

An Empirical Study of the Impact of Migrants' Remittances on Economic Growth in Nigeria: A Co-Integration Approach

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Abstract: This study focused on the effect of remittances in the economy of Nigeria from 1981 to 2023. To achieve this objective, the co-integration technique was applied. From the results and findings, it was found that remittances do significantly but negatively affect the economic growth of Nigeria. After further analysis, it was realized that the negative and significant effect of remittances persisted in the long-run and short-run. This implies that remittances are neither a panacea for economic growth in Nigeria. Additionally, in the long-run, the results showed that the conventional sources of economic growth such as FDI can spur economic growth in Nigeria while increase in exchange rate and inflation caused economic growth to decline. It was therefore recommended that policy makers should create investment vehicles like diaspora bonds among others, to encourage the citizens of Nigeria working abroad to lend their hands to national development. Moreover, as effort is being made to harness the potentials of remittances in economic growth, Nigeria can continue to improve its economy creating an attractive economic outlook that would appease foreign investors. This will help generate investment inflows through FDI, hence higher economic growth.

Keywords: Migrants, Remittances, Economic Growth, Nigeria, Co-integration.

1.0 Introduction

As a result of globalization and industrialization going on in the world the entire world has become a global village. This opportunity affords workers in the developing countries to migrate from their home countries where the reward of labour is small to the industrial world where they are well compensated. (Yang, 2011). The experience in Nigeria after collapse of stock market as a fall out of condition from international market triggers the rush for international job. The drive for capital inflow via remittance has also been on the increase as a result of the geometric increase in labour outflow to the industrial countries (Nwosa, 2014). Human migration is a strong dynamic component of the globalized world. Human mobility becomes more and more important and inevitable, because it affects the socio-economic life of the sending and receiving nations. Remittances transferred by migrant workers, represent a huge percentage of countries' foreign exchange earnings and GDP growth. Moreover, it contributes significantly to the economic improvement of migrant families (Muhammad et al., 2019). IMF stressed that remittances represent the income of migrants' households in overseas which occur primarily from the temporary or permanent movement of men and women to these nations. Remittances include cash and non-cash items that were transferred

through formal channels, such as transfer from financial institution or informal channels through friends or items transported throughout borders. The significance of remittances lies inside the position they play on receiving economies, as they aid the poor households to fulfill their primary needs, finance monetary and non-monetary investments, motivate new businesses, finance education, pay off money owed and, additionally promote increase of the economic system (IMF, 2014). The economic growth has been expressed as an increase in the market price adapted to the inflation of goods and services a nation created over time (Essien, 2012).

Remittance is a new phenomenon in the global financial system because of its seize and impact on the world economic system. Because of these, academicians around the world have shown keen interest through investigation of various aspects of remittances. For example, studies have been conducted on the motivation for remittance, cost of remittance, the effect of remittance on inequality and poverty, and so on. It is foregoing that necessitated the need to investigate the impact of remittance on Nigerian economic growth. (Osili, 2023).

2.0 Literature Review

Linkages between Remittances and Economic Growth

The literature identifies various channels through which remittances have an impact on economic growth. Remittances promote economic growth by increasing household income (Giuliano and Ruiz-Arranz, 2005). Increasing income creates the opportunity to boost consumer spending, accumulation of assets, promotion of self-employment, and investment in small business.

Moreover, migration, especially emigration and remittances contribute to human capital accumulation (Karagoz, 2009). A positive impact of migration on growth is more likely in developed countries, which usually have a higher ability to transfer knowledge and skills when emigrants return to the country of origin, or to divert remittances in order to create new opportunities in the private sector. A negative impact of migration results if the developing countries of origin suffer from brain drain and start to depend on remittances (Fayissa, 2014).

There are some studies that analyze whether the level (measured as remittances-to GDP ratio) and growth of remittances are related to a higher level of economic growth (Bashir, 2020). Estimations of economic relationships in a non-remittance-dependent setting model show that remittances have a positive impact on GDP growth, but these results are sensitive to the selection of explanatory variables. At the macroeconomic level, the impact of remittances occurs within the multiplier effect through a household's consumption of goods and services; investment in human capital, which improves labour productivity; and investment in gross capital formation. Despite the positive impact of remittances, they cannot ensure long-run economic growth or solve structural economic problems, such as unstable political climate and economic policies, or corruption, which is common in developing countries (de Haas, 2007).

