Foreign Remittance and Economic Growth in Nigeria: An Empirical Survey

Kurtis Uyimwen Irabor[1]* and Joseph Azage[2]
[1,2]University of Benin, Benin City, Nigeria
[1]*ORCiD: https://orcid.org/0009-0003-9362-8699*
[2]*ORCiD: https://orcid.org/0000-0002-1582-2854*
*Corresponding Author: uyimwen.irabor@uniben.edu
DOI: https://doi.org/10.61538/huria.v32i2.1925

Abstract

In this research, an empirical survey was done to evaluate the link between international remittances and economic growth using Nigeria as our case of interest. The link between international remittances inflow, foreign portfolio investment, foreign direct investment, and economic growth of Nigeria was extensively analysed. The survey research design was chosen and employed for this specific inquiry. In this research, the Nigerian economy functioned as the population of interest. Between the years 1990 and 2022, a total of 33 years were covered by the data that was acquired. The Fully Modified Ordinary Least Squares (FMOLS) was then employed in order to conduct the analysis on the data that was received, and the tool that was utilised was EViews 9. According to the results of the research, there is a strong positive association between the inflow of international remittances, foreign portfolio investment, foreign direct investment, and economic progress in Nigeria. According to the findings of the study, the Nigerian government and its policymakers should take into consideration the possibility of harmonising the nation's economic policies in order to better stimulate and facilitate international remittances, foreign portfolio investment, and foreign direct investment. They should encourage, diversification in sources of foreign investment, implement initiatives that enhance financial inclusion, making it easier for remittances to reach a broader population and have a more widespread impact and invest in infrastructure projects that can leverage foreign direct investment for economic development.

Keywords: *Foreign Remittance; International Remittances Inflow; Foreign Portfolio Investment; Foreign Direct Investment; Economic Growth.*

INTRODUCTION

The gross domestic product (GDP) works as a significant measure of economic growth and performance internationally (Ali and Yasmin, 2020; Depken, Nikšić Radić, and Paleka, 2021). The GDP of a country often reflects the outputs of different economic activities across diverse sectors such as agriculture, education, health, aviation, manufacturing, power, and oil and gas amongst others. These endeavours are typically financed from domestic savings and government earnings. However, as economies expand, domestic resources often prove inadequate for financing development projects, prompting reliance on external financial inflows such as foreign direct investment (FDI), foreign portfolio investment (FPI), official development assistance, and foreign remittances (Adebayo and Beton Kalmaz, 2020; Ali and Yasmin, 2020).

Foreign remittances have emerged as a crucial factor for economic development in many developing countries, playing a vital role in poverty reduction, income redistribution, and economic growth (Ojha, 2019; Depken, Nikšić Radić, and Paleka, 2021). Faced with challenging economic conditions, many inhabitants seek better chances overseas and contribute to their home economies by sending remittances, which assist balance capital deficiencies that impede growth and development (Akhimien and Osifo, 2019; Adebayo and Beton Kalmaz, 2020).

In Nigeria, remittance inflows have mostly increased throughout the years, albeit with significant fluctuation. The World Bank (2024) presents steady remittance data from 2013 to 2022: 20.8, 21, 20.63, 19.70, 22.04, 24.31, 23.81, 17.21, and 19.48 billion dollars, respectively (Adebayo and Beton Kalmaz, 2020; Abdulai, 2023). Given the importance of these financial transfers, the present article empirically studies the influence of overseas remittances on Nigeria's economic growth and presents policy proposals based on these results.

LITERATURE REVIEW

Concept of Foreign Remittance

International remittances are defined as cross-border transfers of migrant earnings and have been related to issues such as diaspora movement, international migration, workers' remittances, financial development, official development assistance (ODA), poverty

alleviation, exchange rates, capital flows, human capital development, and economic growth. The macroeconomic repercussions of remittances involve poverty reduction, consumption, savings, balance of payments, currency rates, trade balances, and investment (GFMD, 2013; Adebayo and Beton Kalmaz, 2020).

Remittance inflows are considered as vital to the GDP of poor and middle-income nations, with stable annual growth. Economists appreciate their crucial influence in decreasing global poverty and inequality. In nations such as Nigeria, remittances represent a critical financial resource valued by stakeholders across financial institutions, governments, and civil society (GFMD, 2013; Akhimien and Osifo, 2019).

In addition to cash inflows, the diaspora assists to economic growth through skills and knowledge transfer, as proven by efforts like as the Migration for Development in Africa (MIDA) project, which stimulates economic development through training programs (IOM, Chile Diasporas). Success stories, such as the Indian diaspora's participation in the invention of information technology, highlight the diverse contributions of remittances (IOM, 2009; Mushi, 2024).

Globally, remittances have become a major resource transfer mechanism from industrialised to developing nations, second only to foreign direct investment (Buch and Kuckulenz, 2004; Karagoz, 2009; Ratha, 2003; Russell, 1992). Their persistence over financial crises highlights their value in solving challenges including credit market failures, economic injustice, and poverty (Karagoz, 2009). Remittances also assist economic growth, human capital development, and infrastructure investment. However, poor management can lead to negative outcomes, such as currency appreciation and de-industrialisation, underlining the importance for strategic exploitation of these inflows (Beine et al., 2010; Bryan, 2004).

