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Effect Of Cross-Border Payments On Economic Development In Nigeria

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ABSTRACT:
There is a growing recognition of the dynamics of human and capital migration in developing countries, which have accentuated debates on the nexus and effect of cross-border payments on economic development, especially in Sub-Saharan African economies. In response to this current interest, this paper evaluated the effects of remittances on the economic development of Nigeria using data spanning from 1981 to 2022. This study finds theoretical leaning from the Keynesian Harrod-Domar model (HDM), which posits that economic growth depends on the amount of capital available for investment and that the rate of capital accumulation is proportional to the savings rate. The GDP per capita was used to measure economic development, while remittances were Given the inclusion of financial development, real exchange rate, and financial openness as moderating variables, it was observed that cross-border payments generally exerted varying effects on economic development. The study showed that personal remittances had a positive and statistically significant on the economic development of Nigeria. Also, the compensation to employees had a negative and non-significant effect on the economic development of Nigeria. However, personal transfers were found to be the dominant aspect of remittances that exerted significant effects on economic development. Based on the findings, it was recommended that the governments of Nigeria create and ensure a favorable investment climate for remittances to be invested by initiating policies that subsidize the cost of remittance transfers to the recipient and introducing tax exemption for remittance income.

KEYWORDS: Cross border, Harrod Domar Model, GDP, IMF (BPM6), Personal Transfers, Compensation to Employees, Economic Development

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INTRODUCTION

The diaspora's contributions to the advancement of their home nations have been viewed as essential in the current period largely characterized by rising global human and capital flows. In Sub-Saharan Africa (SSA), where more than 40% of the population still lives in poverty, the significance of diaspora in preserving local

livelihoods and promoting national development is more apparent than everywhere else (World Bank, 2020).

Available statistics show that global remittance flows have surged over the past three decades. It is anticipated that they will continue to grow in all regions and main recipient nations, reaching a global total of $726.55 billion in 2022 (Biyase and Naidoo, 2023 2022, matching the region's population growth (Qirui & Samimi, 2022).

The two main components of personal cross-border payments are "personal transfers" and "compensation of employees" in the balance of payments (BPM6) framework (World Bank, 2023a). The current account includes both of these two similar components. "Personal transfers," a component in the Balance of Payments (BPM6), provide a more comprehensive definition of employee cross-border payments (Gaiya, 2020). Any recent cash or in-kind transfers between residents and nonresidents are considered personal transfers, regardless of the sender's income source or the household relationship.

HYPOTHESES DEVELOPMENT

Cross-border payments have become a prominent source of foreign capital for developing countries across the globe. This has sparked scholarly and political discussions over how cross-border payments affect development. Studies supporting optimistic and pessimistic theories represent two distinct empirical strands that split opinions. According to the optimistic theory, remittances help developing countries accelerate economic development and poverty reduction by providing investible funds (Maune & Matanda, 2022; Zeynep, 2022). The pessimist theoretical view maintains that large remittance inflows are connected with the "Dutch Disease" effect, whereby large remittance inflows, mostly into weak economies, are not into economic productive activities (Aliu & Ogbeide-Osaretin, 2022; Chomen et al., 2022). The disagreements between the optimistic and pessimistic theories further create a controversy in the literature, which is a driving force of this study. Consequently, the paper hypothesizes that:

i. Personal transfers have no significant effect on gross domestic product per capita in Nigeria,
ii. Compensation of employees has no significant effect on gross domestic product per capita in Nigeria

