Analysis of the Impact of Remittance Inflows on Economic Growth: Evidence from Nigeria

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Abstract
This study investigated the impact of remittances on economic growth of Nigeria using time series data from 1986 to 2018 by examining the long -run and short-run equilibrium relationship between remittances and economic growth. The study used unrestricted Vector Auto regression (VAR), granger causality, Auto regressive distributive lag (ARDL), impulse response function and variance decomposition. The result of ARDL bound test, indicates the existence of long-run equilibrium relationship between remittance inflows and economic growth in Nigeria. The impulse response function, as well as variance decomposition result shows the mixture of both positive and negative shocks from GDP per capita to remittance, household consumption expenditure, foreign direct investment and official development assistance based on the past and current values. The study found the existence of unidirectional causality running from GDP per capita to remittances and foreign direct investment. The study recommends that, government should expand and improve the financial sector and make the process of transfer of remittance much easier and less expensive. This will enable the economy to capture remittance inflows that comes in through informal channels which are usually difficult to capture officially, and also remittances inflows need to be invested into productive sector. This is because without such investment the inflows cannot play any significant role in the economy particularly households that do receive remittance.

Keywords: Remittance, Economic growth, VAR, Impulse response and variance decomposition, Nigeria.

1. Introduction

At the end of colonization in West Africa, countries came with the issue of economic development and coupled with this is the problem of finance as well as meaningful economic growth and development. It has become paramount that low savings in the region has created serious resources gap and hence necessitated the need for foreign finance to compliment the domestic savings. In view of this therefore, organizations like World -Bank ,International Monetary Fund (IMF),the United Nation (UN) International Development Association(IDA),and other development economic institutions seen large scale foreign aid as not been enough in solving the problem of under – development is West African countries and more so the fact that foreign direct investment (FDI) and official development assistance (ODA) are not reliable in terms of their flows and also for the fact that the condition normally attached to this fund made it unattractive to kick start any meaning full development process. It has even been argued in the literature that most of these foreign finances especially foreign

aids fund to pay for foreign consultancies since that would be part of the condition for aids in the first instance. This assertion therefore, has necessitated the need for paradigm shift, as more development economics look in direction of migrant remittance as a variable avenue for the mobilization of foreign capital as a means of kick- staring any meaningful development process (World Bank, 2014).

Remittance as an emerging field of development economics has experienced growth both in volume and in potential which exert real influence on the economic growth. In the work of Guptal et al (2007), it was reported that in 2005, the total amount of remittance doubled the amount received as official assistance by the developing countries.

In recent years, there have been remarkable rises in international immigration into developed countries, especially Europe and America, following economic downturn with the introduction of policy liberalization measure and emergency of respective military dictatorship (Adetokun, 2003) thousands of professionals especially scientists, and even unskilled Africans. In southern Nigeria especially for example, between 50 and 80 percent of households have at least one migrant member (Bash et al, 2003). Migration is considered critical in achieving success and people that do not give it a serious consideration often regarded as lazy.

Unlike other monetary flows such as foreign aid and assistance, remittances are countercyclical – family members abroad are likely to be even more motivated to give in time of hardship even if their financial situation has deteriorated as well (UNECA, 2013). In this way remittances are a form of insurance, helping families and communities from external shocks. For many countries, remittances dwarf official international aid. The inflow of foreign exchange from migrants increase the home country's credit worthiness and may allow them to secure more favorable terms of debt services, as lenders perceive a lower risk of default since 2009. The World Bank has received its analysis of how much debt a country can carry at various level of risk to include remittances, so that countries with high remittances inflow can borrow more (World Bank, 2008).
In 2017, foreign remittances to developing countries were projected to have reached $444 billion, according to the World Bank (2017). The largest portion of remittances to the East Asia and Pacific (EAP) region is expected to have risen by 2.5%, from $125 billion in 2016 to $129 billion in 2017.

However, it has been argued that Nigeria remittance market is still at infancy and faces series of problems, typical of emerging markets. The problems include uncertainty about the amount of remittance, absence or little competition in the remittance market, huge cost of remitting funds and limited technological innovation. In the whole of Africa, remittance markets, there are no more than 100 M.T.O Operators and 90 percent of them are remittance service providers (RSP). This lack of competitiveness in the market prevents the extension of financial access and thereby prevents the market players from engaging in innovations and charging their services to the underserved areas. Since competition encourages technological innovations and brings down the cost remittance, presence of this will be beneficial to African migrants. Most of the remittance services and in some countries charge up to 30 percent in providing such services.

According to Telentino and Pexojo (2011), sub-Sahara Africa has the most unstable migration flows compared with other regions in the world, although, the West Africa sub-region has been the least. There are many reasons why West Africans emigrate. Among them are economic difficulties, political instability and conflicts and increased poverty (Nyamwange, 2013).

In 2013, inflows of remittance to Sub-Saharan Africa increased by 3.5% (World Bank, 2014). The increased was not distributed evenly across the continent however, fast African countries experienced significant gains remittance inflows while those in the West African Sub-region experienced only marginal increased (World Bank, 2014).

Nigeria is the recipient of the greatest volume of remittance in West African and sub – Saharan African as a whole (Maimbo & Ratha 2005; World Bank 2014). It receives between 30% and 60% of all the remittance to the West African Sub-Region and its remittances rank second as a foreign exchange earner after oil exports (Orozco, 2003; World Bank, 2014). Cape Verde and Senegal like Nigeria, in turn rank among the top recipient of remittance in West Africa. As a small Island Nation, Cape Verde's economy heavily depends on remittance. According to official estimates, about one-third of the population of Cape Verde live abroad, although some scholars place the figure well above that, arguing even that the number of emigrants exceeds the total resident population of Cape Verde (Cohen, 2005 and Pop, 2011).

This study contributes to the literature by deeply examining the impact of remittances on economic growth in Nigeria and by controlling for foreign direct investment, household consumption expenditure and official development assistance. The objective of this study is to empirically examine the impact remittance inflow on economic growth in Nigeria using annual data from 1986 to 2018. The paper is organized as follows; section one consists of introduction, section two reviews the related literature, the methodology is discussed in section three, section four presents the analysis and discussion. Finally, section five discusses the research conclusion and implications.

