

# MIGRANTS' REMITTANCE, AGRICULTURAL PRODUCTION AND ECONOMIC GROWTH IN NIGERIA

## 1.0 Introduction

Remittance is becoming an important and growing source of foreign funds for several developing countries most especially the Sub-Saharan African countries. Globally, remittances constitute the largest source of financial flows to developing countries after Foreign Direct Investments. Okoh et al., (2017) defined remittance as the portion of migrant workers' earnings sent from the country of employment to migrants' country of origin. Remittance plays a vital role in poverty reduction, serves as source of revenue for recipients thereby improving their standard of living, contributes a huge percentage to the foreign exchange earning of the recipient country thereby leading to increase in GDP as well as economic growth (Adeseye, 2021; Iheke, 2012).

Nigeria is an agrarian country whose agriculture is dependent on rain. Majority of her population engage in one form of agriculture or the other hence, agriculture's influence in the growth of an economy cannot be overemphasized. It serves as source of food, provision of employment, source of foreign exchange as well as producer of raw materials used in the industrial sector all of which cause an overall increase in the GDP of the economy (Afolabi et al., 2017). Over the years, there has been a gradual decline in agriculture's contributions to the nation's economy in spite of Nigeria's rich agricultural resource endowment and this is as a result of climate change, inappropriate economic policies, low adoption of improved agricultural technologies and production inefficiency (Odozi et al., 2020; Sanusi, 2010).

Despite the large volume of literatures on the effect of remittance on the Nigerian economy, this study will fill the gaps in the literature by investigating not only remittance impact on economic growth but also examine the impact remittance has on the agricultural production of the nation.

The paper addresses some key policy-relevant questions including:

- i. What is the impact of migrants' remittance on economic growth in Nigeria?
- ii. What is the impact of migrants' remittance on agricultural production in Nigeria?
- iii. What is the causal relationship between migrants' remittance, agricultural production and economic growth in Nigeria?

## 2.0 Methodology

This paper used annual time series secondary data obtained from World Development Indicator (WDI) database. The study was carried out in Nigeria which is one of the largest countries in Africa. It lies between 40<sup>0</sup> and 140<sup>0</sup> north of the equator and between longitude 30<sup>0</sup> and 150<sup>0</sup> east of Greenwich. The country has a total land area of about 923,769km<sup>2</sup> with a population of around 200 million (NPC, 2020). The country is gifted with significant agricultural, mineral, marine and forest resources. Its multiple vegetation zones, rain, surface water and underground water resources and moderate climatic extremes allow for the production of diverse food, tree and cash crops.

## 2.1 Analytical Procedure

### 2.1.1 Unit Root Tests

To test the stationarity of the variables, the study employed the Augmented Dickey Fuller (ADF) test. The ADF estimation is shown as follows:

$$\Delta Y_t = \alpha_0 + \alpha_1 Y_{t-1} + \sum \alpha_i \Delta Y_{t-i} + \mu_t \quad (1)$$

Where  $Y_t$  = Time series,  $t$  = Linear time trend,  $\Delta$  = First difference operator,  $\alpha_0$  = Constant,  $t - 1$  = Optimum number of lags in the independent variables and  $\mu_t$  = Error term

### 2.1.2 Error Correction Model (ECM)

The purpose of the ECM is to indicate the speed of adjustment from the short run equilibrium to the long run equilibrium state. The model specification with an ECM form can be formulated as follows:

$$\Delta Y_i = a_0 + a_1 \Delta X_i + a_2 u_{t-1} + \varepsilon_t \quad (2)$$

$\Delta Y_t = Y_t - Y_{t-1}$ ,  $a_1$  and  $a_2$  represents the dynamic adjustment coefficients of the variables, while  $u_{t-1}$  is the residual lag and  $\varepsilon_t$  represents the random error term.

