AN ECONOMETRIC ANALYSIS OF EXTERNAL REMITTANCES ON POVERTY REDUCTION IN NIGERIA, 1986-2018.

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Abstract: International remittances represent the second most important source of external funding for developing countries (Nigeria Inclusive) after foreign direct investment (FDI), which have helped to improve the standard of living of millions of people by providing them with essential resources such as food, housing, health, and education. From the literature which was both on Nigeria and outside Nigeria, a consensus is yet to be reached as per nexus between remittance and poverty. This paper examined the effect of international remittances on poverty reduction in Nigeria, using secondary sources of data for the period of 1986 to 2018 in Nigeria. The data were sourced from the Central Bank of Nigeria Statistical Bulletin and the World Bank's World Development Indicators (WDI). The study employed the Auto-Regressive Distribution Lagged (ARDL). Therefore, the findings confirmed short-run relationships existed between the variables in the model, whereas long-run relationships also existed between exchange rate, remittances, real gross domestic product and poverty. Furthermore, remittances have a strong and statistically impact on poverty reduction, due to the fact that it directly increases the income of the poor people, smooth household consumption, and ease capital constraint. The same finding established positive and significant relationship between the exchange rate and poverty in the model during the study period. However, gross domestic product showed an inverse relationship on poverty in Nigeria. It was, therefore, suggested that the government should formulate the policies that would enhance the number of remittances by reducing the exchange rate and transaction cost of transferring the remittances through formal channels.

Keywords: Remittances, poverty, trade openness, Health, and Social Services

1.1 Introduction

Remittances are usually understood as financial or in-kind transfers made by migrants to friends and relatives back in communities of origin. Although, they can also be sent in kind, the term "remittances" is usually limited to or refer to monetary and other cash transfers transmitted by migrant workers to their families and communities back home (Adams and Page, 2003). In other word, remittances are money transfers made by people to another party. They can be made to satisfy an obligation such as a bill payment or an invoice when someone shops online. But they are mostly made by a person in one country to someone in another country. Most remittances are made by foreign workers' to family in their home countries. The most common way of making a remittance is by using an electronic payment system through a bank or money transfer service such as Western Union.

Remittances are playing an increasingly large role in the economies of many countries; they contribute to economic growth and to the livelihoods of those countries. Remittance flows globally currently, exceed US $100 billion, which is higher than the value of Official Development Assistance (ODA). Base on the World Bank estimates, remittances was US$585.1 billion in 2016, of which US$ 442 billion went to developing countries, it increased by 7 per cent to US$613 billion in 2017, and the total sum of US$450 billion went to developing countries. Remittances grew by 10% to $689 billion in 2018, including US $528 billion to developing countries. Overall global remittances are expected to grow 3.7% to US $ 715 billion in 2019, including US $549 billion to developing nations. Remittance flows to low and middle-income countries (LMICs) are projected to reach US $551 billion in 2019, up by 4.7% compared to 2018(World Bank, 2019). According to recently released data, remittances have exceeded official aid-by a factor of three since the mid-1990s and they are on track to overtake foreign direct investment (FDI) flows toLMICs (ibid.). In 2019, the top five remittance recipient countries are India (US $ 82.2 billion), China (US $70.3 billion), Mexico (US $ 38.7 billion), Philippines (US $35.1billion), and the Arab Republic of Egypt (US $ 26.4 billion). In relative terms, the top five countries that received the highest remittances as a share of gross domestic product (GDP) in 2019 were: Togo (38.5%), Haiti (34.3%), Nepal (29.9%), Tajikistan (29.7%) and the Kyrgyz republic (29.6%), World Development Indicators (2015).

In developing countries, remittances constitute the second largest capital flow after direct foreign investments which have helped to improve the standard of living of millions of people by providing them with essential resources for food, housing, health and education (International Organization for Migration, (2006). Moving to the role of remittances in poverty reduction, researches have proved that positive impact of remittances in decreasing poverty rates in the recipient countries. According to Ratha (2013), remittances increase household incomes and therefore a powerful anti-poverty force in developing countries, for the fact that remittance receivers can identify their own greatest needs and can allocate the remittance income accordingly. There were empirical evidences around the globe that shows that households that receive remittances are financially better off across multiple dimensions such as; high income levels, high levels of consumer spending and lower incidences of extreme poverty in relative to other households that don't receive remittances (Ratha, 2013). In addition, one cross-country study of 71 developing countries found that, "a 10% increase in per capital official international remittances would produce a 3.5% decline in the share of people living in poverty "(Ratha and Timmer, 2013). Furthermore, remittances have been associated with increased household investments in education, health and entrepreneurship- all of which have a high social return in most circumstances.