2. Literature Review and Theoretical Framework

There are emerging schools of thought in providing explanation on the impact of remittances on economic growth in developing countries. The two prominent schools on remittances include neo – liberal – functionalist. The neo – liberal functionalist viewed that remittances play a positive rule in enhancing the status of an individual households, community and country as a whole, (Skeldon,2002 and Ratha2003) they believed that remittance play a crucial role in rising the capital market activities and help in providing productive infrastructure, as well as rising the effective demand for goods and services. While the historical – structuralism viewed remittances has been responsible for creating department relation between the sending and the recipient countries (Borro, 1991and Borocz, 1989) remittances are been regarded as factor that created serious inequality in household and macro - economic distortions especially in countries with low gross domestic product (GDP)

However, the extent to which countries benefit from remittances is closely related to the strength of domestic instruction and the macroeconomic environments (Mohsen, Bahman and NG, 2002). Issuing diaspora bonds or remittance backed securities can help developing countries relieve financing constraints. In times of crises, migrant investors are expected to be more loyal than other foreign investors that lack personalities to the country and the former may be especially interested in financing infrastructure, such as, housing, health and education project (Pesaran and Shin, 1999). Israel pioneered the diaspora bond in 1951, and has raised $35billion since its introduction (Azam, 2011).

However, a number of difficulties in defining the determinants of economic growth have led another body of literature to measure the positive impact of remittances on the basis of a particular set of conditions. In particular, Sobiech (2019) finds that during the early stages of financial development, remittances improve economic growth.

For example, Combes and Ebeke (2011) find that remittances provide the receiving country with macroeconomic stabilization, expressed as a percentage of GDP, up to 6 percent. There is a more recent body of literature that focuses on the relationship between remittances and investment.

Remittances – receiving household also have lower rates of infant mortality and children with higher weight levels during early childhood, as well as higher health – related knowledge remittances. Visiting and returning migrants may also bring back health improving practices, such as safe drinking water and better sanitation, to their communities of origin (Giuliano et al, 2008).

Private payments from migrant workers to families and communities in a worker's country of origin are foreign remittances. These constitute, after FDI, the second most significant source of external financing for developing countries (Yoshino et al., 2018).

Remittances are commonly used for daily consumption reasons, such as changes to health care, schooling, and housing. At the same time, by infrastructure funding and business activities, they can also be used not only for immediate requirements but also for investments in the diaspora. (2019, Yoshino et al.).

Still, the merit of remittance flows might lie more on increasing the level of income for the poor rather than the growth of the economy as a whole. The primary gap in evidence regarding remittance development impact is the lack of research supporting their positive on economic growth are largely due to the difficulty of separating the cause from the effect. If remittances react countercyclical to growth, then the negative relationship between the two is as a result of reverse causality running from growth to remittances, not vice versa (Edward, 2001).

Some studies have found remittances to have negative impacts on currency valuation and labor market participation. Empirical evidence from Latin America and Cape Verde suggests that remittances can lead to exchange rate appreciation, which can reduce the competitiveness of the tradable sector, the so – called "Dutch Disease" (Giuliano and Ruiz-Arranz 2008).Still remittances are less likely than natural resources windfalls to result in persistent exchange rate implications of relatively stable remittance flows are likely to be easier to manage than a comparatively abrupt shock due to a natural resources windfall (Deminrgug, Cordova,Peria and Woodrull, 2010).

Imal et al, 2012; World Bank, 2014) in their research in determining areas of outward migration has shown that countries with higher remittance influence have higher growth rates and lower poverty indices (Fajnzylber and Lopes, 2003) this is because remittances tend to increase the income of recipient in the home country who in turn decide whether to invest or spend the money in the domestic economy.

Giuliano and Ruz – Arranz (2008) used a newly constructed cross – country data series for remittances covering a large number of developing countries over the period (1995 – 2002) and found that remittances have promoted growth in less financially developed countries. This finding controls for the endogeneity of remittances and financial development using SGMM approach and does not depend on the particular measure of financial sector development used and is robust to a number of robust tests. Their results suggested that remittances help alleviate credit constraints on the poor, substituting for the lack of financial development. Improving the allocation of capital and therefore, accelerating economic growth. Their result further shows that there is an investment channel through which remittances can promote growth where the financial sector does not meet the credit needs of the population.

Demirguc – Kunt et al (2013) used municipality – level data for Mexico for 2000 in one of the very few empirical studies on the relationship between remittances development to show that remittances are strongly associated with greater banking breath (measured by number of branches and deposits accounts per capita) and depth (measured by the volume of deposits and credit to GDP). These effects are found to be statistically significant and robust to the potential endogeneity of remittances.

Coray (2014), investigating the influence of migrant remittances on two dimensions of the financial sector, namely size and efficiency interest. In this study, migrant remittances have a positive significant impact on deposit money bank assets private credit and liquid assets to GDP in the low government bank ownership group. Remittances also have a positive significant impact on deposit money bank assets and private credit in the high government bank ownership group.

Oluwefemi, et al (2014) investigated the query whether remittances promote the financial sector development both in short run as well as long run. They employed two techniques (ARDL and Johansen co-integration approaches) and unrestricted error correction model (UECM) to test the robust of long run relationships among the concerned variables. The results indicate that remittances promote the financial sector in long run and financial sectors development also improves by the policies in previous periods significantly. Rise in inflation determines the performance of financial sector through its detrimental channels. In addition, their results show that increase in real GNP per capita and rise in exports lead to promote the efficiency of financial institutions.

Ahmed et al. (2011) in trying to estimate the impact of remittances, export, money supply on economic growth for Pakistan, used time series data from (1976 – 2009) and employed Bounds testing approach. Their result suggested that remittances have both the long and short – run relationship with economic growth of Pakistan.

Nwosu, (2008) in his study of impact of remittances on growth for Nigeria estimated growth, investment, human and private capital using data for the period 1990 – 2007. He employed the simultaneous equations system based on a two – stage least squares instrumental variable (2SLSIV) approach to control for endogeneity problem that arises from utilization of lag independent variables. One important finding from their study is that remittances have a positive impact on economic growth in Nigeria through investment in private and human capital with a pass – through effect on private consumption. Even though the ratio of remittances to private capital investment is small compared with consumption, a combination of the two could cause a reduction in poverty through the multiplier effect. Another key policy reference from their work is that remittances should not be seen as a substitute for other source of growth but a complement.

Hernandez and Bun (2007), examined the impact of workers remittances on growth and poverty reduction in developing Asia - Pacific countries using panel data over period (1993 – 2003). The result showed that while remittances do have a significant impact on poverty reduction through increasing income, smoothing consumption and easing capital constraints of the poor, they have only a marginal impact on growth operating through domestic investment and human capital development.

Khan (2011) examines the impact of remittances on economic growth of Azerbanjan. The result showed a positive impact of remittances on economic growth and it is statistically significant. The result further showed that a unit change in remittances would lead to 0.4 change in economic growth of Azerbanjan.

