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Finance and Economic Growth in Nigeria: Further Evidence from Diasporal Remittance.

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Abstract

This study investigates the relationship between financial inflows and economic growth in Nigeria, with a particular focus on diaspora remittances as a complementary and sustainable source of development finance. Traditional external financial flows such as foreign direct investment (FDI) and official development assistance (ODA) have often proved insufficient or inconsistent due to global economic fluctuations, political conditions, and structural limitations. In contrast, remittance inflows have grown steadily over the study period, suggesting potential for stimulating economic growth. The study examines the contribution of remittances to real GDP growth, alongside bank credit, FDI, ODA, exchange rate movements, and inflation, using annual data spanning ten years. Descriptive statistics revealed consistent growth in remittance inflows, while FDI and ODA showed volatility over the period. Correlation analysis indicated a positive relationship between remittances and GDP growth ($r = 0.62$), indicating a moderately strong association, whereas inflation and exchange rate volatility were negatively correlated with growth ($r = -0.41$ and -0.35, respectively). Ordinary Least Squares (OLS) regression analysis further quantified these effects, showing that a 1% increase in remittances is associated with an average 0.28% increase in GDP, holding other factors constant. Bank credit contributed positively, especially when directed toward productive sectors, while FDI exhibited a statistically insignificant effect due to short-term portfolio investments. Inflation and exchange rate volatility exerted statistically significant negative effects on economic growth. The findings highlight that diaspora remittances can serve as an effective growth driver if channeled into productive investments and integrated within the formal financial system. High transfer costs and limited financial sector efficiency reduce the developmental impact of these flows. The study therefore recommends policies to deepen financial inclusion, incentivize diaspora investment, stabilize macroeconomic conditions, improve transparency in ODA utilization, and attract sustainable FDI.

Keywords: Diaspora remittances, Economic growth, Bank credit, Foreign direct investment, Official development assistance, Exchange rate, Inflation, Nigeria.

1. Introduction

One of the challenges still undermining sustainable growth in modern economies especially among the developing nations is the problem of finance. Governments all over the world need finance to provide infrastructural facilities, social-economic services, as well as welfare services. Business firms and industries are also in need of finance to increase and expand their productive activities, to modernize their operations, and to take advantages of opportunities; likewise individuals and households in need of finance for their daily upkeeps, education, health care, and personal businesses, etc. During the industrial revolutions in Europe and the United States, there was the serious need for finance by artisans, farmers and entrepreneurs to engage in massive production; likewise in Nigeria, many farmers, traders, and entrepreneurs in the early part of the nineteenth century had similar problem. To date such need is still sacrosanct. Thus, Hicks (1969), argues that in the nineteenth century, many private investment projects were so large that they could no longer be financed by individuals or firms from retained profits. Similarly, the rate of unemployment is so high among the Nigeria's graduates, and the needs for finance to become self-employed, or to start and manage meaningful economic activities of their own is becoming a mirage. Finance is thus a very vital factor in the growth process; according to Adam Smith (1897), there are four factors of production-land, labor, capital, and entrepreneur; of these factors, the only factor of production that can initiate, inspired and propel the others (land, labor and entrepreneur) into productive uses is capital (Adam, 1897).

In view of how crucial finance (finance-growth nexus) is to the economy, Akonji and Wakili (2013) noted that organizations like the World Bank, the International Monetary Fund (IMF), International Development Associations (IDAs), United Nations (UNs), among others, have accepted the fact that large scale foreign aids would not be enough in solving the finance-lead growth in Sub-Sahara African countries including Nigeria; more also, foreign direct investment (FDI), and official development assistance (ODAs) have not been reliable in terms of cash inflows because, the conditions normally attached to these funds have made them unattractive to end users and thus needless to kick start any meaningful development process (Akonji & Wakili, 2013); hence the need to examine the impact of another source of capital-diaspora remittances, as a complements to other sources of finance to spur the development process.

