

# Remittances and Economic Growth: A Case Study of Nigeria

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## Abstract

The study examined the impact of remittances on Economic Growth in Nigeria. Economic growth (RGDP) was used as the dependent variable with remittances (REM) and Overseas development assistance (ODA as the key explanatory variables while controlling for the model with gross fixed capital formation (GFCF) and exchange rate (EXR). The study utilized time series data of secondary data ranging from the period 1986 - 2021 which were sourced from CBN statistical bulletin and WDI. Employing, the ADF and PP tests, all of the variables became stationary at the first difference. The Johansen co-integration test indicates that there exists a long-run equilibrium association between the dependent and independent variables. The ECM result reveals that the errors from the short run to the long run are corrected at the adjustment speed of 46.10% yearly. REM and GFCF have a positive and significant impact on RGDP in the long run while EXR have a negative and significant impact on RGDP in the long run; ODA has no significant impact on growth. Also, all the variables do not confirm the short run impact on growth. The study however concluded that remittances significantly enhance economic growth in Nigeria within the period of study. Hence, we recommend among others that the government increase remittance inflows into the country by developing the financial sector to reduce the cost associated with the inflow of remittances and reduction of tax rate for transactions so people can send money through appropriate channels to aid government collect actual data on remittance flows.

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### **Background to the Study**

Remittances, a form of capital movement, can directly or indirectly impact economic growth. According to the International Monetary Fund (IMF) (2013), remittances are household income from overseas economies, primarily resulting from temporary or permanent migration. They are typically sent by working migrants to support their communities and families, increasing household income and reducing poverty risk (International Organisation for Migration, 2006). This financial assistance supports human capital development, particularly in children, and positively impacts health and school outcomes (Gupta and Pattillo, 2009; Hassan, et al., 2017). Remittances are a reliable source of income for households in underdeveloped nations, with a 10% increase in 2018 worldwide. They are larger than overseas development assistance and second to foreign direct investment. Poor nations receive 77% of total inflows, with Mexico, China, Egypt, Philippines, and India being the biggest recipients. Globalisation and labor surpluses in emerging nations have sparked massive remittance flows (Maimbo and Ratha, 2005), driven by migrants seeking better opportunities (Fagerheim, 2015) and financial obligations to families. Remittances to African nations are a necessary and alternate investment funding source (Adekunle et al., 2020). Remittances are crucial for developing countries' growth and development, providing external funding. In 2021, remittance inflows to Sub-Saharan Africa surged to \$49 billion, with advanced economies like the US, France, Italy, and the UK accounting for 60% of inflows. Nigeria received the most remittances in West Africa (Osei-Gyebi et al., 2023). Ratha (2003) asserts Nigeria's economy has seen rapid capital flows and remittances since 2005, becoming a frontier market. Remittances have grown faster than Official Development Assistance and Foreign Direct Investment, making them a potential source of development funding. They help families and communities in difficult times, boost rural households' consumption, and serve as a foreign exchange. Taylor (1999) suggests remittances could cause inflation as they are primarily used for consumption, with less than USD 1,000 used for food, clothing, and medications. Research works by Stark and Levhari (1982); Ahlburg (1991) show that remittances are primarily used for constructing residences, repaying debts, and funding future emigrations, primarily for low and middle-income families in developing nations. This in turn most of the time, discourages family members of the sender from looking for jobs and this negatively affects the home economy (Chami et al., 2005). Remittances from emigrants and foreign workers have significantly boosted the economic standards of families in developing countries. They provide financial aid, medical assistance, housing, and small-scale businesses, contributing to the well-being of their dependents and boosting the home economy.

Nigeria's underdeveloped economy, underemployment, and limited opportunities are attributed to the younger generation's migration as a solution to financial instability, resource mismanagement, and corruption. Nigeria's economic underdevelopment, unemployment, and lack of opportunities have led to outsider immigration, particularly among scientists, educators, and medical professionals (Chukwuone, 2007), to meet labor market shortages and improve family finances. However, this migration has drawbacks like capital flight and brain drain. A survey shows a rise in Nigerians leaving

the country, while the number of doctors has decreased. Hoffmann (2010) suggests that the Myrdal viewpoint's backwash effects, or cumulative impacts, are offset by remittance payments, which significantly influence migrants' home countries' social, economic, and financial aspects, promoting financial inclusion and macroeconomic growth. However, studies on remittances and Nigerian economic development are limited, focusing on microeconomic effects like poverty, inequality, and brain drain. Reevaluating these effects became imperative and is crucial for policymaking and implementation.

