The Effect of Remittance on Economic Growth: Evidence of Nigeria Economy

*Magaji Yakubu Ibrahim, Ph. D[1], Mamman Andekujwo, Baajon[2] & Ezra, Rimamnyang [3]

[1,2 &3] Department of Economics, Faculty of Social Sciences, Federal University Wukari, Taraba State

***Corresponding author:** Magaji Yakubu Ibrahim, Ph. D*
Department of Economics, Faculty of Social Sciences, Federal University Wukari, Taraba State

Abstract

This study analysed the effect of remittance on economic growth in Nigeria. It sourced data from Central Bank of Nigeria (CBN) Statistical Bulletins and World Bank Development Indicators for the periods of 1986-2022. The study applied descriptive statistics which revealed that the data were normally distributed as seen in Jacque Berra Statistics and its p-values. It carried out unit-root test through Augmented Dickey Fuller (ADF) which indicated that the time series data were stationary at I (1) and (0) respectively. Moreover, this order of integration revealed that Autoregressive Distributed Lag model (ARDL) is the most appropriately method for this analysis. In the same vein, the F-bounds test showed that long-run relationships exist between remittance and economic growth in Nigeria. Furthermore, long-run result indicated that the remittance had positive and statistically significant effect on economic growth in Nigeria. Also, the Granger Causality test revealed bidirectional and unidirectional causality between remittances and economic growth in Nigeria. Therefore, study recommends among other things that considering the positive effect of remittances on economic growth in Nigeria, the policy makers are urged to focus on maintaining high budgetary provisions and excellent expenditures from the accruals in Nigeria. It is also the duty of government to ensure that such budgetary finances are fully utilized on diversified economic policy to sustain the current positive impact of remittance on economic growth in Nigeria.

1. INTRODUCTION

Remittances are transfers from international migrants to family members in their country of origin for investment or consumption purposes. It represents one of the sources of financial flows to the developing economies. According to the World Bank (2021), officially records of remittances to developing countries reached $334billion. Remittance is different from other external capital inflow like foreign direct investment, foreign loans and aids due to its stable nature (Anetor, 2019 & Kapur, 2006).

Remittance can affect economic growth and development through micro and macroeconomic activities. The drive for encouraging increased workers remittance is to promote economic growth and development. The potential channels of the positive effects of remittance inflows on growth and development prospects of developing economies include how these remittance effect on domestic investment, balance of payment, ease domestic credit constraints, exports, diversification of economic activities, reduce levels of employment and wages, promotion of human capital development and technological progress in the receiving economy.

In this regard, Adigun and Ologunma (2017) pointed out the three channels through which remittances could affect economic growth and development, using growth accounting framework. One, by directly financing an increase in capital accumulation relative to what would have been observed if the recipient economies had been forced to rely only on domestic sources of income to finance investment. Two, by Labour inputs through Labour force participation and third, may affect total factor productivity (TFP) growth through effects on the efficiency of domestic investment as well as the size of domestic productive sectors that generate dynamic production externalities.

As observed by Loto and Alao (2016) and Adigun and Ologunwa (2017), workers remittance are transfer from international migrants to family members in their country of origin represent one of the largest sources of financial flows to developing countries. The increase in the other external flows, such as foreign direct investment and portfolio

investment could be attributed to the relatively stable political environment as well as the Federal drive for foreign investments. Meanwhile, the nature of migration phenomenon in Nigeria took two different epochs after her independence in 1960. Post-independence migration periods took the form of Nigerians moving abroad to acquire western education due to apparent dearth of manpower at home.

Statement of the Problem

It is not out of place to say that African countries have lost a substantial proportion of their skills through emigration or the "brain drain syndrome" as it is often called, which is generally caused by a lack of economic opportunities and conflicts and other factors, but African countries also have benefitted from the Africans Diasporas' remittance for their economic growth and development. Empirical literature showed that remittances received by developing economies registered a sharp increase over US$300 billion of workers' remittances were transferred worldwide through official channels, and it was likely that billions more were transferred through unofficial ones (World Bank 2021). In 2020, worldwide remittance flows were estimated to have exceeded US$440billion out of this estimated amount; developing countries received US$325 billion (World Bank, 2021).