According to studies that support the pessimists, recipients of remittances in countries in SSA frequently depend on them and refuse to work because they believe their requirements will be covered by remittances in the future, thus influencing labor supply (Kayani, 2022; Umar, 2021). Others, in line with the pessimistic ideology, contend that remittances have a negligible impact on the economic growth of developing nations (Oyelami, 2019; Naceur et al., 2019). IMF (2021) reported that despite massive inflows of remittances to SSA, there is no evidence of economic development in the region. Taiwo (2020), Gatsi (2020), Aliu and Ogbeide-Osartin (2019), and Mwita (2018) affirmed that remittances to most African countries contribute little to economic enhancement because it creates a culture of overreliance that hampers productivity. Similarly, Chomen et al. (2022) showed that remittances did not drive economic advancement because they only increased consumption of non-tradeable goods like accommodation, and local transportation, among others, thus affecting features of the domestic economy by mounting inflationary pressure, reducing the purchasing power of the local currency and low productivity for exports thus inhibiting the remittance-receiving country's economic competitiveness and development. These scenarios have been confirmed in Nigeria, South Africa, and Ghana (Anetor, 2019; Nyasha & Odhiambo, 2021; Tandoh et al., 2022).

On the other hand, studies such as Lawal et al. (2022), Bellaqa and Jusifi (2020), and Ari (2020) argued that there is a possible causal relationship between remittances and economic development because people in diaspora would like to send money to improve the businesses of their relatives while Uddin et al (2020) stated that this is much like when the level of economic development become attractive to the locals in diaspora. These reasons support the necessity for an empirical investigation of the effect of cross-border remittances on the economic development of Nigeria.

LITERATURE REVIEW

Biyase and Naidoo (2023) hypothesized that the relationship between cross-border payments and financial development may be asymmetric in South Africa. The study utilized the Non-linear Autoregressive Model (NARDL) and the linear Autoregressive Distributed Lag (ARDL) to capture the potential for an asymmetrical relationship. Using NARDL, an attempt was made to estimate the positive and negative partial sum decompositions of changes in cross-border payments for both the short-run and long-run asymmetric responses of financial development. The NARDL estimates suggested a positive and negative

shock of cross-border payments on financial development over time. The ARDL results showed cross-border payments' positive and significant impact on financial development.

Lawal et al. (2022) used data from 1980 to 2018 for 10 chosen African economies to examine the relationship between economic growth and exchange rate, remittances, trade, and agricultural output. The Croux and Reusens frequency domain and the Dumitrescu and Hurlin time-domain Granger causality tests were used. The time domain test's findings revealed only a causal relationship between economic growth and the exchange rate and trade; there was no discernible connection between economic growth and cross-border payments or agricultural output. The results of our investigation, which used a frequency domain model, revealed a temporary and permanent causal relationship between economic growth and exchange rate, trade, agriculture, and remittances.

Also, Oyegoke and Amali (2022) empirically estimated the effects of international labor emigration and cross-border payments on economic development in Nigeria, using annual time series data for 1977-2021. The Ordinary Least Squares (OLS) were employed to analyze the model. Findings suggested a significant positive effect on economic development in Nigeria. Therefore, it was concluded that labour migration was an alternative source of income in Nigeria that positively enhanced economic development, hence, should not be discouraged (ceteris paribus).

Chomen, Danquah, and Chen (2022) used the Pool Mean Group (PMG) estimate method to analyze the short- and long-term effects of foreign aid and cross-border payments on economic growth from 1980 to 2019 in a panel of 31 African economies. Based on the results of the Hausman test, which supports its suitability, the PMG was used. The regressors and the regressand in the model had a long-term connection. Foreign aid and cross-border payments had short-term adverse effects on economic growth, but these effects were statistically negligible. On the other hand, in the long run, cross-border payments had a positive and considerable impact on economic growth. In contrast, foreign aid had a favorable but little impact.

A study conducted in Ghana by Tandoh et al. (2022) examined the impact of remittance inflows on economic growth and found that they did not directly improve Ghana's economy.

To determine whether cross-border payments and financial development - including its sub-components of access, depth, and efficiency—contribute to the equitization of incomes throughout the continent, Ofori et al. (2022) examined macrodata. The survey included 42 African economies on the panel. Substantial proof that the dynamic GMM estimator presented cross-border payments brought on the growth in income inequality in Africa.