The New Economics of Labor Migration Model (Pluralist View)

The Pluralist view of labour migration emerged in the 1980s in the collect of America research in reaction to the neo – classical and the structuralize views (Oluwafemi and Ayandibu, (2014) this model view remittances and migration have both positive and negative impacts,(De has,2010)in this view migration is seen as a household response to income risk since migrant remittances serve as insurance for households of origin (Lucas and Stark(1985) as cited in Dehas (2007).This can be seen as explaining why people migrate despite not knowing about prospects of income in host countries, this view sees remittances as having the tendency to produce both positive and negative impacts on development and home countries do with the remitted money.

According to the pluralist view, migration plays a key role in the economy by providing capital through remittances which can be used for investment in developing countries that are mostly characterized by poor credit and high market risk such as fluctuating exchange rates that delays financial institutions from giving credit frequently Taylor and Wyatt (1996), it also stresses the importance of human agency if remittances are to contribute significantly to the economics for migrants home countries (De has, 2007,2010), accordingly, remittances will impact economic growth positively if recipient of those remittances use them for productive purposes and negatively if recipients use them for unproductive purposes.

3. Methodology

The impact of remittance on economic growth of Nigeria is analyzed in this research from the period of 1986 to 2018 using time series data. The data were obtained from Statistical Bulletin and Annual Report, Annual Abstracts of Statistics (various issues) published by National Bureau of Statistics (NBS), World Bank, World Development Indicator and Index Mundi.

GDPC: The proxy for economic growth is GDP per capita.

REMIT: This simply refers to the remittance inflows to Nigeria

FDI: Foreign Direct Investment which is the value of gross foreign direct investment inflows. FDI is the net inflows of investment to acquire a lasting management interest in an enterprise operating in an economy other than that of investors.

HCE: Household Consumption Expenditure.

ODA: Official development assistance.
The study employs the vector auto-regression (VAR) framework which is made up of five variables; Gross domestic product per capita (GDPC), foreign direct investment (FDI), remittance (REMIT), Household Consumption Expenditure (HCE), Official Development Assistance (ODA).

REMIT = f (GDPC, FDI, HCE, ODA) ……………… 3.1

Economic Growth Model

$\quad$ GDPC = f (REMIT, FDI, HCE, ODA) …………….3.2

Where:

REMIT $\quad$ = $\quad$ Remittance inflows
GDPC $\quad$ = $\quad$ Gross Domestic Product Per capita
FDI $\quad$ = $\quad$ Foreign Direct Investment
HCE $\quad$ = $\quad$ Household Consumption Expenditure
ODA $\quad$ = $\quad$ Official Development Assistance

The Unrestricted VAR model is adopted for this particular work because it has a forecasting power relative to large structural models. Again, one of the common virtues of VAR is that it obviates a decision as to what contemporaneous variables are exogenous, all variables are endogenous, according to Ang and Mckibbin (2007), once the distinguish between the short run dynamics and long – run causality. Also, the VAR frame work all the variables as potentially endogenous as explained by Sims (1980).

3.1 VAR Model

The VAR Model of order P can be expressed as follows:

REMIT determinants and remittance effect VAR model is specified as:

$Y_t = m + A, Yt_{-1} + A2Y_{t-2} + \ldots\ldots.. ApYt - p\neg + \epsilon t$ …………3.3

Equation (3.3) specifies VAR (p) process, where Y_t is a 5 x 1vector of variables and Ai (i= 1,2, ... , p) are 5 x 5 matrices of coefficients, m is a 5x1 vector of constants and ϵtis a vector of white noise error term.

3.2 Unit root Test

The first step involves testing the order of integration of the individual series under this consideration. Researchers have developed several procedures for the test of order of integration. The most popular ones are Augmented Dickey-Fuller (ADF) test due to Dickey and Fuller (1979, 1981), and the Phillip - Perron (PP) due to Phillips (1987) and Phillips and Perron (1988). Augmented Dickey-Fuller test relies on rejecting a null hypothesis of unit root (the series are non-stationary) in favor of the alternative hypotheses of stationary. The tests are to be conducted with and without a deterministic trend (t) for each of the series. The general form of ADF test is as in the following regression.

$\Delta Yt = \alpha0 + \alpha Yt-1 + \sum \alpha \Delta Yt-1 + \varepsilon_t$ ……………………… (3.4)

$\Delta Yt = \alpha0 + \alpha1t + \alpha2Yt-1 + \sum \alpha3\Delta Yt-1 + \varepsilon_t$ …………………… (3.5)

Where:

Y_t is a time series, t is a linear time trend, Δ is the difference operator, α0is a constant, n is the optimum number of lags in the dependent variable and ε_t is the random error term; the difference between equation (3.4) and (3.5) is that the first equation includes just drift. However, the second equation includes both intercept and time trend.

3.3 Co-Integration Test

In a situation where the unit root test for stationarity shows that the variables are not stationary at their level, cointegration test is used to find out whether their linear combination is stationary. To test for cointegration among the variables for analyzing the determinants of remittance and the impact of remittance on the economy i.e. the GDPC, there are different co-integration tests that are used by different researchers. Out of these testing instruments, the two steps Engle and Granger (1987) approach and the Johansen test (Johansen, 1988) method are some of the common t instruments that are repeatedly used by researchers.

Pesaran and Shin (1999) develop a new ARDL testing instrument named as bounds testing approach. This approach tests for the existence of a co-integration relationship among the independent variables that can be applied regardless of whether the targeted variables are a combination of stationary series at a level and at first difference. This approach reconstructs the ARDL model through overcoming the problems associated with the presence of a combination of stationary variables at different level which are not possible in Engle and Granger and the Johansen approaches (Narayan, 2004).

The general form of ARDL model / ARDL bound test is specified as follows.

$Yt = β0 + \sum t βi Yt\text{-}1 + \sum i βj\ Xt\text{-}1 + …… + \sum p βp Xt\text{-}p + et$………………. 3.6

Where β is constant, Yt is endogenous variable, Xt the 1stat period t thin dependent variables, P is the maximum lag number to be used, βi and βj are coefficients of the independent variables, and etis the white noise error term.

Therefore, our first two models (3.1 and 3.2) will become

REMIT = f (GDPC, HCE, FDI, ODA) ……………….3.1

Explicitly the above equation can be stated as

LnREMIT=β0+ β1LnGDPC+β2LnHCE+β3LnFDI+ β¬4LnODA+ϵ ……….3.1.1

GDPC= f (REMIT, FDI, HCE, ODA) ………………….3.2

Explicitly the above equation can be stated as

LnGDPC = β0 + β1LnREMIT+β2LnODA+β3LnFDI+β4-LnHCE+ϵ………….3.2.1

3.4. **Vector Error Correction Mechanism**

After testing for the co-integration relationship and co-integration is proven to exist between the variables, then the third step will require a construction of an Error Correction Mechanism (ECM) to model the short run dynamic relationship.