Some studies found that remittances influence economic growth in less developed countries because they fill the gap of foreign currency shortage (Javid, Arif & Qayyum, 2012). The other reason for a positive impact is that remittances provide an alternative way to finance investments and help overcome liquidity constraints (Fayissa, 2014). Only by ensuring the stable political and economic environment of the

receiving country can remittances ensure economic growth, because this money will be used not for personal consumption, but for investment in productive activities or business.

The impact of remittances on the country's economic growth depends on the financial system and the financial market development, as well as on the specific economic conditions in the receiving country. Remittances may affect economic growth by decreasing volatility, because remittances do not exhibit too much volatility against changes in the economy. Giuliano and Ruiz-Arranz (2005) found that remittances are typically pro-cyclical for the remittance-receiving country, while de Haas (2007) found that they are typically countercyclical. Remittances promote additional expenditures in the country, and this influences the opportunity to invest more (Cornnel & Conway, 2000).

Remittances are the source of foreign currency, encouraging higher savings and economic growth (Dilshad, 2013). If remittances create a higher demand than the country is able to meet, they also increase imports, which create a variety of goods and services. In this case, it worsens the prosperity of households that do not receive remittances (Karagoz, 2009).

The impact of remittances on economic growth is relatively sensitive to country-specific conditions, through which the effects of remittances are differentiated in size and possibly in nature. The impact of remittances depends highly on public policy, controlling the flow of remittances and creating a favourable environment for the use of remittances in productive investment.

2.1 Theoretical Review

Economic Growth Theory

In the literature, various economic growth models have been proposed by economists but we outline some of these models. The Gross Domestic Product equation model is $Y = f(K, L)$ where Y is output, K is capital, and L is labour. Capital stocks include plant and machinery, bridges, factories, land etc, while, labour represents economically active population. Consequently, for an economy to grow based on this model there must be an increment in the stocks of capital through investment and supply of labour through population growth and investment on capital stock depends on savings.

The endogenous growth theory states that investment in human capital; innovation and knowledge are significantly contributors to economic growth. Therefore, positive policy measures, such as, subsidies for research and development or education increase the growth rate by increasing the incentive for innovation.

However, exogenous growth theory postulates that rate of growth is determine by either the saving (the Harrod – Domar Model) or the rate of technical progress (Solow Model). Even though the saving rate and rate of technological development are not stated.

This BIG PUSH model states that large investment in infrastructure and education coupled with private investment would increase the production of goods and services of a country, which would automatically translate to an economic growth. There is no consensus of opinion on the impact of remittance on an economic growth. Some schools of thought hold the view that remittance has positive impact on economic growth; while others believe remittance do not have effect on economic growth.

Theory of Remittance

The motivation for sending money home by immigrants from literature can be broadly be classified into two which are altruism and self – interest, this is modification of the work of (Lucas and Stark, 2016). These two classifications can be further broken down into: altruism, exchange, insurance, investment, inheritance and strategic motive. The foremost reason why money is sent home by immigrants is altruism. According to (Lopez – Cordova and Olmedo, 2016) it is a situation in which the transfer does not entail any present or future compensation nor does it represent payment for any past debt. (Lucas and Stark, 2016) posit that the remitter derives utility from the well – being of recipients at home and that the amount of remittance and the income are negatively correlated. Those that support this theory include: (Chipeta and Kachaka, 2014), which suggest altruistic motive is behind remittance in Malawi. The reasons for altruistic behavior of remitter may be to mitigate against poverty, low incomes, shocks, draught, which affect the well-being of the family.

Exchange motive for remittance involvement sending money for services rendered, which may include taking care of the immigrant's children, house, property, repayment of loan borrowed by the immigrant to cover his/her migration cost or education etc. The study of (Cox, et al., 2017), which surveys household in Peru, found evidence, which is consistent with exchange motive.

Financial Liberalization Theory.

Different theoretical underpinnings have emerged to elucidate the nexus between remittances and its effect on economic performance. Among these underpinnings is the financial liberalization theory. The financial liberalization was propounded by McKinnon and Shaw in 1973, and states that the liberalization of the financial sector will equally increase savings, stimulate investments and automatically bring about growth in the economy.

