Diaspora Remittances and The Growth of The Nigerian Economy

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ABSTRACT

This paper assessed the impact of diaspora remittances on the growth of the Nigerian economy from 1986 to 2019. The paper utilizes the Autoregressive Distributed Lag (ARDL) model by using variables of gross national product, diaspora remittance inflows, labor force, financial development, and trade openness. Results of the study have shown that diaspora remittances have a positive and significant impact on economic growth in Nigeria in the short run and long-run, however, its impact on growth was quite low for both periods. To improve the contributions of diaspora remittance, remittances should go beyond just transfer payments and social security to help family members and serve as investments to spur economic growth. Also, increasing labor force participation through job creation, improving working conditions to enhance productivity, and creating favorable financial environment to invest these funds is advocated. Additionally, international trade should be strengthened by shifting production from primary products such as crude oil and agricultural produce to secondary products such as refined petroleum and industrial products by revamping the industrial sector.

Keywords: Diaspora remittances, Economic growth, Financial development, Labor force, Trade openness.

İşçi Dövizleri Diasporası ve Nijerya Ekonomisinin Büyümesi

ÖZ

Bu makale, diaspora havalelerinin 1986'dan 2019'a kadar Nijerya ekonomisinin büyümesi üzerindeki etkisini değerlendirdi. Bu makale, gayri safi milli hasıla, diaspora havalesi girişleri, işgücü, finansal gelişme ve ticaret açıklığı. Çalışmanın sonuçları, diaspora havalelerinin Nijerya'da kısa ve uzun vadede ekonomik büyüme üzerinde olumlu ve önemli bir etkiye sahip olduğunu, ancak büyüme üzerindeki etkisinin her iki dönem için de oldukça düşük olduğunu göstermiştir. Diaspora havalesinin katkılarını iyileştirmek için, havaleler, aile üyelerine yardımcı olmak ve ekonomik büyümeyi teşvik etmek için yatırımlar olarak hizmet etmek için sadece transfer ödemelerinin ve sosyal güvenliğin ötesine geçmelidir. Ayrıca, istihdam yaratarak işgücüne katılımın artırılması, verimliliğin artırılması için çalışma koşullarının iyileştirilmesi ve bu fonlara yatırım yapmak için uygun finansal ortamın yaratılması savunulmaktadır. Ayrıca, sanayi sektörü yenilenerek, üretimin ham petrol ve tarımsal ürünler gibi birincil ürünlerden rafine petrol ve sanayi ürünleri gibi ikincil ürünlere kaydırılarak uluslararası ticaretin güçlendirilmesi gerekmektedir.

Anahtar Kelimeler: Diaspora işçi dövizleri, Ekonomik büyüme, Finansal gelişme, İş gücü, Ticari açıklık.

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Introduction

Migration and globalization, breaking down age-old boundaries have rapidly changed traditional spheres of human activity. In sub-Sahara Africa, and particularly Nigeria, emigrant numbers have continued to grow. Nigerians in diaspora with their earnings make up a huge potential economic force through their remittances and also are immensely important to the economy as skilled repatriates (Elebiju & Fatokunbo, 2020). Consequently, development practitioners and policy makers have emphasized the importance of the diasporas in driving investments towards their home countries, such as creating jobs, stimulating innovation, and expanding productivity (Anetor, 2019).

The United Nations Development Program (UNDP) defines diaspora remittances as individual transfers from migrant workers (workers living in a foreign land for a year or more) to a recipient in his/her home country or country of origin (UNDP, 2020). In circumstances where remittances are not used for immediate consumption needs, remittances could be saved and invested, which ultimately results in the benefit of the economies of the worker's country of origin. Similarly, Adams and Page (2003) sees diaspora remittances as the total of compensation of employees, remittances of workers, in addition to other current transfers of other sectors.

The World Bank's 2019 annual remittance data update have revealed that Nigeria is ranked the sixth highest recipient of global remittances, only after China, India, Egypt, Mexico, and Philippines (World Bank, 2019). With this upward trend and with the recognition of the beneficial contribution of diasporas as partners in the Nigerian project, the Nigerian government created the Nigerians in Diaspora Commission (NIDCom) in 2019, to use the rich human capital, and material resources of Nigerian diaspora community.

The forgoing restates the fact that remittances play important role in economies both at the macro and micro levels, predominantly, as it has multiplier effects on consumption, investment, and economic growth, i.e., it helps poorer recipients meet basic needs, finance education, fund investments, foster new businesses, meet debt obligations, and fundamentally, drive economic growth (PricewaterhouseCoopers, 2019). Consequently, remittances provide alternative investment, needed for economic expansion.

However, in Nigeria, the dearth of domestic investment has resulted in government resorting to borrowing, leading to chronic government deficits and an escalating debt profile. At present, the country is burdened by sluggish output growth rate, dearth of investment, low and unpredictable revenue profile, and an unsustainable debt level. Furthermore, with dwindling revenues and the growing government budgetary pressures amid an expanding domestic investment needs, diaspora remittances can unlock massive economic value, by stimulating the economy. The study assesses the diaspora remittances and economic growth in Nigeria, providing empirical evidence on the diaspora-growth relationship in the country.

