



## **DYNAMICS OF REMITTANCES AND AIDS ON ECONOMIC DEVELOPMENT OF NIGERIA**

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### **Abstract**

*The study explored the dynamic nature of remittances and aids on the economic development of Nigeria, for the period 1981-2019 using the Vector Error Correction Model and the VEC causality test. The series for the estimation were mainly generated from World Bank Indicators and the OECD. From the findings, previous short run deviations achieved equilibrium in the long run at 12.7 per cent. Jointly, movements in aids and remittances affect the Human development index. From the impulse response estimation, about 87 percent of shocks to HDI is as a result of the volatile nature of the exchange rate. First, we recommend the use of monetary policies to stabilize the volatility of exchange rate on remittance inflows. Second, taxation should be used as an effective tool in curbing the effect of income inequalities created by remittance. Finally, though aids help to improve the economy, however, the government should build infrastructures and render support to the economic welfare of individuals so that the inflow of aids will be limited. This will help the Nigerian economy not be exploited or influenced negatively.*

*Keywords: Inflows, Economic Development, Volatility, VECM*

## INTRODUCTION

The issue of remittances and foreign aids are of keen importance to developing countries. Ahmed, Zaman and Shah (2011) sees remittance as transfers made by international migrants to their family members in their home country. Russell (1992) added that remittances mean the transmission of resources from developed to developing countries. Mostly, some countries sees it as support that can aid investment activities. This is the view of Ratha (2003) and Gammeltoft (2002) that it is the second largest source of external funding for developing countries which comes immediately after foreign direct investment.

Over the years, the flow of remittances has aided development in the recipient's country. Ratha (2005); Woodruff and Zenteno (2001); and Yang (2004) assert that the creditworthiness of a country can improve as a result of remittances and this accelerates its access to international capital markets to obtain funds to finance her infrastructural needs and developmental projects. Spatafora (2005); and Mughal and Anwar (2012) maintain that it has the tendency of improving macroeconomic stability and reducing the level of poverty in developing nations. Therefore, remittances help to complement national savings and subsequently foster investment since there is a large pool of available resources (Solimano, 2003; Carling, 2004; Ghosh, 2005). The inflow of remittances can also be seen as a form of succor to an individual's business. Nevertheless there are contrary views to remittances. Some scholars are of the understanding that remittances are bad for an economy. Banuri (1986); and McCormick and Wahba (2000) opine that remittances are threats to an economy and may lead to the occurrence of the 'Dutch disease'. According to them, it has the characteristics of deteriorating a nation's payment position and economic welfare of families who are not recipients. Also, Taylor and Wyatt (1996) found that it gives rise to income inequality among residents in a country.

Similarly, foreign aid is the process of transferring resources, grants and concessional loans either in cash or kind from a donor to a recipient nation. According to Tadesse (2011), it includes all concessional loans and official grants, in kind or currency which are transferred from developed to developing countries for developmental purposes. Just as remittances, foreign aids have also been criticized that it breeds neocolonialism. Kapur (2005), Moyo (2010) and Easterly (2003) advocated that foreign aid generates dependency, breeds corruption, foster the overvaluation of currency, and reduces the ability of countries to gain from global economic opportunities.

Though remittances and aids are beneficial to nations when used for investment or philanthropic purposes, however, they can affect the exchange rate which can create lower level of economic income leading to a Dutch disease syndrome (Lopez, Molina, and Bussolo; 2007).

That is, an increase in remittances will trigger the exchange rate to appreciate further thereby resulting in declining growth; as productive activities tend to become more weakened.

Based on empirical grounds, it was found that there exist limited studies on the workings of aids and remittances on economic development in Nigeria. Also, other studies made use of economic growth rate to explore the impact of aids and remittances. However, this study takes a different stand as it evaluates the influence of aids and remittances on the economic welfare of citizens in the home country which workers' in host countries are continually seeking to make better-off. Furthermore, exchange rate was used as a control variable to address the stochastic nature of the independent variables and capture its real impact on economic development. This is a deviation from other studies. Along these lines, valuable contributions will be made to literature, industry experts, government agencies, seasoned administrators and professionals as well a private individuals on the impact of remittances and foreign aids on the economic development of Nigeria.

The remainder of this report is organized as follows: a brief review of earlier literature; data and techniques adopted to evaluate it; summary of findings; conclusion and propositions for further studies.