Also, Gniniguè and Ali (2022) examined the effects of migrant cross-border payments(MRs) on economic growth with a focus on the ECOWAS region, focusing on the influence of digitalization. With data from 1980 to 2017, simultaneous equations and seemingly unrelated regression (SUR) methods are applied. The results indicated that the effects of MRs on economic growth in ECOWAS countries could not be transmitted through digitization. Digitalization, however, did not play a role in WAEMU (a sub-regional bloc of ECOWAS), where MRs impacted economic growth. Nevertheless, cross-border payments support consumption, investment, and human capital growth in WAEMU nations.

Zeynep (2022) concentrated on the effects of foreign cross-border payments on poverty in wealthy economic environments around the world using a thorough evaluation of the research. Several pooled OLS, dummy variable least squares (DVLS), and three-stage least squares (3SLS) models were built after thoroughly analyzing the pertinent literature. The empirical findings revealed a statistically significant relationship between poverty and GDP per capita, income inequality, and international remittances. The percentage of the population whose cost of living was less than $1.90 per person per day decreased from 0.7% to 1.7%, with a 10% increase in international remittances.

Again, Khan et al. (2022) examined the relationship between economic growth, poverty, inequality, remittances, and foreign aid in the Middle East and North Africa (MENA) countries using panel data methods from 1991 to 2019. The study focused on the MENA region due to the rise in labor immigration and significant foreign aid. The empirical findings revealed that remittances, foreign aid, and economic growth significantly reduced the MENA region's poverty levels.

Pal et al. (2022) used FMOLS estimates, random effects, and fixed effects to examine the effects of remittance inflows on economic growth, unemployment, and income inequality for high-, low-, and middle-income countries between 1991 and 2020. The results revealed that remittance inflows fueled economic growth in high-income and low- and middle-income nations.

Saptono et al. (2022) examined, using data from 65 low- and middle-income countries, the contemporaneous and lagged effects of foreign cross-border payments on poverty alleviation between 2002 and 2016. This study shows that foreign cross-border payments' GDP per capita generally significantly ameliorates poverty through 2SLS regression analysis. The poverty headcount ratio decreased by an average of 10 percentage points per day to USD 1.90, the poverty gap ratio decreased by 4.8 percentage points to USD 1.90 per day, and the poverty gap ratio decreased by 6.7 percentage points to USD 3.20 per day in response to an increase in cross-border payments of 10 percentage points on average. The inclusion of political elements in the model did not weaken this finding. Furthermore, the contemporaneous effects of overseas cross-border payments are substantially more significant than their lagged effects, according to calculations using the system-generalized method of moments (SGMM). This suggested that rather than having a trickle-down effect on other community members, most of the poverty-reduction potential of cross-border payments comes from their direct impact on raising the wealth index of recipient households.

In a thesis, Adedoyin (2021) focused on the SSA region and conducted an exploratory study on the connection between cross-border payments and financial inclusion in SSA. The study aimed to understand better and suggest solutions for increasing financial inclusion in the SSA region. The study's findings demonstrated that financial inclusion was predicted to support SSA's economic growth. Increased financial inclusion encourages technical, infrastructural, and literacy growth. As a result, more migrants would use the financial system to send money to their family members back home. It was anticipated that using the official channel for remittance transmission would increase the accuracy of the data on remittance inflow to the SSA region.

Again, using data from 2004 to 2018, Umar (2021) looked at the relationship between remittances, institutions, and human development (HD) in SSA nations. When there was a correlation between the explanatory variable and the error term, typically associated with remittances, it also controlled for omitted variable bias, unobserved panel heterogeneity, and measurement errors in the estimation. The analysis used a dynamic model, a system Generalized Method of Moments (Sys-GMM), as this approach controls for the endogeneity of the lagged dependent variable. According to the data, cross-border payments favor and considerably impact HD in SSA. The outcomes also showed a substitution relationship between institutions and cross-border payments promoting HD. According to the estimates, HD is promoted by cross-border payments in nations with weak institutional environments. The results also showed that remittances' marginal importance as a source of cash for HD declines in nations with advanced institutions.