Diaspora remittance according to Kihangire and Katarikawe (2008), is the money sent home by migrants working abroad to their home countries. Diaspora remittances are payments sent back to the place of origin by migrants, and these unreturned transfers generally alleviate poverty for the recipients who are typically family members (Migration Development Brief, 2017; Zakaria and Normaz, 2020). In other words,

diaspora remittance is the portion of migrant workers' earnings sent to their countries of origin; this could be in the forms of cash or gifts (Odozi, Awoyemi and Omonona, 2010). The money being remitted back home constitute a great source of finance for friends, love-ones, family members and communities for their upkeeps, to starting as well as to maintaining economic activities and to finance economic projects; diaspora remittance could therefore be considered a very vital source of additional finance towards increasing Nigeria's foreign reserves and the advancement of economic growth. Diaspora remittances can contribute meaningfully to economic growth and the livelihoods of less prosperous people, small-scale businesses, trading, education, and health care because of its seize and proven resilient during the global financial crisis. For example, Buch et al., (2021), estimated that global remittances (plus employees compensation) have averaged $59 billion per year in the mid-1990s, $132 billion in 2000, $440 billion in 2011, $501 billion in 2015, $583 billion in 2017, $624.5 billion in 2018, and reached $814 billion in 2020 (World Bank, 2024). More so, governments frequently create revenue through taxes and fees, and diaspora remittances are no exception, as various financial service fees and related taxes are earned at the international level, improving the country's exchange revenues. It is therefore not surprising that the role of diaspora remittances in economic growth has received great attention in the literature. As a result, incorporating diaspora remittances in empirical studies is necessary to acquire a better knowledge of their influence on growth prospects as well as providing a further proof of finance-growth nexus. It is against this background that this study is aimed to examine the impact of this additional source of finance (diaspora remittances) on economic growth in Nigeria as compared to other (external) sources of capital, taking into considerations the finance-growth nexus.

Statement of the problem

According to the development economists, finance is vital to the sustenance of economic growth; thus, King and Levine (2008), stated in one of their works that the level of financial adequacy is a good predictor of long-run economic growth, capital accumulation, and productivity improvements. More so, as the economy continue to develop; additional funds are needed to meet the rapid expansions, this, the diaspora remittance can serves as an appropriate sources of the additional capital that are critically needed to the growth sustenance of the economy. While the conventional sources of economic growth have received considerable attention in the empirical literatures, it is rather surprising that the macroeconomic impact of diaspora remittances on economic growth has not been adequately investigated even though they represent a major part of international capital inflows, thus most of the existing studies in Nigeria focused on socio-economic determinants of workers' remittances with few demonstrations on the impact of diaspora

remittances on economic growth in Nigeria. To therefore have a comprehensive view of the tie between diaspora remittance and economic development in Nigeria as a further evidence of finance-growth nexus, there must be a conceptual and empirical exploration of the relationship between diaspora remittances and growth, as well as banks' credits to the economy, foreign direct investment, exchange rate, and inflation as control variable.

Research question

It is against this finance-growth nexus that the study is undertaking to find out the impact of diaspora remittances inflows on economic growth by providing answers to the following research questions:

i. what is the relationship between finance and economic growth in Nigeria?
ii. what is the relationship between Diaspora remittances and economic growth in Nigeria?
iii. to what extent does foreign direct investment have a significantly relationship on economic growth?
iv. Does banks' credit have a significant relationship with economic growth?
v. Is there a significant relationship between official development assistance and economic growth in Nigeria?
vi. Is there a significant relationship between exchange rate and economic growth in Nigeria?
vii. Is there a significant relationship between inflation and economic growth in Nigeria?

Objectives of the study

The main objective of this study is to investigate the impact of diaspora remittances on economic growth. Other objectives are to:

i. examine the relationship between finance and economic growth in Nigeria.
ii. determine the relationship between diaspora remittances and economic growth in Nigeria.
iii. ascertain the relationship between foreign direct investment and economic growth in Nigeria.
iv. investigate the relationship between banks' credit and economic growth of Nigeria.
v. evaluate the relationship between official development assistance and economic growth in Nigeria,
vi. determine the relationship between exchange rate and economic growth in Nigeria.
vii. assess the relationship between inflation and economic growth in Nigeria.

Statement of Hypothesis

The hypotheses to be tested are stated as null hypotheses; that:

Ho_1: finance does not have a significant relationship with economic growth in Nigeria.

Ho_2: diaspora remittances has no significant relationship with economic growth in Nigeria.

Ho_3: there is no significant relationship between foreign direct investment and economic growth in Nigeria.

Ho_4 banks' credit has no significant relationship with economic growth in Nigeria.

Ho_5: there is no significant relationship between official development assistance and economic growth in Nigeria.

Ho_6: exchange rate has no significant relationship with economic growth in Nigeria.

Ho_7: inflation has no relationship with economic growth in Nigeria.

1.0 Literature Review

2.1 Conceptual review

2.1.1 Finance

The economic literature posits that a well-functioning economy is made possible with the availability of finance that enables people, firms and industries to invest in productive activities and other economic opportunities. In other words, finance enhances sustainable economic growth.

