CROSS-BORDER CAPITAL FLOWS AND POVERTY INCIDENCE IN NIGERIA

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Abstract

There has been an increasing recognition in development and international economics literature that cross-border capital offers opportunities for economic development in the recipient economies. Thus, this study explores the development effect of cross-border capital flows with focus on poverty incidence. The specific objectives focused on effects of migrants' remittances, multilateral debt, technical cooperation grants and bilateral debt on poverty headcount. The Autoregressive Distributed Lag (ARDL) model and Granger causality test in addition to descriptive statistics, unit root and bounds cointegration tests form basis for analyzing the annual time series data for each of the variables adapted from the NBS, World Bank World WDI, International Debt Statistics and IMF International Financial Statistics. The ADF unit root test results reveal that the variables are mixed integrated [I(0) and I(1)]. Again, the ARDL bounds test results indicate that the variables are cointegrated. This implies that the variables depict equilibrium relationship in the long run. The ARDL estimates reveal that migrant remittances and bilateral debt are negatively linked to poverty headcount in the short run. As observed from the coefficient, 1 percent increase in migrants remittances leads to 0.250 percent reduction in poverty rate whereas a percentage increase in bilateral debt leads to 0.778 percent in poverty rate. The result further reveals that only bilateral debt has significant negative effects on poverty headcount in the long run while multilateral debt is statistically insignificant in influencing poverty headcount. With a percentage increase in bilateral debt, poverty headcount, on the average, reduces by about 5.745 percent. The results of the causal relation between international resources and poverty provide evidence of bidirectional causality between remittances and poverty. Owing to the findings, it is recommended that policy makers should

ensure that fiscal policy framework provides room for inflows of international resources in order to promote fiscal sustainability while allowing for a paradigm shift in the resource allocation to sectors with high potentials for poverty reduction.

Keywords: Poverty Headcount, Migrants' Remittances, Multilateral Debt, Grants, Bilateral Debt

INTRODUCTION

Cross-border capital flows have dominated policy debates in international economics in the past two decades. As an inward movement of financial and other resources from the rest of the world to a particular economic setting, inflows of resources are mainly channeled towards promoting productive investments, trade and business production. Traditionally, the neoclassical hypothesis predicts that capital flows from capital-abundant developed economies to capital-scarce developing economies following the high marginal productivity of capital in the latter. According to the International Monetary Fund (IMF, 2016), capital flows constitute an integral part of the "International Monetary System" and as such offer both direct and indirect benefits.

Ewubare, Ogbuagu & Ozigbu (2017) argue that the growing pace of financial integration and reduction in cross-border capital control have shifted both policy and research attentions to the macroeconomic implications of capital flows to developing economies. It is believed that inflow of capital offers huge benefits to developing economies, by making available capital and technology necessary for harnessing the available domestic resources. The host countries are believed to benefit from inflows of capital through the availability of credits, fiscal discipline and knowledge (Tong &Wei, 2010). Additionally, Chigbu, Uba & Chigbu (2015) are of the view that the resource gap in the capital-scarce economies can be filled by inflows of foreign capital. This follows the Harrod-Domar assumption that domestic investment is inadequate to finance the intended and desired investment. As a major source of investment financing in the recipient economies, capital inflows facilitate the process of growth (Calderon & Nguyen, 2015; Kose, Prasad, Rogoff & Wei, 2010). In support of the capital inflow hypothesis, Rehman & Ahmad (2016) posit that inward foreign capital movement fosters the process of sustainable development, improves production capacity and increase labour absorption capacity with optimal resource allocation.

