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RESEARCH ARTICLE

Assessing the Impact of Remittances, Foreign Direct Investment and Sovereign Debt on the Nigerian Economy

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Abstract

This research assessed the impact of Remittances, Foreign Direct Investment and Sovereign Debt on the Nigerian Economy for the period 1981-2023. The specific objectives of the study were to determine the effect of worker remittances, personal remittances, FDI and sovereign debt on Nigeria's real gross domestic product. The study was anchored on the new economics of migration theory and the neoclassical growth model which emphasized the vital role of capital accumulation in output growth. Data on worker remittance and personal remittance were sourced from World Development Indicator while FDI, sovereign debt and real GDP were sourced from the CBN. Error Correction model was the main data analysis technique. The results indicated that workers remittances had a significant positive impact on Nigeria's Real GDP, personal remittances had a decreasing effect on economic growth, foreign direct investment exerted a positive and statistically significant effect on the economy while sovereign debt was found to have a significantly negative effect on the economy. The study concluded that worker remittances and FDI emerged as the major contributors to GDP growth, underscoring the importance of Nigerians in diaspora in supporting the domestic economy. The study recommended intensification of the technical exchange programme which ensures compensation of short-period workers to earn more personal remittances, effective debt management and offering incentives that will spur investment of foreign capital in critical sectors of the Nigerian economy in order to enhance overall economic growth.

Keywords	*Foreign Direct Investment; Remittances; Sovereign Debt; Workers' Remittances; Personal Remittances; Nigerian Economy*
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Introduction

While remittances have always been connected with migrant workers, the advent of globalization has expanded this relationship beyond ordinary worker migration. Remittances currently include both the residence and employment statuses of earners and employers (Owoeye and Omoniyi, 2024). For example, in Nigeria, remittances are reported based on workers' residency in host countries, distinguishing between "workers' remittance" (cash sent by migrants abroad) and "personal remittance" (funds transferred by foreign employers to workers within Nigeria) (Emmanuel and Michael, 2023). Personal remittances are a more consistent source of income for households, whereas other exchanges play different roles in economic growth.

The larger economic impact of remittances is frequently contrasted to other long-term capital inflows such as FDI, official development assistance (ODA or foreign aid), and sovereign debt, all of which are seen to promote economic growth. The increasing trend of diaspora remittance inflows throughout the years has piqued the interest of stakeholders, including governments, commercial companies, and international organizations, as it represents a potential source of external finance. According to the Central Bank of Nigeria's (2024) statistics numbers, diaspora remittances have outperformed other forms of capital inflows such as foreign direct investment (FDI) in Nigeria, functioning as a key source of foreign cash over the years.

Migrant or personal remittances are designed to benefit both the beneficiaries and their respective nations (Mgbomene, 2024a). The flow of diaspora remittances during economic downturns, when compared to other economic inflows, demonstrates its importance as an economic growth element and domestic investment engine (Englama, 2007). This is notably true for Nigeria between 2020 and 2024, when migrant remittances alone topped N12 trillion. Given Nigeria's rising influx of both migrant and personal remittances and related capital, this research aims to give an updated analysis of how these financial inflows contribute to economic growth, particularly in light of Nigeria's growing considerable reliance on remittances.

Statement of the Problem

Nigeria has had a continuous growth in remittance inflows over the last two decades, putting it among the top remittance-receiving countries in the world. According to the World Bank (2023), Nigeria accounted for up to 82% of total remittance inflows to West African nations in 2022 and 2023. In Sub-Saharan Africa, Nigeria received 35% of overall remittance inflows (World Bank, 2023). According to statistics, Nigeria received $19.5 billion in migrant remittances in 2023 (World Bank, 2023)—equivalent to around ₦12 trillion. Also, personal remittance was at $9 billion, which is around ₦6.6 trillion. This is a greater than 100% increase in both remittance inflows to Nigeria over the past decade. More concerning is the fact that, despite the large number of remittances flowing into Nigeria, there is little factual research available to determine whether the Nigerian economy is expanding or slowing. This was also highlighted in the work of Mgbomene (2024a). Addressing the link between remittances and economic growth in Nigeria is one step towards tackling the problem of ambiguity in this sector.