Some scholars have empirically examined the interactions between diaspora remittances and economic growth and have come out with diverse results. Narang (2020), Hassan & Shakur (2017), Munguna (2018), Ineke (2016), and Fayomi, Azuh & Ajayi (2015) studies have revealed positive and significant effect between diaspora remittances and economic growth, while Didia, Didia & Ayokunle (2018), and Anetor (2019) reveals negative and significant effect. However, these studies, did not take into cognizant the growth accounting framework which offers a rich perspective to analyze the diaspora growth relationship. Also, with respect to previous, this work represents a recent attempt that examines the relationship between diaspora remittance and economic growth in Nigeria. Diaspora remittance in the form of inflows extends beyond the domestic economy, for example the use of GDP as a

proxy for economic growth as identified in previous studies becomes inadequate in a study that assesses diaspora remittance and performance of the Nigerian economy in general. Unlike previous studies, this study used Gross National Product which is a more comprehensive and integrated proxy to measure economic performance. Additionally, it employed the ARDL due to mix orders of stationarity of the variables and ARDL is best suited for taking care of mix order of stationarity. The rest of the study consists of a theoretical background, literature review, methodology, results and discussion, and conclusion and policy direction.

Theoretical Background

The theoretical background for this study derives from the Growth Accounting framework of Barajas, Chami, Fullenkamp, Gapen and Montiel (2009). The theory looked into the ways or paths through which remittance receipts could have an impact on growth. These paths are effects operating via; ‘’capital aggregation, labor force expansion, and, total factor efficiency growth’’.

How Remittance Inflows affects Capital Accumulation- In recipient economies, remittances have a variety of effects on the rate of capital accumulation. The most evident of them is by directly funding capital accumulation growth in comparison to what would have happened when recipient economies were to depend solely on internal sources of income to finance investment. From a microeconomic standpoint, if people living within the country face financial constraints which limit their investment activities, such as poor domestic financial development indicators, remittance flows coming into the country may help alleviate these constraints, allowing recipient households to increase their rate of amount of human and physical capital.

Furthermore, how remittance incomes affect internal investment financing need not function solely via increasing resources that such incomes bring; where reach to remittance incomes makes better domestic investors ability to be trusted to pay back money that is owed, huge remittance income may reduce the domestic economy's capital cost. More borrowing would allow the amount of new net addition to stock of capital that can be financed in the presence of remittance inflows to surpass the scale of remittance outflows during that period, which is achievable because inflows in the future can be used to pay back amount owed that have accumulated. Put differently, remittances can effectively serve as household collateral.

Moreover, the effects of remittance incomes on domestic macroeconomic stability are one mechanism by which they can influence domestic capital accumulation. Inflows that make the internal economy less vulnerable tend to make smaller the chances of loss of premium that businesses seek to be able to invest, making domestic addition to net capital stock even more appealing.

According to Barajas et al. (2009) remittances might theoretically encourage more net addition to existing capital stock in the type of human net capital aggregation. Remittances may do so either by directly paying expenses incurred on investment or lowering the requirement for youthful members of a household to drop out of school in order to do jobs and help in providing for the household's income. This results in economic expansion of the country, however, this is contingent on people who receive the income' to continue engagement in the internal labor force. The increasing impacts would not be positive if the increased knowledge provided by remittances allows recipients to emigrate.

How Remittance Inflows affects Labor Force Growth- Remittances can also have an impact on growth by affecting the pace of growth of labor inputs. Barajas et al. (2009), opines that

one-way remittances can affect labor resources is through labor force taking part in an activity. They agreed that remittances may also have a bad influence on labor force involvement. Furthermore, remittance transfers, without consideration of their planned usage, may be hindered by severe moral hazard constraints, primarily the reason been that these flows occur under unequal information and in a situation where checking and making sure people obey are hampered by the lack of connection between the payer and the receiver. As a result, moral hazard problems may persuade recipients to use resources for different purpose like consuming goods.

How Remittance Inflows affects Total Factor Productivity (TFP) Growth- Remittances affects TFP growth by affecting the quality of domestic investment and the magnitude of domestic productive sectors, both of which generate frequent production spillover effect in the economy; however, whether such spillovers occur in receiving remittance in an economy is largely dependent on many factors that differentiate each economy. Depending on Remittance receipts having the potential to affect investment efficiency by influencing the quality of domestic financial channeling of surplus and deficit in at least two ways. Initially, if remittances are chiefly concealed capital inflows, i.e., if recipients invest on behalf of the remitter, investment quality is influenced to the degree the representative making the investment decision, either the receiver, has some informational advantage or disadvantage over financial institutions in the country.

Remittances may have an impact on the receiving economy's conventional financial system's ability to distribute capital. Remittances is expected to increase the amount of money passing via the banking system, which could make way for improved financial advancement indicators and greater economic expansion through two pathways: first, expanded economies of scale in financial channeling of surplus and deficit, or second, a political economy effect, in which a larger proportion of depositors can exert pressure on the government. However, none of the efficiency increasing effects presented is sure, as Barajas et al. (2009) noted.

Another way in which remittances might influence TFP increase is by altering the magnitude of frequent production spillover effects that a nation generates. Empirical data reveals that remittance inflows are connected with equilibrium real exchange rate increase, according to Barajas et al. (2009), implying the possibility of Dutch disease results in remittance-receiving nations. When the equilibrium real exchange rate increase causing reduction of output of areas that create frequent production spillover effect consequences emerge. This mechanism, like the previous one, is not a needed outcome because its coming is contingent not only on if remittance inflows cause real exchange rate appreciation, but also if the nature of traded goods produced in the remittance-receiving nation is expected to cause frequent changing spillover effects.

Outside the forgoing three channels, Barajas et al. (2009) opined that remittance flows have larger political economy consequences that may affect growth via all the three growth accounting routes discussed in the section earlier. The coming of remittance receipts reduces the need for private people to monitor and regulate the domestic government's policy effectiveness, particularly to the degree that remittances provide an alternative income source for internal households that is not dependent on local production pathways in the country. As a result, substantial inflows may jeopardize effective domestic governance, with wide-ranging repercussions for the efficiency and effectiveness of the domestic policy environment, which can have negative consequences for capital expansion, labor input increase, and also TFP increase.