McKinnon (2021) and Shaw (2023) asserted that in developing economies, when lending and deposit rates are liberalized, it will encourage savings among the populace, and in turn, spur productive investments and eventually economic growth. The ideological bed seed of McKinnon (2021) and Shaw (2023) centered on lessening government financial repression, by permitting the market to regulate lending and deposit rates, as well as the suspension of credit control by financial authorities, as it will result in high consumption, low savings, low investments and declined in economic growth and performance. Thus, the McKinnon–Shaw proposition is that for an economy to grow, greater efficiency in capital accumulation and allocation, regulation of interest rate, credit control, as well as other restrictive financial measures should be removed.

2.2 Empirical Review

Fagerheim (2015) examined the impact of remittances on economic growth in the Association of South East Asian Nations (ASEAN) from 1980 to 2012 using ordinary least square regression (OLS) and the instrumental variable - two stage least square (IV 2SLS) method. In the presence of no endogeneity, the OLS multiple regression result was upheld, and the study revealed that remittances have mixed impacts on economic growth.

Adeyi (2015) investigated remittances and economic growth in Nigeria and Sri Lanka from 1985 to 2014 using granger causality under the vector autoregressive (VAR) framework. The study discovered a uni-directional link in Nigeria from remittance inflows to economic growth, while a bi-directional causality was found for Sri Lanka between remittances and economic growth. Based on this discovery, the study concluded that there is a great need to employ remittances for small and medium scale enterprise development, coupled with the creation of enabling macroeconomic environment.

Adarkwa (2015) also examined the impact of remittances on economic growth among selected West African countries from 2000 to 2010 in a linear regression model. The study showed that remittance inflow was positively related to economic growth for Senegal and Nigeria, while a negative impact was observed for Cameroun and Cape Verde. Thus, the study concluded that remittance inflows must be invested in the productive sector before it can positively impact economic growth.

Kunofiwa (2015) investigated the causal relationship between personal remittances and economic growth in Israel from 1975 to 2011 in a tri-variate causality framework with banking sector development as the third variable. The study employed Johansen co-integration test and the vector error correction model. The results showed that a significant long run relationship exists from economic growth and banking sector development to remittances, while the long run causality from personal remittances to economic growth and banking sector development was found to be insignificant. Also no short run causal relationship exists among the variables.

Fayomi, Azuh and Ajayi (2015) investigated the impact of remittances on Nigeria's economic growth, with a case study of Nigerian Diasporas in Ghana, using primary data obtained through a questionnaire designed for 326 respondents residing in Ghana. The study utilized the non-parametric tests as well as linear regression for the analysis. Findings revealed that remittances from the Nigerian migrants living in Ghana had significant impact on economic growth. The study inferred that the installation of adequate infrastructure that could attract more remittances for the country.

Ahmad (2015) examined workers remittances and economic growth in Jordan from 1975 to 2013 using the ordinary least squares (OLS) technique. The study showed a positive relationship between remittances and economic growth. The study concluded that remittances in Jordan were utilized for both consumption and investment purposes, given its positive impact on GDP per capita as a proxy for economic growth.

Okoduwa, Ewetan and Urhie (2015) in an examination of remittance expenditure pattern and human development outcomes, using household survey data on migration and remittances in the sub Saharan Africa between 2009 and 2010, found that negligible portions of diaspora remittances were actually committed to investment purposes, hence, the insignificant impact on human development outcomes.

Aboulezz (2015) investigated the nexus between remittances and economic growth in Kenya from 1993 to 2014 using granger causality test in the framework of autoregressive distributed lagged models (ARDL). Remittance indices were found to be significant determinants of economic growth for the Kenyan economy. The study therefore inferred that economic growth in Kenya was largely driven by remittances for the periods considered.

Kanchan and Bimal (2014) investigated the relationship between remittances and economic growth in Bangladesh from 1975 to 2011 using autoregressive distributed lagged (ARDL) model framework. The study

found a long run relationship between remittances and Gross Domestic Product (GDP), although no short run causal relationship was discovered.