## LITERATURE REVIEW

The relevant theoretical thoughts for this work is conceptualized in the "Implicit Family Agreement" theory by Lucas and Stark (1985) that families sometimes agree to sponsor one of their members abroad with the sole aim of remitting foreign earnings, which involves both the payment of principal and interest as soon as the fellow gains a lucrative employment in the host country. Also, Olusuyi, Adedayo, Agbolade, and Eburn (2017) opine that the rationale behind workers' remittances are mainly for the welfare of their family members and associates left behind in their home country. However, these two dimensions hangs on consumption motives. Additionally, the "Portfolio Theory" of Tobin (1958) and Markowitz (1959) can be used to explain capital inflows, workers' remittances and aids. This theory emphasizes that investors are normally driven by the maximization of profit and the minimization of risk through diversification of their investment in different countries. As such, remittance can be used by individual to achieve this specific interest. Furthermore, Woodruff and Zenteno (2001) noted that remittances can be destined for investment in the recipient countries. Based on this, remittances are generally supposed to increase as long as the expected returns of these transfers rise in receiving countries (Hysenbegasi and Pozo, 2002; El-Sakka and McNabb, 1999). It is worthy of note that these first two remittance theories are driven by consumption motive. This means that family members who are based abroad sees workers' remittances as a form of diversifying their

holdings in the home country in order to minimize country risk and at the same time maximize their profit. One may argue that some of the remittances are used for selfish purposes by relatives based in the home country. But this does not totally eradicate the intention of investment by workers in the host country.

The motive of foreign aids from other countries into Nigeria are mainly due to economic, political and moral consideration. Chenery and Strout (1968) found that aids have positive and significant influence on the recipient country's economic growth. Fasanya and Onakoya (2012) examined the impact of aids on economic growth in Nigeria and found that aids have significant impact on Nigeria economy which leads to an increase in domestic investment. Ahmed, Zaman and Shah (2011), in their study on the impact of remittances, exports, money supply on economic growth in Pakistan from 1976-2009, provide evidence that remittance inflows were positive and significant both in the short run and long run to economic growth. In a case study in Pakistan from 2003 to 2015, Mahmoud (2014) found a positive impact of aids on the human development index. Arellano, Buliø, Lane and Lipschitz (2009) proposed that aids of \$10 billion has the capability of lifting up to 25 million persons out of poverty yearly. Ugwuegbe, Okafor and Akarogbe (2016), in their study of foreign aids and external borrowing in the Nigeria economy from 1980-2013 were able to come up with the finding that aids positively affect GDP. Burnside and Dollar (2000) gave evidence of positive impact of aids on growth of per capital GDP in developing countries with suitable fiscal, trade, and monetary policies.

Foreign aids assist a country to address domestic emergencies like epidemics, pandemics etc. but they are also viewed by others as being harmful; which are used by governments or multinationals to reap hidden profit motives not disclosed as at the time of such aids. In a recent study, Whitaker (2006) affirm that aids affect economic development negatively. Djankov (2008) also found that foreign assistance is negative. Easterly (2003) believes that aids are ineffective to economic development in developing countries. In a Tanzanian study, Conchesta (2008) reveal that aids and debt servicing have negative impact on GDP growth rate. Riddell (2007) stress that developed economies use aids to exploit developing countries when they are tied to projects. This means that the recipient nation is indebted to purchase materials from the donor country which will likely lead to rising inflation; on account of appreciation of real exchange rate. Okon (2012) employed the use of two-stage least squares estimation on yearly series from 1960-2010 and found evidence of negative relationship between aids and the human development index; suggesting that aids worsen human capital. Leff (1969) and Griffin and Enos (1970) in their separate studies found a negative impact of aids on economic growth for developing countries. Bakare (2011), employed the use of Vector Autoregressive Model (VAR) to study the extent of foreign aids on economic growth; and

showed that a negative relationship between foreign presence of aids and output growth exist in Nigeria. Nowak-Lehmann, Dreher, Herzer, Klasen and Martinez-Zarsoso (2010) analysis of foreign aids and per capita income from 1960 to 2006 in 131 aid recipient nations brought to light that foreign aids on per capita is negative and insignificant; mostly because it undermines governance and the equitable transfer and distribution of resources. Furthermore, Chauvet and Guillaumont (2009) show that aids are more effective in nations that are more vulnerable to exogenous shocks, and negatively lessens their growth rate.