Overall, numerous possible benefits of remittances flows and economic growth abound, however the scale of these results is largely unknown, and the results are contradictory. As a result, the most important takeaway is impacts of remittance inflows on the recipient economy's economic growth are theoretically equivocal. As a result, the problem is empirical, necessitating this research for the Nigerian economy.

Review of Related Literature

Narang (2020) investigated the trend and pattern of remittance inflows, and its effect on household consumption and investments in India, covering 1975 to 2017. The Two-stage Least Square method was employed as estimation technique on the variables of personal remittances, gross fixed capital formation (investment), government final consumption expenditure, trade openness, gross domestic product, foreign direct investment, household final consumption expenditure, exchange rate, credit to the private sector, population, and inflation rate. Empirical findings indicated that although personal remittances did not impact the GDP directly, it however led to an increase in consumption and net addition to capital stock which had strong positive effects on the GDP of India.

Conducting a research in Bangladesh, Hassan and Shakur (2017) used the Two Stage Least Square on a data-set spanning the period of 1976 to 2012. The study employed just GDP per capita and diaspora remittances as variables in its empirical analysis. The study's finding revealed that economic growth effect of remittance inflows was negative at the beginning, however, it became positive in the later period, showing evidence of non-linear relationship. The study noted that this was as a result of the fact that remittances were put to unproductive uses in the beginning by migrant families, but in the later stage, viable economic investments of remittances led to more productive utilization, resulting in growth of per capita income.

In a cross-sectional study of 48 Sub-Saharan countries, Didia, Didia & Ayokunle (2018) used Panel Multiple regression on the variables of Gross domestic product per capita, diaspora remittances, foreign direct investment, foreign aid, government expenditures, and literacy rates. Empirical results from the study showed there was a negative and statistically significant impact between remittances and economic growth in SSA, ascribing the relationship to remittances not being invested in productive endeavors within the economy.

In Kenya, Muguna (2018) in his study, assessed the impact of the global south remittances on the national development between 2005 and 2016. The study used trend analysis and Multiple regression analysis on an annual time series data-set. Variables used were global south remittances, GDP, exchange rate, government expenditure, equity turnover, bond turnover, secondary school enrollment, gross savings, and consumer price index. The study's finding established a significant upward remittance trends from the global south into Kenya. In addition, the study found that increases in diaspora remittances positively increased GDP, stabilizes exchange rates, consumer price index, equity turnover, bond turnover, secondary school enrollment, consumer spending, and gross savings in Kenya. Apart from that, increases in remittance inflow reduced government spending, enabling government to lay more emphasis on priority sectors according to results of the study.

In another study on Kenya, Amugune (2018), put to use annual data spanning 2008 to 2017 and the Multiple regression analysis to carry out its empirical analysis. Variables used in the study were GDP, diaspora remittances, interest rate and inflation rate. Findings from the study established a positive but insignificant relationship between diaspora remittances and interest rate on economic growth (GDP) in the kenya. While Inflation, had a negative significant relationship.

In a similar research involving Nigeria, Anetor (2019) carried out a research on the nexus between remittances, financial sector development, and economic growth using the Auto-Regressive Distributed Lag (ARDL) model on an annual data-set spanning 1981 to 2017. Variables used in the study were, economic growth (GDP), remittances as a percentage of GDP, financial sector development indicator proxied by M_2 as a ratio of GDP, trade openness, population growth, inflation rate, government's expenditure as a percentage of GDP, and gross capital formation as a percentage of GDP. Results of the study showed that remittances and financial sector development had significant negative effects on economic growth in the short and long-run.

Loto and Alao (2016) investigated the contributions of remittances in Nigeria, applying data set spanning 1980 to 2016. The research used the Vector Error Correction Method (VECM) on an annual data of real GDP per capita, migrants' remittances (personal remittances), workers' remittances, gross fixed capital formation, foreign aids, and trade openness. Findings revealed that migrants' remittances positively and significantly impacted economy, while there was a negative and statistically significant impact between workers' remittances and economic growth in Nigeria.

Similarly, Iheke (2016), carried out a trend analysis of diaspora remittance inflow in Nigeria spanning 1980 to 2010. In its content analysis, it carried out a trend analysis of the contribution of remittance inflow as a percentage of GDP in Nigeria, Ghana, Burkina Faso, Mali, Cote d'Ivoire, Cameroon, Gambia and Morocco. The trend analysis revealed that international remittance inflows was a major financial option that promoted economic growth in Nigeria, and the other African countries analyzed, stressing the need for a friendly economic environment to attain the most from remittance inflows.

In their study, Fayomi, Azuh and Ajayi (2015) explored the effect of activities of Nigerian diasporas living in Ghana, by assessing impact of monies transferred into the Nigerian economy. Using primary data from a sample population of 326 respondents of Nigerians in Ghana, the study put to use Chi-square test and linear regression analysis as estimation techniques. Findings from the empirical analysis have shown that remittances from Nigerians in Ghana significantly contributed to the Nigerian economy. Similarly, it was found that remittances significantly supported savings, investments, and several community-based developmental projects and charity initiatives in the country.

Additionally, Adarkwa (2015) investigated the effect of remittance inflows on the economy of Nigeria, Cameroon, Cape Verde and Senegal, using annual time series data covering 2000 to 2010. Using Multiple linear regression on the variables of GDP and remittance inflows, the study revealed that remittance inflows to Nigeria and Senegal have positive effects on their economic growth rate, whereas, Cameroon and Cape Verde recorded negative effects of remittances on their economy. In addition, while Nigeria benefited most, Cameroon benefitted the least from remittances within the study period. This study noted that investment of remittances on productive sectors would make its impact more viable.