### **Study Objectives**

Specifically, the study seeks to:

1. Assess the impact of remittances on Nigeria's economic prosperity.
2. Examine how Nigeria's economic development is affected by official development assistance.
3. Establish the connection between Nigeria's growing economy and gross fixed capital formation.

### **Research Questions**

1. Is there a significant correlation between remittances (REM) and the economic growth of Nigeria?
2. What is the extent of the impact of official development aid (ODA) on Nigeria's economic growth?
3. Is there a significant correlation between Nigeria's economic growth and its capital stock, or gross fixed capital formation?

The study's findings will aid Nigerian policymakers in formulating strategies to boost remittance inflow and allocate funds for productivity enhancement. The study examines the influence of remittances on Nigeria's economic growth, using secondary data from 1986 to 2021. This study is divided into five parts namely the introduction, literature background, methodology, data presentation and analyses, and conclusions.

### **Literature Review**

Economic growth is the increase in national income per capita, focusing on endogenous variables like GDP, GNP, and NI. It involves efficient resource use and increased production capacity. As Alfano (2014) opined economic growth can be measured by the consistent increase in net real national product and represents a nation's potential output due to modified production factors or enhanced productivity. Remittances are earnings from migrant workers transferred back to their home countries, typically for family support. They include personal savings, investments, charitable contributions, and pension and social security payments from destination nations (Magnusson, 2009).

### **Migrant Remittances and Nigeria's Economic Growth**

Between 1990 and 2013, the number of Nigerians residing outside of Nigeria more than doubled, rising from approximately 465,932 to 1,030,322. Nigerian emigration is driven by job opportunities, with highly qualified (skilled and educated) professionals drawn to

developed areas for their economic benefits. Nigeria ranks as one of the top-receiving African nations for remittances, receiving \$10 billion and \$21 billion from Nigerians living overseas in the 2010 and 2013 fiscal years, respectively. Although Nigeria receives large remittance inflows, the government has not yet properly utilized these inflows, unlike other emerging nations like the Philippines and Mexico. As a result, poverty and wealth inequality remain pervasive problems in Nigeria. According to Odozi et al. (2010), remittances may also contribute to Nigeria's growth provided appropriate initiatives are implemented. Even though the CBN asserts that remittances recorded through official channels account for a higher percentage of inflows than those recorded through informal channels, remittances recorded through official channels in Nigeria have not been fully employed for socioeconomic development, unlike in certain other developing nations like Mexico and India. The premise is predicated on various elements working against remittances' impact on national growth. A few of these variables include but are not limited to, political unpredictability, inefficiency in the business sector and corporate environment, red tape, corruption, and an excessive dependence on natural resources. Remittances from Nigerians living abroad rose by 126% between 2013 and 2018, from \$3.24 billion to \$25.08 billion, or N96.5 billion. With \$17.57 billion in 2019, Nigeria has received \$114.07 billion in seven years (National Bureau of Statistics, 2018). For consistent remittance growth, experts advise lowering the cost of sending money to Africa. In 2019, Africans sending money home were charged \$4.3bn due to a 9% transaction fee. The geopolitical destination of remittances is crucial for Nigeria's policies, encouraging indigenes abroad to partner with their home states and local governments. Experts suggest a national policy framework for Nigerians in the Diaspora to contribute more to the Nigerian economy and partner in national development, similar to India, the Philippines, and Ghana.

### **Theoretical Background**

The consequences of migrant remittances have been the subject of several studies. Scholarly interest in the relationship between remittances and economic growth is sparked by various arguments, theories, and models, with no specific theoretical explanation provided, though claims have been supported by theoretical models. Remittances, despite their small amounts, significantly impact growth and foreign currency build-up (Singh and Sausi, 2010). The J-curve theory suggests that higher import spending occurs due to a short-term decrease in currency value, leading to higher local currency prices for imported items. However, export costs temporarily decrease due to a fall in demand for imported goods, impacting both exports and imports (Ivanovski et al., 2020).