International Remittances Inflow
International remittance inflows relate to the transfer of money from individuals working overseas to their home nations, generally sent to family members or dependents. These transfers are an important element of the global economy, primarily enabled through banks, money transfer services, and digital platforms (World Bank, 2013;

Abdulai, 2023). Remittances support basic needs, fund education and healthcare, and contribute to the general well-being and development of receiving households (World Bank, 2013; Devkota and Pokhrel, 2023).

Remittances have a substantial impact on the economies of developing nations by raising household incomes, reducing poverty, and serving as a stabilising force during economic downturns. They are also a key source of foreign exchange (World Bank, 2013; Cheema, Noor, and Ul-Haq, 2021). In many cases, remittance inflows surpass official development aid (ODA) and foreign direct investment (FDI) (World Bank, 2013; Ali, Shoaib, and Waseem, 2022).

The development of digital technology has revolutionised remittance transfers, making them more efficient, accessible, and transparent through mobile banking and online platforms (World Bank, 2013; Cheema, Noor, and Ul-Haq, 2021). Despite these advancements, obstacles such as high transaction costs, currency rate fluctuations, and the use of informal channels persist, necessitating continuing efforts to promote secure, cost-effective remittance services (World Bank, 2013; Maune and Matanda, 2022).

Governments and policymakers often focus on reducing transaction costs and improving financial inclusion to increase remittance flows (World Bank, 2013; Devkota and Pokhrel, 2023). As a dynamic financial mechanism, remittances not only support people and families but also contribute greatly to the economic development of receiving countries. Efforts to enhance the efficiency, affordability, and security of these transfers remain vital for maximising their positive impact (World Bank, 2013).

Concept of Economic Growth
Economic growth is the progressive increase in the output level of a country's goods and services. Often, it can be assessed by its Gross Domestic Product (GDP) or Gross National Product (GNP). It comprises consumer spending, company investments, government expenditures, and net exports. Key drivers of economic growth include investments in physical capital, technology, education, healthcare, and the efficient management of natural resources (Barro and Becker, 1989; Solow, 1956; Mankiw, Romer and Weil, 1992; Auty, 1993;

Mushi, 2024). Strong institutions, such as legal frameworks and governance, are also vital in producing an environment conducive to growth (Acemoglu and Robinson, 2012).

Growth rates differ across nations, driven by variables such as globalisation, trade policies, and international collaboration (Barro and Sala-i-Martin, 2003). A expanding economy offers jobs, removes poverty, improves living circumstances, earns tax money, and promotes global competitiveness (Dollar and Kraay, 2002; Lucas, 1988; Tanzi and Schuknecht, 1997; Porter, 1990). However, economic expansion generates worries for potentially contributing to environmental deterioration, income disparity, and overreliance on finite resources (Sachs, 2015; Piketty, 2014; Radic, Bogdan and Beloglavec, 2023).

Empirical Review

Mohamed (2023), using data from the World Bank, experimentally studied the influence of remittances on economic development and unemployment in Nigeria during the period between 1991 and 2020. The study reveals that remittances have a small and positive effect on economic growth using autoregressive distributive lag (ARDL). Abdulai (2023) uses the ARDL bound testing approach to study the influence of remittances on economic growth in Ghana over the period 1990-2020. Hence, the study revealed a long-run relationship between the growth rate of gross domestic product (GDP) and remittance inflows in the Ghanaian economy. Amir and Amir (2023) employed a generalized method of moments (GMM) and fixed effects technique to look at data from 2001 to 2020 in forty-two (42) African countries. The results demonstrated a considerable beneficial influence of remittances on economic growth in the African countries they analysed. The study by Maune and Matanda (2022) employed the autoregressive distributive lag (ARDL) to evaluate the impact of foreign remittances on economic growth of Zimbabwe between 1960 to 2020. The data for the study were acquired from World Bank Development Indicators and the analysis indicated both a unidirectional and bi-directional causation between the two variables and foreign remittance favourably and significantly impact on Zimbabwe economic growth. Wadood and Hossain (2017) evaluated the influence of remittances on the economy of Bangladesh. They used annual data from 1972 to 2012. They employed several methodologies

such as the Johansen cointegration methodology, Vector Error Correction Model, and Granger Causality test. The results revealed a long-run association between remittances and economic growth and that remittances contribute a lot to the growth in the economy of Bangladesh. Cjanci and Cerav (2014) explored how remittances support the financial growth in post-communist Albania. They employed the ARDL bounds testing method and multiple regression models to examine their data. Their research showed that remittances had a considerable beneficial effect, where a 10% increase in remittances is associated to around an 11.78% gain in financial development. Mwangi and Mwenda (2017) evaluated the impact of international remittances on economic growth in Kenya. They utilized development metrics from the World Bank running from 1993 to 2013. They did ordinary least square estimations and Granger causality tests. These studies demonstrated strong positive effects of remittances on economic growth for Kenya. Tolcha and Rao (2016) evaluated the impact of remittances on economic growth in Ethiopia. They utilised the ADF unit root test and the ARDL technique using data during 1981-2012. The data showed that remittances had favourable benefits in the short-run but negative consequences in the long-run. Lime (2016) investigated the impact of abroad remittances on Kenya's economic growth stretching from 1980 to 2014. They employed multiple regression analysis, a unit root test, and the Johansen test. The finding demonstrated that there was no long-term association. Remittances, commercial openness, and government spending directly but little affected the economic growth. Okodua (2014) investigated the impact workers' remittances had on economic growth and development in Sub-Saharan African Countries. He applied a technique termed the Generalised Method of Moments (GMM) towards the estimation. The study studied how remittances connect to production growth, domestic investment and trade balance.