One important issue with remittances, recognized by Osei-Gyebi et al. (2023), is insufficient channeling of remittances toward productive ventures. While remittances are a critical source of foreign income, researchers such as Fadeyi and Alabi (2023), Englama (2007), and Nwokoro (2024) assert that much of the funds are typically directed toward immediate household consumption rather than investments in infrastructure, small businesses, or education, which are key drivers of long-term economic growth. This pattern of use reflects many Nigerian households' immediate purchasing requirements, limiting the multiplier effect of remittances on the economy (Nwokoro, 2024). Without targeted measures that stimulate investment, remittances risk becoming a tool for short-term relief rather than a source of economic development. Thus, determining the link between remittances and growth is the first step toward remedial measures that will increase its contribution to the nation's economy.

Worker remittance and personal remittance are the forms of remittance identified by Owoeye and Omoniyi (2024). Previous studies such as Agu, 2020; Emmanuel and Omeje, 2022; Ime, Orok and Udoka, 2020; Kutu and Ohonba, 2024; Mba and Chijioke, 2024; etc.) have modeled remittance and economic growth using aggregated value of remittances. Furthermore, foreign direct investment (FDI) has been a repeating variable in most prior models. This results in little information on how remittances influence the Nigerian economy, preventing policymakers from advancing policies that will encourage remittances, especially as the majority of remittances entering the Nigerian economy are not recorded. This introduces the notion of personal remittances, which have comprehensive records, as stated by Emmanuel and Obiechina (2023). Thus, disaggregating remittance indicators in empirical research is required to gain a better understanding of their impact on development prospects and give deeper insights into how to use them for higher economic growth in the country. Looking at remittances from a disaggregated viewpoint allows for a more complete understanding of their impact.

While remittances present a valuable financial inflow for Nigeria, there appears to be insufficient knowledge of its main impact on the economy especially Nigeria's gross domestic product. Sovereign debt being an index of remittance is largely neglected in economic literature and this study stands to solve this problem of insufficient literature in this area. With many studies not taking due cognizance of the other indices of remittances (migrant, personal, FDI and sovereign debt), there is still need for more research efforts in this direction. By analyzing remittances' utilization in Nigeria, the country can project the direction of flow in the economy with a view to ascertaining the sustainability of remittance as driver of economic growth.

Objectives of the Study

The general objective of this study is to assess the impact of Remittances, Foreign Direct Investment and Sovereign Debt on the Nigerian economy. The specific objectives are to:

i. determine the effect of workers' remittances on Nigeria's real gross domestic product;
ii. analyze the extent to which personal remittances has affected real gross domestic product of Nigeria;
iii. investigate the relationship between foreign direct investment and real gross domestic product of Nigeria;
iv. evaluate the relationship between sovereign debt and real gross domestic product of Nigeria.

The hypotheses stated below will be tested at 5% level of significance. They are stated in their null forms as follows:

H_{01}: Workers' remittances have no significant effect on Nigeria's real gross domestic product.
H_{02}: Personal remittances have no significant effect on Nigeria's real gross domestic product.
H_{03}: There is no significant effect of foreign direct investment on real gross domestic product of Nigeria.
H_{04}: There is no significant effect of sovereign debt on real gross domestic product of Nigeria.

Literature Review

Conceptual Review

The conceptual review is based on the conceptual framework which depicts the relationship between the variables of study.

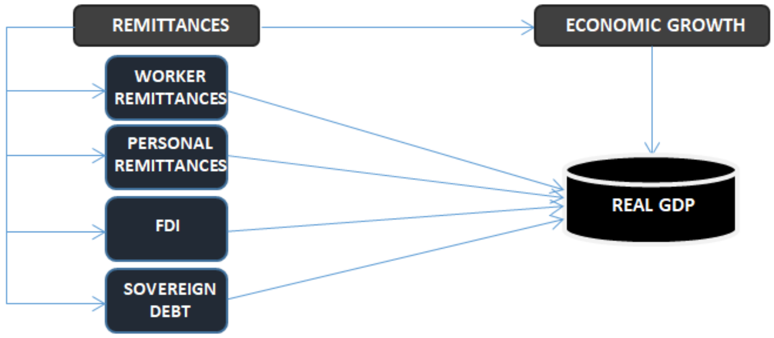

Figure 1: Conceptual Framework (Source: Author's Conceptualization, 2025)

Remittances are money or in-kind transfers made by migrants to individuals or households in their home countries, which frequently serve as a lifeline for low-income families. The World Bank (2023) defines remittances as human transactions that can mobilize foreign capital inflows and stimulate growth in recipient economies. This viewpoint is consistent with research that shows that remittances not only improve household welfare but also strengthen the financial system in nations with restricted access to global financial markets (Adams and Cuecuecha, 2013). These transfers are increasingly acknowledged as a significant economic weapon in emerging nations, not just as a source of foreign cash, but also as an important method of improving household income, ensuring economic stability (Osayi and Dibal, 2024) and improving basic human needs (Awogbemi, 2023).