Despite the positive effects of the diasporas remittances with respect to economic growth, some scholars reported their findings in the contrary (Olayingbo & Ahmod 2019; Adigun & Ologunwa, 2017). They argued that remittances undermine productivity and growth in low-income economies as they are readily spent on consumption rather than on productive investments. A noted trend that has gained recognition by the World Bank in recent times is the huge sum of money remitted by Nigerians living abroad. Nigeria has a strong and progressing diaspora community, in spite of the unpleasant socio-economic and political instability in Nigeria; they still forward their hard earned financial resources into the country for investment and consumption.

Therefore, the purpose of this research is to empirically examine the effect of remittance inflows on the Nigerian economy at macro level using annual time series data from 1986 to 2023. Almost all the previous studies carried out in Nigeria to investigate remittance inflows employed annual quarterly data (Agu, 2009; Udah, 2011; Ukeje and Obiechina, 2013). Time series data have some recognized advantages over its annual counterpart in this scenario. For instance, since remittances decisions are taken throughout the year and are often based on (preliminary) weekly, monthly and quarterly or yearly data using annual data would enable the study to better capture important yearly dynamics. More importantly, the issue of endogeneity that previous studies in Nigeria have ignored has been addressed.

2. LITERATURE REVIEW
Theoretical Review

There are some theories that give insight into migration and remittances and how they affect an economy, some of these theories are examined below.

Pure Altruism Theory

The Pure Altruism theory highlights that migrants remit money back home in concern of the welfare of the remaining family members (Hagen-Zanker & Siegel, 2007:5; OECD, 2006:145). Chami et al. (2003:4) report that in this model, the migrant's utility is derived from that of his/her family back home. The migrant is rather satisfied when the welfare of his family back home is better off (OECD, 2006:145). This implies that the migrant is motivated to remit more funds to his family when there are unfavourable economic conditions holding in the home country. The theory observes that remittances are "compensatory transfers" since they increase when the migrant's home country is faced with economic disruptions such as droughts and a financial crisis (Chami et al., 2003:4).

In order for the migrant to remit more funds, the economic disruptions or "bad luck", a term used by Chami et al. (2003:4), must be creating a shortfall for the remaining family. As a result, the compensatory nature of remittances under the Pure Altruism model implies that remittances are countercyclical, that is, they increase during times when there is deterioration in economic conditions in the business cycle (Chami et al., 2003:4). Anetor (2019) emphasizes that altruistic remittances can be countercyclical to GDP patterns possibly because migrants tend to remit more during periods of economic disturbances in order for their families in the home country to smoothen their consumption. Also commenting on behavioural patterns of remittances under a Pure Altruism model, Brown (2006:63) suggests that there is an inverse relationship between the volumes of remittances and economic conditions holding in the home country. Under this model, favourable economic conditions in the home country would imply a reduction in the volume of remittance inflows.

2.3. Empirical Review

Several studies have been carried out to examine the role of remittance inflows in achieving economic growth and development, prompting considerable debate in this regard. Some authors insist that remittance does more harm than

good to the receiving countries, while others noted that remittance inflows actually help to improve economic performance. This shows a clear absence of consensus on the role of remittance inflows on the receiving economy. For the purpose of symmetry, some of those previous studies will be summarily grouped into negative and positive outcomes. Bolarinwa and Akinbobola (2021) investigated the relationship between remittances inflows and financial development focus on the effect of the former on latter neglecting the feedback effect. Unlike these studies, this work adopts a robust composite measure of financial development using the World Bank four mainstays to investigate the direction of the causal relationship between remittances and financial development between 1999 and 2017. Adopting four most developed financial sectors across the four regions of Africa, this study documents causal evidence from homogeneous and heterogeneous models. Our results established both causal directions in heterogeneous models among African most developed financial sectors. Thus, remittances inflows have spurred financial development and vice versa. However, the direction of the causal relationship only flows from financial development to remittances in the homogeneous setting. It is, therefore, recommended that these countries should develop their financial sectors to attract higher remittances. Also, policymakers are advised to explore remittances inflows, as a policy option, to develop their financial sectors.