METHODOLOGY

This part covered the research design, demographic, sample, data sources, theoretical framework, model construction, variable operationalisation, and data analysis procedures. The study utilised an ex-post facto research strategy, where the researcher has no influence over the independent variables as they have already occurred. The study's population spanned the Nigerian economy, focusing on macroeconomic variables, while the sample consisting of data on

international remittance inflows (IRI), foreign portfolio investment (FPI), foreign direct investment (FDI), and real gross domestic product (RGDP) from 1990 to 2022. The secondary data were acquired from the Central Bank of Nigeria's Statistical Bulletin, the World Bank, United Nations Centre for Trade and Development, and Index Mundi.

Operationally, in this study, economic growth is defined as the increase in goods and services production inside Nigeria, assessed annually using RGDP. International remittance inflows were referred to be non-commercial money transfers by international workers to Nigeria. FPI was seen as the passive ownership of financial assets without influence over enterprises, whereas FDI was perceived as foreign investments in Nigerian corporate interests.

Theoretical Framework and Model Specification
The study is based on the Output-Remittance model of the neoclassical endogenous growth theory, which posits that output and remittances are driven by altruism, often displaying countercyclical patterns (Chami et al., 2003). The assumption of philanthropically driven remittances is sufficiently expressed within a set of equations characterized by three endogenous variables namely: Growth rate of output (YGR), Workers' remittances (WR), and Per capita income (PCI).

The neoclassical production function, a Cobb-Douglas form, specifies output (GDP) as a function of labour, capital, workers' remittances, and technological efficiency:"

$$GDP = f(A, L, K, WR, PCI) \dots\dots 1$$

Where A represents technological efficiency, L is labour, K is capital, WR is workers' remittances, and PCI is per capita income. The model is adjusted for this investigation as:

$$GDP = AL\alpha \, K(1-\alpha)WR, PCI \qquad (0 < \alpha < 1) \dots\dots 2$$

Where α is the relative share of labour in total production and $(1-\alpha)$ is the relative share of capital in total output.

The aforementioned model was then considerably changed to accommodate the relevant variables in this investigation as:

$$RGDP = f(IRI, FPI, FDI) \quad \text{..} \quad 3$$

and the econometric form is

$$RGDP = \beta_0 + \beta_1 IRI + \beta_2 FPI + \beta_3 FDI + \varepsilon t \quad \text{.................................} \quad 4$$

Where:
RGDP = Real Gross Domestic Product; IRI = International Remittance Inflows; FPI = Foreign Portfolio Investment; FDI = Foreign Direct Investment; β_0 = Constant; and ϵt = Error term.

The a priori expectations are:
$\beta_1>0$: The coefficient of international remittance inflows (IRI) is projected to be positive, demonstrating a positive correlation with real gross domestic product (RGDP).

$\beta_2>0$: The coefficient of foreign portfolio investment (FPI) is anticipated to be positive, reflecting a positive link with RGDP.

$\beta_3>0$: The coefficient of foreign direct investment (FDI) is anticipated to be positive, showing a positive influence on RGDP.

The study applied the Fully Modified Ordinary Least Squares (FMOLS) with E-Views 9.0 to estimate the coefficients, t-statistics, F-statistics, standard errors, and the Durbin Watson statistic to test for serial correlation.

Data Presentation, Analysis and Interpretation
This section displays, examines, and interprets data gathered from the Central Bank of Nigeria (CBN) and the World Bank database.

Descriptive Statistics
Table 1 below presents the summary statistics for the variables utilised in this study, including the mean, median, minimum and maximum values, standard deviation, skewness, kurtosis, and Jarque-Bera test results.

Mean Values: The mean values for the variables are as follows: Real Gross Domestic Product (RGDP) averaged ₦40,804.26 billion, international remittance inflows (IRI) ₦1,771.66 billion, foreign direct investment (FDI) ₦490.06 billion, and portfolio investment (FPI) ₦384.32 billion.

Standard Deviations: The standard deviations are: RGDP ₦18,371.25 billion, IRI ₦2,129.40 billion, FDI ₦447.92 billion, and FPI ₦782.62 billion.

Distribution Characteristics: All variables showed positive skewness, indicating right-skewed distributions with frequent large gains and lesser reductions. Portfolio Investment displayed leptokurtic behaviour (excess kurtosis), suggesting big outliers. International Remittance Inflows showed mesokurtic behaviour, consistent with a normal distribution, but RGDP and FDI were platykurtic, indicating the presence of minor outliers.

Normality Test: The Jarque-Bera statistic suggests that RGDP and FDI were normally distributed, however IRI and FPI were not.