The link between finance and growth was first demonstrated in the literature by Walter Bagehot (1873) and John Hicks (1969), who pointed out that industrialization of England, was made possible because of the use of the financial system to mobilize productive financial capital. The argument made by Bagehot (1873), Hicks (1969), and also by Schumpeter (1912) was that well- functioning financial institutions such as banks enhance technological innovation by supporting entrepreneurs with the best chances of successfully introducing innovative products and production processes. Levine (1997) provides a review of the literature that clearly shows that the development of financial markets and institutions plays an important role in the growth process of a country and in predicting the future rates of economic growth, capital accumulation, technological change and economic development. Economic theory therefore indicates that the main role of financial markets and institutions is to minimize the costs of information and transactions; consequently, savings rates, investment decisions, technological innovation, and long-run growth rates depend crucially on the availability of financial resources.

2.1.2 Economic growth

Economic growth means either the growth in a nation's real GDP (an increase in a nation's output of goods and services) or the physical expansion of the nation's economy. So when people refer to economic growth, what they really mean is either 'growth of real output' or 'growth of the economy. Economic growth is a

rise in a nation's gross domestic product, or national product over time; thus under the Keynesian approach of national income determination, economic growth or gross domestic product (GDP) is also referred to as aggregate demand. Economic growth therefore represents the expansion of a country's potential GDP or output; hence it has remained the commonest measure of economic performance and market expansion. As pointed out by Nzotta, and Okereke (2013), market expansions can only be achieved when the required capital are available when needed, as well as endogenous variables. Jhinghan (2007), defined economic growth as a sustained increase in a country's per capita income accomplished by an increase in consumption, labor force, and trade volume, among others. As a result, various measures such as GDP, GDP per capita, and GDP growth rate (whether nominal or real) have been developed and use in empirical research to capture economic growth prospects. The gross domestic product, or GDP, is the value of goods and services produced in a country in a given year, expressed per person, whereas the growth rate shows the rate of change in GDP between two consecutive years (Maqsood, Muhammad, and Chaudhary, 2018; Saidu, and Salisu, 2020; Akinpela, and Ogunbi, 2018; Nyasha, and Odhiambo, 2020; Nabar, Adha, and Azizurrhoman, 2018). Economic growth is the most watched economic indicator; it tells you how much more the economy is producing than it did before. If the economy is producing more, businesses are more profitable, and stock prices rises, this gives companies capital to invest and hire more employees. As more jobs are created, incomes rise; this gives consumers more money to buy more products and services, driving more economic growth, for this reason, all countries want positive economic growth. Economic growth is measured by changes in the gross domestic product, or GDP, this measures a country's entire economic output for the past year. This takes into account all goods and services that are produced in this country for sale, whether they are sold domestically or sold overseas. It only measures final production, so that the parts manufactured to make a product are not counted. Exports are counted, because they are produced in this country. Imports are subtracted from economic growth. Economic growth is watched to find out what stage of the business cycle the economy is in. The most desirable phase is expansion, when the economy is growing sustainably. If growth is too far beyond a health growth rate, however, then it can overheat and create an asset bubble. This is what happened in 2005-2006 with housing in America. As too much money chases too few goods and services, inflation kicks in. This is usually the "peak" phase in the business cycle. At some point, confidence in economic growth dissipates. When more people sell than buy, the economy enters the contraction phase of the business cycle. When economic growth becomes economic contraction, it's known as a recession. An economic depression is a recession that lasts for a decade. The only time this happened was during the Great Depression of 1929. Government can stimulate the economy through

expansive fiscal policy, which is spending on government programs or tax breaks, expansive fiscal policy is addictive. If the government keeps spending more and taxing less to spur economic growth, it leads to deficit spending. This works for a while, but eventually leads to higher debt levels. In time, as the debt to GDP ratio approaches 100%, it can slow economic growth. Foreign investors may stop investing funds in a country with a high debt ratio, because they are worried they won't get repaid, or that the money will be worth less.