As a departure from previous literatures, with particular reference to Nigeria specific studies, the use of Barajas et al. (2009) Growth Accounting theory as theoretical framework provides a unique and rich perspective to analyze the diaspora-growth relationship in Nigeria.

Methodology

Type and Sources of Data

This paper uses secondary data to carry out its analysis. Time series data spanning from 1986 to 2019 was employed. Choosing 1986 as the base year was because in addition to data

availability, the period falls within the years of the structural adjustment programs in Nigeria. In addition, the huge diaspora remittance, data availability, and the current need to harness the benefits from Nigerian diasporas to shore up the dearth of domestic investment for national growth, necessitated the choice of the terminal year of 2019. The data on economic growth, remittances, labor force, and trade openness was obtained from the World Bank data base 2019, while data on financial development was gotten from the Annual CBN statistical bulletin, 2019 edition. The data used is presented in the appendix

Method of Analysis

The Auto-regressive Distributed Lag (ARDL) method, proposed by Pesaran, Shin, and Smith (2001), was used to achieve the objectives of the study in determining the impact of diaspora remittance inflows on economic growth in Nigeria. It is autoregressive in the sense that the predictand is explained by its lag, as well as a distributive lag component in the form of sequence lag exogenous variables, according to Giles (2013), it has many merits, including being superior to traditional co-integration techniques when used with a small sample size, allowing short-run and long-run relationships to be tested jointly, providing fair estimates for long-run and valid t tests when some independent variables are endogenous, according to Srinivasan & Kalaivani (2012), the variables are tested without consideration of the order of difference.

Model Specification

Following the theoretical framework of this study, the model is hinged on Growth Accounting framework, developed by Barajas et al. (2009) which assesses the pathways via which remittance inflows can influence growth. As a departure from previous literatures, with particular reference to Nigeria specific studies, the use of Barajas et al. (2009) Growth Accounting theory as theoretical framework provided a unique perspective to analyze the diaspora-growth relationship in Nigeria. The study also adapted the work of Anetor (2019), using the variables of gross national product as proxy for economic growth, diaspora remittance inflows into Nigeria, labor force, financial development proxied by M_2 as a ratio of GDP, and trade openness. Consequently, functional form of the model is given below;

[1] $GNP=F(REM_t,L_t,FD_t,TOP_t)$

The econometrics form of the model is given as;

[2] $\mathrm{LnGNP_t} = \alpha_0 + \alpha_1\ \mathrm{LnREM} + \alpha_2\mathrm{LnL} + \alpha_3\mathrm{LnFD} + \alpha_4\mathrm{LnTOP} + \epsilon_t$

Apriori Expectation- REM, L, FD, TOP >0

where, α_0 is the intercept; $\alpha_1, \alpha_2, \alpha_3$ and α_4 are the coefficients of the variables; ε_t represents the error term; LnGNP represents the log of economic growth (proxied by Gross National Product), LnREM is the log of diaspora remittance inflow, LnL stands for the log of labor force, LnFI represents the log of financial development proxied by M_2 as a ratio of GDP, while LnTOP represents trade openness which is the sum of exports and imports of goods and services measured as a share of GDP. Remittances are expected to finance growth since it is expected to directly finance capital accumulation; labor represents labor force participation rate in the economy; financial development is expected to capture the quality of the domestic financial intermediation since it has a telling impact on the strength of remittances on the economy; as a result of that fact that remittance inflow is largely dependent on the openness of an economy, as such, trade openness captures how open Nigeria is with respect to the global trading system.

Estimation Procedure

Test for Stationarity: The Phillips-Perron (PP) stationarity test was carried out to inspect for the presence of non-stationarity in the data. Here, the PP test is an improvement on the Augmented Dickey-Fuller test, that is, the null hypothesis of there is unit root: $H_0 = \alpha = 0$, but it proposes a nonparametric approach. Therefore, following Phillips and Perron (1988), it is also suitable to a wider category of time series, which includes the ARMA model, and also the moving average models. It is represented as;

[3] $\Delta Y_t = \alpha Y_{t-1} + u_t$

where, Y_t is a time series and u_t is a sequence of innovations. While the ADF test addresses the problem of a higher order of autocorrelation by adding lagged difference terms of the dependent variable, ΔY_{t-1} as regressors in the test equation, the PP test according to Waheed, Alam and Ghauri (2006) modifies the test statistic of the α parameter, so serial correlation does not affect the asymptotic distribution of the test statistic.

The ARDL Co-integration Approach – In the ARDL method, the procedures are as follows; the first step after stationarity test is to determine the presence of co-integration using the bounds testing procedure (Pesaran and Pesaran, 1997; Pesaran, Shin and Smith, 2001). The coefficient of the long-run associations found in the previous phase is estimated in the second step. Following the discovery of long-run relationships among the variables, the long-run relationship is estimated using an appropriate lag selection criterion based on either the Akaike Information Criterion (AIC), the Schwarz Information Criterion (SBC), or the log-likelihood ratio test (LR), as only an appropriate lag selection criterion will be able to determine the true dynamics of the model. The third step is to estimate the short-run dynamic coefficients. The fourth stage involves testing for the stability of the model, by using the Cumulative sum of recursive residuals (CUSUM) and the Cumulative sum of squares of recursive residuals (CUSUMSQ). The ARDL model is written as;

[4] $Y_t = \alpha_0 + \phi_t Y_{t-1} + \beta_t X_{t-1} + \varepsilon_t$

where, Y_{t-1} and X_{t-1} are variables, ε_t is the vector of the random error term. The model can also be defined as ARDL (p, q) the p and q are lag of the parameter which forms Equation [5];