Adeagbo and Ayansola (2014) conducted a review of empirical studies on the impact of remittances on economic development in Nigeria by comparing the positive impact of remittances on economic development in some countries to the impact of remittances on economic development in Nigeria. The study distinguished bureaucratic nature of the business climate, over reliance on crude oil, non-formulation and implementation of adequate remittance programs, political instability and corruption as the major factors working against the positive impacts of remittances in Nigeria.

Iheke (2012) explored the effect of remittances on the Nigerian economy from 1980 to 2008 using regression analysis. The study showed a positive and a statistically significant relationship between remittances and economic growth for the periods covered by his study.

Ikwuagwu et al (2024) in their study focused on the effect of remittances in the economy of Nigeria from 1981 to 2019. To achieve this objective, the ARDL technique was applied. From the results and findings, it was concluded that remittances do significantly but negatively affect the economic growth of Nigeria. After further analysis, it was realized that the negative and significant effect of remittances persisted in the long-run and short-run. This implies that remittances are neither a panacea for economic growth in Nigeria. Additionally, in the long-run, the results showed that the conventional sources of economic growth such as FDI and capital formation can spur economic growth in Nigeria while increase in exchange rate and inflation caused economic growth to decline.

3.0 Methodology

3.1 Model Specification

The empirical analysis focuses on the impact of remittance flows on economic growth of Nigeria. The time frame is the 43-years period of 1981-2023. The variables used in the regression models are extracted from two sources: the World Development Indicators (WDI) databank of the World Bank and the Central Bank of Nigeria (CBN) Statistical Bulletin.

To determine the responsiveness of output growth rate to remittances, gross fixed capital formation as investment in physical and human capital, and external source of capital represented by foreign aid, foreign direct investment and openness of the economy as measured by the ratio of the sum of imports and exports to the GDP were used. Our basic empirical model is based on research studies of Chami et al. (2003) within an extended version of the neoclassical economic growth model.

The model is modified to incorporate our variables of interest. Rather than considering growth, we look at the level of remittances to real gross domestic product (RGDP). According to Mansoor (2007), this is reasonable because a country would need to increase remittances year after year to promote growth, which would end up with a 100% share of remittances on GDP in the limit. The general form of the regression model is given in a log- linear modeling specification as below:

$$RGDP = f(FDI + EXC + INF + REM + CON) \dots\dots\dots (1)$$

Where:

GDP = Real Gross Domestic Product

FDI = Foreign Direct Investment

EXC = Exchange Rate

INF = Inflation

REM = Remittances

CON = Consumption Rate

The log form of equation (1) can be represented below:

$$LRGDP_t = \alpha_0 + \alpha_1 LFDI_t + \alpha_2 LEXC_t + \alpha_3 LINF_t + \alpha_4 LREM_t + \alpha_5 LCON_t + \mu_t \dots \dots \dots (2)$$

LGDP is the natural log of gross domestic product GDP, LFDI is the natural log of foreign direct investment, LEXC is the natural log of exchange rate, LINF is the natural log of Inflation, LREM is the natural log of remittances, and LCON the natural log of consumption. To estimate the parameters corresponding to variables of interest from the data under consideration, we use the cointegration approach, which is helpful for characterizing the long-run relationships between economic growth, remittances and other external sources of capital. We examined two unresolved questions in current literature: first, whether remittances positively affect GDP growth rate in the short run and long run, and second, whether remittances have a larger short/long-run effect on GDP growth than other sources of external capital. According to the Johansen (1992) cointegration methodology, variables of interest can be understood as reflecting long-run cointegrating relations as presented below:

$$\Delta Y_t = \sum_{t=1}^p r_i \Delta Y_{t-i} + DZ_t + \pi Y_{t-1} + \varepsilon_t$$

Where Y_t is a column vector of n endogenous variables, z_t is a column vector of m exogenous variables, Δ is the difference operator, and ε_t is a column vector of white noise processes with mean zero and covariance given by the $n \times n$ matrix, Σ corresponding to covariance of residuals within and across equations. The matrix r_i contains parameters for a p -order lag process, while the Π matrix contains information about the long run relationships between the variables. When the Π matrix has a reduced rank ($r \leq (n-1)$), it can be decomposed into $\alpha\beta'$, where the α matrix includes the speed of adjustment to equilibrium coefficients and β' is the long-run matrix of coefficients.