### 2.1.3 Toda-Yamamoto Causality Test

The Toda-Yamamoto causality test was used in this study to test for long run causality between variables. The causal relationship model between remittances, agricultural production, GDP and other control variables relationship is set up within VAR representations as follow:

$$\ln GDP_t = \alpha_0 + \sum_{i=1}^k \beta_{1i} \ln GDP_{t-i} + \sum_{j=k+1}^{dmax} \beta_{2j} \ln GDP_{t-j} + \sum_{i=1}^k \theta_{1i} \ln REM_{t-i} + \sum_{j=k+1}^{dmax} \theta_{2j} \ln REM_{t-j} + \sum_{i=1}^k \lambda_{1i} \ln AGRP_{t-i} + \sum_{j=k+1}^{dmax} \lambda_{2j} \ln AGRP_{t-j} + \sum_{i=1}^k \omega_{1i} \ln INFL_{t-i} + \sum_{j=k+1}^{dmax} \omega_{2j} \ln INFL_{t-j} + \sum_{i=1}^k \mu_{1i} \ln EXCHR_{t-i} + \sum_{j=k+1}^{dmax} \mu_{2j} \ln EXCHR_{t-j} + \varepsilon_{it} \quad (3)$$

## 3.0 Results and Discussions

### 3.1 Augmented Dickey Fuller Test

The outcome of the ADF unit root test reported in table 1 shows that real GDP, remittance, agricultural production, exchange rate and inflation were all stationary at first difference, that is integrated of order one I(1).

**Table 1: ADF Stationarity test for Migrants' Remittance, Agricultural Production and Economic Growth in Nigeria (1991-2020)**

Variables	Test Statistics	Critical values 5%	Critical values 10%	P value	Integrated order	Conclusion
LNRGDP	-4.217	-2.968	-2.623	0.0027	I (1)	Stationary
LNREM	-6.346	-2.968	-2.623	0.0000	I (1)	Stationary
LNAGRP	-4.388	-2.968	-2.623	0.0017	I (1)	Stationary
LNREXCHR	-5.064	-2.968	-2.623	0.0003	I (1)	Stationary
INFL	-4.436	-2.968	-2.623	0.0015	I (1)	Stationary

*Source: Author's Computation*

### 3.2 Impact of Remittance on Economic Growth in Nigeria

Table 2 presents the short-run relationship between remittance and economic growth in Nigeria from 1990 to 2020. The coefficients of remittance are all positive and statistically significant at all levels implying that

remittance has a positive impact on economic growth in the short-run. Also, the coefficients of agricultural production are all positive and statistically significant. This implies that agricultural production has positive impact on economic growth in the short-run. Furthermore, exchange rate is positive and statistically significant. This is quite feasible considering the fact that Nigeria is an import dependent country.

**Table 2: Error Correction Model (ECM)**

Variable	Coefficient	T-Statistic	Probability
D(GDP(-1))	-0.0085	-0.0863	0.9334
D(GDP(-2))	-0.2874	-3.7353	0.0057
D(AGRIC)	1.7418	16.1188	0.0000
D(AGRIC(-1))	0.0705	0.8602	0.4147
D(AGRIC(-2))	0.3968	6.0506	0.0003
D(INFLATION)	0.0013	1.7705	0.1146
D(INFLATION(-1))	-0.0099	-8.3400	0.0000
D(INFLATION(-2))	-0.0073	-6.2871	0.0002
D(REMIT)	0.0436	2.8358	0.0220
D(REMIT(-1))	0.1586	10.7488	0.0000
D(REMIT(-2))	0.0930	5.7146	0.0004
CointEq(-1)*	<b>-0.6589</b>	-9.3535	0.0000
R <sup>2</sup>	0.9839		