Gisaor (2020) examined the macroeconomic effect of remittances on economic growth in Nigeria between 1970 and 2019 using the Autoregressive Distributive Lag Model (ARDL) and other econometrics test. The result shows that remittances, foreign direct investment and private investment have positively influenced economic activities in Nigeria during the study period. As such, the Nigerian government was urged to formulate appropriate fiscal and monetary policies aimed at stabilizing these rates for improved economic activities in Nigeria and diversification of the Nigerian economy should give priority attention to manufacturing activities. All remittances accruable to the country should be applied to boost manufacturing. This would boost employment, revenue and GDP growth for a more sustainable development of the country.

Gani (2020) studied the importance of remittances and financial development for 54developing countries using a panel data for 1970-2010. The study estimated a financial sector development index and uses it to determine the relevance of finance as a transmission channel for remittances to affect economic growth. The index brings together information from existing measures reflecting sizes, depth and efficiency of the financial sector. The Panel Generalized Method of Moments (GMM) used showed a negative effect of remittances on economic growth of the sampled countries.

Anetor (2019) examined the relationship between remittances, financial sector development, and economic growth in Nigeria over the period 1981 to 2017. The study used the autoregressive distributed lag (ARDL) model to analyze the long run and short-run relationships between the variables. The outcome of the study revealed that the variables are bound together in the long-run. The results also showed that remittances have a negative and significant effect on economic growth both in the long-run and short-run. The study also established that financial sector development has a negative and significant effect on economic growth both in the long-run and short-run. Further, the study confirmed the existence of complementarity between remittances and financial sector development in influencing economic growth. In addition, study revealed that inflation has a negative and significant effect on economic growth both in the long-run and short-run. The findings of the study showed that trade openness, government expenditure, and population growth have no significant effect on economic growth both in the long-run and short-run.

Olayingbo and Ahmod (2019) investigated the relationship among remittances, financial development and economic growth in a panel of 20 sub-Saharan African countries over the period of 2000 and 2015. The study used both Pooled Mean Group and Mean Group/ARDL estimations with panel unit root and cointegration tests. After establishing cointegration, remittances and financial development were found to have positive effects on economic growth both in the short and the long run. The interactive term showed that financial development acted as a substitute in the remittances-growth relationship. Finally, unidirectional causal relationships were found to exist from GDP to remittances and from financial development to GDP. However, no causality existed between remittances and financial development in the SSA countries.

3.0 RESEARCH METHODOLOGY
Fundamentally, this study will relied only on secondary sources of data which would be sourced from the publications of the CBN, NBS, and other sources. It relied on time series data on all the variables in the model from 1986 to 2022. Specifically, data on Real gross domestic product (RGDP), remittance inflows (REM), foreign direct investment (FDI), Consumer price Index (CPI), exchange rate (EXR) and interest rate (ITR) is required to estimate the relationship.

3.4 Estimation Procedures
The estimation procedures that will be adopted in this study will be in the following steps:
1. Descriptive statistics of the series in the model.
2. Establish the order of integration of the employed variables using the Augmented Dickey-Fuller (ADF) unit root test. This is a stationary test.

3. If the variables are confirmed to be stationary, i.e if the variables are found to be integrated of the same order I (1), then the long-run estimates would be obtained through the OLS method.

4. The co-integration of the variables would be tested by the application of the Johansen co-integration tests.

5. The forecast error variance decomposition will1 be employed to separate the contributions to the variation in the model by each of the variables while impulse response analysis will be used to determine the dynamic response of the series to shocks hitting the model.