Also, few of these studies demonstrate how remittances alleviate poverty (Meka'a et al., 2022; Saidane, 2021) and aid in the creation of human capital (Calero et al., 2009). They are a significant source of external development finance, and understanding their relationship with growth is crucial (Ratha (2003). Remittances are earnings from migrant workers transferred back to their home countries, typically for family support. They include personal savings, investments, charitable contributions, and pension and social security payments from destination nations (Magnusson, 2009).

### **The Harrod - Domar Model**

The Harrod-Domar model is one Keynesian economic growth model. It is a model used in development economics to explain the rate of expansion of an economy concerning capital and saving levels. The Harrod-Domar model (Memon, 2007) highlights the connection between an economy's saving rate, capital-output ratio, and GDP/GNP growth rate. This model, which was one of the first to come out of Keynes's 1936 General Theory, synthesises the growth models of Evsey Domar (1946, 1947) and Sir Roy Harrod (1939). Its objective was a long-term extension of Keynes's analysis (Hacche, 1979). The 1940s saw the development of the Harrod-Domar growth model, which was based on Keynesian concepts and was widely utilised in developing nations to analyse the relationship between growth and capital demands (Thong and Hao, 2019). The Harrod-Domar economic growth model emphasises savings and investment as key growth drivers. The approach emphasises how investments are dual:

1. It generates income, a phenomenon referred to as the "demand effect."
2. It boosts the economy's productive capacity by increasing its capital stock, which is believed to constitute the "supply effect" of investment.

In summary, the Harrod-Domar model suggests that every economy must save a percentage of its national income and invest in new investments to increase capital stock, assuming a closed economy without government intervention, planned investments equaling planned savings, and labor growth at a constant rate.

### **The Neoclassical Migration Theory**

The rational decisions people make to optimise their financial well-being are the basis of the neoclassical migration theory, an economic theory that explains migratory trends. This idea states that people make migration decisions depending on the anticipated costs and rewards of relocating. According to the neoclassical migration theory, individuals move in quest of better living conditions, greater incomes, and more favourable employment prospects. Additionally, it highlights how push and pull factors (such as regional economic disparities, job possibilities, and quality of life) affect migration decisions. Neoclassical migration theory places a strong emphasis on pay disparities as the main force behind migration, which results in a net movement of people from low-wage to high-wage regions (Rahman, 2011). According to this hypothesis, people migrate to seek for opportunities to maximise their current or anticipated income (Haas, 2010). Conclusively, the neoclassical migration theory focuses on wage differentials as the primary driver of migration and views remittances as an important source of long-run economic growth.

### **Altruism Theory**

The Altruism theory as regards remittances holds that the recipient's utility is a motivation for the remitter because the remitter gains satisfaction from the recipient's consumption (which is funded by the remittances sent by the remitter. It further highlights that migrants remit money back home in concern for the welfare of the remaining family members (Hagen-Zanker & Siegel, 2007; Schleicher, 2006). This

suggests that when there are bad economic conditions in his home country, the migrant is driven to send more money home to support his family. According to the theory, remittances are considered "compensatory transfers" since they rise in response to economic hardships in the migrant's home country, such as financial crises and droughts (Chami et al., 2005). Summarily, according to the Pure Altruism model, remittances are countercyclical, meaning they rise when the business cycle's economic conditions worsen. Hence, as Brown (2006) asserts, that there is a negative correlation between the number of remittances sent home and the state of the domestic economy. According to this concept, a decrease in the amount of remittance inflows would be implied by positive economic conditions in the home nation.