Table 1
Descriptive statistics of the variables used in the study

	Gross Domestic Product at 2010 Constant Basic Prices (₦' Billion)	International Remittance Inflows (₦' Billion)	Foreign Direct Investment (₦' Billion)	Portfolio Investment (₦' Billion)
Mean	40804.26	1771.66	490.06	384.32
Median	36431.37	302.02	258.39	51.08
Maximum	70536.35	7441.19	1360.31	2687.23
Minimum	21680.20	0.08	4.69	-698.29
Std. Dev.	18371.25	2129.40	447.92	782.62
Skewness	0.44	1.09	0.46	2.01
Kurtosis	1.63	3.46	1.76	6.26
Jarque-Bera	3.20	5.98	2.86	32.39
Probability	0.20	0.05	0.24	0.00
Sum	1183324	51378.16	14211.72	11145.36
Observations	29	29	29	29

Source: Authors' computation (2024) *using E-views 12*

Analysis of the Pairwise Correlation Statistics

Table 2 depicts the correlation matrix, illustrating the pairwise relationships among the variables. Correlation analysis studies the degree and direction of correlations between data, using the Pearson correlation coefficient, which goes from -1 to 1. A coefficient of +1 suggests a perfect positive connection, -1 a perfect negative correlation, and 0 signifies no association.

The analysis indicates a substantial positive connection between real GDP and overseas remittance inflows (0.93 or 93%), foreign direct investment (0.85 or 85%), and portfolio investment (0.56 or 56%). This illustrates that increases in these characteristics are associated with economic growth in Nigeria. The results are detailed in Table 2.

Table 2
Correlation Statistics of all Variables Employed

	Real Gross Domestic Product	International Remittance Inflows	Direct Investment	Portfolio Investment
RGDP	1.00	0.93	0.85	0.56
IRI	0.93	1.00	0.77	0.46
FDI	0.85	0.77	1.00	0.57
FPI	0.56	0.46	0.57	1.00

Source: Authors' computation (2024) *using E-views 12*

Testing for Stationarity

Following Granger and Newbold (1974), time series variables typically demonstrate non-stationary patterns at their level distributions. Using such non-stationary series in regression models could lead to spurious estimates, which are unsuitable for policy consideration. To address this, the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) unit root tests were performed, as noted in Table 2 above.

The goal was to investigate the stationarity of the time series and establish their order of integration. Both ADF and PP tests reject the null hypothesis of a unit root at the first difference for all variables, as the absolute values of the test statistics exceed the critical values at the 1% level for real GDP, foreign direct investment, and portfolio investment, and at the 5% level for international remittance inflows. This shows that the variables are stationary at their first differences.

These findings support the adoption of the Fully Modified Ordinary Least Squares (FMOLS) technique, which depends on the stationarity assumption (Granger and Newbold, 1974; 1977a, 1977b; Sims, 1977; Quah, 1994). Results of the stationarity tests are reported in Tables 3A and 3B.

Table 3A

Stationarity Tests at Levels- Augmented Dickey-Fuller and Phillips-Perron Tests Approaches

Series	t-Statistic	1% level	5% level	10% level	Remark
Augmented Dickey-Fuller test					
RGDP	1.72	-3.69	-2.97	-2.63	Non-Stationary
IRI	1.42	-3.70	-2.98	-2.63	Non-Stationary
FDI	-1.51	-3.69	-2.97	-2.63	Non-Stationary
FPI	-2.24	-3.70	-2.98	-2.63	Non-Stationary
Phillips-Perron Test					
RGDP	0.93	-3.69	-2.97	-2.63	Non-Stationary
IRI	2.95	-3.69	-2.97	-2.63	Non-Stationary
FDI	-1.40	-3.69	-2.97	-2.63	Non-Stationary
FPI	-3.38	-3.69	-2.97	-2.63	Stationary*

* Denotes significant at 5%

Source: Authors' computation (2024) *using E-views 12*

Table 3B

Stationarity Tests at Differences- Augmented Dickey-Fuller and Phillips-Perron Tests Approaches

Series	t-Statistic	1% level	5% level	10% level	Remark
Augmented Dickey-Fuller test					
RGDP	-5.56***	-3.71	-2.98	-2.63	Stationary
IRI	-2.40**	-2.65	-1.95	-1.61	Stationary
FDI	-5.99***	-3.70	-2.98	-2.63	Stationary
FPI	-4.48***	-3.71	-2.98	-2.63	Stationary
Phillips-Perron Test					
RGDP	-6.00***	-3.71	-2.98	-2.63	Stationary
IRI	-2.98**	-3.70	-2.98	-2.63	Stationary
FDI	-6.06***	-3.70	-2.98	-2.63	Stationary
FPI	-6.34***	-3.70	-2.98	-2.63	Stationary

NB: **Significant at 5%, and ***Significant at 1%.
Source: Authors' computation (2024) *using E-views 12*

Co-Integration Test

Cointegration testing is crucial for evaluating if a long-run relationship exists among variables in a regression model. This work uses the

single equation methods established by Engle and Granger (1987) and Phillips and Ouliaris (1990) to test for cointegration under the null hypothesis of no cointegration in linear combinations. Engle and Granger's approach address autocorrelation with a parametric ADF methodology, while Phillips and Ouliaris utilise a non-parametric PP technique.