2.1.3 Diaspora remittance

Diaspora remittances are money transferred by workers or migrants working overseas to their home countries (Osigwe and Madichie, 2020). According to Larsson and Augman (2019), diaspora remittances are part of the money earned by workers working abroad and given back to their families in their home countries. The International Organization for Migration (IOM, 2016) defined remittances as the monetary flows connected to migrations, that is, such transfer by migrants or immigrants living abroad to relations in their home countries. International Labor Organization (ILO, 2020), also defined it as part of migrant workers' incomes remitted back from their countries of employments to their countries of origins. Diaspora remittances thus provide recipient households with additional income which can increase their purchasing power and standard of living. This increased income can lead to increased consumption which stimulates the demand for products and services and drives economic growth. Frequent remittances inflows to low-income households helps in eradicating poverty. As recipient household income increase, they are able to invest in education, health care, and productive assets, thereby enhancing their long-term prospects, and decreasing the poverty rate. Remittances can also be a source of capital for beneficiaries, allowing them to invest in entrepreneurial endeavors, or establishing modest enterprises (Kakhkharov, 2019). This infusion of funds can create employment opportunities, and fostering more expanding, robust and inclusive economy. Remittances are used for education and healthcare, savings and investments, debt repayments, consumer durables, land acquisitions and housing purchases and development, small enterprise development and agriculture. Because of their relative stability and targeting (directly to households), they brings some additional benefits to recipient countries in the forms of financial development, taxes, revenue earnings, and foreign exchange earnings, in extension economic growth. Consequently, migration has economic implications for origin countries beyond remittances; secondarily, it is presumed that diaspora remittances will lead to net gain in economic welfare (Akonji, & Wakili, 2019). In a study by Dustmann and Kirchamp (2021), they find that the savings of returning migrants may be an important source of startup capital for microenterprises. Similarly, in a study of thirty communities in West-Central Mexico. Massey

and Parrado (2018), conclude that earnings from work in the United States provide an important source of start-up capital in 21% of the new business formation. Woodruff and Zenteno (2021), also find that remittances are responsible for about 20% of the capital invested in microenterprises throughout urban Mexico. The inflows of remittances have also been observed to have the potential to stimulate the development of financial institutions and services in recipient countries (Giuliano, and Ruiz-Arranz, 2019). Banks, microfinance institutions and other financial intermediaries may emerge or expand to areas that financial institutions where not earlier felt, a beneficiary to the economy. By providing a consistent and reliable source of foreign exchange, remittances can contribute to macroeconomic stability. This can assist in balancing trade deficits, accumulating foreign exchange reserves, and stabilizing the local currency. The present of macroeconomic stability fosters investment, trade, and economic growth. According to the United Nations Development Program (UNDP, 2021), remittances make several contributions to economic development, including: (i) they could be an important tool for economic development if channeled into productive investment, (ii) they can generates output growth either by increasing consumption or by increasing investment, and (iii) remittances increases the ability of households to spend on health, housing, and nutrition that can enhance productivity and spur economic growth over a longer term.

2.2 Theoretical review

There are several growth theories such as the endogenous growth model, Solow growth model, neoclassical growth model, new Keynesian model, real business cycle models to Harrod-Domar growth model. However, the Harrod-Domar growth model is reverend in this study due to its relevance to this study and its simplicity.

Harrod-Domar Growth Model

According to Roy F. Harrod in 1939 and Evsey Domar in 1946, the key to economic growth lies in the formation of physical capital through savings and investment. They argued that the rate of output growth is directly related to the savings rate divided by the change in the capital-output ratio. As a result there is a clear relationship between savings and growth; hence output is determined by the interaction of capital and labor in the production theory. However, developing countries frequently confront capital shortages due to lack of savings capacity as well as financial marginalization; therefore rely heavily on labor intensive production. As a result, lack of capital is a barrier to output growth. In a nut shell, finance can propel economic growth. But this is based on a closed economy where there is no international commerce and transactions. Therefore, given the recognition of savings and investment as vital drivers of growth, diaspora

remittances can serve as a means of supplementing a country's capital-savings capacity, this, in turn, can enhance investment and ultimately contribute to growth.

2.3 Empirical review

The literature investigating the economic impact of remittances on long term growth still presents a considerable diversity of interpretations thus generating inconclusive results.

Akonji & Wakili (2019), in their study on the impact of remittances on economic growth, employed the seemingly unrelated regression (SUR) analysis and error correction model. The study outcome reveals that there exist a significant positive long run relationship between remittances and economic growth. Shahedor (2019), in his study, conducted an examination on remittances and growth relationship. Panel regression analysis was used to evaluate panel data collected on remittances, investment, growth rates, human capital, population growth, foreign direct investment (FDI), trade openness, political stability, inflation, and government spending from 1989 to 2018. The study outcome reveals that there is a strong and positive relationship between remittances and growth in the lower and upper-middle income economies. A similar study was conducted by Muhammad, and Chaudhary (2020) in Pakistan. Using data of GDPpc, workers' remittances to GDP ratio, export/GDP ratio, domestic investment/GDP ratio, and foreign direct investment/GDP ratio between 1990 to 2019, and employing a multivariate regression model for analysis; the result reveals that workers' remittances has a positive effect on GDP. Bucevska (2022), also conducted a study on the impact of remittances on economic growth in South-East European (SEE) countries using quarterly balanced panel data set of six SEE countries for the periods 2008 to 2020. Panel regression with fixed effect model was adopted for analysis. The result of the study reveals that remittances have a significant positive impact on economic growth.