3.4. Granger Causality Test

The granger causality test is conducted with a view to determine the direction of causality between the variables under study. The existence of co-integration among the variables implies the existence of causal relationship between the variables in each of the two-model specified above. But this does not tell us the direction of this causality, hence the need for granger causality test to be conducted to enable us determine the direction of causality that exist among the variables. The research will make use of V AR granger causality test, the general form of granger causality equation is stated below.

$Yt = \propto + \sum βj Yt\text{-}j + \sum γj Xt\text{-}j + Ut$ ……………… 3.7

$Xt = \propto + \sum γj Xt\text{-}j + \sum βj Yt\text{-}j + Ut$ ……………… 3.8

Where the Ut are the stochastic error terms, k represents the number of lags, $\propto$ are constant terms, while βj are parameters. For each of the equation, the null hypothesis is that Xt does not granger cause Y_t in the first regression and that Y_t does not granger cause Xt in the second regression, these tests enable us to determine the direction of causality existing between the variables under review.

3.5 Impulse Response and Variance Decomposition

Through the impulse response and variance decomposition, we can examine the short-run dynamics among the economic variables in the VAR system. Once the presence of cointegration is established, the VAR can be used for forecasting through the impulse response function and variance decomposition of forecast-error. The impulse response can be used to trace the time path of the structural shocks on the dependent variables of the VAR model. Sims (1980) Cholesky decomposition can be used to identify the impulse response function in a VAR model ensuring that shocks are uncorrelated.

4.0 RESULTS AND DISCUSSION

4.1 Unit Root Test

The unit test has been conducted to determine the stationary conditions of the series and also to know their order of integration. The results of the tests are given in table 1.

Table1 4. 1: Unit Root Test Results

Variable	ADF Statistic	5% Critical Value	Prob. Value	Status	Order of integration
LEVEL VARIABLES					
LGDPC	-1.805293	-3.568379	0.6769	Not stationary	Unknown
LREMIT	-2.186156	-3.568379	0.4797	Not Stationary	Unknown
LFDI	-4.243566	-3.568379	0.0113	Stationary	I(0)
LHCE	-5.099352	-3.568379	0.0014	Stationary	I(0)
LOAD	-3.227430	-3.574244	0.0989	Not stationary	Unknown
FIRST DIFFERENCED VARIABLES					
$\Delta LGDPC$	-4.794460	-3.574244	0.0032	Stationary	I(1)
$\Delta LREMIT$	-5.501349	-3.574244	0.0006	Stationary	I(1)
$\Delta LFDI$	-11.11954	-3.574244	0.0000	Stationary	I(0)
$\Delta LHCE$	-7.831041	-3.574244	0.0000	Stationary	I(0)
$\Delta LODA$	-4.947102	-3.580623	0.0023	Stationary	I(1)

Source: Authors computation using e-views 8.1

The unit root test result confirms our assertion for some variables. The result of unit root test shows that, GDP per capita, Remittance and official development are non-stationary. This is true since the ADF test statistics for these three variables are less negative than the 5% critical values with the p-values being more than 0.05 respectively indicating non rejection of the unit root at the 5% level of significance. However, foreign direct investment and Household consumption expenditure appear to be stationary at level since the ADF test statistics for these two variables are more negative than the 5% critical values and their p-values being less than 0.05 indicating rejection of a unit root in these series. Subjecting these variables to a first difference test revealed that they are stationary. At their first difference, their ADF test statistics for the GDP per capita, Remittance, and official development assistance are now more negative than their 5% critical values and their p-values being less than 0.05 indicating rejection of unit root. This therefore, indicates that, GDPC, REMIT, and ODA are variables integrated of order one i.e. I (1) while FDI and HCE are variables integrated order zero i.e. I (0).

4.2 VECTOR AUTOREGRESSION (VAR)
4.2.1 ORDER OF LAG SELECTION CRITERIA

The choice of the lag length is a crucial part of empirical research based on the Vector autoregressive (VAR) model since all inferences in this model hinge on the correct model specification. The procedure requires that the choice of deterministic variables and maximum lag length (k) be such as to prevent serial correlation in the disturbance processes both within each equation of the VAR and also across equations. Table 2 presents the appropriate lag length for the Unrestricted Vector Auto Regression Estimates.

Table 4.2: Order of Selection Criteria

Lag	LogL	LR	EPE	AIC	SC	HQ
0	-27.10982	NA	8.14e-06	2.469986	2.711928*	2.539657
1	1.285123	43.68453	6.54e-06	2.208837	3.660487	2.626859
2	40.38167	45.11141*	2.81e-06	1.124487	3.785845	1.890861
3	87.27841	36.07441	1.09e-06*	-0.559878	3.311189	0.554849
4	133.0026	17.58621	1.82-06	-2.154044*	2.926731	-0.690964*

 * indicates lag order selected by the criterion
 LR: sequential modified LR test statistic (each test at 5% level)
 FPE: Final prediction error
 AIC: Akaike information criterion
 SC: Schwarz information criterion
 HQ: Hannan-Quinn information criterion

Source: Authors computation using e-views 8.1

Based on the order selection criteria given in table 4.2, two lags have been selected for the estimation of the VAR model. The selected lags are based on LR test statistic and also the fact that the lags have been able to satisfy the OLS assumptions of no serial correlation, constant error variance (homoskedasticity) and normality of residuals. The residual diagnostic test given in table 3 has been done to ensure that we are dealing with the right lags.

Table 4.3: Result of Residual Diagnostic Checks

VAR Residual Serial Correlation LM Test			VAR Residual Heteroskedasticity Test		
Lags	Lm-Stat	Prob	Chi-square	Df	Prob
1.	37.51495	0.0516	307.0218	300	0.3777
2.	37.48305	0.0519	**VAR Residual Normality Test**		
			Component	Jarque-Bera	df	Prob
			Joint	17.76150	10	0.0591

Source: Authors computation using e-views 8.1

Residual diagnostic check tests have been conducted for the lags selected to ensure that the selected lags are free of serial correlation and heteroskedasticity also ensure that the residuals of the selected lags are normally distributed. Based on the residual serial correlation test result using LM test, given in table 4.3, we cannot reject the null hypothesis of no serial correlation at all the lags at 5% level given the LM statistics and the probability values of less than 0.05.

Similarly, the test for heteroskedasticity indicates that, the residuals are homoscedastic given the chi – square of 307.0218 with the probability value of 0.3777 which makes it impossible to reject the null hypothesis of homoscedasticity. Jacque – Bera test for the normality of the residual indicates that, there is no departure from normality. This is evident from the Jarque - Bera statistics for the joint test and the probability value of 0.0591 which is greater than the critical value of 0.05 at the 5% level of significance. Hence, this means that the selected lags are good for the VAR analysis.