3.5 Specification of the Model

Since this study is set out to model the relationship among a given set of time-series variables, it is pertinent to carry out some pre-test on the variables of interest so as to be appropriately guided in the model specification. The variables of interest are briefly described as follows; real gross domestic product (RGDP), remittance inflows (REM), foreign direct investment (FDI), Consumer price Index (CPI), exchange rate (EXR) and consumer price index (Inflation). They are represented in linear model as;

$$RGDP = f(REM, FDI, CPI, EXR,) \text{--- (3.1)}$$

Equation 3.1 can be stated econometrically to include the stochastic random element as follows:

$$RGDP = \beta_0 + \beta_1 REM + \beta_2 FDI + \beta_3 CPI + \beta_4 EXR + \mu \text{-- (3.2)}$$

Where:

RGDP = Real Gross Domestic Product

REM = Remittances Inflow

FDI = Foreign Direct Investment

CPI = Consumer Price Index

EXR = Official Real Exchange Rate

μ = Stochastic Error Term

REM, FDI and PIN are expected to be positively related to the RGDP while the CPI, EXR and ITR are all expected to have negative relationship with the RGDP on *a priori* expectation.

4.0 DATA PRESENTATION AND ANALYSIS

This study started with the presentation time series data in appendix I. These data comprises of real gross domestic product (RGDP), foreign remittance (REM), foreign direct investment (FDI), consumer price index (CPI) and exchange rate (EXR) for the analysis.

However, this study would begin its analysis from the preliminary test of descriptive statistics and unit root test using Augmented Dickey Fuller (ADF) criteria. Moreover, the result of various tests would be presented in different tables for interpretations and discussion of the findings appropriately.

4.2 Descriptive Statistics

The summary of descriptive statistics is presented in Table 4.1. It revealed that the mean, media, maximum value, minimum value and other criteria.

Table 4.1: Descriptive statistics

Sample: 1986 2022				
	LOG(RGDP)	LOG(REM)	LOG(FDI)	CPI	EXR
Mean	13.02835	13.69077	12.79343	20.97027	196.7568
Median	13.17605	13.64481	12.42609	14.00000	148.9000
Maximum	13.80891	18.17650	16.11593	72.90000	550.0000
Minimum	12.22982	9.266295	9.139231	5.400000	4.000000
Std. Dev.	0.498944	2.683526	2.375305	17.09326	157.3214

Skewness	-0.035811	0.105282	0.089573	1.624321	0.677956
Kurtosis	1.632955	2.093945	1.907622	4.562686	2.258971
Jarque-Bera	2.888993	1.333963	1.889131	20.03498	3.680917
Probability	0.235865	0.513255	0.388848	0.000045	0.158745
Sum	482.0491	506.5587	473.3571	775.9000	7280.000
Sum Sq. Dev.	8.962010	259.2472	203.1146	10518.46	891000.9
Observations	37	37	37	37	37

Source: Authour's computation using EViews Versions, 2024.

The chapter is therefore, primarily designed to present and analyze data used for the long-run relationship. It is also designed to analyze the pattern of response to shock by the variables.

From the Table 4.2, there was interesting relationship exists between the mean and median for all the variables in the model. The mean to median ratio for all data set is within the unit proximity. This implies that when plotted on the standard normal curve, the median will not be significantly different from the mean value of the distribution. The more the median and the mode are closer to the mean value, the more the distribution satisfies the symmetrical bell-shape property of the normal distribution. The range of the distribution is positive for the entire variables included in the regression model, given credence to the positive nature of the distribution as already indicated by the skewness. Again, the standard deviations were relatively quite low or small even with the large sample size summing up data set for 37 years.

Table 4.1 above has displayed the summary statistics for the data set used for the study. Skewness in the table is positive with all the variables having positive signs, showing that the distribution was skewed to the right. This simple entails that even when tabulated in a frequency distribution form, the data set analyzed was either dominated by positive values or was completely comprises of positive values.