Nigeria is the largest recipient of remittances in Sub-Saharan Africa. The World Bank reported that $22 billion was remitted into the country in 2017 fiscal year and rose by 3.4% to US $616 billion in 2018. Similarly, it is note-worthy that Nigerians abroad were recorded to have remitted US $22 billion in 2017 and US $616 billion in 2018 which has put the country ahead of other African countries as the biggest recipient of remittances (World Bank 2018). Despite the huge income remitted to Nigeria by her national oversea, it is worrisome that country still faces tremendous challenges in addressing the problems of poverty. World Poverty Clock,(2018) shows that 90.8 million Nigerians living in extreme poverty and this constituted a staggering 46.4% of its estimated 195.6 million total populations. The country has no extent policy to regulate its use for national development apart from the usual consumption behaviour of remittances recipient households. Unarguably, the macroeconomic impacts of remittances have received considerable attention in other countries, the effects of remittances at various levels in Nigeria seen not to be adequately explored even as numerous reports and empirical evidence indicate that Nigeria surpassed other countries in Africa in terms of inflows of remittances.

There have been much contentious as to the effects of external remittances on poverty reduction both at developing and developed economies. The direction of the relationship between external remittances and poverty reduction has attracted much debate given that most developing countries (Nigeria inclusive) depend largely on external remittances for the growth of their economies. However, findings of such studies have been at variance with one another, thus a general consensus is yet to be reached. Studies such as Ainura, (2008); Bertoli and Marchetta (2014); Makram and Montassar, (2015); and, Dennis and Gods power, (2018) showed negative effect between external remittances and poverty reduction. On the other hand,Kersi (2009); Adams and Cuecuecha (2010); Anyanwu and Erhijakpor (2010); Olowa, Awoyemi, and Shittu, (2013); Petreski and Jovanovic (2013); Imai, Gaiha, Ali and Kaicker (2013);Azam, Haseeb, and Samsudin (2016); Ashikul and Rayhan, (2016); Noxolo (2016),Peković, (2017); Yoshino, Taghizadeh-Hesary, and Otsuka. (2017); Naoyuki, Farhad and Miyu (2017) andAloui, (2019) showed that external remittances reduced poverty during the period of under studies. However, studies such as Samuel, Ebenezer, and Xicang, (2013), and Bulutand Mohamed (2018) found no significant

relationship between remittances and poverty reduction.

Most of the empirical analyses on the nexus between external remittances and poverty reduction were cross-studies conducted outside Nigeria, even with little study in Nigeria; a consensus is yet to be reached. Therefore, there is need for a further reinvestigation on the relationship between these two key variables. Thus, this study seeks to fill the gap in the literature by reconsider the effects of external remittances on poverty reduction in Nigeria, using up to date data and employing Autoregressive Distribution Lag (ARDL) framework.

2. Methodology

2.1 Data Sources

The study employs secondary sources of data for the period of 1986 -2018 in Nigeria. The choice of the study period was due to availability of data. The model used includes four independent variables as determinants of poverty reduction in Nigeria. These variables are real gross domestic product, remittances, trade openness and exchange rate. These variables are typical of those identified in most studies of remittances and poverty reduction in developing economics. The data were sourced from Central Bank of Nigeria Statistical Bulletin and World Bank's World Development Indicators (WDI)

2.2 Model specification

Based on the theoretical review and empirical considerations, the following model was used in this work:

Pov = f (RGDP, REMIT, OPENSS, EXR) ---------- (1)

Where Pov= is the poverty rate (Natural log of expenditure on human health and social service as a proxy for poverty rate); RGDP= Real Gross Domestic Product (a proxy variable for economic growth), REMIT= Natural log of international remittance inflow. The control variables include openness (OPENSS)and exchange rate (EXR), and$\varepsilon = Error\ term$.

Thus an explicit estimable econometric model is formulated as follows:

$$Pov_t = \beta_o + \beta_1 RGDP_t + \beta_2 REMIT_t + \beta_3 EXR_t + \beta_4 OPENSS_t + \varepsilon_t \quad (2)$$

To obtain elasticity coefficients and remove the effect of outliers, the variables must be transformed to logarithm. In log linear form of the function becomes:

$$\text{Log}Pov_t = \beta_o + \beta_1 \text{Log}RGDP_t + \beta_2 \text{Log}REMIT_t + \beta_3 \text{Log}EXR_t + \beta_4 \text{Log}OPENSS_t + \varepsilon_t \quad (3)$$