We can therefore proceed with the VAR analysis based on the selected lags. Although, the lag selection criteria suggested the use of four lags based on AIC and HQ, the two (2) lags selected by LR appears to be the best based on the residual diagnostic checks. Hence, two lags are chosen for the VAR analysis.

4.3.2 VECTOR AUTOREGRESSION (VAR) MODEL

Basically, interpreting VAR estimates is not always appealing which is the main reason why impulse response functions and variance decomposition are most appropriate way of explaining VAR results. Using the past values of the variables of interest, we should be able to tell something about the current values. This is little of what can be obtained from VAR.

Table 4.4 Vector Autoregression Estimation Results

REGRESSOR: REGRESSAND:	$\Delta LGDPC$	$\Delta LGREMIT$	$\Delta LLHCE$	$\Delta LFDI$	$\Delta LGODA$
$\Delta LGDPC_{t-1}$	-0.036	10.345**	-0.447	2.288	6.115***
	(-0.189)	(2.301)	(-0.889)	(1.203)	(2.792)
$\Delta LGDPC_{t-2}$	-0.271	1.797	0.370	-2.501	-3.672*
	(-1.562)	(0.447)	(0.823)	(-1.473)	(-1.877)
$\Delta LREMIT_{t-1}$	0.033***	-0.252	0.011	-0.009	0.047
	(3.454)	(-1.139)	(0.449)	(-0.101)	(0.437)
$\Delta LREMIT_{t-2}$	0.012	-0.523**	-0.031	0.010	-0.043
	(1.221)	(-2.236)	(-1.172)	(0.099)	(-0.376)
$\Delta LHCE_{t-1}$	0.117	-0.009	-0.365*	-1.424*	-1.760**
	(1.485)	(-0.004)	(-1.778)	(-1.838)	(-1.973)
$\Delta LHCE_{t-2}$	0.159**	0.046	0.158	-0.508	-0.141
	(2.038)	(0.025)	(0.778)	(-0.664)	(-0.160)
$\Delta LFDI_{t-1}$	0.073***	-0.170	0.0592	-0.532**	-0.028
	(3.005)	(-0.299)	(0.932)	(-2.218)	(-0.103)
$\Delta LFDI_{t-2}$	0.032	-0.367	0.041	-0.035	-0.213
	(1.337)	(-0.650)	(0.647)	(-0.148)	(-0.773)
$\Delta LODA_{t-1}$	-0.003	0.150	-0.031	0.216	0.410**
	(-0.213)	(0.377)	(-0.691)	(1.289)	(2.12)
$\Delta LODA_{t-2}$	0.001	0.289	0.014	-0.079	-0.459***
	(0.063)	(0.806)	(0.344)	(-0.523)	(-2.625)
Intercept	0.012	-0.316	0.053	0.227	0.206
	(0.015)	(0.270)	(0.030	(0.114)	(0.132)
Fit Measures:					
R^2	0.636	0.368	0.476	0.522	0.570
$\bar{R}^2$	0.422	-0.003	0.168	0.240	0.318
S	-2.414	3.868	-0.511	2.146	2.429

Source: Authors computation using e-views 8.1

Based on the result in table 4.4, past values of GDPC have negative impact on its current value. However, the past values of remittance (REMIT), HCE, and FDI have positive influence on current value. Past value of GDPC have negative impact on its current value. However, the past value of remittance HCE, and FDI have positive influence on the current value of GDPC. One year lag value of ODA impacts negatively on GDPC while the two year lag value of ODA has a positive influence on current value of GDP per capita.

The past values of GDP per capita have positive influence on the current value of remittance. Similarly lag values of ODA have positive impact on the current value of remittance. On the other hand, past values of remittance, household consumption expenditure, and foreign direct investment impact negatively on current value of remittance. With the exception of the second lag of household consumption expenditure which appears to have positive influence on remittances.

The impact of the first lag of GDP per capita on current household consumption is negative while the second lag value reveals a positive influence. The first lag value of remittance has a negative impact on current household consumption expenditure. One-year lag value of HCE appears to exert a negative impact on its current   value while the two-year value has a positive influence on current of HCE. Similarly, first lag value of ODA has a negative impact on current HCE while it's second value impact positively. The past value of FDI have positively influence on current value of HCE as suggested by the sign of the estimated co-efficient. Lagging GDPC by one year appears to have positive influence on current FDI while two-year lag values have negative impact on current value of FDI. In the case of remittance, one-year lag value impact negatively while two years lag value has a positive effect on current value of FDI. The past values of household consumption expenditure and FDI appear to have negative influence on the current value of FDI. Similarly, the second lag value of ODA has a negative impact on current FDI while its first lag has a positive influence on current FDI.

It is also found that lag value of GDPC for one year has a positive influence on current of ODA while the second lag value impact negatively. Similar result is obtained in the case of the lag values of remittances and ODA itself. The past values of HCE and FDI appear to have negative influence on the current value of ODA.

4.4 Impulse Response and Variance Decomposition

The results of impulse response functions and variance decomposition are presented in appendix. They depict the directions of the impact of own-shocks or innovation, as well as the shocks on other variables. Maximum of ten quarters have been considered to be adequate to test for the impulse response of each of the variables to another.

4.4.1 Impulse Response Function

The response of GDP per capita to own shock is positive and less than 1% in the first quarter. The response of GDP per capita to own shock appears to be negative in the fifth quarter and the magnitude is also less than 1%. This turns out to be positive in the tenth quarter with the magnitude of only about 0.001%.

The response to one standard deviation shock of GDP per capita to innovations in remittance, foreign direct investment and others (please check the note) are all zero in the first quarter, positive and less than 1% in the fifth quarter with the exception of others (please check) which is negative but also less than 1%.

In the tenth quarter, the response of GDP per capita to shock in remittance, household consumption expenditure, and Official Development Assistance (ODA) appear to be negative and less than 1% but positive in the case of foreign direct investment. The response of one standard deviation shock of Remittance to GDP per capital is positive and less than 1% in the first quarter, to own shock is negative but also less than 1%, to household consumption expenditure is positive and also less than1%, to FDI and ODA is zero.

In the fifth quarter, the response of remittance to shock in GDP per capital is positive and less than 1%, to own shock is negative, to HCE and ODA is positive while to FDI is negative but less than 1%.The response of remittance to unexpected shock in GDP per capita in the Tenth quarter is positive and less than 1%, to own shock is positive and also positive to shock in HCE, FDI and ODA but the magnitudes are less than 1% in all cases.