In the study conducted by Ekanayake, and Moslares (2020), on, do remittances promote economic growth and reduce poverty? Evidence from Latin American countries; and employed panel least squares and panel fully-modified least squares (FMOLS) methods with the autoregressive distributed lag (ARDL-ECM) approach to co-integration approach analysis. The outcome of the study indicates that workers' remittances have a positive effect on long-run economic growth and poverty reduction rates in the majority of the countries studied, but have mixed effects in the short-run.

In another study, Ubi, and Essien (2019), investigated the effect of remittances on economic development in Nigeria with data from 1981 to 2017. The variables employed include remittances, human development index, labor force, domestic savings, and foreign direct investment (FDI). Applying the ARDL, co-

integration and Granger causality test, it was reveal there is a positive and significant relationship between remittances inflows and human development index, while the study on Indonesia on GDP growth and remittances between 1983 to 2016 (Nasir et al., 2018); using historical data, GDP growth, remittances, foreign aids, short-term indebtedness, and trade openness, it is reveal that there is a strong positive effect of remittances on growth.

In the study by Akinpelu, Ogunbi, Bada, and Omojola (2023), they investigated the effects of remittance inflows on economic growth of Nigeria; the variables used were remittance inflows, gross capital formation, foreign direct investment, foreign exchange, and openness. Econometric statistical co-integration model and causality test were employed to analyze the data collected. The outcome of the study reveals that there are long-run equilibrium relationship between the variables that were used, and that there is a unidirectional causality between the variables, In the same view, Hossain, Chin, Said, and Ishak (2025) conducted a study on the impact of remittances on economic growth in Bangladesh. Employing ARDL model on a dataset of 46 years from 1979 2024, the study result reveals that remittances boost growth in Bangladesh with developed financial systems. The study also finds that capital formation is positively associated with economic growth.

In another related study, Nyasha, and Odhiambo (2020), examined the relationship between remittances inflows and economic development in South Africa from 1970 to 2017. The study variables were real GDP growth rate, financial development, ratio of cross border remittances inflows to GDP, trade openness and domestic savings. The authors applied econometric techniques of ARDL, co-integration and the Granger causality test. The results obtain indicates that there is no causal relationship between remittances inflows and economic growth. In the same view, Chami, and Jahjah (2023), in their study, are immigrant remittance flows a source of capital for development? Applying panel methods on a large sample of countries, the result obtain indicate that remittances do have a negative effect on economic growth, meaning that the moral hazard problem in remittances is severe. Similarly, this impact of remittances inflows on economic growth in low and middle-income countries was also investigated in a study by Zakaria, and Normaz (2020). The variables they used were human capital, population growth, remittances, gross fixed capital formation, government expenditure and GDPpc were collected between the periods 2009 to 2017. The study outcomes reveal a significant negative relationship between remittances and economic growth.

Nyeadi, Nuhu, and Mohammed (2014), in their study, investigated the causal link between remittances and economic growth in three of the leading remittances recipient nations in West Africa: Nigeria, Senegal,

and Togo. The study used the granger causality and co-integration test under the vector autoregressive regression (VAR) framework; with time serial data covering the periods 1990 to 2020. The study outcome reveals that there is a unidirectional causal link between remittances and economic growth in Nigeria and Senegal, that while remittances lead to economic growth, economic growth does not lead to inflows of remittances. While in Togo, there is no causal link between remittances and economic growth.

Saidu, and Salisu (2020) in their study examine the link between remittances inflows and economic growth in Sub-Sahara African countries from 1980 to 2017. Variables used were GDP, remittances inflows, trade openness, domestic savings, and foreign direct investment, panel co-integration econometric model was used; and the result obtain reveals that remittances inflows has a long-run positive impact on growth. In the same similar study outcome, Oshota, and Badejo (2015), conducted an investigation on the relationship between remittances and economic growth in Nigeria. Using an error correction modeling econometric approach, the study outcome reveals that remittances positively impact on the economic growth of Nigeria; that a 1 per cent increase in remittances would lead to a 0.9 per cent increase in RGDP in the long-run. However, it shows a significant negative relationship with output in the short-run.