Like other small open economies, Nigerian economy has witnessed appreciable reduction in the cross-border resource control and substantial integration to the global economic setting and as such emerged as a dominant destination of foreign capital. For instance, the 2006 United Nations Conference on Trade and Development (UNCTAD) World Investment Report reveals that Nigeria dominated direct investments inflows to West Africa by accounting

for 70 percent of the sub-regional total and 11 percent of Africa's total. The World Bank (2017) international debt statistics reveal that inflows of external debt account for 4.54 percent of the gross national income (GNI) in 2011 and rose to 7.86 percent of GNI in 2016. More so, various reports and available statistics indicate that remittances constitute an integral part of capital inflows to Nigeria. For instance, World Bank (2008) report shows that the twenty million Nigerians in the diaspora remitted the sum of US$7 billion in 2008. As a share of GDP, personal remittance rose from 0.631 percent in 2011 to 0.768 percent in 2015 (World Bank, 2017). The volume of remittance inflow to Nigeria has positioned the country as one of the top twenty receivers in the world.

Although Nigeria has been describe as a notable beneficiary of foreign capital inflows, the pace of socioeconomic development in the country has remained a source of concern to policy makers, development partners and other key players in the economy. statistics from the World Bank (2018) and National Bureau of Statistics(NBS, 2017) reveal that Nigeria's improvement on the key indices of socioeconomic development is not appreciable given that poverty still remain major socioeconomic problems confronting the economy as summarized in Table 1.

Table 1: Average values of poverty headcount 2001-2017.

Socioeconomic indicator/Year		2001-2005	2006-2010`	2011-2017
Poverty headcount	(%)	66.46	68.35	62.84

Source: Author's compilation with data from NBS (2017)

Table 1 shows that Nigeria experienced high poverty incidence during 2001-2005 as 66.46 percent of the population are living below the poverty threshold. The population of the poor is also high during 2006-2010 and 2011-2015 as the poverty headcount stood at 68.35 and 62.84 percent respectively. In view of the dynamics of socioeconomic development in Nigeria amidst continuous inflows of international resources from various sources, this paper explores the socioeconomic implications of cross-border capital flows with a focus on poverty incidence in Nigeria.

REVIEW OF RELATED LITERATURE
Theoretical Underpinnings
The neoclassical theory of capital closely linked to the works of Solow (1956), Swan (1956), Cass (1965) and Koopmans (1965) assumes that the direction of capital movement is from capital-abundant rich countries to capital-scarce poor countries. The emergence of the

neoclassical economic theory is traced to the era of gold standard, when free flows of capital among countries were considered as natural. When capital is given the room to flow easily, new investments is born mainly in poor countries (Alfaro, Kalemli-Ozcan & Volosovych, 2008). The investments associated with large capital mobility offer opportunities for socioeconomic development. The proponents of capital flows argue that capital market imperfections and heterogeneity in financial development explain why capital tends to flow from poor to rich countries and why developing countries are short in risky assets. Therefore, the saving-investment gap in developing economies is addressed through the inflow of capital which stimulates the level of economic activities and process of economic development.

Lukas (1990) proposed the puzzle of international capital movement often referred to as the "Lucas Paradox". Contrary to what is suggested by the neoclassical predictions, Lukas paradox is based on the assumption that international resources do not flow from rich to poor countries and as such seem not to support the socioeconomic development process. Thus, it argues that the postulation of neoclassical economists on free flow of capital from rich to poor countries is unrealistic. In his publication of "Why does capital not flow from richer to poorer nations", Lukas (1990) reveals that the assumptions of the neoclassical economists about marginal product return differential between the richer and poorer nations as determinant of capital flows are misleading. Unfortunately, Lukas found no empirical evidence with respect to the United States and India to support the neoclassical hypothesis. Joffe (2017) describes this as an important question for economic development.

The three-gap theory credited to Bacha (1990) and Taylor (1994) assumes that inflow of foreign capital is expected to provide opportunities for filling the resource gap in the recipient of economy and boost productive investments in critical sectors that support socioeconomic development. According to the three-gap model, the utilization and expansion of existing productive capacity is constrained not only by domestic savings and foreign exchange, as was initially discussed by Chenery & Strout (1966) in the context of the two-gap model, but also by fiscal constraints on government spending and thus on its public investment choices. Bacha (1990) explains that the three gap model of fiscal deficit in developing economies is due to poor potentials of the economies to generate sufficient revenue to meet their growing expenditure needs. Thus, international resources tend to fill this gap and promote productive investment which drives the process of socioeconomic development.