Worker remittances are monetary transfers made by people who have moved to other countries, either temporarily or permanently, to find work. These transfers are often driven by familial commitments, with migrants transferring a portion of their earnings to assist relatives in their home countries. Worker remittances play an important role in the economy, especially in developing countries, where they contribute to household financial stability and act as a hedge against income shocks (Emmanuel and Michael, 2023). Health expenditure is also included in the need for remittances as noted by Awogbemi (2022).

Personal remittances are payments given by overseas employers to individuals staying in their home country without the worker moving. It also refers to payments sent to workers in a foreign nation for a limited duration, often one year (World Bank, 2022). This sort of remittance comprises remuneration received by persons working for multinational firms but staying in their home country, or payments sent to freelancers and remote workers based in Nigeria. Personal remittances, unlike worker remittances, which are highly dependent on the migrant's host country, are less volatile and are frequently channeled through formal financial systems, which can help to strengthen the local banking infrastructure and promote financial inclusion (Osayi and Akemieyefa, 2022; Ratha et al., 2011).

In addition to migrant and personal remittances, foreign direct investment is another form of capital inflow that was used in this study. Foreign direct investment is defined as the process of making a long-term investment in an enterprise which operates in any other economy than that of the enterprise which is making this investment (Nweke-Charles, Chukwu and Elom, 2024). In this context, intention of the investing firm is not just to get higher returns but also to gain some extent of managerial authority and control or an effective voice in the management of enterprise in which this investment will be made (IMF, 2019). Similarly, the IMF (2008) defines direct investment as a category of cross-border investment associated with a resident in one economy having control or a significant degree of influence on the management of an enterprise that is resident in another economy. It refers to the physical investments made by foreign investors in the domestic country such as investments into building, machinery and equipment. In this process, resident(s) of one country (i.e. home country) acquires ownership for the purpose of controlling production, distribution and other activities of a firm in another country. (i.e. the host country), and is then regarded as a direct investor (Nweke-Charles, Chukwu and Elom, 2024).

Sovereign debts are referred to as debts owed by the Nigerian government to both domestic and foreign creditors (IMF, 2024). The focus of this study is on external sovereign debt since they constitute capital inflows into the economy. Even though they are not expressly classified as remittances because they are in form of borrowing, the Nigerian government classifies it as capital injection hence they can serve the same purpose as remittances i.e. for investment in critical sectors. When tax revenues are low, such as during recession, governments borrow money to pay for existing spending commitments (World Bank, 2022; IMF, 2024). Governments borrow from international capital markets, in larger amounts and usually at longer maturities (Tang, 2015). Often, this form of lending is not motivated primarily by commercial objectives (although the lender may not say this in practice). One government might lend to another to strengthen bilateral ties.

From a macroeconomic perspective, the interaction between remittances, FDI, and economic growth highlights the potential of these capital sources to drive sustainable development outside of government intervention (Ibeaja, Amadi and Dim, 2022). Economic growth is represented by real gross domestic product and this is defined as the total sum of goods and services produced within the Nigerian economy for one year. Remittances, for example, contribute to economic growth by providing households with a steady income that sustains consumption and facilitates investments in human capital, such as education and healthcare (Adams and Cuecuecha, 2013). FDI, on the other hand, brings in not only capital but also technology transfer and management expertise, thereby improving productivity and fostering competitive industries (Borensztein, De Gregorio, and Lee, 2018). As such, economic growth can be viewed as an outcome influenced by remittances and other external financial flows, which together shape the economic resilience and progress of developing nations (Ratha, 2013).

Theoretical Framework

The popular growth theory and model have been the one propounded by Solow (1956), Lewis (1954), Harris and Todaro (1970), Romer (1986) among others. These set of economists believed that the sources of economic growth begins with surplus labour to physical capital investment and supported by technological, change, foreign aid, foreign investment, investment in human capital, etc. However, there is another paradigm of knowledge known as the New Economics of Labour Migration (NELM) which sees the collective decision to maximize income and employment opportunities and to minimize risks as the reason for capital accumulation through remittances (Mgbomene, 2024b). Migration is considered to be an insurance strategy, as remittances will serve as a veritable source of capital that will smoothen consumption and investment.