### **Empirical Review**

There exists no consensus assertion on the role remittances play in economic growth, thus various schools of thought maintain that remittances have a positive effect on economic growth, while others maintain that remittances have no effect at all. Hence, there is a large body of empirical studies on the topic. In a panel of 20 sub-Saharan African nations, Olayungbo and Quadri (2019) examined the connections between remittances, financial development, and economic growth between 2000 and 2015. They discovered, using the PMG/MG/ARDL methodologies, that financial development and remittances had a favourable and substantial effect on economic growth over the long and short terms. Kifle (2009) found a positive correlation between remittances from German Eritrean migrant workers and their plans to return home and participate in their parents' companies, based on private questionnaires from 50 homes. Akinpelu et al. (2013) in their study evaluated the impact of remittance inflows on Nigeria's economic growth using co-integration and causality tests. Results showed long-term equilibrium relationships and a uni-direction causality from Gross Domestic Product to remittances, capital formation to remittances, and openness to remittances. Schiopu and Fiegfried (2006) claim that compassion (altruism) has an impact on remittances with a low investment incentive. According to a cross-national examination of World Bank statistics from 2006, a 10% increase in remittances per capital leads to a 3.5% drop in the percentage of the population living in poverty. Eggoh, Bangake, and Semedo (2019) found support for a positive and significant association between remittances and economic growth in developing nations, while aid and foreign direct investments have an insignificant impact. Remittances have a favourable effect on long-term economic growth, according to Matuzeviciute and Butkus (2016), albeit the impact varies depending on the degree of economic development of the recipient nation and the volume of remittances coming into the country. According to Lartey's (2017) research, in a fixed exchange rate regime, a 1 percent rise in remittances boosts per capita growth by around 0.79 percent; however, in a regime with a 1-point increase in the exchange rate flexibility index, this benefit increases by approximately 0.13 percent.

### **Literature Gap**

Research on Nigeria's remittance impact on economic growth is divided, with various perspectives and opinions indicating a need for further investigation into the specific

relationship between remittances and economic expansion. Similarly, Anetor (2019) highlighted the sparse literature on the role of financial sector development in the remittances-growth nexus in Nigeria. While some studies, like Batu (2017), concluded that a continuous increase in remittances does not improve economic growth, others, like Beatrice and Samuel (2015), as well as Olayungbo and Quadri (2019), argue that there is a positive relationship between remittances and economic growth. Most empirical studies (Adarkwa, 2015; Batu, 2017; Beatrice and Samuel, 2015; Loto and Alao, 2019) that reviewed remittances and their impact on economic growth, particularly in Nigeria, ended in 2018. This created a time gap in recent works on the effects of remittances on economic growth in Nigeria, and this study intends to fill this gap by carrying out further studies to determine the impact of remittances and ODA on the economic growth of Nigeria by using data spanning 1986 to 2021.

### Methodology

In this study, secondary data on remittances and other remittance-related variables was used. An annual time series of data covering the years 1986–2021 was employed in this investigation. The study used the Philip Perron (PP) and Augmented Dickey Fuller (ADF) unit root tests to estimate the effects of remittances on the Nigerian economy.

### Data Sources

Data sources included official publications from the journals of the World Bank, Central Bank of Nigeria, National Bureau of Statistics, and the World Development Indicators.

### Econometric Model

The study shows the nexus between remittances and economic growth. We specify the relationship as follows:

$$RGDP_t = f(\text{Rem}, \text{ODA}, \text{GFCF}, \text{EXR}) \quad \dots (1)$$

Where,

ODA is Official Development Assistance

Rem is Remittances

GFCF is the gross fixed capital formation.

EXR is exchange rates.

Econometrically, it is expressed as

$$\log RGDP = \beta_0 + \beta_1 \log \text{REM} + \beta_2 \log \text{ODA} + \beta_3 \log \text{GFCF} + \beta_4 \log \text{EXR} + \mu \quad (2)$$

Where log is the logarithm for of the variables.

By economic expectation are  $\beta_1 > 0$ ,  $\beta_2 > 0$ ,  $\beta_3 > 0$ ,  $\beta_4 > 0$ ,

LREM<sub>t</sub>: From the apriori expectation, remittances are expected to demonstrate a positive relationship to real gross domestic product.

LODA<sub>t</sub>: Real gross domestic product is expected to possess a positive relationship with official development assistance. Increase in official development assistance will bring about an increase in real gross domestic product.

LRGFCt: It is expected that there is a positive relationship between real gross fixed capital formation and the dependent variable which is the real gross domestic product.

LEXRt: exchange rate is expected to have a positive relationship with the dependent variable, real gross domestic product.