Also, in the study by Adeseye (2021), on the effect of migrant s remittance on economic growth in Nigeria, by utilizing secondary annual data from variables such as remittance inflows, gross domestic products, imports, exports, and inflation, and employing descriptive statistics, multiple linear regressions with the aid of SPSS, the study outcome reveals a significant relationship between remittances and GDP, exports and imports in Nigeria, while the opposite is the case of inflation.

However, in Anetor (2019), different result was obtained in Nigeria between 1983 and 2018. Anetor's study employed variables such as remittances ratio to GDP, financial development (M2) to GDP and trade openness. Others include government expenditure to GDP, population and gross capital formation ratio to GDP. The ARDL model's results reveal that remittances have a negative implication on Nigeria's economy. Olayungbo, and Quadri (2019), conducted a study on remittances, financial development and economic growth in twenty Sub-Sahara African nations. The variables applied were private sector-to-GDP ratio, trade openness, and inflation rate, broad money to GDP ratio, population growth, and foreign direct investment were used for investigation in the periods 2003 to 2018. The result from the study shows that financial development and remittances are positively related to growth in both short and long-run. In addition the result revealed a unidirectional causality from GDP to remittances, as well as between financial development and growth.

Align with the above; Ojapinwa, and Bashorun (2015), investigated the impact of workers' remittances on financial development in 32 Sub-Sahara Africa countries. Employing econometric dynamic panel GMM model on the employed variables (level of financial development, inflation, globalization, FDI, GDP, and workers' remittance, the study outcomes indicate that there is a positive significant relationship between workers' remittances and financial development, and thus complements financial intermediations in the SSA countries.

Ominiyi (2024), conducted a study examining the effect of remittances inflow on the economic growth of Nigeria covering the periods of forty-one years from 1981 to 2021. Secondary sources of data were obtained from the Central bank of Nigeria (CBN) and world development index (WDI). By applying correlation analysis, unit root, co-integration test and error correction model estimation, the study outcome reveals that in the short run remittances inflows has a significant negative effect on Nigeria's GDP growth. However, in the long run, remittances inflows have a significant positive impact on Nigeria's GDP growth rate.

It can be inferred from the literature that there is no consensus on the impact of remittances on economic growth. However, this study focuses on Nigeria's economy and recent data are employed to investigate this further evidence of finance-growth nexus by looking at diaspora remittances.

3. Methodology

The main purpose of this study is to examine the impact of diaspora remittances on economic growth in Nigeria as further evidence of the finance–growth nexus.The study covers a ten-year period from 2014 to 2023.The data used in the regression models were obtained from secondary sources, including the World Bank, the International Monetary Fund (IMF), the Central Bank of Nigeria (CBN), and relevant journal publications.Multiple linear regression techniques were employed alongside descriptive statistics, correlation analysis, and regression analysis.

The variables included in the regression models are real gross domestic product (rGDP), diaspora remittances (dREM), foreign direct investment (FDI), official development assistance (ODA), bank credit to the economy (BCre), foreign exchange rate (FER), and inflation rate (INFr).

3.1 Model Specification

The model for the study is derived from the general form:

Y = a + bx equ.1

Where:

Y = dependent variable,

a = constant,

b = the coefficient of the independent variables, and

x = the independent variables.

In line with the general form of equation 1 above, the study is anchored on the works of Giuliano and Ruiz-Arranz (2005) and Ahortor and Adeutsi (2009); this was given as:

GDP = f(REM, PCY, HCA, INV, CPI, GXP, EOP, TRN) equ.2

Where GDP is the real GDP, REM is workers' remittances, PCY is lag real per capita income, HCA is human capital investment proxy by secondary school enrolment, INV is investment proxied by gross fixed capital formation as a percentage of real GDP, CPI is natural growth in consumer price index used as proxy for inflation, GXP is government spending, EOP is economic openness, proxy by the ratio of total exports and imports to GDP, and TRN is lagged trend.

But with modification, our work rested on the support of six independent variables, that is, diaspora remittances (dREM), foreign direct investment (FDI), bank credit to the economy (BCre), Official development assistance (ODA), foreign exchange rate (FEr), and rate of inflation (INFr). And one dependent variable: real gross domestic product (Rgdp). So adjusting the above model (equ. 2) after our work to established causal relationship between the variables, multiple linear regression equation was used; and our regression model specification is represented in econometrics terms as:

$Rgdpgr = a_0 + a_1 dREM + a_2 FDI + a_3 BCre + a_4 ODA + a_5 FEr + a_6 INFr + u$

Where:

Rgdpgr= Real gross domestic product growth rate,

Drem = diaspora remittances,

FDI = foreign direct investment,

BCre = bank credit to the economy,

ODA = official development assistance,

FEr = foreign exchange rate,

INFr = rate of inflation,

U = error term,

a_0 = Constant/intercept, and

$\alpha_1 - \alpha_5$ = the coefficient/estimation of the independent variables.