Remittance has been classified as major component of international capital flow and is seen as a major source of monetary inflow into an economy (Mgbomene, 2024b). The importance of remittances has been incorporated as a source of growth in a conventional neoclassical growth model. The classical theory centers on capital transfer and industrialization to poor nations to move the economy forward. The neoclassical theory believed in marginal labour productivity and wage level increase in the migrant sending societies. The Neo-Marxist theory believed that migration and remittances will produce and reinforce the capitalist way of dealing with inequalities. To this effect, this research work is anchored on the new economics of migration theory and the neoclassical growth model. These two models explain the vital role of capital accumulation (remittances) in output growth and this is the main focus of this study.

Empirical Review

Empirical studies on the effects of remittances on economic growth in Nigeria present diverse results, reflecting both positive and negative impacts. Contrasting perspectives also exist, highlighting situations where remittances may not contribute positively to growth. For instance, Anetor (2019) and Loto and Alao (2019) found evidence of negative relationships between remittances and growth under certain conditions. These nuanced outcomes point to the influence of factors such as data periods, remittance types, and the specific economic indicators employed, underscoring the need for a comprehensive analysis that accounts for these variables in assessing remittance impacts on growth.

Nweke-Charles, Chukwu and Elom (2022) examined the impact of foreign investment inflows on economic growth in Nigeria for the period 2005-2022. Results from the Vector Error Correction Model (VECM) indicated that foreign direct investment had positive significant impact on the gross domestic product of Nigeria, foreign portfolio investment had significant negative impact on the gross domestic product in Nigeria, and foreign loan had significant positive impact on the gross domestic product in Nigeria. Kenechukwu et al (2023) studied the relationship between remittances and economic growth in African emerging economies from 1990 to 2021. The autoregressive distributed lag result indicated that remittances have a non-significantly negative effect on the gross domestic product growth rate. Domestic credit to the private sector and the inflation rate negatively influenced economic growth.

Osei-Gyebi et al. (2023) showed that individuals with access to both bank and mobile accounts are more likely to save and invest remittances effectively. Financial inclusion thus acts as a critical enabler, allowing remittance recipients to channel funds into savings and productive investments at the household level. Offor et al. (2023) emphasized the role of digital remittance channels, such as mobile money, which reduced transaction costs and improved accessibility during the pandemic. Nweke-Charles et al. (2022) conducted a comparative analysis of remittances and other capital inflows, noting that remittances offer a more stable source of foreign exchange compared to foreign direct investment (FDI) and portfolio investments, which are sensitive to economic and policy shifts. Their findings suggest that remittances could be a dependable tool for economic stability, especially during periods of high market volatility.

Adigun and Bolarinwa (2023) focused on remittances' impact across Nigeria's agricultural and service sectors. They discovered that remittances significantly enhance productivity in the agricultural sector, a key area for Nigeria's rural economy, by providing funds for farm improvements and expanding agricultural outputs. Oladele, Afolabi, and Ogundipe (2023) assessed remittances' contribution to poverty alleviation in rural Nigerian communities. Their research found that remittances improve household welfare by supporting education, healthcare, and basic needs, thus promoting economic stability in rural areas with limited financial access. Asongu and Odhiambo (2023) concluded that remittances have a larger positive impact in economies with a well-developed financial sector, as recipients can leverage financial services to invest in productive activities. Ekpo and Essien (2023) highlighted the importance of a stable macroeconomic environment to ensure remittance inflows effectively contribute to economic progress.

Further study by Bello, Ibrahim, and Usman (2023) analyzed remittances' role in reducing income inequality in Nigeria. They found that remittances help narrow the income gap, particularly in urban areas, where lower-income households benefit disproportionately from these funds. Adamu et al. (2023) revealed that digital platforms lower transaction costs, improve remittance accessibility, and facilitate recipient savings and investments. Joshua, Adewale, and Uzomba (2023) studied the effect of remittances and foreign capital inflows on domestic investment in Nigeria. They found that remittances play a significant role in enhancing local investment by providing capital for small business development, particularly in regions where access to traditional financing is limited. Abdullah, Mahmood, and Yusuf (2023) found a strong positive correlation between remittance inflows and educational access in low-income families, leading to improved literacy rates and skill development. Uzoamaka and Chukwudi (2023) found that remittances alleviate financial stress for households, particularly in low-income and economically unstable areas, by reducing debt burdens and enabling recipients to meet essential needs.