### Unit Root Tests

Unit root tests are crucial for assessing the suitability of time series data for econometric study. They use Philip-Perron and ADF tests to determine data stationarity, and co-integration tests to investigate long-term relationships. One way to estimate the unit root model is to:

The unit root model is estimated as:

$$Y_t = \alpha_t + Y_t + \beta Y_{t-1} + \sum_{j=1}^k \beta_j \Delta Y_{t-1}^j + \varepsilon_t \dots \dots \dots (3)$$

$$Y_t = \alpha_t + \beta Y_{t-1} + \sum_{j=1}^k \beta_j \Delta Y_{t-1}^j + \varepsilon_t \dots \dots \dots (4)$$

Where;  $\Delta$  = first difference operator,  $t$  = the trend variable,  $Y_t$  = The variable under consideration,  $\varepsilon_t$  = a white noise assumption. Hence, the null hypothesis for the ADF unit root test is:  $H_0: = 0$  (presence of unit root) and alternative hypothesis is  $H_1: \neq 0$  (absence of unit root).

### Johansen Co-integration Test

The Johansen test is a multivariate extension of the Dickey Fuller test, aiming to find unit roots in linear combinations of variables. It estimates all co-integrating vectors, indicating that normal asymptotic distributions do not apply in cases of  $n$  variables with unit roots.

### Error Correction Model

In the Error Correction Model (ECM), the model can also be re-specified for estimating purposes, as follows:

$$\Delta \ln RGDP_t = a_0 + \sum_{i=1}^k a_i \Delta \ln RGDP_{t-1} + \sum_{j=1}^k a_2 \Delta \ln REM_{t-1} + \sum_{m=1}^k a_3 \Delta \ln ODA_{t-1} + \sum_{n=1}^k a_4 \Delta \ln GFCF_{t-1} + \sum_{p=1}^k a_5 \Delta \ln EXR_{t-1} + \rho_1 \Delta ECT_{t-1} + \mu_{1t} \quad (5)$$

$$\Delta \ln REM_t = b_0 + \sum_{i=1}^k b_1 \Delta \ln REM_{t-1} + \sum_{j=1}^k b_2 \Delta \ln RGDP_{t-1} + \sum_{m=1}^k b_3 \Delta \ln ODA_{t-1} + \sum_{n=1}^k b_4 \Delta \ln GFCF_{t-1} + \sum_{p=1}^k b_5 \Delta \ln EXR_{t-1} + \rho_2 \Delta ECT_{t-1} + \mu_{2t} \quad (6)$$

$$\Delta \ln ODA_t = \beta_0 + \sum_{i=1}^k \beta_1 \Delta \ln ODA_{t-1} + \sum_{j=1}^k \beta_2 \Delta \ln RGDP_{t-1} + \sum_{m=1}^k \beta_3 \Delta \ln REM_{t-1} + \sum_{n=1}^k \beta_4 \Delta \ln GFCF_{t-1} + \sum_{p=1}^k \beta_5 \Delta \ln EXR_{t-1} + \rho_3 \Delta ECT_{t-1} + \mu_{3t} \quad (7)$$

$$\Delta \ln GFCF_t = \theta_0 + \sum_{i=1}^k \theta_1 \Delta \ln GFCF_{t-1} + \sum_{j=1}^k \theta_2 \Delta \ln RGDP_{t-1} + \sum_{m=1}^k \theta_3 \Delta \ln REM_{t-1} + \sum_{n=1}^k \theta_4 \Delta \ln ODA_{t-1} + \sum_{p=1}^k \theta_5 \Delta \ln EXR_{t-1} + \rho_4 \Delta ECT_{t-1} + \mu_{4t} \quad (8)$$

$$\Delta \ln EXR_t = \varphi_0 + \sum_{i=1}^k \varphi_1 \Delta \ln EXR_{t-1} + \sum_{j=1}^k \varphi_2 \Delta \ln RGDP_{t-1} + \sum_{m=1}^k \varphi_3 \Delta \ln REM_{t-1} + \sum_{n=1}^k \varphi_4 \Delta \ln ODA_{t-1} + \sum_{p=1}^k \varphi_5 \Delta \ln GFCF_{t-1} + \rho_5 \Delta ECT_{t-1} + \mu_{5t} \quad (9)$$