## METHODOLOGY

In order to adequately estimate the data, the study utilized annual series captured from the statistical database of reputable agencies like the Central Bank of Nigeria, Organization of Economic Cooperation and Development, United Nations as well as the World Development Indicators; varying from 1981 to 2019. The reason for the long periods of data is to ensure strong generalizations about the subject matter as most studies reveal cyclical periods of remittance flows. Robust tools adopted for the analysis are the Unit root test, Vector error correction model and VEC causality test. Furthermore, two out of four of the variables were in their natural logarithm to connote uniformity and correct for autocorrelation (Brooks, 2014). Exchange rate volatility is valuable to remittances and foreign aids; however, it was adopted as a control variable in this study. Thus, our model is:

$$HDI_t = \beta_0 + \beta_1 \ln REM_t + \beta_2 \ln FA_t + \beta_3 EXR_t + \varepsilon_t \quad 1$$

A priori:  $\beta_1, \beta_2 > 0$ ; and  $\beta_3 < 0$

Where,

HDI = Human capital development index, REM = Remittances, FA = Foreign aids, LN = Natural logarithm,  $\beta_1, \beta_2$ , and  $\beta_3$  = Estimation parameter, t = annual time periods,  $\beta_0$  = Constant parameter,  $\varepsilon_t$  = error term.

The Parsimonious Error Correction Model (VECM) is given as;

$$\Delta Y_t = \beta_1 + \sum_{i=1}^p \beta_2 Y_{t-i} + \sum_{i=1}^q \beta_3 \Delta X_{t-i} + \alpha ECT_{t-i} + e_t \quad 2$$

The Granger Causality model is given as;

$$Y_t = \alpha + \sum_{k=1}^k \beta_k Y_{t-1} + \sum_{k=1}^i \delta_k X_{t-1} + \epsilon_t \quad 3$$

$$X_t = \alpha + \sum_{k=1}^k \beta_k X_{t-1} + \sum_{k=1}^k \delta_k Y_{t-1} + \epsilon_t \quad 4$$

## RESULTS AND DISCUSSIONS

Table 1: Summary of Descriptive Statistics

	HDI	LNREM	LNFA	EXR
<b>Mean</b>	0.403513	20.54663	7.625049	92.91682
<b>Std. Dev.</b>	0.098863	3.203243	0.277056	96.66000
<b>Skewness</b>	-0.190874	-0.505255	0.265319	0.893849
<b>Kurtosis</b>	1.594557	1.804093	2.082729	2.885356
<b>Jarque-Bera</b>	3.446627	3.983405	1.824815	5.214637
<b>Probability</b>	0.178474	0.136463	0.401556	0.073732

Source: *E-views10 output*

Table 1 demonstrates a statistical description of the variables. The percentage of deviations from mean values are quite low for all the variables except the exchange rate. There is a more than 96 percent deviation which indicates that its volatile nature may affect remittances and aids negatively in terms of investment and growth. Acosta, Larrey and Mandelman (2009) supports the loss in international competitiveness of the exchange rate. In furtherance, The Jarque-Bera statistics establishes that all the variables are normally distributed because their probability values are less than the 5% significance levels.

Table 2: Unit Root Test

Variables	ADF Test Statistics	T-CRITICAL AT 5%	P-value	Order of Integration
HDI	-5.455745	-2.948404	0.0001	I(1)
LNREM	-6.515029	-2.943427	0.0000	I(1)
LNFA	-5.571971	-2.943427	0.0000	I(1)
EXR	-4.981291	-2.943427	0.0002	I(1)

Source: *E-views10 output*

Table 2 shows that all the variables were stationary after first differencing. This means that the ADF test statistics were more than their test critical with probability values less than the 0.05 percent level of significance. Now, having proved that there exist no unit roots, the study intends to determine if the variables have cointegrating equations.

### Vector Error Correction Model

Table 3 shows the outcome of assessment of vector error correction model for the response of the explanatory variables on the explained variable; and the speed at which errors in the short run are corrected in the long run.