Fadeyi and Alabi (2023) found that remittances contribute to job creation by funding micro-enterprises and small businesses. Eze and Akinyemi (2023) analyzed the relationship between remittances and household debt reduction in Nigeria. They found that remittances often alleviate financial burdens by enabling families to pay off debts, reducing reliance on high-interest loans. This stabilization of household finances allows recipients to allocate resources toward productive investments. Nwokolo and Ifediora (2023) concluded that remittances fund household-level investments in solar panels and other renewable energy sources, especially in off-grid rural areas. Agwu and Okeke (2023) found that remittance-receiving households experience improved nutrition and resilience to food price shocks.

Taiwo and Oluwatoyin (2024) derived from correlation analysis and error correction model estimation, that remittance inflows have a significant positive impact on GDP growth in the long run but an insignificant effect in the short term. Owotemu, Ifechi-Fred and Faleti (2024) expanded on the role of remittances in supporting Nigeria's housing and infrastructure sectors, noting that approximately 87.5% of remittance inflows in 2018 were directed toward real estate investments. Razaq, Tade, and Mathew (2024) indicated that remittances are instrumental in poverty alleviation by financing basic needs, education, and debt repayment, emphasizing their vital role in maintaining economic stability at the household level. Augustine and Abieyuwa (2024) found that remittances play a substantial role in economic growth.

Kutu and Ohonba (2024) revealed that foreign capital inflows have a long-run impact on economic growth in Nigeria except for official development aids. FDI and REM exerted strong positive effects on GDP. Owoeye and Omoniyi (2024) demonstrated that, in the short term, remittance inflows had an insignificant negative effect on Nigeria's GDP growth. However, in the long run, remittance inflows showed significant positive impact on the GDP growth rate. Muhammad et al. (2024) indicated that both FDI and remittances have a statistical significance effect on GDP. This suggested that FDI and remittance inflows contribute to Nigeria's economic growth. Findings from the study of Mba and Chijioke (2024) showed that remittances and foreign direct investment impacted positively and significantly on economic development and the exchange rate negatively influenced economic development.

Gap in Literature

While substantial research exists on the relationship between remittance inflows and economic growth, several critical gaps in the literature warrant further investigation, particularly within the Nigerian context. First, although studies have explored the general impact of remittances on economic growth, limited attention has been given to the disaggregated effects of remittances, such as the individual effects of migrant remittances and personal remittances on the Nigerian economy.

Additionally, there is a lack of empirical studies that examine the long-term impact of remittances on economic growth using the combination of the intervening variables such as FDI and sovereign debt. Most studies focus on short-term effects or immediate consumption patterns of remittances without considering the potential for sovereign debt and foreign direct investment in either enhancing or decreasing the way remittances affect growth. Sovereign debts are capital inflows into the Nigerian economy and they have intervening effect on remittances such that increased inflows enhance other economic sectors growth. Therefore, to foster economic growth in Nigeria over time, there is need to consider a wide variety of variables that can affect remittances – growth nexus.

Methodology

This study adopts the ex-post facto research design. The choice of this design is based on the use of secondary data to test the hypotheses formulated and the need to establish a linear relationship between remittances and economic growth: Specifically, data on workers remittances and, personal remittances are sourced from the World Bank (2024) while real gross domestic product, foreign direct investment and sovereign debt are sourced from the Central Bank of Nigeria Statistical Bulletin (2024) edition: The data are time series hence they are subjected to stationary/unit root test using the Augmented Dickey-Fuller (ADF) unit root. Johansen co-integration (Johansen, 1988) test is carried out to confirm the existence of long-run relationship among the variables. Furthermore, the model estimation follows the error correction model (ECM) technique due to the first difference integration of the variables. The model estimated is shown below:

Model Specification

This study's econometric model draws from Owoeye and Omoniyi (2024), which examines the relationship between remittance inflows and economic growth. Their model is specified as:

GDP = *f*(PREM, FDI, EXR, GEXP) **[1]**

Source: *Owoeye and Omoniyi (2024)*

Where GDP = Gross Domestic Product, PREM = Personal Remittance, FDI = Foreign Direct Investment, EXR = Exchange Rate, GEXP = Government Expenditure.