The Kurtosis on the other hand exhibited that only CPI and EXR that almost satisfied its symmetrical condition of the expected value of three (3). While, RGDP, REM and FDI all had values less than three which implied that the distribution is flat or statistically called platykutic. This indicates that the distribution is peaky or leptokurtic. However, the distribution has probability values for all the dataset was shown to positive and relatively high, with all the variables being statistically significant at 5%. This gives way for the easy acceptance of the in-built hypothesis that the data set in normally distributed.

4.3: Unit root test

The result of the unit root test using the Augmented Dickey Fuller approach as presented in Table 4.2 above shows that the following variables – GDP, FDI, CPI, EXR, PIN, ITR were not stationary at levels while REM was stationary at levels. All the series after the first difference became stationary at 5% level of significant but with a mix order of integration. Thus, all the variables no integrated of the same order but have a mix combination of I(0) and I(1) as shown in the result of ADF unit root test, the use of Johasen co-integration test has collapsed. The most appropriate choice left now is the ARDL bound co-integration to examine the existence of long run relationship amongst the variables in the model.

Table 4.2: ADF Unit Root Test

Variable	ADF Test Statistic	0.05 critical value for ADF statistic	p-value	Order of Integration
RGDP	-0.634355	-2.971853	0.8472	-
D(RGDP)	-3.290969	-2.971853	0.0251**	1 (1)
REM	-0.417596	-2.963972	0.9804	-
D(REM)	-6.692766	-2.954021	0.0000**	I (1)
FDI	-0.976020	-2.945842	0.7513	-
D(FDI)	-7.208263	-2.948404	0.0000**	I (1)
CPI	-3.658315	-2.948404	0.0094	I (0)
EXR	-0.368718	-2.945842	0.9041	-
D(EXR	-5.464756	-2.954021	0.0001**	I (1)

Source: Author's computation using Eviews Version 10, 2024.

In Table 4.3, it revealed that the level of stationarity of the variables RGDP, REM, FDI and EXR are stationary at first difference while inflation rate was stationary at level. This mixed order of integration necessitated the choice of autoregressive distributed lag model (ARDL) for this study.

4.3 Lag Selection Criteria

The test was conducted to determine the appropriate lags to be selected during model estimation. Lag selection test result for the study is therefore displayed in Table 4.3 below:

Table 4.3: Optimum lag length on the effect of remittance on economic growth in Nigeria

Date: 04/01/24   Time: 21:18

Sample: 1986 2022

Included observations: 35

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-446.9653	NA	113241.5	25.82659	26.04878	25.90329
1	-360.7182	142.9236	3478.885	22.32676	23.65991*	22.78696*
2	-330.9728	40.79381*	2911.086*	22.05559*	24.49970	22.89930

Source: Author's computation using Eviews Version 10, 2024.

Denoted significance @5% level

LR: sequential modified LR test statistic (each test at 5% level)

FPE: Final prediction error

AIC: Akaike information criterion

SC: Schwarz information criterion

HQ: Hannan-Quinn information criterion

In the Table 4.3, it shows that optimum length is lag two (2) which is chosen based on Akaike Information Criterion (AIC) which the minimum value of 22.05559 has compared to other criteria. Hence, the best lag length for this study is lag two (2) and throughout this study we will applied it for the estimation of the model.

4.4 Analysis of Co-integration Test

Given the sample size of 36 data points and a mixed order of integration of the variables [I(0) and I(1)] form the ADF unit root test, a lag length of 3 selected on basis of Final prediction error, Akaike information criterion, Schwarz information criterion and Hannan-Quinn information criterion. Lag length selected on the basis of Schwarz Bayesian Criterion was used in the bounds test as suggested by Pesaran and Shin (1999). The results of the bound tests are given in Table 4.4, the critical values used in this study are extracted from the ARDL results using the Microfit software.

Table 4.4 Results of the Bound Test

Country	SBC Lags	F-statistic	Alpha Level	Critical Bound		Decision
				Lower Bound	Upper Bound	
Model	3	5.7420	5%	2.27	3.28	Co-integrated

Source: Author's computation using Eviews Version 10, 2024.