The existence of cointegrating vector(s) indicates long run relationship(s) among these variables, while short-term deviations from the long run time path of these series will be captured by the Error Correction Model (ECM). To determine orders of integration of the variables in the model, we conducted traditional Augmented Dickey-Fuller and Phillips-Perron unit-root tests.

4. Estimation and Discussion of Empirical Results

4.1 Stationarity and Cointegration Tests

The analysis of empirical results starts with the examination of the integration order of each of the time series included in the model. The results of the Augmented Dickey-Fuller (ADF) and the Phillips-Perron (PP) tests based on inclusion of an intercept as well as a linear time trend are shown in Table 1 below.

a. Unit Root Test

Table 1: Augmented Dickey-Fuller Unit Root Test:

Augmented Dickey Fuller (ADF)			Phillip Perron (PP)		
Variables	Test Statistics	Critical Values @ 5%	Test Statistics	Critical Value @5%	Order of Integration
LNGDP	-3.6578	-4.5954	-3.6578	-4.5954	I(1)
LNFDI	-6.2965	-4.5954	-5.3768	-4.5954	I(1)
LNEXC	-4.8735	-4.5954	-3.1376	-4.5954	I(1)
LNINF	6.4861	-4.5954	-2.6534	-4.5954	I(1)
LNREM	-5.7906	-4.5954	-4.4536	-4.5954	I(1)
LNCON	-3.8732	-4.5954	-5.7624	-4.5954	I(1)

Source: Author's computation

ADF and PP test results was presented in table 1 revealing compliance to the condition for VECM which affirms stationarity of all variables at first difference I(1). It is apparent from Table 1 that all the variables were stationary at first difference, i.e. I(1) series.

To establish the existence (or otherwise) of a long-run relationship among the variables (series), a cointegration test was performed using Johansen's multivariate approach (Johansen and Juselius, 1990; 1992). In order to save the degrees of freedom, the highest lag length in the testing-down procedure of the lag-length tests was taken to be one, according to AIC and SC information criteria.

Table 2: Unrestricted Co integration Rank Test (Trace)

Hypothesized No of CE(s)	Eigen Value	Trace Statistics	0.05 Critical Value	Probability**
None *	0.652807	68.65298	53.43980	0.0034
At Most 1	0.468912	48.45092	37.49831	0.4216
At Most 2	0.482563	33.63782	22.36542	0.8341
At Most 3	0.492587	6.47823	15.76210	0.7623
At Most 4	0.347629	4.52987	6.46829	0.5432
At Most 5	0.576031	3.89023	7.61043	0.3781
At Most 6	0.378723	5.43276	6.45621	0.4389

Source: Author's Computation

Trace test indicates 1 co-integrating equation at the 0.05 level

* Denotes rejection of the hypothesis at the 0.05 level

** Mackinnon-Haug-Michelis (1999) P-values.

Johansen co-integration test from table 2 above, reveals three co-integrating equivalences as trace statistic is greater than the corresponding Mackinson critical value at 5% significance. In view of this, from the trace test statistic, the absolute values of the variables are $(68.65 > 53.44)$, $(48.45 > 37.500)$, $(33.64 > 22.37)$; $(6.48 < 15.76)$, $(4.53 < 6.47)$; $(3.89 < 7.61)$; $(5.43 < 6.46)$ implying a long-run equilibrium connection.

To test the hypothesis regarding the number of cointegrating vectors, the Johansen cointegration procedure performs two tests-Trace (trace) and Max-eigenvalue (max). Both Trace test and Max-Eigen value statistics indicate one cointegrating equation (CE) at 5% level of significance. Based on this, we can reject the null hypothesis (H_0) which says that there are no cointegrating vectors and conclude that the six variables under consideration are bound together by long-run equilibrium relationship under the assumption of no deterministic trend (Table 2). Long-Run Estimate As noted in table 2, since most of the variables are cointegrated, we normalize the coefficient on LNGDP in the cointegrating relationship to one.