The results, described in Table 4, reveal that both Engle-Granger and Phillips-Ouliaris tau-statistics failed to reject the null hypothesis of no cointegration. Specifically, these tau-statistics found no evidence of a long-run link among the variables in the real GDP model. According to Pesaran (1997), this absence of cointegration shows there is no stable long-run relationship among the series. Consequently, the FMOLS approach remains appropriate, given its emphasis on stationarity. Thus, the variables will be integrated at their differenced forms. Results of the cointegration tests using both strategies are provided in Table 4.

Table 4
Cointegration Tests Results-Eagle-Granger and Philip-Ouliaris Approach

Null hypothesis: Series are not cointegrated							
Series: FDI FPI IRI RGDP							
Sample: 1990 2024							
Included observations: 33							
Cointegrating equation deterministics: C							

Dependent	Eagle-Granger Approach				Philip-Ouliaris Approach			
	Automatic lags specification based on Schwarz criterion (maxlag=1)				*Long-run variance estimate (Bartlett kernel, Newey-West fixed bandwidth)*			
	tau-statistic	Prob.*	z-statistic	Prob.*	tau-statistic	Prob.*	z-statistic	Prob.*
FDI	-1.87	0.90	-8.44	0.82	-2.76	0.57	-13.06	0.51
FPI	-3.65	0.21	-33.23	0.00	-5.17	0.01	-26.56	0.02
IRI	-4.01	0.12	-105.37	0.00	-1.83	0.91	-9.39	0.76
RGDP	-4.06	0.11	-40.52	0.00	-2.87	0.52	-12.47	0.55

*MacKinnon (1996) p-values.
Source: Authors' computation (2024) *using E-views 12*

Empirical Results and Discussion of Findings

Following the confirmation of stationarity and the absence of cointegration among the variables, the FMOLS technique was utilised to analyse the link between economic growth and the factors of foreign remittance.

The FMOLS estimations suggest that overseas remittance inflows significantly and positively impact real GDP at the 1% level. This shows that greater remittances boost economic development by providing additional investment capital and enhancing liquidity. Higher remittance inflows lead to more frequent transactions, enhancing financial system stability and overall economic activity. Specifically, a billion Naira increase in remittances resulted in about N5.06 billion rise in real GDP, consistent with findings from Cjanci and Cerav (2014), Tolcha and Rao (2016), Wadood and Hossain (2017), and Mwangi and Mwenda (2017).

Foreign direct investment also demonstrates a significant positive association with real GDP at the 1% level. This suggests that higher FDI contributes to economic expansion by providing additional investible capital. A billion Naira surge in FDI resulted in a N14.61 billion increase in real GDP, consistent with another research by Aminu et al. (2015), Shuaib et al. (2015), Adigwe et al. (2015), and Fapetu et al. (2015).

Foreign portfolio investment has a positive and considerable influence on real GDP at the 10% level. A rise in FPI correlates with increased economic engagement and growth. Specifically, a billion Naira growth in FPI translates to a N3.55 billion gain in real GDP.

The coefficient of determination (R^2) suggests that approximately 90% of the variability in real GDP is explained by the combined effects of FDI, FPI, and IRI, with the remaining 10% attributable to other factors. This shows that the model is well-specified. The comprehensive estimation results are shown in Table 5.

Table 5
Fully Modified Least Squares (FMOLS) Estimates
Dependent Variable: RGDP

Sample (adjusted): 1991 2022

Included observations: 31 after adjustments

Cointegrating equation deterministics: C

Long-run covariance estimate (Bartlett kernel, Newey-West fixed bandwidth = 4.00)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	23181.93	2054.36	11.28	0.00***
IRI	5.06	0.98	5.15	0.00***
FDI	14.61	5.09	2.87	0.01***
FPI	3.55	2.08	1.71	0.10*
R-squared	0.90	Mean dependent var		41487.26
Adjusted R-squared	0.89	S.D. dependent var		18330
S.E. of regression	6167	Sum squared resid		913000000
Long-run variance	49795924			

NB: *Significant at 10 per cent and ***Significant at 1 per cent.
Source: Authors' computation (2024) *using E-views 12*

Post-Estimations Tests

As part of robustness checks, the study conducted multicollinearity test utilising the variance inflation factor (VIF) and Autocorrelation presented in Table 6 and Table 7 accordingly.

Multi-Collinearity Test

Multicollinearity denotes the presence of an exact linear connection among the explanatory variables in a regression model. This exact relationship (multicollinearity is a problem in econometrics because such collinearity makes it difficult to disentangle the effect of specific independent variable on the dependent variable. The Decision Rule from the rule is that, if the variance inflation factor is greater than 10, we conclude that there is multicollinearity. Otherwise, there is no multicollinearity among the explanatory variables in the model. From table 4.6 below, it can be seen that the cantered and the uncentered VIF for all the explanatory variables are less than 10 (i.e. VIF < 10). This signifies; there is absence of multicollinearity among the variables in the FMOLS model computed.