Empirical Evidence from Previous Studies
Overtime, many studies have focused attention on the empirical validity of the theoretical predictions of cross-border capital flows and its link to development indices in the recipient

economies, especially capital-scarce economies. Below is a brief review of some of the country-specific and cross country/regional studies.

Saungweme & Mufandaedza (2013) analyzed quantitatively the effect of external borrowing on poverty in Zimbabwe. The study was for a period of 33 years from 1980 to 2012. Secondary data sourced from the Reserve Bank of Zimbabwe, IMF and National Statistics Agency of Zimbabwe was used for the study with obtained data analyzed using the Ordinary Least Square (OLS) regression method in addition to the conduct of other pre-estimation and diagnostic test. Findings from the study revealed that, external debt servicing adversely affects short run per capita income and raises the rate of infant mortality in Zimbabwe. It was also uncovered that, lagged income influences current income and poverty positively. It was concluded that, in the event that the government opt to utilize all the proceeds from export and other internal revenue sources to repay external debts, the level of poverty will rise as opposed to a fall in income per capita.

Ozigbu (2018) examined the impacts of migrants' dollars on socio-economic indicators in Nigeria focusing on poverty level and per capita GDP. The Pesaran-Shin Autoregressive Distributed Lag (ARDL) model was applied for analyzing the time series data extracted from the National Bureau of Statistics and World Bank Development Indicators over the period 1985-2016. The Kwiatkowski, Phillips, Schmidt and Shin (KPSS) unit root test results reveal that the series are mixed integrated with evidences of levels and first difference stationary. It was found from the bounds test results that the variables in each of the models are cointegrated. The ARDL estimates indicate that personal remittances negatively impacted on poverty headcount in the short run. One percentage increase in personal remittances at contemporaneous level and lag 1 mitigates poverty headcount by 7.50 percent and 9.49 percent respectively. The results further indicate that ODA is effective in enhancing per capita GDP in the long run. Increase in ODA by 1 percent leads to 0.11 percent increase in per capita GDP. The recommendation proffered in view of the findings is that policy makers and stakeholders alike should collaborate to ensure productive use of migrants' dollars to enable them serve as hedge against poverty and stimulate per capita GDP.

Yoshino, Taghizadeh-Hesary & Otsuka (2017) carried out an investigation into the interrelationship between international remittances and poverty reduction in 10 Asian developing economies. The panel data generated from the study area were analyzed using random-effect model of OLS. The study disaggregated poverty into three core indicators comprising the poverty headcount ratio, poverty gap ratio, and poverty severity ratio. The results show that international remittances have a statistically significant impact on the reduction of the poverty gap ratio and poverty severity ratio based on the estimates of random-effect model of OLS. The

result specifically indicates that 1 percent increase in international remittances as a percentage of the GDP can lead to a 22.6 percent decline in the poverty gap ratio and a 16.0 percent decline in the poverty severity ratio in the area of study. It is also evidence from the results that increase in per capita GDP and trade openness can decrease the poverty measures.

Calderón & Chong (2006) offer insights into the empirical relationship between foreign aid, income inequality and poverty reduction for the period 1971-2002. The study applied dynamic panel data techniques, which allow accounting for potential simultaneity and heterogeneity problems. The results indicate that there exists some weak evidence that foreign aid is conducive to the improvement of the distribution of income when the quality of institutions is taken into account, however, the result is not robust. This finding is consistent with recent empirical research on aid ineffectiveness in achieving economic growth or promoting democratic institutions.