Table 4.4 indicates the calculated F-statistic of 5.74. Given the upper bound critical value of 3.28 which is less than the F-statistic at 5% level of confidence, the null hypothesis of no co-integration is rejected, this of course implies that long run co-integration relationship exist amongst the variables. This no doubt leads to the estimation of the long run relationship and the associated short run dynamics. The estimation of the ARDL model is based on the Schwartz Bayesian Criterion (SBC).

Table 4.5 Estimated Long Run ARDL Coefficients (1, 2, 1, 2, 2) selected based on Schwarz Bayesian Criterion

Dependent variable is GDP				
36 observation used for estimation from 1986 to 2022				
Regressors	Coefficient	Standard error	T-ratio	[Prob]
LogREM	0.129664	0.042985	3.016512	0.0066**
Log FDI	-0.117434	0.023659	-4.963529	0.0001***

CPI	0.004735	0.001358	3.485922	0.0022**
EXR	-0.002266	0.000303	-7.490117	0.0000***

Source: Author's computation using Eviews Version 10, 2024.

Note: INPT is the constant term.

In Table 4.5 the result of the long run estimates of the ARDL revealed REM and CPI to be positively related with the GDP while FDI and EXR are negatively related with GDP in the long-run. Judging from the probability values, all the variables are statistically significant. REM being a target variable, the result suggests clearly that a unit (one percent) increase in REM in Nigeria will lead to 0.1297 (12.9%) increase in the growth rate of GDP in Nigeria. This corraborate with the findings of the study by Bolarinwa and Akinbobola (2021) and Gisaor (2020) who all found a positive relationship between Diaspora remittances and economic growth in their separate research findings.

Table 4.6 Error Correction Representation of the ARDL (1, 2, 1, 2, 2) selected based on Schwarz Bayesian Criterion

Dependent variable if ΔGDP				
36 observations used for estimation from 1986 to 2022				
Regressors	Coefficient	Standard Error	T-Ratio	[Prob]
ΔREM	0.064050	0.017470	3.666176	0.0014**
ΔFDI	-0.011826	0.019988	-0.591675	0.5604
ΔCPI	0.002419	0.000923	2.620135	0.0160*
ΔEXR	-0.001550	0.000271	-5.714029	0.0000***
ECM (-1)	-0.678406	0.148416	-8.613654	0.0000***
R-Squared	0.770151	R-Bar-Squared	0.687405	
S.E. of Regression	0.075523	F-Stat. F (6,36)	9.307430 [.000]	
DW-statistic	2.009827	Schwarz Bayesian Criterion	-1.649430	

Source: Author's computation using Eviews Version 10, 2024.

*Note: * denotes that the coefficients are significant at 5%level.*

The result of the short run dynamics associated with the ARDL (1, 2, 1, 2, 2) presented in Table 4.6 above revealed that coefficient of the lagged error correction term (-0.678406) to be negative, and statistically significant at the 10% level. The negative and significant coefficient is an indication of a co-integrating relationship amongst the model variables. The magnitude of the coefficient also implies the about 68% of the disequilibrium caused by previous year's shock converges back to the long run equilibrium in the current year.

The coefficient of multiple determinations (R^2) is 0.770151 and the adjusted value of 0.687405 indicates that about 77% of the total variation or changes in the present value of the GDP is fully accounted for by the explanatory variables in the model, while the remaining 23% is explained by other factors that are not expressly captured in the model. The REM as a prime variable is positively related to the GDP in the short run and is also statistically significant at 5% level of significance. This result corroborates the earlier findings of Gani (2020), Anetor (2019) and Akindolie (2017) where the effect of remittances on economic growth was seen to be positive and statistically significant. PIN and ITR are as well significant at 5% level of significance. The Durbin-Watson statistic of 1.82 shows positive serial correlation but within the normal bound of 2.

Table 4.7 Diagnostic Tests

Test Statistics	F - Statistics	Probability values
A: Serial Correlation	2.301989	0.1367
B: Functional Form	0.367804	0.5510
C: Normality	0.977558	0.613375
D: Heteroscedasticity	1.018018	0.4860

Source: Author's computation using Eviews Version 10, 2024.