To tailor the model to our research, we disaggregate remittances into two types as identified in the literature while adopting real gross domestic product as a measure of economic growth in Nigeria:

RGDP = *f*(WREM, PREM) **[2]**

Where:

RGDP = Real gross domestic product (in billions of naira)
WREM = Workers' remittances (in billions of naira)
PREM = Personal remittances (in billions of naira)

In order to incorporate other relevant capital inflows, we include the other sources of remittances which also double as capital inflows and expand the model as follows:

RGDP = *f*(WREM, PREM, FDI, SOVD) **[3]**

Where:

FDI = Foreign direct investment (in billions of naira)
SOVD = Sovereign debt (in billions of naira)

Transforming the functional equation into a linear econometric form and adding time variances, we have:

$$RGDP_t = \alpha_0 + \alpha_1 WREM_t + \alpha_2 PREM_t + \alpha_3 FDI_t + \alpha_4 SOVD_t + \epsilon_{1t} \quad [4]$$

Where:

α_0 is the constant or intercept,
α_1 α_2, α_3 and α_4 are the coefficients to be estimated,
ϵ is the error term,
't' represents the time period from 1981 to 2023.

A-priori Expectation and Decision Criteria

The primary objective of this study is to assess the effect of remittance inflows on Nigeria's economic growth. Based on economic theory, the expected signs of the coefficients are positive:

$\alpha_1 > 0$, $\alpha_2 > 0$, $\alpha_3 > 0$ and $\alpha_4 > 0$

This means that all remittance-related variables are anticipated to have a positive and significant effect on economic growth indicator – real gross domestic product.

Data Analyses

Unit Root Test

To ensure the validity of the time series data, an Augmented Dickey-Fuller (ADF) test was conducted to check for stationarity.

Table 1: Unit Root Test Results (ADF Test Summary)

Variable	ADF test stat. at Level (*p*-value)	ADF test stat. at 1st difference (*p*-value)	Order of Integration
RGDP	0.65044 (0.9894)	-3.30652 (0.0212)	I(1)
WREM	-0.56661 (0.8670)	-5.42300 (0.0001)	I(1)
PREM	-0.34798 (0.2683)	-3.38566 (0.0284)	I(1)
FDI	-1.77437 (0.3876)	-8.55937 (0.0000)	I(1)
SOVD	-1.89237 (0.3324)	-3.87208 (0.0049)	I(1)

Table 1 above shows that the variables are all stationary at first difference i.e. I(1). Thus, the data have their statistical properties unchanged over the time period of study. This also implies that the data is suitable for the regression forecast.

Johansen Cointegration Test

H_0: No long run relationship exists among the variables (no cointegration)

H_1: A long-run relationship exists among the variables.

Table 2: Summary of Johansen Cointegration Test

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	Prob.**
None *	0.523365	39.64021	0.0413
At most 1 *	0.411127	31.18182	0.0365
At most 2	0.199891	8.920272	0.6554
At most 3	0.119856	5.106774	0.5811
At most 4	0.014866	2.246866	0.2861

Note: *Trace and Max Eigen stats indicate 2 cointegrating equation at the 0.05 level (***Source**: Researchers' Computation using E-Views)

Table 2 above provides the results for the Trace and Max-Eigen statistics of the Johansen cointegration test. The Trace statistic indicates two cointegrating equation at the 5% level, since the test statistics at 'None' and 'At most 1' exceeds the critical values in the "None" and 'At most 1' hypothesis. This suggests the rejection of the null hypothesis of no cointegration. The Max-Eigen statistic also supports the presence of at least one cointegrating equation. The study therefore concludes that there is long run relationship between remittances and Nigeria's economic growth.

Model Estimation Using the Error Correction Model

The research questions are addressed through the coefficients of the independent variables (worker remittance, personal remittances, foreign direct investment, and sovereign debt) on Nigeria's Real GDP. The regression analysis was conducted using the Least Squares method with the ECM variant since the data were I(1) and cointegrated. The results are presented in Table 3 below:

Table 3: Regression Result

Variable	Coefficient	Std. Error	t-Statistic	Prob.	Decision on Hypothesis Test
C	98.54253	17.72821	5.558515	0.0000	
WREM	16.55964	0.670232	24.70732	0.0000	Null hypothesis is rejected
PREM	-2.385563	1.445688	-1.650123	0.1845	Null hypothesis is accepted
FDI	9.402406	3.599598	2.612071	0.0128	Null hypothesis is rejected
SOVD	-2.548382	0.610161	-4.176576	0.0002	Null hypothesis is rejected
ECM(-1)	-0.033567	0.012637	-2.656248	0.0345	
R-squared = 0.853091		F-statistic = 25.73613		Durbin-Watson stat = 1.955907	
Adjusted R-squared = 0.809388		Prob(F-statistic) = 0.0000			

Source: Regression Analysis using E-Views

The coefficient for the constant term is 98.543, suggesting that in the absence of remittance variables, Nigeria's economy (proxied with Real GDP) would experience a base level of 98.543 units of growth. This baseline growth represents the underlying level of GDP irrespective of the explanatory variables. This also shows that there is positive movement in real GDP occasioned by the stochastic variables. Also, the study estimated a speed of adjustment mechanism of 3.36%. This implies that holding remittances variables at a constant decreasing rate of 3.36% annually, there will be long run equilibrium growth in the Nigerian economy.