[5] $y_t = \alpha_0 + \sum_{i=0}^{p} \phi_i y_{t-1} + \sum_{j=0}^{q} \beta_j x_{t-1} + \varepsilon_t$

In view of the above explanation, the ARDL model used is presented as;

[6] $\Delta \mathrm{LnGNP_t} = \alpha_0 + \sum_{i=0}^{p} \emptyset_1 \Delta \mathrm{LnGNP_{t-1}} + \sum_{t=0}^{p} \emptyset_2 \Delta \mathrm{LnREM_{t-1}} + \sum_{t=0}^{p} \emptyset_3 \Delta \mathrm{LnL_{t-1}} + \sum_{t=0}^{p} \emptyset_4 \Delta \mathrm{FD_{t-1}} + \sum_{t=0}^{p} \emptyset_5 \Delta \mathrm{LnTOP_{t-1}} + \alpha_1 \mathrm{LnGNP_{t-1}} + \alpha_2 \mathrm{LnREM_{t-1}} + \alpha_3 \mathrm{LnL_{t-1}} + \alpha_4 \mathrm{LnFD_{t-1}} + \alpha_5 \mathrm{LnTOP_{t-1}} + \varepsilon_t$

where, α_0 is the autonomous term, t is the time factor while Δ is difference operator, and ε_t is the random error term. The long-run co-integration is estimated using Equation [7];

$$[7]\Delta \mathrm{LnGNP_t} = \alpha_0 + \sum_{t=0}^{p} \emptyset_1 \Delta \mathrm{LnGNP_{t-1}} + \sum_{t=0}^{p} \emptyset_2 \Delta \mathrm{LnREM_{t-1}} + \sum_{t=0}^{p} \emptyset_3 \Delta \mathrm{LnL_{t-1}} + \sum_{t=0}^{p} \emptyset_4 \Delta \mathrm{FD_{t-1}} + \sum_{t=0}^{p} \emptyset_5 \Delta \mathrm{LnTOP_{t-1}} + \varepsilon_t$$

The choice of ARDL maximum lag (p q) is depended on cross examination of all selection criteria. The study derived the short-run changing parameter from the Error Correction Model (ECM) estimation, which is connected with the long-run estimate as given below;

$$[8]\Delta \mathrm{LnGNP_t} = \alpha_0 + \sum_{t=0}^{p} \emptyset_1 \Delta \mathrm{LnGNP_{t-1}} + \sum_{t=0}^{p} \emptyset_2 \Delta \mathrm{LnREM_{t-1}} + \sum_{t=0}^{p} \emptyset_3 \Delta \mathrm{LnL_{t-1}} + \sum_{t=0}^{p} \emptyset_4 \Delta \mathrm{FD_{t-1}} + \sum_{t=0}^{p} \emptyset_5 \Delta \mathrm{LnTOP_{t-1}} + \delta \mathrm{ECM_{t-1}} + \varepsilon_t$$

In Equation [8] ϕ_1, ϕ_2, ϕ_3, ϕ_4 and ϕ_5 are short-run changing coefficients moving towards long-run equilibrium, while ECT_{t-1} is the rate of change parameter of the error correction model originating from the established equilibrium connection of Equation [8].

Bound Test: The process is used to determine the presence of long-run connection in a model, the F-statistics test is conducted for the joint significance of the coefficient of the lagged variables, $H_0 : \phi_1 = \phi_2 = \phi_3 = \phi_4 = \phi_5 = 0$ against the alternative of $H_1 : \phi_1 \neq \phi_2 \neq \phi_3 \neq \phi_4 = \phi_5 \neq 0$. The calculated F-statistics is compared to the critical value. The null hypothesis is rejected if the calculated F-statistics exceeds the upper limit of critical value. The null hypothesis cannot be rebuffed if the F-statistic goes below the lower limit of critical value, implying that there is no long-run association between the variables; however, if the F-statistic falls inside the upper and lower limit, the result is not conclusive.

Residual Diagnostic Tests

The Breusch-Godfrey serial correlation LM test was used to validate the ARDL model's results, and the cumulative sum of recursive residuals (CUSUM) and cumulative sum of squares of recursive residuals (CUSUMSQ) tests were used to test for serial correlation and the ARDL model's stability, respectively.

Presentation and Analysis of Result

Descriptive Statistics

Table 1: Descriptive Statistics

	GNP	REM	L	FD	TOP
Mean	273301.9	9.17E+09	43912334	15.81735	35.00609
Maximum	385349.0	2.43E+10	59873566	25.16000	53.27796
Minimum	200317.9	2424527.	27651864	9.150000	9.135846
Std. Dev.	68776.79	9.93E+09	9642349.	5.307990	10.42705
Skewness	0.398810	0.306671	-0.064692	0.487579	-0.370396
Kurtosis	1.493118	1.197840	1.711208	1.595966	2.781895
Jarque-Bera	4.118094	5.133958	2.376777	4.139845	0.844817
Probability	0.127575	0.076767	0.304712	0.126196	0.655466
Observations	34	34	34	34	34

Source: Author's computation using E-view 10

The average value of GNP per capita is 272201.9, the average values of Remittance, Labor force, Financial development and Trade openness is 9.17E+09, 43912334, 15.81735 and 35.00709 respectively. The standard deviation which indicates the nature of dispersal in the value of the variables relative to its mean is large this implies that there has been an increase in the value of the variables over the years. The mean of the variables is within the minimum and maximum values. GNP, REM & FD has positive skewness indicating they have a long right tail, L& TOP has negative skewness indicating a long-left tail. The kurtosis of the variables is below 3, this means the distribution is flat or would turn platykurtic. The jarque-bera statistics indicates that the series is not normally distributed with probability values greater than 5%, but the normality assumption is not usually required for multivariate functions.