Vector Error Correction Mechanism

Table 3: Speed of Adjustment

Variables	Coefficient	Std. Error	t-Statistic	Probability
LNRGDP - ECT	-0.56321	0.25425	0.352678	0.5478
R ²		0.854731 = 85%		

Source: Author's Computation

The ECT co-efficient from table 3 above is 0.56321 which implies that it will adjust back to equilibrium at 56.32% after disequilibrium within one year.

Table 4: Vector Error Correction Mechanism

Variables	Coefficient	Std. Error	t-Statistic	Probability
LNFDI	0.05839	0.27439	0.41704	0.3094
LNEXC	-0.26491	0.38134	0.39820	0.2475
LNINF	0.03620	0.21082	0.46421	0.4825
LNREM	-0.13573	0.24874	-0.23475	0.2831
LNCON	0.24742	0.14384	0.31257	0.3721

Source: Author's Computation

Discussion of Findings

An interesting finding from the analysis of data is that remittances (REM) exerted negative and significant economic growth of Nigeria in both the long-run and short-run. This falls in line with Anetor (2019) who

argued that remittances undermine productivity in low-income countries because they are often spent on consumption likely to be dominated by foreign goods than on productive investments.

Similarly, Fayissa (2014) adduced the negative effects of remittances on economic growth to the fact that a significant proportion of remittances are spent on consumption; a smaller part of remittances goes into saving and/or investments; and that remittances are typically saved or invested in housing, land and jewelry, etc. which are not necessarily productive to the overall economy.

From another perspective, the results that exchange rate had negative and significant effect on economic growth can alter the domestic value of foreign remittances which further affect the growth rate of the economy (Olayungbo & Quadri, 2019). On the other hand, empirical studies abound that remittances still represent a relatively stable financial resource in many countries. Mehedintu et al. (2019) concluded that remittances increased the consumption level of rural households, which might have substantial multiplier effects on the economy, because they are more likely to be spent on domestically produced goods emerging countries in Europe. Similarly, Chowdhury (2015) averred that remittances are positively and significantly related to economic growth of Lower Middle-Income and Upper Middle-Income Economies.

Also, Bashir (2020) explained that remittances are likely to increase the quantity of funds flowing through the banking system which may lead to enhanced financial development and thus high economic growth through increased economies of scale in financial intermediation and political economy effect; whereby a larger constituency (depositors) is able to pressure the government into undertaking beneficial financial reform. This implies that remittances might ease the immediate budget constraint of families by boosting crucial spending needs on food, healthcare and schooling.

Conclusion and Recommendations

This study focused on the effect of remittances in the economy of Nigeria from 1981 to 2023. To achieve this objective, the co-integration technique was applied. From the results and findings, it was concluded that remittances do significantly but negatively affect the economic growth of Nigeria. After further analysis, it was realized that the negative and significant effect of remittances persisted in the long-run and short-run. This implies that remittances are neither a panacea for economic growth in Nigeria. Additionally, in the long-run, the results showed that the conventional sources of economic growth such as FDI can spur economic growth in Nigeria while increase in exchange rate and inflation caused economic growth to decline.

Policy implications drawn from this study is as follows:

- a). As remittances are yet to foster economic growth in Nigeria because a large fraction of them are spent on consumption instead of economically productive investments, policy makers should create investment vehicles like diaspora bonds among others, to encourage the citizens of Nigeria working abroad to lend their hands to national development.
- b). As effort is being made to harness the potentials of remittances in economic growth, Nigeria can continue to improve its economy creating an attractive economic outlook that would appease foreign investors. This will help generate investment inflows through FDI, hence higher economic growth.
- c). The government should stimulate remittances by ensuring that funds transfers by nationals living and working abroad does not lose its value to inflationary pressure in Nigeria. Consequently, monetary

authorities should strategically identify the underlying causes of such inflationary pressures and use the appropriate policy to curtail it so as to foster price stability and economic growth in Nigeria.

d). Again, it is imperative for the Nigerian government, through the Central Bank, to develop a policy framework that would foster capital formation thus making long-term funds available for economic production since remittances are not to drive economic growth and development in Nigeria.

e). Since the effect of exchange rate on economic growth was negative and significant, it is needful that monetary authorities sustain the utilization and management of floating exchange rate in Nigeria to enhance economic activities which would also lead to higher economic growth.

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