Going further, the coefficient for worker remittances is 16.559 with *p-value* of 0.0000. This indicates a positive and statistically significant impact of worker remittances on Nigeria's GDP. This also means that for every unit increase in worker remittances, Nigeria's GDP increases by approximately 16.559 units. This positive relationship underscores the critical role of worker remittances in enhancing economic growth, as they contribute significantly to the nation's real GDP.

Personal remittance exerted a negative effect on real GDP with a coefficient of -2.386. This implies that for every unit change in personal remittance, Nigeria's economy shrinks by 2.386 units and this is estimated annually. In other words, there is negative trend in Nigeria's RGDP occasioned by personal remittances. However, the *p-value* of 0.1845 is an indication that the negative effect was not statistically significant at 5% level.

The coefficient for foreign direct investment is 9.402, also positive and statistically significant (*p-value* = 0.0128). This result implies that an increase in FDI leads to an increase in Nigeria's GDP by approximately 9.402 units per unit of FDI. This finding highlights the contribution of foreign investments in fostering economic development and growth in Nigeria, as FDI serves as an essential source of external capital for various economic sectors.

The coefficient for sovereign debt is negative -2.5484, signifying a negative and significant impact of sovereign debt on GDP (p-value = 0.0002). This significantly negative relationship indicates that Nigeria's GDP decreases by approximately 2.548 units for each unit change in sovereign debt. This result suggests that debt, when managed properly, can facilitate economic growth but the reverse is the case for Nigeria as the external capital inflow through debts accumulation has been detrimental to growth in the economy. Perhaps, the funds are not being directed to the funding of critical infrastructure and development projects, which in turn exerts negative effect on GDP growth. On the overall, the remittance variables have significant joint effect on economic growth in Nigeria accounting for as high as 80.9% of the changes in real GDP for Nigeria. In summary, the regression results confirm that worker remittances and foreign direct investment are both positively impacting on Nigeria's economic growth, with worker remittances having the largest coefficient.

The hypothesis formulated earlier in the study are tested and the decision from the hypothesis test is that we reject the first, third and fourth null hypothesis and accept the second null hypothesis. This implies that worker remittance has significant effect on Nigeria's real gross domestic product; personal remittance has no significant effect on Nigeria's real gross domestic product; there is significant effect of foreign direct investment on real gross domestic product of Nigeria; and that there is significant effect of sovereign debt on real gross domestic product of Nigeria.

Discussion and Implication of Findings

The regression analysis revealed several key insights. The findings showed a negative and statistically significant relationship between personal remittances and real GDP. The coefficient for personal remittances suggests that personal remittances have a substantial negative impact on Nigeria's economic growth. This aligns with the findings of researchers like Anetor (2019), Loto and Alao (2019) and Nweke-Charles, Chukwu and Elom (2022), who found that remittances as form of compensation for work done had significant negative impact on the gross domestic product in Nigeria. The negative effect of personal remittances can be attributed to the channel in which these capital inflows are invested in Nigeria. According to Osei-Gyebi et al. (2023), the use of remittances in enhancing household consumption has different impact on the economy more than using same remittances in providing capital for small business investments which contributes to GDP growth. Therefore, payments made by foreign employers to individuals residing in their home country without the worker relocating or the worker living for a short period of time and earning compensation for work done has significantly decreased economic growth in Nigeria.

Further analysis revealed that workers remittances, which involve cash transfers sent home by individuals who have migrated to foreign countries, either temporarily or permanently, to seek employment, showed positive and significant effect on Nigeria's real gross domestic product. The positive effect of workers remittance supports the previous finding of Oladele et al. (2023), Asongu and Odhiambo (2023), Joshua et al. (2023). These previous studies held that remittances play a positive and significant role in enhancing local investment by providing capital for small business development, particularly in regions where access to traditional financing is limited. The positive and significant effect of worker remittances also indicates that the high rate of migration of Nigerians to foreign countries on a temporary basis has led to increased inflow of foreign capital in the form of worker remittances and this has led to substantial growth in the economy through various investment options. Abdullah, Mahmood, and Yusuf (2023) found a strong positive correlation between worker remittance inflows and improved literacy rates and skill development which is indicative of a growing economy.