Table 2: Correlation Matrix

Correlation Probability	**GNP**	**REM**	**L**	**FD**	**TOP**
GNP	1.000000				

REM	0.956628	1.000000			
	0.0000	-----			
L	0.917422	0.916837	1.000000		
	0.0000	0.0000	-----		
FD	0.928411	0.896667	0.873206	1.000000	
	0.0000	0.0000	0.0000	-----	
TOP	-0.056185	-0.022798	0.175257	-0.093584	1.000000
	0.7523	0.8982	0.3215	0.5986	-----

Source: Author's computation using E-view 10

From Table 2, there is positive correlation between GNP and REM (0.956628), GNP and L (0.917422), GNP and FD (0.928411) this implies that there is positive relationship between REM, L, FD and GNP, while there is negative correlation between GNP and TOP (-0.056185) this implies that there is negative relationship between GNP and TOP.

Unit Root Test

The result of the Philips-Perron (PP) unit root test is presented on Table 3. In line with the result of the PP unit root test, all other variable other than trade openness (TOP) which was stationary at levels (1(0)), were all stationary at First difference (1(1)).

Table 3: PP Unit Root Tests Results

Variable	**Order**	**PP Calc.**	**Critical Value**	**Conclusion**
GNP	At levels	-1.588677	-3.552973	1(1)
	1st difference	-3.586483	-3.557759	
REM	At levels	-1.522862	-3.552973	1(1)
	1st difference	-9.135683	-3.557759	
L	At levels	-1.793847	-3.552973	1(1)
	1st difference	-6.206911	-3.557759	
FD	At levels	-2.705808	3.552973	1(1)
	1st difference	-6.386603	-3.557759	
TOP	At level	-4.282173	-3.552973	1(0)

Conducted at the 5% PP Critical level

Source: Author's computation using E-view 10

ARDL Results

With the ARDL optimal lag structure given as (4, 4, 4, 4, 4), the result of the ARDL Bound test, the short-run and the long-run results are given.

The ARDL Bound Test- On Table 4 is the result of the cointegration test which establishes the existence of long-run relationship in the model. The test result showed that the F-statistics which is 6.09, is above the upper bound critical values (I (1)) at all the levels of significance, indicating the existence of long-run relationship in the model. As such the study proceeded to conduct the short-run and long-run forms of the ARDL model.

Table 4: ARDL Bound Test Result

F-Bounds Test	**Null Hypothesis: No levels relationship**			
Test Statistic	**Value**	**Significance.**	**I (0)**	**I (1)**
F-statistic	6.086299	10%	2.2	3.09
K	4	5%	2.56	3.49
		2.5%	2.88	3.87
		1%	3.29	4.37

Source: Author's computation using E-view 10

The ARDL Short-run and Long-Run Estimation

The short-run and long-run coefficient estimates are given on Table 5 and 6 respectively.

Table 5: Short-Run Coefficient Estimates

Variables	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
D(LnGDP(-1)	0.492327	0.104851	4.695479	0.0054
D(LnGDP(-2)	1.116808	0.184909	6.039777	0.0018
D(LnGDP(-3)	0.388208	0.145271	2.672298	0.0442
D(LnREM)	0.027698	0.006763	4.095247	0.0094
D(LnREM(-1)	0.003593	0.004170	0.861498	0.4283
D(LnREM(-2)	0.003718	0.004070	0.913388	0.4029
D(LnREM(-3)	0.013740	0.003299	4.164746	0.0088
D(LnL)	1.640793	0.363135	4.518416	0.0063
D(LnL(-1)	3.214328	0.485373	6.622382	0.0012
D(LnL(-2)	-1.688549	0.266225	-6.342564	0.0014
D(LnL(-3)	1.661591	0.343089	4.843034	0.0047
D(LnFD)	0.142496	0.022413	6.357623	0.0014
D(LnFD(-1)	0.049553	0.021960	2.256531	0.0737
D(LnFD(-2)	0.118599	0.029139	4.070158	0.0096
D(LnFD(-3)	0.058885	0.022509	2.616077	0.0473
D(LnTOP)	0.112524	0.015909	7.072811	0.0009
D(LnTOP(-1)	0.336872	0.037183	9.059871	0.0003
D(LnTOP(-2)	0.227806	0.027565	8.264236	0.0004
D(LnTOP(-3)	0.103573	0.017665	5.863053	0.0020
CointEq(-1)*	-0.557803	0.065270	-8.546086	0.0004

Source: Author's computation using E-view 10

Table 6: ARDL Long-run Coefficient Estimates

Variables	Coefficient	Std. Error	t-Statistic	Prob.
LnREM	0.060783	0.026788	2.269011	0.0725
LnL	0.190329	0.550122	0.345976	0.7434
LnFD	0.044090	0.272999	0.161503	0.8780
LnTOP	-0.395743	0.137175	-2.884945	0.0344
C	9.399940	8.228022	1.142430	0.3050

Source: Author's computation using E-view 10

The results of the short-run ARDL coefficient estimates on Table 5 showed that the error correction component is -0.557803 (CointEq(-1)*) reveals how quickly variables adjust to shock and return to equilibrium is -0.56 and it was highly statistically significant. This indicates that the deviation from the current economic growth path was corrected by 56% annually in the model. Furthermore, the coefficients of diaspora remittances (LnREM), labor force (LnL), financial development (LnFD) and trade openness (LnTOP) all had positive and significant impacts on the Nigerian economy in the short-run, indicating that diaspora remittances significantly increased economic growth, with significant complementary positive contribution from labor force, financial sector development, and Nigeria's international trade position.