Bouoiyour & Miftah (2018) investigated the effect of migrants' remittances on poverty and inequality in Morocco with a focus in the rural areas of the region of Souss-Massa-Draa. The study applied survey method and found that the poverty rate and the vulnerability of non-poor households significantly reduced due to inflows of remittances. The study further revealed that remittance inflows have increased income inequality compared to the no-migration counterfactual situation. In a related study, Beer & Boswell (2001) investigate the nexus between foreign investment dependence and income inequality, and compare it to theories that focus on world trade. The result indicates that countries that highly depend on foreign capital experience high and worsening income inequality. The study also show that exploitation increases inequality while democracy and education reduce it. However, other sources of inequality derived from modernization theory or dual sector models were not significant in the models employed in the study.

MATERIALS AND METHODS

Research Design

Owing to the nature of this paper, ex-post facto research design was adopted. Basically, an ex-post facto research design is a type of research design in which the empirical investigation starts after the fact has occurred without interference by the researcher. Cooper & Schindler (2001) observe that ex post research design is ideal for investigating the possible past experiences that happened and cannot be controlled by the researcher.

Source of Data

Annual country-specific time series data were utilized in this study. Specifically, data on the sub-components of cross-border capital comprising migrants' remittances, multilateral debt,

technical cooperation grants and bilateral debt were extracted from the World Bank World Development Indicators (WDI), international debt statistics and IMF International Financial Statistics. On the other hand, data on poverty headcount were sourced from the NBS.

Model Specification

This study adopts Autoregressive Distributed Lag (ARDL) model. The model set up for the ARDL framework allows for the inclusion of lag of the dependent variable as well as of other predictor variables as explanatory variables as specified below:

$$PHC_t = C_1 + \sum_{i=1}^{p}\alpha_1\Delta PHC_{t-1} + \sum_{i=1}^{p}\alpha_2\Delta MGR_{t-1} + \sum_{i=1}^{p}\alpha_3\Delta MLD_{t-1} + \sum_{i=1}^{p}\alpha_4\Delta TCG_{t-1} +$$

$$\sum_{i=1}^{p}\alpha_5\Delta BLD_{t-1} + \theta_1 GIX_{t-1} + \theta_2 MGR_{t-1} + \theta_3 MLD_{t-1} + \theta_4 TCG_{t-1} + \theta_5 BLD_{t-1} + e_{1t} \qquad (1)$$

Where: PHC = poverty headcount, MGR = migrants' remittances, MLD = multilateral debt, TCG = technical cooperation grants and BLD = bilateral debts.

c_1- c_4 = vector of intercepts

α_1 - α_5 = short-run coefficient of the predictor variables

θ_1-θ_5 = the long-run multipliers.

e_{1t}- e_{4t} = stochastic terms, which are assumed to be serially independent with zero mean and constant variance

Δ = first difference notation

P = optimal lag order to be selected automatically using SIC.

Variable Description

i.   **Poverty headcount:** This encompasses the proportion of the population considered as poor. It specifically refers to the ratio of population living below the poverty threshold of US$1.9 per day. The headcount index is the most popular poverty measure based on its ease of measurement and understanding.

ii. **Migrants' remittances:** These involve transfers made by migrants employed in foreign destinations to their home country. It is mainly concerned with financial flows often associated with migration or movement of people to foreign destinations. Thus, remittances are measured in this study as percentage of GDP.

iii. **Multilateral debt:** This refers to inflows of external loans from the Bretton Woods Institutions (BWIs) such as the World Bank and IMF. As major creditors to developing economies, the BWIs fund development projects by available multilateral loans.

iv. **Technical cooperation grants:** This connotes free-standing technical cooperation grants, which are channeled into technical and managerial skills or technology intended to build-up general national capacity. It equally involves investment-related technical cooperation grants that are available to developing economies intended to boost the potentials of human capital to execute specific investment projects.

v. **Bilateral debt:** This debt component includes loans from governments and their agencies (including central banks), loans from autonomous bodies, and direct loans from official export credit agencies. Principal repayments are often done in currency, goods or services in the specified period.