The effect of foreign direct investment (FDI) on the economy was also analyzed in the study since FDI serves as another form of foreign capital inflow into the economy. The result showed a positive and statistically significant effect on Real GDP, which corroborates existing research indicating the importance of foreign capital in driving economic development. According to studies like Nweke-Charles et al. (2022), Peter and Mercy (2024), Mba and Chijioke (2024), Muhammad et al. (2024) and Kutu and Ohonba (2024), foreign direct investment is often associated with technology transfer, improved productivity, and job creation, all of which enhance economic growth. This result emphasizes the importance of policies that attract foreign direct investment as a means of fostering sustainable economic growth.

The analysis further revealed that sovereign debt negatively affected Nigeria's GDP, suggesting that increased inflow of funds through debt accumulation will result in negative growth trend in GDP resulting from non-utilization of these debt inflows on productive sectors. This finding do not conform with studies such as Razaq, Tade, and Mathew (2024) and Eze and Akinyemi (2023), which highlighted the role of remittances in financing both household debt reduction in Nigeria as well as essential infrastructure projects and government spending that stimulate economic activity. However, it is essential to manage sovereign debt prudently to avoid long-term repayment challenges that could burden future economic performance. The negative effect found in this study can be attributed to the updated data which shows Nigeria's current debt burden which has weighed down economic growth thus making this source of foreign capital inflow undesirable for the overall economy. Even though remittance has been found to exert decreasing effect on household debt and poverty (Eze and Akinyemi, 2023; Razaq, Tade, and Mathew, 2024; Uzoamaka and Chukwudi, 2023), the direct effect of debt on the economy is not desirable.

The model diagnostics confirmed the robustness of the regression model. The Durbin-Watson statistic indicated no significant autocorrelation in the residuals, and the Variance Inflation Factors (VIF) showed no severe multicollinearity, ensuring the reliability of the findings. Additionally, the model has high R-squared value (80.9%) suggesting that worker remittance, personal remittance, FDI and sovereign debt collectively account for a significant portion of the changes in Nigeria's Real GDP over the period analyzed. Thus, this study demonstrates that remittances, foreign direct investment, and sovereign debt all play crucial roles in enhancing Nigeria's economic growth. The findings highlight the potential benefits of promoting remittances and foreign investments while responsibly managing public debt as part of a comprehensive economic development strategy for Nigeria.

Conclusion

The findings of this study provide valuable insights into the role of remittances, FDI and sovereign debt in driving Nigeria's economic growth. Workers' remittances and foreign direct investment emerged as a major contributor to GDP growth, underscoring the importance of the Nigerian diaspora in supporting the domestic economy. The positive effects of FDI on Real GDP also highlighted the critical role of foreign capital in economic growth as FDI contributes to various aspects of growth such as job creation, technology transfer, and infrastructure development. Furthermore, the negative relationship between sovereign debt and GDP growth implies that debt as source of foreign capital inflow are not being prudently managed and has led to significant loss in GDP value over the years. These findings emphasize the importance of policies that encourage remittance inflows and foreign investment while ensuring responsible management of sovereign debt. The study concludes that remittance and its associated variables collectively enhance Nigeria's Real GDP, contributing to overall economic growth.

Recommendations

Based on the findings of this study, the following recommendations are proposed:

1. The government should reintroduce and intensify the inflow of personal remittances by enhancing technical exchange programme which ensures compensation of short-period workers and they should be encouraged to utilize this compensation in productive areas of the economy. Nigeria has huge human resources and the government should utilize them in earning more personal remittances that will add to the stock of capital for investment in Nigeria.
2. Government can further enhance the contribution of workers remittance to the economy by offering areas of investment of the foreign capital in the Nigerian economy. This can come in form of advisory services and provision of tax incentives and other incentives that will serve as morale booster for local investment of worker remittances.
3. The Nigerian government should manage debt effectively by focusing on debt sustainability and efficient allocation of borrowed funds to productive sectors. Prioritizing projects with high economic returns will ensure that when this foreign capital inflow enters the Nigerian economy, it will serve useful purpose and decrease the burden on other sources of capital inflow.
4. There is need for the government as well as private individuals to boost economic growth by encouraging foreign direct investment inflow into the Nigerian economy. The existing positive and significant effect of FDI on the economy should be sustained by further encouraging more inflows in critical sectors such as education, health, agriculture etc.

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