Using the LM version, the diagnostic tests of the estimated ARDL (1, 2, 1, 2, 2) model suggest that the model passed the tests of serial correlation, functional form misspecification, and heteroscedasticity with statistically insignificant probability values. This is clearly evidenced from the high probability values reported by LM version contained in Table 4.7 above. The high probability values of the f-statistics are also handy to confirm the result from LM version.

Stability Test:

The stability tests - Cumulative Sum of Recursive Residuals (CUSUM) and Cumulative Sum Squares of Recursive Residuals (CUSUMSQ): The CUSUM test is particularly good at detecting systematic departure of the β_i coefficients that results in a systematic sign on the first step ahead forecast error while the CUSUMSQ test is useful when the departure of the β_i coefficients from constancy is haphazard rather than systematic but that involves a systematic change in the accuracy of the estimated equation as observations are added.

Both are derived from the residual of the recursive estimation known as recursive residuals. Under the null hypothesis of perfect parameter stability, both the CUSUM and CUSUMSQ statistics are zeros. Given that the expected value of a disturbance is always zero, a set ± 2 standard error bands is usually plotted around zero and any statistic lying outside the band is taken as evidence of parameter instability. Plots of CUSUM and CUSUMSQ in figures 4.1 and 4.2 respectively showed that both statistics fall within the critical bounds implying that, all the coefficients of the estimated model for Nigeria are stable over time.
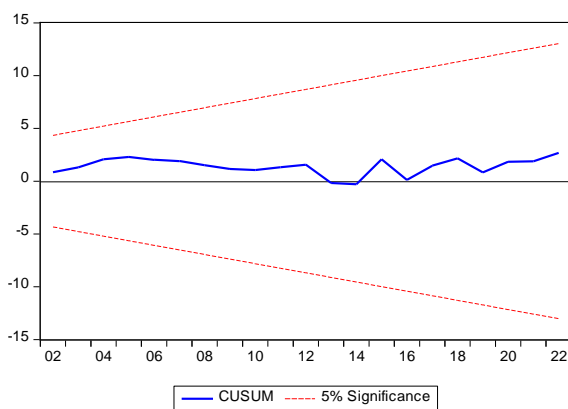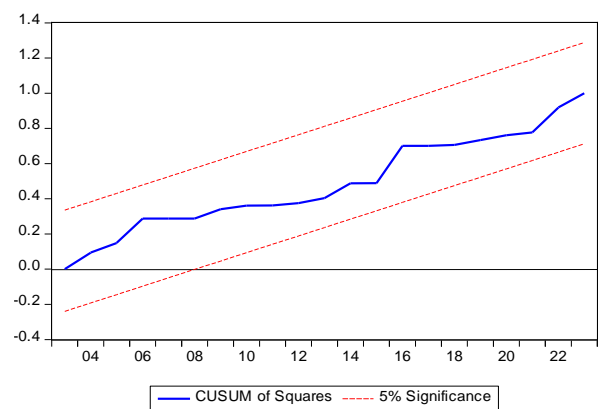
Figure 4.1: CUSUM Test Result

Figure 4.2: CUSUM Q test Result

Source: Extracted from Authour's computation using Eview Version 10, 2023.

The stability of the ARDL model estimates is investigated using the CUSUM and CUSUMQ tests and the output represented in Figure 4.1 and Figure 4.2 respectively. The plots of the CUSUM and CUSUM Q statistics are well within the critical bounds at 5% level of statistically significance. Therefore, this confirming that ARDL estimate is reliable and consistent. In order words, the study coefficients are stable since the cumulative sum (blue lines) does not go outside the area between the two critical bounds (red lines) in the analysis.

4.5 Pairwise Granger Causality Test

To provide an answer to the third research question which seeks to examine the direction of causality between Diaspora remittances and economic growth in Nigeria.