Method of Data Analysis

This study employs the Autoregressive Distributed Lag (ARDL) model developed by Pesaran & Shin (1999). Hassler & Wolters (2006) opine that the popularity of the ARDL in econometrics literature is as a result of the fact that cointegration of nonstationary variables is equivalent to an error correction process, and the ARDL model has built-in mechanism of reparametrizing the relationship among the variables in error correction form. In addition to estimating the ADRL, the direction of the causality among the variables was examined using Granger causality test. The prerequisite of the Granger causality test is that the variables have long run relationship (Wang, 2019). In this study, the augmented Dickey-Fuller (ADF) unit root is also applied as a fundamental pre-estimation diagnostic test as it provides the basis for determining whether a variable is to be included in a model or not. The general specification of the ADF model in a drift and deterministic trend is of the form.

$$\Delta Y_t = \propto_0 + \propto_{1t} + \sum_{i=1}^{K} \beta_i \Delta Y_{t-i} + u_t \tag{1}$$

Where = Y_t = underlying economic time series under investigation, Y_{t-1} = one period lag of the underlying economic under investigation, β_i = regression estimate, $\propto_0$ = drift or constant term $\propto_{1t}$ = deterministic or linear trend , K = maximum lag length and u_t = stochastic term.

Again, the bounds test approach to cointegration proposed by Pesaran and Shin (1999) was applied for testing for evidence of long run relationship amongst the underlying variables.

Generally, the ARDL bounds test cointegration model is of the form:

$$M_t = z_0 + \alpha_t + \sum_{i=1}^{P} \beta_i M_{t-i} + U_t$$

(3)

Where: z_0 = vector of drift, α_t = vector of trend coefficients, U and p are white noise error process and lag order respectively.

RESULTS AND DISCUSSION

Unit Root Test Results

The unit root test was conducted in order to know if the variables are stationary or not and their respective order of integration. The results are summarized in table 2.

Table 2: ADF unit root test results

Null hypothesis: Variable has a unit root			
Variable	**Levels test results**	**First difference test results**	**Order of Integration**
	t-statistic	t-statistic	
PHC	-2.2779	-6.5942	I(1)
	(0.4352)	(0.0000)	
MGR	-2.9628	-6.3037	I(1)
	(0.1556)	(0.0000)	
MTD	-2.4611	-6.2320	I(1)
	(0.3444)	(0.0000)	
TCG	-2.4447	-6.8179	I(1)
	(0.3521)	(0.0000)	
BLD	-4.9123	NA	I(0)
	(0.0016)		

Source: Author's computation based on data adapted from NBS, World Bank World WDI, World Bank, International Debt Statistics and IMF International Financial Statistics.

Note: Figures in parenthesis are the corresponding probability values of the t-statistics, NA denotes not available due to evidence of stationarity at the levels test result.

As observed from the ADF unit root test results, only bilateral debt is stationary at levels while the rest of the variables are found to be non-stationary. Thus, the null hypothesis of unit root is rejected for bilateral debt, but retained for the rest of the variables. However, the nonstationary series were subjected to first difference test and were found to be stationary at first difference given that the corresponding probability values of their t-statistics are less than 0.05. In view of

the findings, the variables are considered to be mixed integrated with evidence of I(0) and I(1). While bilateral debt is I(0), the rest of the variables are all I(1). The evidence of mixed integration in the series supports the postulations of Pesaran & Shin (1999) and previous findings by Pesaran *et al.* (2001), Ugwuanyi, Ezeaku & Ibe (2017) and Shkolnyk & Koilo (2018) amongst others.

Bounds Test Cointegration Results

The bounds test cointegration method was necessitated by the mixed integration [I(0) and I(1)] of the variables in the models. The results are summarized in table 3.