Regarding Eqn (3), *a prior* expectation is that real gross domestic product decrease the poverty and hence, $\beta_1 < 0$. Likewise, it is often expected that international remittances decrease the poverty $\beta_2 < 0$. Also, exchange rate decrease poverty rate thus, $\beta_3 < 0$.Whereas, trade openness increase the poverty, therefore, $0 > \beta_4 > 0$.(***A priori Expectation***: $\beta_1 < 0, \beta_2 < 0, \beta_3 < 0, 0 > \beta_4 > 0$

The ARDL models employed in this in this study can be molded as follows:-

$$Pov_t = \beta_o + \beta_1 RGDP_t + \beta_2 REMIT_t + \beta_3 EXR_t + \beta_4 OPENSS_t + \varepsilon_t \quad (4)$$

Where: ε_t = Pov – ($\beta_o + \beta_1 RGDP_t + \beta_2 REMIT_t + \beta_3 EXR_t + \beta_4 OPENSS_t$) ---------- (5)

The autoregressive distributed lagged specification of equation (3) above is presented in equation (6) as:

$$\Delta\text{Log}\ Pov = \beta_0 + \sum_{i=1}^{P} \beta_1\ \Delta\text{Log}Pov_{t-i} + \sum_{i=1}^{P} \beta_2\ \Delta\text{Log}RGDP_{t-i} + \sum_{i=1}^{P} \beta_3\ \Delta\text{Log}\ REMIT_{t-i} + \sum_{i=1}^{P} \beta_4\ \Delta\text{Log}\ EXR_{t-i} + \sum_{i=1}^{P} \beta_5\ \Delta\text{Log}\ OPENSS_{t-i} + \alpha_1 \text{Log}Pov_{t-1} + \alpha_2 \text{Log}RGDP_{t-1} + \alpha_3 \text{Log}REMIT_{t-1} + \alpha_4 \text{Log}EXR_{t-1} + \alpha_5 \text{Log}OPENSS_{t-1} + V_t \quad (6)$$

Where: α_1 - α_5 are the long run multipliers and V_t is the white noise error.

2.3 Analysis of empirical results and interpretation

The Autoregressive Distribution Lag (ARDL) bound testing approach does not demand for pre-testing of stationary –unit root test and co-integration for the determination of short and long run irrespective of their order integration (Pesaran, Shin, and Smith, 2001). Using ARDL approach captured both the short and long run within the estimated model. In most cases, the critical value of the ARDL Bound testing is a function of selected lag length: for the purpose of this study, the optimal lag (p) is determined empirically employed Akaike's Information

Critical (AIC). The results of ARDL summarized below.

Table 1. The Empirical Result of ARDL Bound Test

F-statistics	16.55748	
% critical levels	Critical value for Bound test	
Significance	1(0) Bound	1(1) Bound
10%	2.45	3.52
5%	2.86	4.01
2.5%	3.25	4.49
1%	3.74	5.06

Source: Researcher's Computation, 2020

The table 1 above shows the F-statistic value in the ARDL estimated model and it was show that the value of F** is greater than the critical upper bound value at 5% significance level. However, the above results indicate a long-run relationship between the variables in the model in Nigeria.

Table 2. Short Run Relationship of the variables Employing ARDL Approach

Regressors	Coefficient	Probability
EXR(-1)	-0.175911	0.0030
REMIT(-1)	0.000002	0.4100
RGDP(-1)	-0.000072	0.1924
ECM (-1)	-0.541592	0.0015

Source Researcher's Computation, 2020

Table 2 showed that the run estimate dynamic coefficient for the estimated model over the period of study. The lagged error correction term ECM (-1) included in the model to capture the long run dynamics between the co-integrating series is correctly signed (negative) and statistically significant. The coefficient indicates adjustment of 54% from actual changes in the previous year. This adjustment implies that errors are corrected within one year/lesser than one year.

Table 3. Long Run Relationship of the variables Employing ARDL Approach

Regressors	Coefficient	Probability
EXR	0.118653	0.0065
REMIT	8.04E-06	0.0327
RGDP	-5.38E-05	0.0671
R^2	0.974873	
DW*	2.662871	

Source: Researcher's Computation, 2020

From the above Table 3, the table revealed the long-run relationship between some of the variables in the model. From the result, exchange rate, remittances and real gross domestic product showed long-run relationship in the model. Moreover, in the long-run, positive relationship existed between exchange rate, remittances and poverty. This result is in line with Imai *et al.,* (2010), Samsudin, (2016), Aloui, (2019) and Olowa, *et al.*, (2013)that an increase in remittances can directly lead to poverty reduction in the long run. This may be due to the fact that remittances directly increase the income of poor people, smooth household consumption and ease capital constraint. This result is in agreement with the *a-priori* expectation in the estimated model. However, an inverse relationship exited between real gross domestic product and poverty in Nigeria. Furthermore, the adjusted R^2showed the predictor power of a model and it is derived to be 0.974873 in the model. This implied that explanatory variables explained about 97 per cent systematic variation on poverty over the observed years in Nigeria, while the random or stochastic term accounts for the remaining 3 per cent variation in POV, outside (exogenous) the model. Finally, the Durbin-Watson test is used in detecting the presence of auto-correction. This implied that there is absence of auto-correction in the estimated model.