Table 4.8: Pairwise Granger Causality Test

Pairwise Granger Causality Tests
Date: 04/02/24   Time: 09:00
Sample: 1 37
Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
REM does not Granger Cause RGDP	35	0.11359	0.0430
RGDP does not Granger Cause REM		2.02812	0.1492
FDI does not Granger Cause RGDP	35	4.82138	0.0153
RGDP does not Granger Cause FDI		4.82832	0.0152
CPI does not Granger Cause RGDP	35	0.20774	0.8136
RGDP does not Granger Cause CPI		1.30962	0.2849

EXR does not Granger Cause RGDP	35	1.61902	0.2149
RGDP does not Granger Cause EXR		6.55609	0.0043
FDI does not Granger Cause REM	35	6.22671	0.0055
REM does not Granger Cause FDI		5.19947	0.0115
CPI does not Granger Cause REM	35	0.27247	0.7634
REM does not Granger Cause CPI		0.02897	0.9715
EXR does not Granger Cause REM	35	1.98847	0.1545
REM does not Granger Cause EXR		0.57014	0.5715
CPI does not Granger Cause FDI	35	0.27986	0.7578
FDI does not Granger Cause CPI		0.08874	0.9153
EXR does not Granger Cause CPI	35	1.22742	0.3073
CPI does not Granger Cause EXR		0.04507	0.9560

Source: Author's computation using Eviews 10, 2024

The Pairwise Granger Causality test was employed and the result is presented in Tables 4.8. The result has provided the solution to the research question of whether or not there is any causation between dependent and independent variables in the model. The result interpreted below is based on the relationship between dependent and independent variables only.

Result from Table 4.8 shows uni-directional causality between the REM and GDP in Nigeria. This implies that the REM has been partly responsible for the GDP growth in Nigeria within the period of analysis. In the same vein, here is a uni-directional causation running from EXR to GDP growth rate at 5% level of significance. While, there is a bi-directional causality running from FDI to GDP. There is however, no causality between CPI and GDP growth in Nigeria during the time frame of analysis.

5.0 SUMMARY, CONCLUSION AND RECOMMENDATIONS
5.1 Summary
Understanding the relationship between remittances and economic growth is critical from a policy perspective in order to gauge the appropriate policy response. This study empirically investigated the effect of remittances on economic growth in Nigeria. The extension of this objective also sought to ascertain in precise causal effects between remittances and economic growth in Nigeria.

In summary, the long run result showed that a unit increase in REM leads to a 13% increase in GDP growth rate in Nigeria. Thus, remittances constituted a key motivator of growth in Nigeria. This positive relationship does not contradict theoretical expositions set out for this study and the result also confirms several other empirical studies. In contrast, foreign direct investment has a significant negative effect on economic output in Nigeria.

Moreover, result of the Pairwise Granger causality test was used shows a uni-directional causation running between remittances and economic growth in Nigeria. The result specifically indicates that the REM granger caused GDP at 5% level of significance.

5.2 Conclusion
The empirical evidence arising from our various econometrics tests contained in chapter four forms the basis of our conclusion. It has been found that from the ARDL, the remittances accounts for the increasing GDP in Nigeria. A 1% increase in the REM results into an increase in the GDP of 13% in Nigeria. It can be concluded again that other macroeconomic factors are equally important in explaining the GDP in Nigeria. Such macroeconomic determinants like private investment and foreign domestic investment.

5.3 Recommendations
In view of the findings therefore, the following policies are recommended:
   i)   Considering the positive effect of remittances on economic growth in Nigeria, the policy makers are urged to focus on maintaining high budgetary provisions and excellent expenditures from the accruals in Nigeria. It is

also the duty of government to ensure such that such budgetary finances are fully utilized on diversified economic activities to sustain the current positive effect of remittance on economic growth in Nigeria.

ii)   Nigerian government should provide sophisticated and accessible channels for receiving foreign remittances into the country. The fund also should be spends on productive ventures and not the other way.

iii) Furthermore, the causality between remittances and economic growth can be harness if the Nigeria government can diversify the economy in other to increase output. This will also lead to the generation of more foreign remittance.

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