Table 6
Variance Inflation Factors

Sample: 1990 2022

Included observations: 33

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
IRI	0.965862	4.228154	2.399553
FDI	25.92913	6.551654	2.798097
FPI	4.330373	1.863885	1.478055
C	4220407.	2.373114	NA

Source: Authors' computation (2021) *using E-views 12*

Autocorrelation and Partial Correlation

From the autocorrelation test result, the related probability values for the 12 lag periods were more than the statistical 5% critical values. This shows that, Autocorrelation, was not present in the estimated model. Thus, the estimations can therefore be assessed to be strong, consistent, efficient and dependable. The outcome is reported in Table 7 below.

Table 7
Autocorrelation Test Result

Null Hypothesis: No Autocorrelation in the Residuals

Sample: 1990 2022

Included observations: 33

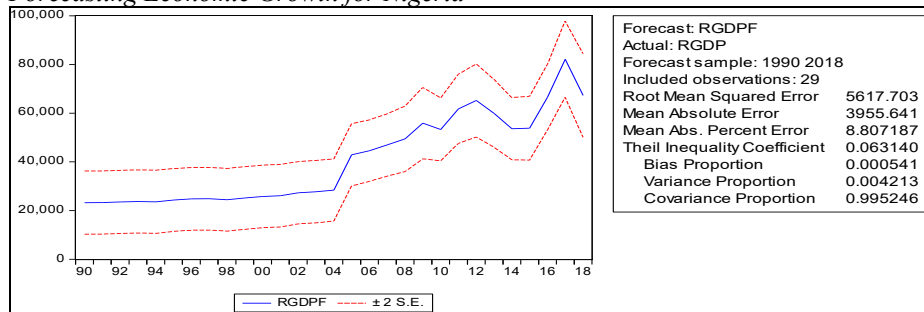| Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob*
. |**. |	. |**. |	1	0.301	0.301	2.8171	0.093
. |**. |	. |*. |	2	0.274	0.201	5.2366	0.073
. |*. |	. |*. |	3	0.212	0.098	6.7435	0.081
. | . |	.**| . |	4	-0.063	-0.217	6.8813	0.142
. | . |	. | . |	5	0.004	-0.001	6.8820	0.230
. | . |	. | . |	6	0.000	0.050	6.8820	0.332
. | . |	. | . |	7	-0.062	-0.022	7.0374	0.425
. | . |	. | . |	8	-0.015	-0.026	7.0463	0.532
. | . |	. | . |	9	-0.041	-0.029	7.1223	0.624
. | . |	. |*. |	10	0.043	0.103	7.2084	0.706
. |*. |	. | . |	11	0.080	0.070	7.5245	0.755
. | . |	. *| . |	12	-0.020	-0.100	7.5456	0.820

Source: Authors' computation (2024) *using E-views 12*

Forecasting Economic Growth for Nigeria

In order to further validate the aforementioned empirical findings, it becomes beneficial to simulate the actual behaviour of real GDP with changes in foreign direct investment, portfolio investment and

international remittance inflows. This is done by applying forecasting methods with the E-views application and the result is reported in Figure 1 below. Explicitly, the result reveals that, the predicted real GDP (RGDPF) for Nigeria remained inside the 2 standard error key lines, hence supporting the strength and accuracy of the projection. Also, judging from relevant economic theories, the projected outcome is accurate given the fact that the Theil inequality index of 0.06 is closer to zero.

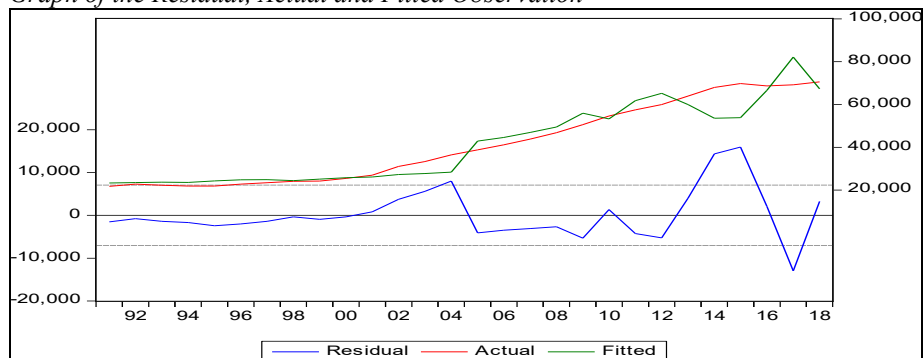**Figure 1**
Forecasting Economic Growth for Nigeria

Source: Authors' computation (2024) *using E-views 12*

Graph of the Residual, Actual and Fitted Observations
The graphs in Figure 2 below demonstrate that, the actual and the fitted observations from the model are almost close to each other. This suggests that the forecast and final prediction errors are at minimum point, thus, enhancing the accuracy of the parameter estimates in the FMOLS model. Thus, the estimated models are resilient.

Figure 2
Graph of the Residual, Actual and Fitted Observation

Source: Authors' computation (2024) *using E-views 12*

Policy Implications of Findings

From the FMOLS data, foreign direct investment, portfolio investment and international remittance inflows were determined to be of great relevance in the time under review. The inference that may be drawn is that, for a desirable level of economic growth to be reached in Nigeria, policy makers need to give significant attention to these variables in the process of macroeconomic policy conception, formulation and execution in the country. Thus, foreign direct investment, portfolio investment and international remittance inflows are particularly vital for promoting economic expansion in the country.