The result equally shows that, the response of one standard deviation of household consumption expenditure to GDP per capital appears to be positive in the first quarter and less than 1% in magnitude. The response of household consumption to own shock is also positive, and less than 1%. However, the response of HCE to shock in remittance is negative and less than 1% while the response of HCE to FDI and ODA are zero. This means that, HCE does not react to changes in FDI and ODA. In the fifth quarter, the response of HCE to shock in GDP per capita, remittance, own shock, FDI and ODA are

positive, negative, positive and negative respectively. These shocks are less than 1% in size. Similarly, result is obtained for the response of HCE to other variables in the tenth quarter.

The response of FDI to own shock is positive and less than 1% while to GDP per capital and remittance is negative but also less than 1%. The response of FDI to ODA is zero in the first quarter. In the fifth quarter, the response of FDI to shocks in GDP per capita, remittance and ODA are negative and less than 1% magnitude while the response of FDI to shocks in HCE and FDI are positive and less than 1%.The response of FDI to shocks in GDP per capita and ODA in the tenth quarter is positive while the response of FDI to shocks in remittance, HCE and FDI (own shock) is negative but less than 1%.

The response of ODA to unexpected shocks in GDP per capita, remittance, HCE, FDI and own shock appear to be positive but less than 1% in the first quarter. However, the response of ODA to shock in other variables are negative in the fifth quarter with the exception of own shock which is also positive but less than 1%. The response of ODA to shock in GDPC and HCE is negative but positive for the shock in remittance, FDI and own shock in the tenth quarter.

4.4.2 Variance Decomposition

The essence of using variance decomposition technique is to measure the fraction of forecast error variance for each of the variables under investigation to its shocks and also to shocks of other variables. Results of variance decomposition have been sent to appendix with both the direct and indirect effects of the shocks

Variance Decomposition of GDPC

The decomposition of GDPC shows that own shock has explained about 100% of the variation in GDPC in the first quarter, and between 50% and 35% in the second to the tenth quarters. It also shows that remittance has explained only 0% of the variation in GDPC in the first quarter, about 12% in the second and third quarters, about 15% in the fourth, fifth and sixth quarters and about 16% in the seventh, eighth, ninth and tenth quarters. Household consumption expenditure has explained about 7% of the variant in GDPC in the second quarter, and about 6% in the third to tenth quarters.

FDI has been able to explain about 24% in the second quarter, 23% in the third quarter, and 22% in the rest of the quarters. On the other hand, ODA explained 0% in the first quarter, 0.0% in the second quarter, 1.7% in the third quarter and about 2% in the fourth to the tenth quarters. Apart from 'own' shock, foreign direct investment appears to be important in explaining the variation in GDPC.

Variance Decomposition of REMIT

The variance decomposition of remittance suggests that 'own' shock has explained about 85% in the first quarter, 75% in the second quarter, and between 70% and 69% in the third to the tenth quarters. GDPC explains about 14% of the variance in remittance in the first quarter, 23% in the second quarter and between 21% and 20% variation in remittance is explained by GDPC in the third quarter through the tenth quarters. Household consumption expenditure on the other hand explains 0% of the variations in remittance in the first quarter, less than 1% in the second quarter, about 2% in the third and fourth quarters, and about 3% in the rest of the quarters. Similarly, ODA explains 0% of the varieties in remittance in the first quarters less than 1% in the second quarter, and only about 1% for the rest of the quarters. Foreign direct investment explains only about 0.23% in the second quarter, 4% in the third and fourth quarters, and about 5% for the rest of the quarters.

Variance Decomposition of HCE

The variance decomposition of HCE indicates that, own shock has explained about 87% of the variations in HCE in the first quarter, 79% in the second quarter and 66% and 56% in third quarter through the tenth quarter. GDPC explains about 4% of the variations in the first quarter and between 8% and 10% in the second though the tenth quarter. Remittance explains about 8% of the variations in HCE in both the first and second quarters. About 20% to 24% of the variations in HCE is explained in the third through the tenth quarters. FDI and ODA only explain little of the variations in HCE. Only about 2% of the variations in HCE is explained by FDI in the second quarters, 3% in the third quarters 5% in the fourth

quarter and about 7% in the rest of the quarters. ODA explains only about 1% of the variations in HCE in the first quarter up to the tenth quarter.

This result indicates that apart from the Own shock; remittance appears to contribute immensely to the variations in household consumption expenditure.

Variance Decomposition OF FDI

The variance decomposition of FDI indicates that, about 92% of the variations in FDI is explained by 'own' shock in the first quarter, 75% in the second quarter, 73% in the third quarter, 74% in the fourth quarter, and about 71% in the rest of the quarters. GDPC explains only about 2% variations in FDI in the first quarter, 5% in the second quarter, and 6% for the rest of the quarters. Remittance explains about 3% of the variations in FDI in the first quarter, 5% in the second and third quarters. About 4% and 6% of the variations in FDI is explained by remittance in the fourth and fifth quarters while 7% in the rest of the quarters.

Household consumption expenditure explains about 1% variations in FDI in the first quarter, 9% in the second quarter and 10% in the third quarter. From the fourth through the tenth quarters about 11% of the variations in FDI is explained by household consumption expenditure. Throughout the second to the tenth quarters, ODA explained about 3% of the variations in foreign direct investment.

Variance Decomposition of ODA

The variance decomposition of ODA suggests that about 88% of the variations in ODA is explained by 'OWN' shock in the first quarter, 66% in the second quarter and between 65% and 57% in the rest of the quarters. GDPC explains only about 0.04% of the variations in the ODA in the first quarter, 16% in the second and third quarters and 18% in the rest of the quarters. Remittance explains only about 1% of the variations in the first quarter, 4% in the second quarter, 6% in the third and fourth quarters and between 12% and 14% in the fifth quarter through the tenth quarters.

Household consumption expenditure explains about 5% of the variations in ODA in the first quarter, 8% in the second, third and fourth quarters and about 7% in the rest of the quarters. Foreign direct investment explains about 4% of the variations in ODA in the first quarter, 3% in the second, third and fourth quarters and about 4% in the rest of the quarters.

4.5 Granger Causality

The Vector Auto regression (VAR) Granger causality test has been performed to determine whether there is causality between economic growth, Remittances, foreign direct investment, Household consumption expenditure, and official development assistance during the period of the study in Nigeria. The results of the VAR Granger causality test are being reported in table 5.