## Interpretation and Discussion of Results

### Descriptive Statistics

Table 1 explains the summary statistics of the Rem, ODA, GFCF, and EXR. The study's descriptive statistics reveal a mean value of 40977.53, a middle value of 34889.00, and a standard deviation of 20345.32 for economic growth, while mean values for remittances, ODA, GFCF, and EXR are 9680.821, 1773.510, 32.45670, 122.9967. The data reveals that RGDP has the highest mean value, followed by Rem, ODA, exchange rate, and GFCF. The skewness coefficients are positive, indicating a right-skewed distribution. EXR is mesokurtic, ODA is Leptokurtic, and RGDP, Rem, and GFCF are platykurtic. Jarque-Bera statistics show all variables are normally distributed.

**Table 1**

Variable	RGDP	REM	ODA	GFCF	EXR
Mean	40977.53	9680.821	1773.510	32.45670	122.9967
Median	34889.00	1832.280	593.6850	30.16000	123.1931
Maximum	73382.77	24311.02	12152.08	64.36900	401.1520
Minimum	17180.55	2.424527	114.9300	14.90000	1.754523
Std. Dev.	20345.32	9878.226	2341.115	14.37692	109.2979
Skewness	0.400464	0.184875	2.749194	0.570332	0.861062
Kurtosis	1.528951	1.143777	12.15866	2.376484	3.019887
Jarque-Bera	4.208204	5.373418	171.1699	2.534832	4.449157
Probability	0.121955	0.068105	0.000000	0.281558	0.108113
Sum	1475191.	348509.5	63846.36	1168.441	4427.882
Sum Sq. Dev.	1.45007	3.42009	1.9208	7234.359	418111.2
Observations	36	36	36	36	36

**Source:** Author's Computation using Eviews 10.

### Unit Root test Result

The unit root test results which were computed using both Philip Peron (PP) and Augmented Dickey-Fuller (ADF) show that variables are integrated of order one, becoming stationary when differentiated once. The Johansen test is used to determine the long-term relationship between dependent and explanatory variables due to the integration amount.

**Table 2: Unit Root Test**

	LEVEL I(0)		FIRST DIFFERENCE I(1)		
	ADF	PP	ADF	PP	DECISION
<b>VARIABLES</b>					
<b>LRGDP</b>	-0.58203 ( 0.8817)	-0.490844 ( 0.8813)	-3.8039 -0.0066	-3.70188 -0.0086	I(1)
<b>LREM</b>	-1.97467 0.2961	-2.5894 0.1047	-6.64579 0.0000	-6.64579 0.0000	I(1)
<b>LODA</b>	-1.73986 0.4031	-1.63741 0.4534	-5.99066 0.0000	-6.20223 0.0000	1(1)
<b>LGFCF</b>	-1.64756 0.448	-1.71818 0.4136	-3.51179 0.0137	-3.59939 0.011	1(1)
<b>LEXR</b>	-2.86181 0.1865	-2.86176 0.1865	-6.27238 0.0000	-6.61085 0.0000	1(1)

Source: Author's compilation from Appendix 2

### Correlation Analyses

Table 3 reveals positive correlations between REM, ODA, and EXR with economic growth, while GFCF has a negative correlation with RGDP, and all explanatory variables have values above 0.8.

**Table 3: Correlation result**

Correlation					
Variables	RGDP	REM	ODA	GFCF	EXR
<b>LRGDP</b>	1.000				
<i>prob.</i>	-----				
<b>LREM</b>	0.8873	1.000			
<i>prob.</i>	0.000	-----			
<b>LODA</b>	0.8787	0.8271	1.000		
<i>prob.</i>	0.000	0.000	-----		
<b>LGFCF</b>	-0.8655	-0.8798	-0.7499	1.000	
<i>prob.</i>	0.000	0.000	0.000	-----	
<b>LEXR</b>	0.8845	0.9451	0.7727	-0.8237	1.000
<i>prob.</i>	0.000	0.000	0.000	0.000	-----

Source: Author's computation using Eviews 10

### Johansen Co-integration test Result

The Johansen co-integration test rejects the null hypothesis of no co-integration between variables, revealing a co-integrating equation at the 5% level. This suggests a long-term equilibrium relationship, and the error correction mechanism will be tested to assess its impact on short-run fluctuations. The table below explains further.