Similarly, the result of the ARDL long-run coefficient estimates revealed that diaspora remittance inflows have a significant and positive impact on economic growth for the period under analysis. Its impact was however low, increasing economic growth by just 6%. The poor growth-remittance relationship could be linked to the insignificant relationship between complementary variables like labor force and financial development in the country.

The coefficient estimates for the short-run and long-run results indicates that diaspora remittances was a significant growth variable for the Nigerian economy, indicating that diaspora remittances significantly increased economic growth for the period under analysis, in agreement with studies like that of Loto and Alao (2016).

Residual Diagnostic Test Results

Serial Correlation Test- Presented on Table 7 is the result of the Breusch-Godfrey serial correlation LM test. The test accepted the null hypothesis of no serial correlation in the residual, since the probability of both the F-statistics and its Observed R-squared values were both greater than 5%, indicating the absence of serial autocorrelation from the model.

Table 7: Breusch-Godfrey Serial Correlation LM Test Result

F-statistic	0.259010	Prob. F(2,12)	0.7760
Obs*R-squared	0.951785	Prob. Chi-Square(2)	0.6213

Source: Authors computation using E-view 10

Stability Test Result

For the stability test, the result of the CUSUM and the CUSUMSQ tests are presented on Figures 1 and 2. The plots of both tests statistic on Figures 1 and 2 were all within the 95% confidence interval indicating the model was stable.

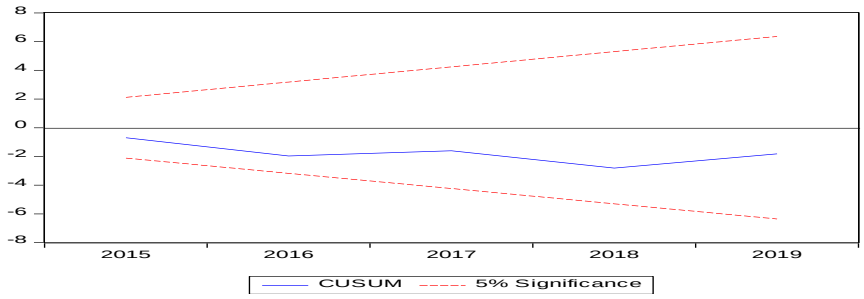

Figure 1: CUSUM Plot

Source: Authors computation using E-view 10

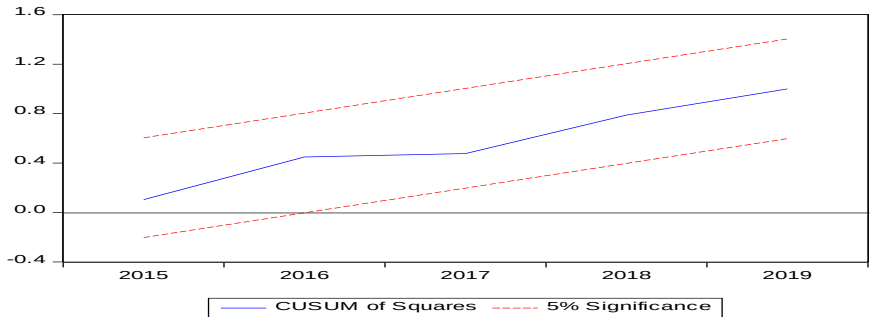

Figure 2: CUSUMSQ Plot

Source: Authors computation using E-view 10

Conclusions and Recommendations

Conclusion

This study has concluded that diaspora remittance inflows to Nigeria has a positive and significant impact on economic growth for the period under review. The impact is however, low in the long-run period, considering huge remittance inflow into the country over the years. The policy implication of this is that encouraging larger diaspora remittance inflow through deliberate government policy is vital to Nigeria's short and long run economic growth. The study concludes that the low performance in the long run could be linked to the insignificance of complementary variables like the labor force and the financial sector development indicator.

Recommendations

To improve the contributions of diaspora remittance, remittances should go beyond just social insurance to help family members and serve as investments to spur economic growth. Also, increasing labor force participation through job creation and improving working conditions to enhance productivity, while creating favorable financial environment to invest these funds is advocated. Additionally, international trade should be strengthened by shifting production from primary to secondary products.

References

Adams, R. H., & Page, J. (2003). International migration, remittances and poverty in developing countries. World Bank (Poverty Reduction Group) Policy Research Working Paper, No. 3179.

Adarkwa, M. A. (2015). Impact of remittances on economic growth: evidence from selected West African countries (Cameroon, Cape Verde, Nigeria and Senegal). African Human Mobility Review, 1(2), 177-200.

Amugune, C. J. (2018). The effect of diaspora remittances on the economic growth of Kenya [Doctoral dissertation, University of Nairobi]. UoN Dissertations & Theses.

Anetor, F. O. (2019). Remittance and economic growth nexus in Nigeria: Does financial sector development play a critical role? International Journal of Management, Economics and Social Sciences, 8(2), 116-135.

Barajas, A., Chami, R., Fullenkamp, C., Gapen, M., & Montiel, P. (2009). Do workers' remittances promote economic growth? IMF Working Papers, No. WP/09/153.

Didia, D., Didia, L., & Ayokunle, P. (2018). Accounting for diaspora remittances in the economic development of Sub-Saharan Africa. Journal of Applied Economics and Business Research (JAEBR), 8(2), 109-121.

