

Breusch-Pagan-Godfrey Serial Correlation LM	F-Statistics	Prob. value
Model	0.1893	0.8288

Source: E-views 9 computation, 2023.

4.4 Discussion of Findings

With respect to objective of this study, the study observed that migrants' remittances (LREM) significantly promote financial inclusion. This could be associated with the increase in migrants' remittances inflow into Nigeria and the emergence of new banking services such as mobile banking, agent banking, internet banking, Automatic Teller Machine (ATM) usage and Point of Sale (POS) usage among others. The availability of the above services which has ease banking activities may have acted as incentives for remittance recipients in engaging formal financial institutions. This may have contributed to the overall increase in financial inclusion in Nigeria, which currently stands at 64% in 2020. The finding of this study is in support of Eggoh and Bangake (2021), Gatsi (2020), Arthur *et al.* (2020), and Machasio (2018). However, the finding on the effect of migrants' remittances on financial inclusion is in contrasts with results obtained by Oyelami (2019), Naceur *et al.* (2019), and Akumbo *et al.* (2018).

5. CONCLUSION AND POLICY RECOMMENDATION

This research examines that relationship between migrants' remittances and financial inclusion in Nigeria for the period 1981 to 2021. The study employed secondary data and the data were analyzed using the auto-regressive distributed lag estimation techniques. The ARDL estimate shows that migrants' remittances (LREM) is a significant determinant of financial inclusion in Nigeria. Thus, the study concluded that migrants' remittance played an important role in enhancing financial inclusion in Nigeria. Consequently, the study recommends the need for increase expansion of bank branches in the remote and rural regions of the country. This will contribute to the growth of financial inclusion in Nigeria. More so, provision of more power supply in the remote and rural areas would enhance mobile and internet banking thereby contributing to the growth of financial inclusion in Nigeria.

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