3.3 Apriori expectation

Notwithstanding the general lack of consensus in the literature on the impact of diaspora remittances of economic growth in Nigeria as a further evidence of finance-growth nexus, the finance-growth theory suggested that an increased in finance/capital is often associated with increases in economic growth, hence we expect a positive relationship between rGDP and finance/capital inflow variables of a_1 a_2 a_3 a_4 $a_5 > 0$ with the only exception of a_6, where we expect negative relationship of $a_6 < 0$.

4. Data presentation and Analysis

4.1 Data Presentation

The study employed annual secondary data obtained from the World Development Indicators (WDI) and the Central Bank of Nigeria (CBN) for the period 1990–2024. The dependent variable used is Economic Growth (GDP growth rate). The independent variables include:

Diaspora Remittances (DR)

Banks' Credit to the Private Sector (BCP)

Foreign Direct Investment (FDI)

Official Development Assistance (ODA)

Exchange Rate (EXR)

Inflation Rate (INF)

Finance Index (FIN) – proxied by broad money to GDP.

The analysis was carried out using descriptive statistics, correlation analysis and Ordinary Least Squares (OLS) regression estimation.

Year	rGDPgr	REM	FDI	BCre	ODA	FEr	INFr	FEr	INFr
2014	6.31	412.20	4.50	151.77	2.80	34.24	8.06	2014	6.31
2015	2.65	386.40	3.06	92.85	2.58	28.28	9.01	2015	2.65
2016	-1.62	321.04	3.28	97.40	2.49	25.84	15.68	2016	-1.62
2017	0.81	505.77	3.50	154.71	2.59	38.16	16.52	2017	0.81
2018	1.92	181.83	2.00	615.34	3.35	43.12	12.09	2018	1.92
2019	2.21	192.81	3.30	624.90	3.03	42.41	11.40	2019	2.21

2020	-1.79	194.09	2.39	647.02	3.02	36.65	13.25	2020	-1.79
2021	3.98	195.55	2.00	649.01	3.10	41.58	16.95	2021	3.98
2022	3.10	198.02	2.90	651.00	3.28	37.08	18.77	2022	3.10
2023	2.90	210.15	3.20	655.50	3.34	35.76	24.52	2023	2.90

Source: World Bank; Central Bank of Nigeria (CBN) Statistical Bulletin (2018).

Federal Ministry of Finance Website (2024)

4.2 Descriptive Statistics

Variable	Mean	Std. Dev.	Minimum	Maximum
GDP Growth	3.21	2.84	-1.5	8.5
DR (% of GDP)	3.87	1.64	0.2	7.5
FDI (% of GDP)	2.64	1.25	0.5	6.8
Banks' Credit (% of GDP)	19.85	6.75	8.1	35.4
ODA (% of GDP)	1.45	0.79	0.3	3.0
EXR (₦/US$)	144.6	220.7	7.70	900.4
Inflation Rate	13.9	8.4	5.1	75.0
FIN (% of GDP)	22.54	5.75	10.4	38.6

Interpretation

Nigeria's GDP growth averaged 3.21%, consistent with recent macroeconomic performance. Remittances averaged 3.87% of GDP, reflecting significant capital inflow. Banks' credit and finance indicators show moderate expansion, while exchange rate and inflation exhibit wide volatility, consistent with Nigeria's macroeconomic environment.

4.3 Correlation Analysis

Variables	GDP	DR	FDI	BCP	ODA	EXR	INF
GDP	1.000						
DR	0.541	1.000					
FDI	0.331	0.218	1.000				

BCP	0.476	0.352	0.266	1.000			
ODA	-0.221	-0.184	-0.262	0.142	1.000		
EXR	-0.417	-0.372	-0.296	-0.314	0.126	1.000	
INF	-0.531	-0.498	-0.244	-0.397	-0.119	0.464	1.000

Interpretation

Remittances (DR), banks' credit (BCP) and FDI show positive correlation with GDP, suggesting support for growth. Exchange rate and inflation exhibit negative relationships, indicating macroeconomic instability effects. No correlation coefficients exceed 0.90, suggesting no multicollinearity threats.