CONCLUSION AND RECOMMENDATIONS

The intention of this study was to objectively assess the impact of overseas remittances, foreign portfolio investment (FPI), and foreign direct investment (FDI) on Nigerian economic growth from 1990 to 2022, employing data from the Central Bank of Nigeria (CBN) and the World Bank. The Fully Modified Least Squares (FMOLS) approach was employed to analyse these associations, with real GDP acting as a proxy for economic growth.

The data reveals that international remittance inflows, foreign portfolio investment, and foreign direct investment all have a considerable beneficial impact on Nigerian economic growth. These numbers suggest that increased overseas remittances, FPI, and FDI contribute considerably to Nigeria's economic growth. The study contributes to the empirical literature by highlighting the role of these variables in driving economic development in the country.

Policymakers should mandate and support programs that diversify investments. This comprises strengthening interaction with Nigerians in the diaspora to enhance remittance inflows and attract a mix of remittances, FPI, and FDI, so developing a more robust and diverse economic basis.

Authorities should increase the management of remittance data and streamline remittance channels to guarantee that funds from the diaspora are efficiently and effectively transmitted to Nigeria. Collaborating with financial institutions, fintech startups, and international organisations could increase the speed and cost-effectiveness of these payments.

To attract both portfolio and direct investments, Nigeria needs maintain a stable and investor-friendly climate. This means lowering legal, institutional, and bureaucratic impediments, offering investor incentives, and creating a stable economic and political climate.

REFERENCES

Abdulai, A. M. (2023). The impact of remittances on economic growth in Ghana: An ARDL bound test approach. *Cogent Economics & Finance*, *11*(2), 2243189.

Adebayo, T. S., & Beton Kalmaz, D. (2020). Ongoing debate between foreign aid and economic growth in Nigeria: a wavelet analysis. *Social Science Quarterly*, *101*(5), 2032-2051.

Akhimien, O. G., & Osifo, O. (2019). Foreign Remittance and Economic Performance of Nigeria. *Journal of Economics*, *4*(2), 35-46.

Ali, H., & Yasmin, F. (2020). The Foreign Remittances, Long Term Sustainable Economic Growth Nexus in Pakistan: An Empirical Analysis Using Bound Testing Approach. *Pakistan Journal of Economic Studies (PJES)*, *3*(2), 187-204.

Ali, S. W., Shoaib, M., & Waseem, M. (2022). Impact of Remittances on Economic Growth: Time Series Evidence from Pakistan. *Jahan-e-Tahqeeq*, *5*(2), 218-227.

Aminu U, El-Maude Jibreel Gambo., & Hamza A. Pate (2015). Foreign Direct Investment and the growth of the Nigerian Economy. *Journal of Economics and Development Studies,* 3(1); 193-421. http://dx.doi.org/10.15640/jeds.v3n1a10.

Amir, M. Z.B., & Amir, M.K.B. (2023). Impact of remittances on economic growth in Africa: An Econometric Analysis. *International Journal of Economics and Financial Issues*, 14(1), 64-72.

Barro, R. J., & Becker, G. S. (1989). Fertility choice in a model of economic growth. *Econometrica: Journal of the Econometric Society*, 481-501.

Barro, R., & Sala-i-Martin, X. (2004). Economic growth second edition.

Beine, M., E. Lodigian, and R. Vermeulen (2010) „„Remittances and Financial Openness" *CESifo   Working Paper Series No. 3090*

Bryan, R. (2004) "Remittances in Armenia: Size, Impacts and Measures to enhance their contribution to Development" *USAID/Armenia, October 1, 2004.*

Buch, C.M., & A. Kuckulenz (2004) "Worker Remittances and Capital Flowsto Developing Countries" Discussion Paper No. 04-31 Centre for European Economic Research Central.

CBN (2013). Statistical bulletin. CBN Bullion. Abuja.

CBN (2014). Statistical bulletin.CBN Bullion. Abuja.

Central Bank of Nigeria (2009). *Statistical Bulletin*.

Chami, R., Fullenkamp, C., & Jahjah, S. (2005). Are immigrant remittance flows a source of capital for development? *IMF Staff papers*, *52*(1), 55-81.

Cheema, A. R., Noor, A., & Ul-Haq, J. A. B. B. A. R. (2021). Do foreign remittances lead to inclusive growth in Pakistan? *Bulletin of Business and Economics (BBE)*, *10*(2), 198-203.

Cjanci, G., & Cerav, A. (2014). The role of remittances received on the Post-Communist Albania 's financial development. European Scientific Journal, 10(7), 375.

Depken, C. A., Nikšić Radić, M., & Paleka, H. (2021). Causality between foreign remittance and economic growth: empirical evidence from Croatia. *Sustainability*, *13*(21), 12201.

Devkota, B. P., & Pokhrel, S. (2023). Forecasting Remittance Inflow in Nepal Using the Box-Jenkins ARIMA Model. *Kathford Journal of Engineering and Management*, *3*(1), 72-86.