*Source: Author's Computation*

### 3.3 Impact of Remittance on Agricultural Production in Nigeria

**Table 3: Error Correction Model**

Variable	Coefficient	T-Statistic	Probability
D(AGRIC(-1))	-0.1182	-2.6656	0.0286
D(AGRIC(-2))	-0.2539	-6.4520	0.0002
D(REMIT)	-0.0326	-4.4059	0.0023
D(REMIT(-1))	-0.0959	-13.6988	0.0000
D(REMIT(-2))	-0.0542	-7.5535	0.0001
D(GDP)	0.5018	14.7661	0.0000
D(GDP(-1))	0.0595	1.1177	0.2961
D(GDP(-2))	0.1729	3.9263	0.0044
D(EXCHANGE)	-0.1858	-12.1886	0.0000
D(EXCHANGE(-1))	-0.4666	-19.5977	0.0000
D(EXCHANGE(-2))	-0.3347	-12.0073	0.0000
CointEq(-1)*	<b>-0.8062</b>	-20.3094	0.0000
R <sup>2</sup>	0.9958		

Table 3 presents the result of the short run effect of remittance on agricultural production. The result of the error correction model showed that remittance is negatively related to agricultural production. This implies that in the short run, an increase in remittance leads to a reduction in agricultural production. This is true because majority of recipients of remittance use it majorly for consumption. Real GDP is positively related to agricultural production. This is because GDP measures the productive sector of the economy and any increase in GDP is as a result of increase in all the sectors therein in GDP of which agricultural production is part of. Furthermore, exchange rate was negatively related to agricultural production.

### 3.4 Toda Yamamoto Causality Test

In Table 4, it can be observed that following the 5% rule of significance, there is joint causality of the four regressors on GDP. Furthermore, there exist a joint causality of GDP, real exchange rate, inflation and remittance on agricultural production (p-value of 0.0002) as well as a joint causality of GDP, real exchange rate, inflation and agricultural production on remittance (p-value of 0.0431).

**Table 4: VAR Granger Causality Test**

Hypotheses	Chi square	P-value
EXCHR does not cause GDP	2.1927	0.3341
AGRP does not cause GDP	3.4247	0.1804
INFL does not cause GDP	0.4655	0.7923
REM does not cause GDP	<b>7.1723</b>	<b>0.0277</b>
EXCHR, AGRP, INFL and REM do not jointly cause GDP	<b>29.2974</b>	<b>0.0003</b>
GDP does not cause AGRP	0.1373	0.9336
EXCHR does not cause AGRP	<b>10.9385</b>	<b>0.0042</b>
INFL does not cause AGRP	0.2481	0.8834
REM does not cause AGRP	6.4461	0.0398
GDP, EXCHR, INFL and REM do not jointly cause AGRP	<b>30.6654</b>	<b>0.0002</b>
GDP does not cause REM	5.5651	0.0619
EXCHR does not cause REM	0.8541	0.6524
AGRP does not cause REM	<b>7.1179</b>	<b>0.0285</b>
INFL does not cause REM	2.6931	0.2601
GDP, EXCHR, AGRP and INFL do not jointly cause REM	<b>15.9485</b>	<b>0.0431</b>

### 4.0 Conclusion and Recommendation

The study concludes that remittance and agricultural production exhibit a positive and significant relationship with economic growth. The VAR Granger Causality Test also known as Toda-Yamamoto shows that exchange rate, agricultural production, inflation and remittance all jointly cause GDP. Also, GDP, exchange rate, agricultural production and inflation all jointly cause remittance. This study therefore recommended that policy that ensures remittances received in the country are put into productive investment especially in the agricultural sector be formulated.

### References

- Adeseye Adenike, (2021). The effect of migrant's remittance on economic growth in Nigeria: An empirical study. *Open Journal of Political Science*, 11:99-122.
- Odionye, J. C., and Emerole, O. B., (2015). The Impact of International Remittances on the Nigerian Economy. *British Journal of Economics, Management and Trade*. 7(1): 1-9
- Okoh, A.S., Ojiya, E.A., and Isiwu, G.D., (2017). An Examination of the Effect of Migrant Remittances on Human Capital Development and Agricultural Productivity in Nigeria: An ARDL Approach. *International Journal of Scientific Research and Management*. 5(11): 7518-7528
- Omobolanle, Y. R., Sheriffdeen, T., and Adesoye, B., (2019). Effects of Remittances on Financial Development in Nigeria. *Ife Social Sciences Review*. 27(1): 48- 59.