Table 3: Vector Error Correction Model

Vector Error Correction Estimates				
Standard errors in ( )				
& t-statistics in [ ]				
Cointegrating Eq:	CointEq1			
HDI(-1)	1.000000			
LNFA(-1)	0.009554			
	(0.03247)			
	[ 0.29423]			
EXR(-1)	-0.000358			
	(8.0E-05)			
	[-4.45387]			
LNREMI(-1)	-0.022180			
	(0.00290)			
	[-7.64104]			
C	0.013281			
Error Correction:	D(HDI)	D(LNFA)	D(EXR)	D(LNREMI)
CointEq1	-0.127852	1.186919	182.2462	21.42870
	(0.06083)	(1.08911)	(235.860)	(6.34224)
	[-2.10179]	[ 1.08981]	[ 0.77269]	[ 3.37873]

Source: E-views10 output

Table 3 showed that remittances and exchange rate as -0.022180 and -0.000358 are negatively but highly significant to human development index with t-statistical values of -7.64104 and -4.45387; such that a 1% increase in remittances and exchange rate will lead to about 0.022180% and 0.000358% decrease in human development index respectively. Foreign aids as 0.009554 is positive but not significant with t-statistic value of 0.29423; indicating that a 1% increase in foreign aids will lead to about 0.009554% increase in human development index. The error correction term (ECT) indicates the speed at which errors (disequilibrium) in the short run are corrected in the long run. The ECT has to be negative and statistically significant for it to be able to restore equilibrium in the long run. Thus, the ECT as -0.127852 is negative and significant with t-statistic value of -2.10179; such that errors or disequilibrium in the short run are corrected at a speed of 12.7852% in the long run.

### VEC Granger Causality/Block Exogeneity Wald Tests

The VEC Granger Causality/Block Exogeneity Wald test was used to determine the direction of causality among the variables.

Table 4: VEC Casualty Test

VEC Granger Causality/Block Exogeneity Wald Tests			
Dependent variable: D(HDI)			
Excluded	Chi-sq	df	Prob.
D(LNREM)	2.362849	2	0.3068
D(LNFA)	0.292001	2	0.8642
D(EXR)	11.86223	2	0.0027
All	13.27401	6	0.0389

Source: E-views10 output

Table 4 shows the result of VEC Granger causality test. From the estimation, only exchange rate supports human development index whereas remittances and foreign aids do not support human development index in Nigeria. However, jointly, changes in remittances, aids and the exchange rate precede changes in the Human Development Index.

### Forecast Error of Volatility

For a fair evaluation of the involvement of each variable to shock of human development index, the study employed the use of impulse response function and variance decomposition method.

Table 5: Variance Decomposition

Variance Decomposition of LNFDI:					
Period	S.E.	HDI	LNREM	LNFA	EXR
1	0.006364	100.0000	0.000000	0.000000	0.000000
2	0.009866	99.06874	0.515880	0.041050	0.374335
3	0.013444	91.02406	1.749618	0.067524	7.158795
4	0.016583	84.03037	6.881462	0.148688	8.939484
5	0.019454	77.78016	12.75235	0.249563	9.217923
6	0.022154	71.86601	19.68574	0.536736	7.911517
7	0.024530	68.13493	23.89068	1.108422	6.865975
8	0.026744	65.86257	26.47932	1.628406	6.029703
9	0.028771	65.29710	27.05021	1.994110	5.658578
10	0.030738	65.30789	26.92370	2.118029	5.650376

Cholesky Ordering: HDI LNREM LNFA EXR

Source: E-views10 output

The variance decompositions suggest that shocks to human development index are ascertained by its own volatility; specifically, in the 1<sup>st</sup> period, HDI entirely accounts for all its own volatility. Contrarily, in the 2<sup>nd</sup> period, about 99% volatility are caused by its volatility while remittance, foreign aids and exchange rate slightly accounts for about 0.52%, 0.04% and 0.37%



volatility to HDI respectively. Particularly, apart from volatility of HDI, further results reveal that remittances importantly explain bulk of the volatility relative to other variables. Also, with the passage of time, its ability to describe most of the variance error of volatility increases. Aids explain marginal variance of HDI as its relative value is less than 2.5%. However, its ability to explain volatility rise consistently with the passage of time. Similarly, exchange rate marginally describes the variance error of volatility to HDI in Nigeria.