Dickey, D. A., & Fuller, W.A. (1981). Likelihood ratio statistics for autoregressive time series with a unit root. *Econometrica*, *49*(4), 1057-1072. doi.org/10.1016/j.eneco.2010.08.003.

Engle, R., & Granger, C. (1987). Co-Integration and Error Correction: Representation, Estimation, and Testing. *Econometrica, 55*(2), 251-276. doi:10.2307/1913236.

Granger, C. W. J., & Newbold, P. (1974). Spurious regressions in econometrics. *Journal of Econometrics,* 2(2), 111-120.

Granger, C. W. J., & Newbold, P. (1977a). *Forecasting Economic Time Series*. New York: Academic Press.

Granger, C. W. J., & Newbold, P. (1977b). The time series approach to econometric model building. inSims (1977)., 7–21.

IOM (2009). Migration in Nigeria: a country profile. International organization for migration.

Johansen, S. and K. Juselius (1990) Maximum Likelihood Estimation and Inference on Cointegration – With Application to the Demand for Money" Oxford *Bulletin of Economics and Statistics 52(2): 169-210*

Johansen, S. and K. Juselius, (1992) „"Testing structural hypothesis in a multivariate cointegrationanalysis of the PPP and the UIP for UK" *Journal of Econometrics. 53: 211-*

Johansen, S., & Juselius, K. (1990). Maximum Likelihood Estimation and Inference on Cointegration with Application to Demand for Money. *Oxford Bulletin of Economics and Statistics, 52*, 169-210.

Karagoz, K. (2009). Workers' remittances and economic growth: evidence from Turkey. *Journal of Yasar University, 4*(13), 1891-1908.

Lime, L. H. (2016). *The impact of foreign remittances on the economic growth of Kenya* (Doctoral dissertation, University of Nairobi).

Maune, A., & Matanda, E. (2022). The Impact of Foreign Remittances on Economic Growth: Evidence from Zimbabwe. *Acta Universitatis Danubius. Œconomica*, *18*(4).

Mohamed, A.M. (2023). The impact of remittance on economic growth and unemployment in Nigeria: An Application Ardl Model. *International Journal of Academic Research in Economics and Management Sciences*, *12* (4),627-642.

Mushi, H. M. (2024). Analyzing the impact of remittance inflows on Tanzania's social development and economic growth. *Cogent Economics & Finance*, *12*(1), 2345298.

Mwangi, B. N., & Mwenda, S. N. (2015). The effect of international remittances on economic growth in Kenya. *Microeconomics and Macroeconomics, 3*(1), 15-24.

Ojha, K.P. (2019), Remittance status and contribution to GDP of Nepal. *NCC Journal*, *4*(1), 101-112.

Okodua, H. (2014). Workers 'remittances and economic growth in selected Sub-Saharan African countries. PhD thesis/dissertation submitted in partial fulfillment of the requirements for the Award of the Degree of Doctor of Philosophy (Ph. D) in Economics, Covenant University, Ota, Nigeria.

Pesaran, M. H. (1997). The role of economic theory in modeling the long-run. *The Economic Journal*, *10*, 178-191.

Phillips, P. C. B., & Ouliaris, S. (1990). Asymptotic Properties of Residual Based Tests for Cointegration, *Econometrica*, *58*, 165-193.

Phillips, P. C. B., & Perron P. (1988). Testing for a unit root in time series regression. *Biometrika*, *75*(2), 335-346.

Radic, M. N., Bogdan, S., & Beloglavec, S. T. (2023). The significance of remittance in fostering economic growth: a bibliometric and systematic literature review. *Intellectual Economics*, *17*(1), 206-231.

Rao, B., & Hassan, G. (2011). A panel data analysis of the growth effects of remittance Economic Modelling, 28, 701-709.

Ratha, D. (2003). Worker's Remittances: An Important and Stable Source of External Development Finance. Global Development Finance, 157 – 172.

Shuaib., & Dania E.N. (2015). The Impact of Foreign Direct Investment on the Growth of the Nigerian Economy. *International Journal of Research in Business Studies and Management*. 2(1), 38-45.

Sims, C. A. (ed.) (1977). New Methods in Business Cycle Research. Minneapolis: Federal Reserve Bank of Minneapolis.

Singabele, P. F. (2013). The brain drains syndrome and health delivery in delivery in Nigeria. NIPSS, Senior Executive Course, 35. Kuru, Jos.

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

Stark, O., Taylor J. E., & Yitzhaki S. (1986). Remittances and inequality, Economic Journal, l(96), 722-740.

Tolcha, T. D., & Rao, P. N. (2016). The impact of remittances on economic growth in Ethiopia. *Indian Journal of Commerce and Management Studies*, *7*(2), 01-15.

Wadood S. N., & Hossain M.A. (2017). Impact of overseas remittances on economic growth: Evidences from Bangladesh. Munich Personal RePEc Archive. Paper No. 8 1657, https://mpra.ub.unimuenchen.de/81657/.

World Bank (2014). Remittance inflows to Developing Countries. World Bank Report, Washington.

World Bank (2011). Migration and Remittances Factbook 2011 Washington, D. C.

World Bank (2024) Migration and Development Brief, Migration and Remittances Unit, Development Prospects Group

.