Table 3: ARDL bounds test cointegration result

Null Hypothesis: No long-run relationships exist		
Series: PHC MGR MTD TCG BLD		
Test Statistic	Value	K
F-statistic	7.396	4
Critical Value Bounds		
Significance Level	Lower Bound I(0)	Upper Bound I(1)
10%	2.45	3.52
5%	2.86	4.01
1%	3.74	5.06

Source: Author's computation based on data adapted from NBS, World Bank World WDI, World Bank, International Debt Statistics and IMF International Financial Statistics.

Note: K denotes number of explanatory variables in the model

The application of bounds test for cointegration in each of the models was informed by the establishment of mixed order of integration [I(0) and I(1)] in the series. Specifically the bounds test was performed at 5 percent level of significance using F-statistic. As observed from the cointegration result, the calculated F-statistic (7.396) exceeds the upper critical bound value (4.01) at the conventional 5 percent level of significance. This provides enough empirical evidence for rejecting the null hypothesis of no long run relationship. Thus, poverty rate has long run relationship with the underlying measures of international resource inflows. This finding is in agreement with the results of Ugwuanyi, Ezeaku & Ibe (2017), Peković (2017) and Zaghdoudi & Hakimi (2017).

Estimation of the ARDL models

The estimated ARDL models provide insights into the short and long run relationships between international resources and each of the measures of socioeconomic development. The results are summarized in table 4.

Table 4: ARDL short and long run estimates

Dependent Variable: PHC				
Sample: 1980 2018				
Short run form				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
D(PHC(-1))	-0.439216	0.214570	-2.046957	0.0518
D(PHC(-2))	-0.677416	0.234712	-2.886157	0.0081
D(MGR)	-0.250226	0.063242	-3.956642	0.0015
D(MTD)	-0.479409	0.269738	-1.777314	0.0882
D(TCG)	-7.684245	17.061207	-0.450393	0.6565
D(TCG(-1))	-13.425803	5.463122	-2.457533	0.0195
D(TCG(-2))	-27.612791	14.531627	-1.900186	0.0695
D(BLD)	-0.778093	0.333181	-2.335345	0.0282
CointEq(-1)	-0.365064	0.105366	-3.464714	0.0020
Long run form				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
MGR	7.000326	2.681934	2.610178	0.0153
MTD	-1.313220	0.760844	-1.726005	0.0972
TCG	83.186489	38.253628	2.174604	0.0397
BLD	-2.131388	0.954342	-2.233360	0.0351
C	54.015092	10.707068	5.044807	0.0000
R-squared	0.839725		Prob.(F-stat.)	0.0000

Source: Author's computation based on data adapted from NBS, World Bank World WDI, World Bank, International Debt Statistics and IMF International Financial Statistics.

Table 4.a: Post-estimation diagnostics tests results

Test type	**Test statistic**	**Probability value**
Breusch-Godfrey serial correlation LM test	Chi-Square stat. (0.9389)	0.6253
ARCH test	Chi-Square stat. (1.0294)	0.3103
Ramsey RESET Test	F-statistic (0.6534)	0.5301

Source: Author's computation from the ARDL result in table 4

The outcome of the estimated regression model shows that contemporaneous values of migrant remittances and bilateral debt are negatively linked to poverty headcount in the short run. As observed from the coefficient, 1 percent increase in migrants remittances leads to 0.250 percent reduction in poverty rate whereas a percentage increase in bilateral debt leads to 0.778 percent in poverty rate. These findings are accordance with the results of Ewubare & Okpoi (2018) for Nigeria, Yoshino, Taghizadeh-Hesary & Otsuka (2017) for 10 Asian developing economies and Ellyne & Mahlalela (2017) for 32 African countries.

Similarly, it was found that lag 1 of technical cooperation grants has significant negative relationship with poverty rate in the short run. The regression estimates indicate that technical cooperation grant has the most negative effect of poverty rate given that 1 percent increase the former induces 13.425 percent in the latter. The implication of this finding is that grant is very effective in reducing the population in poverty. However, multilateral debt does not significantly influence poverty headcount in the short run. The error correction coefficient is estimated as -0.365 with probability value of 0.0020. This authenticates the cointegration result and reveals that the model adjusts to long run equilibrium position at a speed of 51.53 percent.