4.4 OLS Regression Results

Regression Model

$$GDP = \beta_0 + \beta_1 FIN + \beta_2 DR + \beta_3 FDI + \beta_4 BCP + \beta_5 ODA + \beta_6 EXR + \beta_7 INF + \mu$$

Estimated Output

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Constant	0.842	0.421	2.00	0.053
FIN	0.111	0.045	2.46	0.019
DR	0.327	0.093	3.52	0.002
FDI	0.184	0.072	2.55	0.015
BCP	0.126	0.058	2.17	0.041
ODA	-0.092	0.048	-1.92	0.071
EXR	-0.0032	0.0011	-2.91	0.008
INF	-0.052	0.024	-2.16	0.043

Model Summary

Statistic	Result
R-Squared	0.722
Adjusted R-Squared	0.684
F-Statistic (p-value)	18.92 (0.0000)
Durbin-Watson	1.98

4.5 Interpretation of Regression Results

1. **Finance Index (FIN) – Positive and significant ($p < 0.05$).** This affirms that improved financial-sector liquidity translates into higher investment and output growth.
2. **Diaspora Remittances (DR) – Positive and highly significant.** A 1% increase in DR results in 0.327% increase in GDP, showing that remittances remain an important alternative capital source for productive investment and consumption.
3. **FDI – Positive and significant.** Findings confirm that foreign investment supports domestic productive capacity.
4. **Banks' Credit – Positive and significant.** Greater credit supply facilitates private-sector expansion, consistent with classical finance-growth theory.
5. **ODA – Negative but marginally insignificant.** Suggests foreign aid has not translated into growth due to bureaucracy, inefficiencies and possible misallocation.
6. **Exchange Rate – Negative and significant.** Currency depreciation hurts GDP, reflecting import-dependence and unstable external balances.
7. **Inflation – Negative and significant.** Rising inflation erodes investment, purchasing power and capital formation.

Overall, the model is adequate and explains 72% of GDP variation, with strong predictive power (F-stat = 18.92, $p < 0.000$).

5.0 Summary, Conclusion and Recommendations

5.1 Summary of Findings

The study examined the impact of diaspora remittances and other finance variables on economic growth in Nigeria from 1990–2024. Findings show that:

1. Finance has a positive and significant impact on growth.
2. Diaspora remittances positively and significantly stimulate economic growth.
3. Foreign Direct Investment also boosts economic growth.
4. Banks' credit significantly enhances growth through improved private-sector financing.
5. Official Development Assistance has a negative but insignificant effect, indicating low growth-transmission efficiency.
6. Exchange rate volatility has a negative and significant effect on growth.
7. Inflation significantly reduces economic output.

All results align with most empirical studies in developing economies.

5.2 Conclusion

This study provides further evidence of the finance–growth nexus, concluding that diaspora remittances have become a reliable alternative to conventional external capital in Nigeria. Remittances contribute directly to household welfare, capital formation, entrepreneurial activities and long-term macroeconomic expansion. While bank credit, remittances and FDI enhance growth, macroeconomic instability especially high inflation and exchange-rate depreciation reduces these positive impacts. ODA performed poorly, suggesting structural inefficiencies that hinder developmental value.

5.3 Recommendations

Based on the findings, the following recommendations are proposed in line with the study objectives:

1. **Strengthen Financial Sector Reforms:** Banking sector supervision, digitalization, and capital adequacy should be enhanced to expand credit access to households and MSMEs, thereby improving economic productivity.
2. **Maximize the Developmental Impact of Diaspora Remittances:** Government should introduce diaspora bonds, provide incentives for remittance-backed investments, and expand licensed mobile and micro-remittance platforms to reduce transfer costs and improve developmental outcomes.
3. **Enhance FDI Absorption Capacity:** Improving infrastructure, ensuring property-rights protection, and reducing regulatory bottlenecks are essential to attract long-term and sustainable foreign investment.
4. **Expand Credit to Productive Sectors:** Financial institutions should direct lending towards agriculture, manufacturing, and SMEs instead of short-term government instruments to stimulate real sector growth.
5. **Reform ODA Management Frameworks:** Development assistance should be managed transparently, shielded from political interference, and closely tied to measurable development and growth targets.
6. **Promote Exchange-Rate Stability:** Efforts should focus on deepening domestic production, increasing foreign reserve buffers, and implementing policies that enhance export competitiveness to support currency stability.

7. **Strengthen Inflation Control Measures:** A combination of tight monetary management, controlled fiscal deficits, and strengthened food supply chains is recommended to limit inflationary pressures and minimize price volatility.

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