**Table 4:** Johansen co-integration Result

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.647928	35.49324	33.87687	0.0318
At most 1	0.290699	11.67817	27.58434	0.9449
At most 2	0.232642	9.003282	21.13162	0.8322
At most 3	0.103885	3.729331	14.26460	0.8867
At most 4	4.21E-05	0.001433	3.841466	0.9683

Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 0.05 level

\* denotes rejection of the hypothesis at the 0.05 level

\*\*MacKinnon-Haug-Michelis (1999) p-values

**Source:** Author's computation from Appendix 3**Short run and Long run estimates of the Vector Error Correction Mechanism (VECM)**

Table 5's VECM result indicates that GFCF and remittances (REM) have a substantial and favourable long-term influence on economic growth. Accordingly, a rise of one unit in REM and GFCF will result in increases in RGDP of 0.31 and 0.49. Additionally, EXR has a negative and large impact on RGDP whereas ODA has a negative but minor impact. With the exception of ODA, all of the explanatory factors show a negative connection with RGDP in the short run. However, in the short term, none of the variables significantly affects RGDP. The ECT, which was previously expected to be negative and significant, has been corrected at a 46.14% adjustment speed in the current year.

**Table 5:** VECM Result

<i>Variables</i>	<i>Long run</i>	
<i>Finally</i>	<i>Coefficient</i>	<i>t-statistics</i>
<i>LREM</i>	-0.319790	-5.21273
<i>LODA</i>	0.697710	0.776
<i>LGFCF</i>	-0.495519	-3.32198
<i>LEXR</i>	0.892923	5.43837
	<i>Short run</i>	
<i>ECT</i>	-0.461420	-7.58879
<i>LREM</i>	-0.008946	-0.60207
<i>LODA</i>	0.007957	0.61941
<i>LGFCF</i>	-0.079515	-1.14222
<i>LEXR</i>	0.005667	0.19470

**Source:** Author's compilation from Appendix 4  
Post-Estimation/ Diagnostics Tests

**Table 6:** Serial correlation Test

VEC Residual Serial Correlation LM Tests

Date: 07/22/23 Time: 04:23

Sample: 1986 2021

Included observations: 33

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Null  
hypothesis: No  
serial  
correlation at  
lag h

---

Lag	LRE* stat	df	Prob.	Rao F-stat	Df	Prob.
1	26.63625	25	0.3743	1.084153	(25, 46.1)	0.3959
2	24.75978	25	0.4759	0.990292	(25, 46.1)	0.4971
3	43.04093	25	0.0139	2.049103	(25, 46.1)	0.1172

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**Source:** Author's computation using Eviews

**Table 7:** Heteroskedasticity Test

VEC Residual Heteroskedasticity Tests (Levels and Squares)

Date: 07/22/23 Time: 04:24

Sample: 1986 2021

Included observations: 33

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Joint test:

Chi-sq	df	Prob.
335.4373	330	0.4066

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**Source:** Author's computation using Eviews

The joint test of chi-sq statistics yielded a p-value of 0.4066, indicating a significant 5% level, thereby rejecting the null hypothesis of homoscedastic errors.

The regression analysis reveals that remittances and GFCF significantly influence Nigeria's long-term economic growth, while explanatory variables are not statistically significant in short-term RGDP. The study validates the Pure Self Interest theory, stating that remittances positively impact the receiving country's economic growth, contradicting previous research with regards to ODA in Cameroon and Cape Verde (Adarkwa, 2015).

### **Conclusion**

Remittances were found to have a significant long-term impact on economic growth since they raised the nation's RGDP, which in turn boosted economic growth. However, in the short term, it had no impact on enhancing growth. GFCF service positively impacted long-term growth, while ODA has negative and positive relationships with RGDP, but none statistically significant. Corruption, embezzlement, and mismanagement of funds have shown to hinder proper channeling of remittance funds. It was recommended that given the importance of remittances to the Nigerian economy, the government should try to strengthen ties with other nations in order to lower immigration restrictions and encourage more people to work outside and bring earnings home.

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