Table4.5: Granger Causality Result

VAR GRANGER CAUSALITY / BLOCK EXOGENEITY WALD TEST			
Sample: 1986 – 2018			
Included observations: 28			
Dependent Variable: D(LGDPC)			
Excluded	Chi-89	DF	Prob
D(LREMIT)	12.04119	2	0.0024
D)LHCE)	4.548262	2	0.1029
D(LFDI)	10.10701	2	0.0064
D(LODA)	0.047757	2	0.9764
All	25.70672	8	0.0012
Dependent variable: D(LREMIT)			
Excluded	Chi-89	DF	Prob
D(LGDPC)	5.966755	2	0.0506
D(LHCE)	0.00098	2	0.9995

D(LFDI)	0.46812	2	0.7913
D(LODA)	0.843979	2	0.6557
All	8.927871	8	0.3484
Dependent variable: D(LHCE)			
Excluded	Chi-89	DF	Prob
D(LGDPC)	1.269857	2	0.5300
D(LREMIT)	1.987428	2	0.3702
D(LFDI)	0.868152	2	0.6479
D(LODA)	0.561527	2	0.7552
All	5.712474	8	0.6794
Dependent variable: D(LFDI)			
Excluded	Chi-89	DF	Prob
D(LGDPC)	3.137846	2	0.2083
D(LREMIT)	0.027136	2	0.9865
D(LHCE)	3.416567	2	0.1812
D(LODA)	1.839866	2	0.3985
All	5.774762	8	0.6724
Dependent variable: D(LODA)			
Excluded	Chi-89	DF	Prob
D(LGDPC)	9.919222	2	0.0070
D(LREMIT)	0.449600	2	0.7987
D(LHCE)	4.580412	2	0.1012
D(LFDI)	0.959569	2	0.6189
All	14.15761	8	0.0777

Source: Authors computation using e-views 8.1

VAR Granger Causality has been conducted to determine the causal relationship among the variables in this study. The result of the Granger Causality indicates that, using GDP per capita as dependent variable, it is clear that it is only remittance and FDI that individually cause GDP per capital. Household consumption expenditure and ODA do not Granger cause GDPC individually. However, when taken the independent variables all together they appear to have influence on the GDPC as indicated by their joint probability value of 0.0012 which is less than 0.05 at the 5% level of significance.

When remittance is taken as dependent variable, GDPC appears to Granger cause remittance marginally at the 5% level. However, the rest of the independent variables do not Granger cause remittance individually at the 5% level which in this case, even jointly, the independent do not appear to influence remittance even at the 10% level of significance.

In the case where household consumption expenditure is the dependent variable, we see that GDPC, REMIT, FDI and ODA do not have individual influence on household consumption expenditure. Taken these variables jointly does not yield good result as the joint test equally reject causality from the independent variables to household consumption expenditure. Similar result is being obtained in the case FDI when it is treated as dependent variable in this case, GDPC, REMIT, HCE and ODA and jointly indicating that these variables have no influence on FDI in the context of Granger.

ODA is treated as the dependent variable in this case and it appears that only GDPC Granger causes ODA individually. Remit, HCE and FDI do not appear to influence ODA individually. The independent variable jointly influenced ODA only marginally at the 10% level of significance.

4.6 Analysis of Long Run Relationship

Base on the unit root test conducted using ADF, the variables under study have been found to be integrated of different order i.e. I(0) and I(1). Since the variables are not integrated of the same order, Johansen cointegration technique as well

the Engle and Granger two step approach are not valid for estimating the long run relationship. The appropriate technique is the Autoregressive Distributed Lag (ARDL) Bound testing approach. Hence, the ARDL has been estimated and the summary of the results are given in table 6.

Table4.6: Result of the Autoregressive Distributed Lag Model

VARIABLES	COEFFICIENT	PROBABILITY
Dependent: LGDPC		
Independent:		
LGDPC (-1)	0.3404 (2.7170)	0.0129
LREMIT (-1)	0.0244 (2.3746)	0.0272
LHCE (-1)	0.1475 (2.1639)	0.0422
LFDI (-1)	0.0401 (2.0536)	0.0527
LREMIT	0.0213 (2.1753)	0.0412
LHCE	0.1216 (1.7848)	0.0888
LFDI	0.0081 (0.3628)	0.7204
LODA	-0.0053 (-0.3770)	0.7099

Source: Authors computation using e-views 9.5*Standard errors are given in parenthesis*
The ARDL result given in table 4.6 serves as a basis upon which the cointegration test can be done using Bound testing approach. Based on the estimate of the ARDL, we can see that the short run coefficients have positive influence on the GDP per capita. Moreover, these coefficients appear to be statistically significant at the 5% level with the exception of LFDI which is statistically significant at the 10% level. Similarly, the long run coefficients also appear to influence the dependent variable positively with the exception of LODA which exert negative impact on the LGDPC. However, the long run coefficients are not statistically significant at the 5% level. The only variable that has statistically significant long run impact on the GDP per capita is remittance.

Figure 3: Stability Test Result (Cumulative Sum of Recursive Residuals)
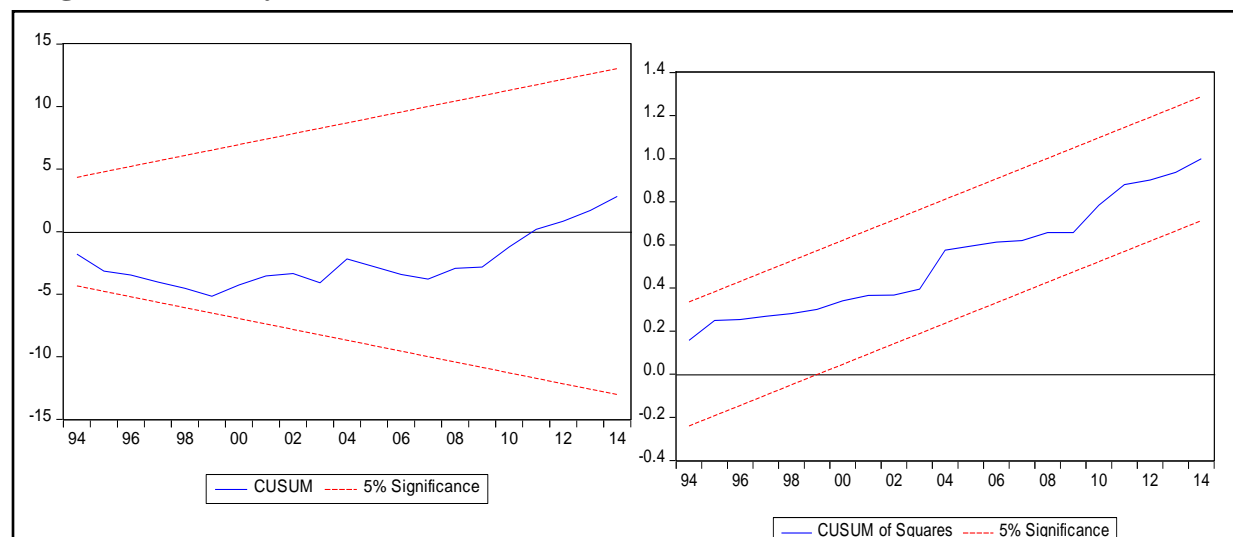
Cumulative sum of recursive residuals and cumulative sum of squares. 5% level of significance has been used in each case.