3. Conclusions and policy implications

This study basically examined the effects of external remittances on poverty reduction in Nigeria for the period of 1986 to 2018 using ARDL approach. Data were sourced from the Central Bank of Nigeria Statistical Bulletin and World Bank's World Development Indicators (WDI).The finding confirmed short run relationship existed between the variables in the model, whereas long-run relationship also existed between exchange rate, remittances, real gross domestic product and poverty. Furthermore, remittances have a strong and statistically impact on poverty reduction, due to the fact that it directly increase the income of the poor people, smooth household consumption and ease capital constraint, thus suggesting that there are substantial potential benefits associated with international migration for the poor people in developing countries like Nigeria. So the importance of remittance inflows cannot be denied in terms of poverty reduction that consequently improves the social and economic conditions of the recipient country. Also, positive and significant relationship exited between exchange rate and poverty in the model during the study period. The short run impact of remittances on poverty is negative which might be due to the transaction cost associated with migration. Finally, study therefore suggested that government should formulate the policies that would enhance the amount of remittances by reducing the exchange rate and transaction cost of transferring the remittances through formal channel.

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Figure 1.Histogram-Normality Test APPENDIX-I

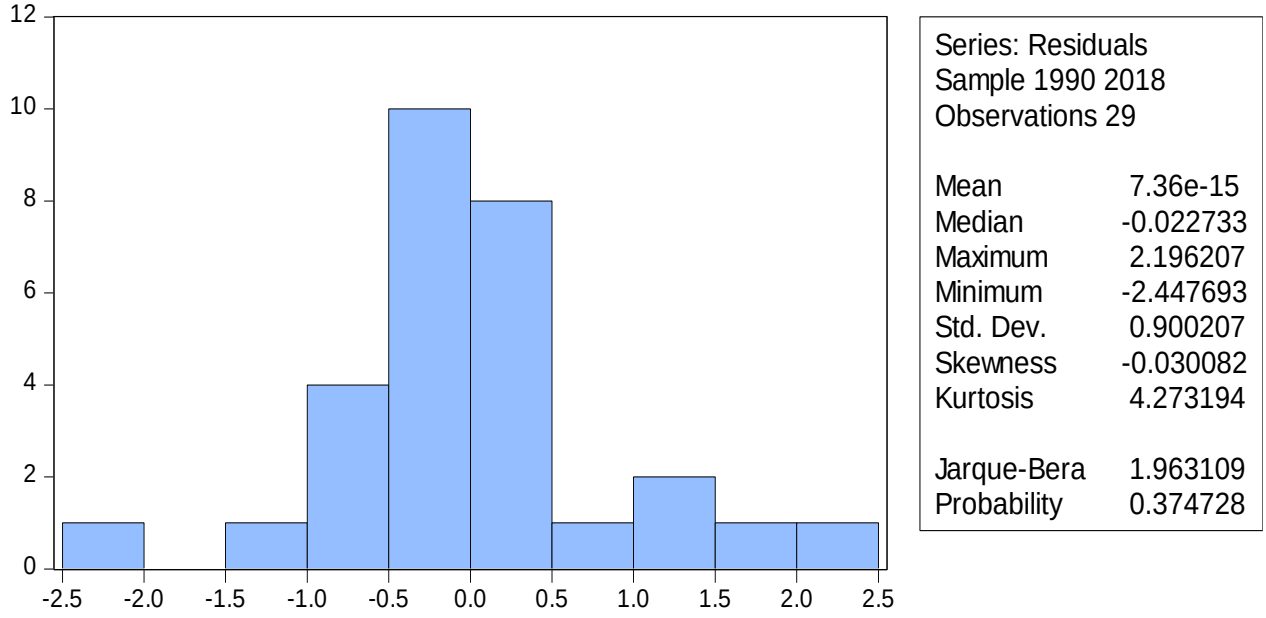

Figure 2.Gradients of Objective Function APPENDIX-II

Figure3.Derivatives of the Equation Specification APPENDIX-III