Economics Online. (2020). Economic growth. Retrieved November, 10, 2020, from https://www.economicsonline.co.uk/Definitions/Growth.html

Elebiju, A., & Fatokunbo, G. (2020, May 6). Nigeria remittances: Legal, regulatory and commercial issues in diaspora transactions. Mondaq. https://www.mondaq.com/nigeria/income-tax/929158/remittances-legal-regulatory-and-commercial-issues-in-diaspora-transactions

European Parliament. (2013). The impact of remittances on developing countries (EXPO/B/DEVE/2013/34). Doi:10.2861/57140

Fayomi, O., Azuh, D., & Ajayi, L. (2015). The impacts of remittances on Nigeria's economic growth: A study of Nigerian diasporas in Ghana. Journal of South African Business Research, 2015, 31-43.

Giles, D. (2013). Autoregressive distributive lag (ARDL). Econometrics Beats: Deva Gule's blog.

Hassan, G., M., & Shakur, S. (2017). Nonlinear effects of remittances on per capita GDP growth in Bangladesh. Economies, 5, 25, 1-11.

Iheke, O. R. (2016). Remittance and the economy: The Nigerian experience (A review). Scientific Papers Series Management, Economic Engineering in Agriculture and Rural Development, 16(3), 145-152.

Kui-Wai L. (2017). Redefining capitalism in global economic development. Cambridge, Massachusetts, United States: Academic Press.

Loto, M. A., & Alao, A. A. (2016). Remittances and the growth of the Nigerian economy. Eurasian Journal of Business and Economics, 6(2), 210-232.

Muguna, A. C. W. (2018). South-South migration: The impact of diaspora remittance on the national development of Kenya.

Narang, D. (2020). Macroeconomic outcomes of remittances on the Indian economy. Sanrachna, Center for Research Innovation, Paper v1, 0111.

Pesaran, H.M., & Pesaran, B. (1997). Working with Microfit 4.0: Interactive econometric analysis. Oxford University Press.

Pesaran, H.M., Shin, Y., & Smith, R. (2001). Bounds testing approaches to the analysis of level relationships. Journal of Applied Econometrics, 16(3), 289-326.

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

PricewaterhouseCoopers. (2019). Strength from abroad: The economic power of Nigeria's diaspora. https://www.pwc.com%252Fng%252Fen%252Fpdf%252fThe-economicpower-of-nigeria's-diaspora.pdf

Srinivasan, P., & Kalaivani, M. (2012). Exchange rate volatility and export growth in India: An empirical investigation. Munich Personal RePeC Archive (MPRA), Paper No. 43828.

United Nations Development Programme. (2020). Remittances (diaspora financing). Retrieved
November 4, 2020, from https://www.sdfinance.undp.org/content/sdfinance/en/home/solutions/remittances.html

Waheed, M., Alam, T., & Ghauri, S.P. (2006). Structural breaks and unit root: Evidence from Pakistani macroeconomic time Series. Munich Personal RePEc Archive, No.1797.

World Bank (2019, October 16). Data release: Remittances to low- and middle-income countries on track to reach $551 billion in 2019 and $597 billion by 2021. World Bank Blogs. https://blogs.worldbank.org/peoplemove/data-release-remittances-low-and-middle-income-countries-track-reach-551-billion-2019

APPENDİX

Table 7: Data Presentation

YEAR	GNP	REM	L	FD	TOP
1986	200317.9058	3989688.356	27651864	11.76	9.135846
1897	201371.2748	2739018.355	29542198	11.05	19.49534
1988	210527.5223	2424527.401	29234876	11.97	16.94061
1989	209035.2022	10183665.81	30542896	10.95	34.18262
1990	227703.4625	10008540.02	32058465	9.49	30.92474
1991	222774.8914	65544714.33	32859513	12.65	37.0216
1992	227287.9153	56448404.41	33652634	12.21	38.22739
1993	217157.5155	793154025.5	34548217	13.13	33.71975
1994	207965.6384	549872704.1	35482256	13.06	23.05924
1995	202704.0046	250043007.2	36439785	9.99	39.52838
1996	206017.3658	296587337.3	37320907	9.15	40.25773
1997	206855.513	585738409.8	38262439	10.05	51.46101
1998	206973.8338	448546824.8	39254783	10.64	39.27861
1999	203050.1683	1301055577	40317120	11.85	34.45783
2000	207962.2402	1391826072	41372859	12.74	48.9956
2001	214805.3796	1166614598	42380692	15.60	49.6805
2002	241564.697	1208958588	43326706	13.29	40.03517
2003	252816.2642	1062820789	44414245	14.68	49.33496
2004	269223.0277	2272734507	45524729	12.31	31.89587
2005	279242.4964	14640084310	46722817	11.85	33.05946
2006	288530.7083	16932144079	47913307	13.25	42.56657
2007	299558.5546	18014430787	49159600	15.54	39.33693
2008	311458.5603	19199974036	50457057	22.07	40.79684
2009	327648.0492	18370796915	51778077	21.88	36.05871
2010	344549.9221	19744755063	53136654	20.33	43.32076
2011	353250.924	20616772501	54538708	20.05	53.27796
2012	358453.8419	20542884460	53684327	21.62	44.53237
2013	372267.6872	20797073957	52793935	23.40	31.04886
2014	385349.0376	20999084800	53691627	22.93	30.88519
2015	385236.148	20626046924	54559255	22.18	21.33265
2016	369177.9075	19697938004	55288066	23.90	20.72252
2017	362573.9542	22037016832	56831352	25.16	26.3476
2018	360109.469	24311022416	58403811	23.31	33.00783
2019	358742.0526	23809281401	59873566	23.75	26.28

Source: World Bank Data Base 2019 & Central Bank of Nigeria Statistical Bulletin 2019.