It is essential to ensure that, the errors of the selected model are serially independent i.e. they should not be serially correlated. This is because if the errors are not serially independent, the parameter estimates will not be consistent since the lagged value of the dependent variable is included among the regressors in the selected model. To this end, autocorrelation test has been conducted using correlogram, and Lm test. For the correlogram, 16 lags have been chosen and the result indicates that, based on the autocorrelation and partial autocorrelation coefficients and the p-values, there is no evidence of autocorrelation in the residuals of the model. The LM test for higher order autocorrelation equally suggests that there is no evidence of serial correlation in the residuals of the model. Heteroskedasticity test has also been conducted to ensure that, the model selected is actually the best with constant error variance using Breuch-Pegan-Godfrey LM test, the null hypothesis of homoskedacity cannot be rejected at the 5% level of significance. Also, in ensuring that, the residuals are normally distributed. Normality test has been conducted and based on the p-value of the Jarque-Bera statistic, we cannot reject the null hypothesis that, the residuals are normally distributed. Stability of the coefficient has also been checked using the cumulative sum of recursive residuals test and cumulative sum of squares.

The result of the CUSUM and CUSUMQ indicate the absence of any instability of the coefficients since the plot of both CUSUM and CUSUMQ statistics fall inside the critical bands of the 5% confidence interval of parameter stability.

4.6.1 ARDL BOUND TEST

The major purpose of estimating an ARDL model in this study is to use it as a basis for applying the Bound test so as to determine the existence or otherwise of the cointegration.

TABLE: 4.8 ARDL BOUNDS TEST RESULT

Null hypothesis: No Long run relationship Exist		
Test statistic	Value	K
f-statistic	7.529018	4
CRITICAL VALUE BOUNDS		
Significance	10 Bounds	I1 Bounds
10%	2.2	3.09
5%	2.56	3.49
2.5%	2.88	3.87
1%	3.29	4.37

Source: Authors' computation using e-views 9.5

Base on the result of the ARDL Bound test given in the table 4.8 the f- statistics for the Bound test is 7.5290 which evidently exceeds even the 1% critical value for the upper bound 4.37. Since, we have small sample, we make use of the critical values provided by Narayan (2005). The critical value for the upper bound in Narayan's table is 6.37. The f-statistics for this bound test which is 7.5290 is greater than 6.37. Therefore, the null hypothesis of no long run relationship is strongly rejected even at the 1% level of significance. Hence, we establish that, there is a long run relationship among GDPC, REMIT, FDI, HCE, and ODA respectively.

Table 4.9: ARDL Cointegrating and Long Run Form

ARDL Cointegrating and Long Run Form
Original dep. Variable" LGDPC
Selected Model: ARDL (1, 1, 1, 0, 1)
Sample 1984 – 2014
Included observations: 30

Cointegrating form				
variable	coefficient	Std. Error	t-Statistic	Prob.

D(LREMIT)	0.020320	0.007231	2.809936	0.0105
D(LHCE)	0.120262	0.050064	2.402174	0.256
D(LODA)	0.002757	0.012223	0.225556	0.8237
D(LFDI)	0.005596	0.013685	0.408939	0.6867
CointEq(-1)	-0.660437	0.091041	-7.254305	0.0000

Cointeq = LGDPC – (0.0693*LREMIT + 0.4080* LHCE -0.0080*LODA + 0.0731*LFDI - 2.7044)

Source: Authors computation using e-views 9.5

The table 4.9 gives us the ARDL cointegrating and long run form. In the short run form, the short-run coefficient is provided along with the error correction coefficient. The most important is to determine whether there is valid error correction mechanism. Based on the result, it is clear that the error correction coefficient is negative (-0.6604) as required, and it is highly statistically significant. This means that there is a valid error correction. The result suggests that about 66% of the disequilibrium error is being corrected each year and the speed of adjustment towards the long run equilibrium is very high (66%). Hence, there is quick adjustment in GDPC when RMT, HCE, ODA, and FDI change each year.

Table 4.10: Long Run Coefficients

Long Run Coefficients				
Variable	**Coefficient**	**Std. Error**	**T-Statistic**	**Prob.**
LREMT	0.069256	0.009435	7.340697	0.0000
LHCE	0.407967	0.077708	5.250032	0.0000
LODA	-0.008035	0.021197	-0.379069	0.7084
LFDI	0.073056	0.039822	1.834559	0.0808
C	-2.704422	1.814972	-1.490063	0.1511

Source: Authors computation using e-views 9.5

Based on the long run coefficients reported in table 4.10, there is evidence of long run equilibrium relationship between remittance, household consumption expenditure, foreign direct investment and GDP per capita. The result suggests that a 1% change in remittance brings about a long – run change of about 0.04% in the GDPC. Similarly, a 1% change in HCE and FDI will bring about a long run change of about 0.41% and 0.07% respectively in GDPC. However, a 1% change in ODA, will result in a long run change of about 0.008% (in this case decrease) in GDPC.

5.0 Conclusion

This research examined the impact of remittance on economic growth in Nigeria using time series data from 1986 to 2018. The variables used in this study are economic growth as proxies for gross domestic product per capital (GDPC), remittance (REMIT), foreign direct investment (FDI), household consumption expenditure (HCE), and Official development assistance (ODA). The study employed the use of unrestricted vector autoregression (VAR) because it has the forecasting power relative to large structural models. The cointegration technique (ARDL) bound test was used to test for the long run relationship between remittance and economic growth. Furthermore, Granger causality test was used to ascertain the direction of causality between remittance and economic growth. The impact of shocks has also been explored using impulse response function and variance decomposition.

The result of the ARDL model showed that, remittance has positive and significant impact on the Nigerian economy. The result of cointegration suggested that there is a long run relationship between remittances and economic growth in Nigeria. Therefore, government should expand and improve the financial sector and make the process of transfer of remittance to much easier and less expensive. This will enable the economy to capture remittances inflow that comes in through informal channels which are usually difficult to capture officially. Also, remittances inflows need to be invested into productive sector. This is because without such investment the inflows cannot play any significant role in the economy especially

households. Unnecessary Administrative bottleneck in the financial sector should be eliminated to enhanced inflows through right channel. Finally, remittances need to be link to household financial access. Hence, remittance receiving households are much more likely better than those that are not receiving. This will be done by linking remittances to financial system such as access to credit, education accounts, and health insurance.

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