Table 6: Generalized Impulse Response Function

IMPULSE RESPONSE FUCTION OF				
Period	HDI	LNREM	LNFA	EXR
1	0.006364	0.124888	0.021078	0.876113
2	0.007479	0.180068	0.022087	0.046299
3	0.008252	0.231137	0.002003	-0.765832
4	0.008159	0.369870	0.001609	-1.157902
5	0.007955	0.421880	0.009009	-0.594836
6	0.007638	0.478186	0.008439	-1.370738
7	0.007566	0.473348	0.005644	-2.707698
8	0.007817	0.469176	0.001430	-3.564168
9	0.008332	0.437552	-0.000412	-3.949095
10	0.008749	0.424399	-0.002765	-3.792422

Cholesky Ordering: HDI LNREM LNFA EXR

Source: E-views10 output

Table 6 suggests that HDI responds to its own shock of about 0.6% in the 1<sup>st</sup> period. However, more than 87% of shocks is as a result of the volatile nature of exchange rate, which goes to prove that exchange rate is a key variable affecting the inflows of remittances and aids in the Nigerian economy. In addition, shocks to HDI from period 1 to period 10 increased gradually by way of inflow of remittances. Aids showed evidence of fluctuating positive reaction from the 1<sup>st</sup> period to the 8<sup>th</sup> period on HDI; thereafter, became negative from the 9<sup>th</sup> to the 10<sup>th</sup> period.

### Discussion of findings

From the findings, aid is a fundamental determinant of economic welfare suggesting that countries with continuous inflow of aids tend to be better-off in terms of economic development. This finding is consistent with Arellano, *et al.* (2009) that aid has the capability of lifting up persons out of poverty. Also, in support is Collier and Dollar (2000); Burnside and Dollar (2000); and Mahmoud (2014) that higher level of aids lead to higher level of economic growth in developing countries. In contrast, Riddell (2007), observed that aids have an inherent form of

exploitation as they are tied to projects. In a similar study, Easterly (2003); Okon (2012); Nowak-Lehmann, *et al.* (2010); and Djankov (2008) revealed that aid is negatively related to economic development in an economy.

Further analysis proves that the response of aid to HDI was minimal since aids does not directly impact on the life of the citizenry. Remittance is negative but significant to HDI. This finding is coherent with McCormick and Wahba (2000) that remittance is a threat to the occurrence of Dutch disease as it has the characteristics of deteriorating economic welfare of families who are not recipients of remittances. Additionally, Taylor and Wyatt (1996) noted that it gives rise to income inequality among residents in a country. This is also the view of Neagu and Schiff (2009); Chauvet and Guillaumont (2009); and Sayan (2006) found that the higher the level of remittance, the lower the level of economic growth and development. However, Lueth and Ruiz-Arranz (2007); and Ahmed, *et al.* (2011) believes that higher level of remittance could lead to higher level of business cycle and economic growth. Remittances explained majority of the shocks to HDI; which is attributed to the direct effect it has on the economic welfare of the recipients in Nigeria.

## CONCLUSION

The study aims to explore the dynamics of remittance and aids from 1981-2019; employing the Portfolio approach of Tobin (1958) and Markowitz (1959). The variables used in the investigation includes remittances, foreign aids, and exchange rate volatility. For rigorous assessments, the study employed the use of descriptive statistics, unit root, VECM, variance decomposition, and impulse response function and found robust support for aids as a major determinants of human development index. This is consistent with other studies on economic growth: Arellano, *et al.* (2009); Burnside and Dollar (1997); and Collier and Dollar (2000).

Remittance is a significant elements of economic development; however, it does not stimulate human development index. This is ascribed to the income inequality created by remittances to their recipients; Dutch disease syndrome of families whose economic welfare are not affected by remittance; and the volatile nature of exchange rate on remittances.

First, we recommend the use of monetary policies to stabilize the volatility of exchange rate on remittance inflows. Second, taxation should be used as an effective tool in curbing the effect of income inequalities created by remittance. Finally, though aids help to improve the economy, however, the government should build infrastructures and render support to the economic welfare of individuals so that the inflow of aids will be limited; so that the Nigerian economy will not be exploited or influenced negatively.

## LIMITATIONS

This study is limited to one aspect of economic development; that is human development index. For instance, urbanization, gross national product per capita, consumption per capita, GDP per capita income, and occupational structure of the labour force. Thus, the use of other measures of economic development such as social and health indicators, level of poverty and education system or literacy rate, could yield a better result.

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