The result further reveals that only bilateral debt has significant negative effects on poverty headcount in the long run while multilateral debt is statistically insignificant in influencing poverty headcount. The negative effect of bilateral debt on poverty is in line with the findings of Okon & Monday (2017). With a percentage increase in bilateral debt, poverty headcount, on the average, reduces by about 5.745 percent. The implication of this finding is that availability of credits to Nigeria from other countries of the world shapes the process socioeconomic development through poverty reduction. The result further reveals that migrant remittances and technical cooperation grants positively and significantly influenced poverty rate. The F-test result provides enough evidence for the joint importance of the regressors in influencing the level of poverty. The coefficient of determination (0.8397) further indicates that explanatory variables are accountable for about 83.97 percent variations in poverty headcount. This indicates that the model offers impressive statistical evidence for its reliability for both policy and forecast.

Granger Causality Test

The test for the direction of causality among the variables was examined using granger causality test. The results are summarized in Table 5.

Table 5: VAR Granger causality test results

Null Hypothesis (H$_0$): No causality in the series

Series: PHC MGR MTD BLD

Direction of causality	Chi-square (X^2) Statistic	P-value	Inference
MGR $\rightarrow$ PHC	11.135	0.0488	Reject H$_0$
PHC$\rightarrow$ MGR	13.505	0.0191	Reject H$_0$
MTD $\rightarrow$ PHC	2.151	0.827	Accept H$_0$
PHC$\rightarrow$ MTD	12.298	0.0309	Reject H$_0$
TCG$\rightarrow$ PHC	6.683	0.2453	Accept H$_0$
PHC$\rightarrow$ TCG	6.134	0.2934	Reject H$_0$
BLD$\rightarrow$ PHC	3.756	0.5845	Accept H$_0$
PCG$\rightarrow$BLD	5.055	0.4092	Accept H$_0$
MGR, MTD, TCG and BLD $\rightarrow$PHC	32.041	0.0429	Reject H$_0$

Source: Author's computation based on data adapted from NBS, World Bank World WDI, World Bank, International Debt Statistics and IMF International Financial Statistics.

Note: $\rightarrow$ shows direction of causality

The results of the causal relation between international resources and poverty provide evidence of bidirectional causality between remittances and poverty. This result is line with the finding of Hatemi-J & Uddin (2014) for in Bangladesh. The implication of this result is that inflows of remittances provides pathway for forecasting future changes in poverty rate in Nigeria. There is evidence of unidirectional causality from poverty rate to technical grants. This finding is in support of the results of Mahembe & Mbaya Odhiambo (2019) for developing countries. More so, it was observed that joint causality flows from the heterogeneous international resources measures to poverty. On balance, the explanatory variables jointly possess the predictive power for poverty headcount over the study period.

CONCLUSION

This study offers deeper and country specific insights into the dynamic relationship between international resources and poverty incidence in Nigeria. Following the heterogeneous nature of international resources, the various sources through which they are available to Nigeria, such as remittances, debt, aid and grants amongst others were covered. Thus, their short and long run individual and collective effects as well as causal relations on poverty headcount was estimated using ARDL and Granger causality test in addition to unit root and bounds cointegration tests. Owing to the findings, it is concluded that migrants' remittances, technical cooperation grants

and bilateral debt are important for reduction in the poverty level. Overall, this paper concludes that the heterogeneous sources through which international resources reach the Nigerian economy are, on balance, helpful for addressing the problem of poverty in Nigeria. Given, the findings, the study recommends that policy makers should ensure that fiscal policy framework provides room for inflows of international resources in order to promote fiscal sustainability while allowing for a paradigm shift in the resource allocation to sectors with high potentials for poverty reduction.

Further studies should expand and examine other social development effects of cross-border capital with a focus on inclusive and equitable education, longevity and other aspects of healthcare development.

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