Okeke (2021) focused on the impact of international migrant cross-border payments on the unemployment rate in Nigeria, bearing in mind that reducing the unemployment rate is one of the macroeconomic objectives of every country. An unemployment rate model was formulated, and the unit root test was first applied to the data set. The time series were stationary, and the two-stage least squares (2SLS) method was used to identify cross-border payments' impact on Nigeria's unemployment rate. Findings revealed that international cross-border payments affect unemployment negatively, and a unidirectional causality existed between international migrant cross-border payments and unemployment without feedback.

A study by Fowowe and Shuaibu (2021) looked empirically at how cross-border payments affect poverty in Nigeria. A calculable general equilibrium model is used to calibrate policy scenarios reflecting changes in remittances. The results show that while a positive remittance shock decreased poverty, a negative remittance shock increased it. Remittance shocks impacted poverty via both the income and consumption channels, with the impact on the latter being more noticeable. The findings demonstrated how cross-border payments help to reduce poverty in Nigeria by leveling out consumption. Thus, the results supported the need for regulations that help cross-border payments flow more consistently and affordably.

Again, Taiwo (2020) examined the effects of remittance flows on economic growth in Africa while taking efforts to attract cross-border payments into account in examining African nations. With data from 1975 to 2015, the effect of cross-border payments was assessed using static and dynamic panel methodologies. Cross-border payments do not affect economic growth in Africa, according to the study. This result was reached

based on measurement concerns, internal circumstances, labor market consequences, and the impact of cross-border payments on tradeable sectors.

In Turkey, using a co-integration test based on the ARDL approach, Karamelikli and Bayar (2015) studied the link between economic growth, remittances, FDI inflows, and gross domestic savings in Turkey from 1974 to 2013. According to the research, remittances, foreign direct investment, and gross domestic savings all favorably affected economic growth. The report advised that developing and less developed nations should draw cross-border payments and FDI inflows to achieve sustainable economic growth.

The cross-border remittances may be used for consumption. As a result, the impact on economic growth could be negative. The recipient regards the cross-border remittances as a substitution for labor income, and they increase their leisure time and affect economic activity negatively. Also, exchange rate appreciation could cause a negative impact on economic growth which may decrease the competitiveness of a country and decrease the export and increase the import bill. Remittance is a component of capital flow to a country. The direct and indirect impact of cross-border remittances and economic growth must be properly flogged. This could be explored within the conventional neoclassical growth framework.

The study on this area of research is very scanty. This area of research needs to be thoroughly studied, especially for the Nigerian economy. This study will provide evidence of how much the remittances can spur economic growth. Bichaka et al. (2008) stated that their study shows that Remittances and the Growth of the Nigerian Economy remittances have statistically significant contributions to both the current level of GDP and the economic growth rate of a nation.

Cross-border remittances are also widely viewed as compensatory transfers between family members who lost skilled workers due to migration. Stahl and Arnold (1986) believed that using remittances for consumption may positively affect growth because of their possible multiplier effect. Remittances respond to investment opportunities in the home country as much as charitable or insurance motives. Many migrants invest their savings in their country's small businesses, real estate, or other assets. Remittances are said to be profit-driven and increase when economic conditions improve back home. Some authors believe that it is difficult to predict the direction of the impact of remittances on the economic growth of SSA economies.

Theoretical Framework

Various economic models underpin the different routes and mechanisms by which economies can accomplish economic growth and development. For instance, the Solow growth model contends that factor deepening and total factor productivity growth (TFP) are the two primary sources of economic development. As a result, technology—the factor that inhibits growth—is a global public good accessible to all nations, opening the door to the possibility of long-term universal income convergence (Solow, 1957; De Janvry et al., 2016). On the other hand, endogenous growth models contend that due to rising returns to scale in aggregate output, countries with higher initial technology levels will grow faster than countries with lower initial technology levels, with the likely outcome being conditional convergence rather than universal convergence of countries (Romer, 1990; De Janvry et al., 2016). The Keynesian Harrod-Domar model was used in this study to explain how international capital flows (of which remittances are a component) enhance a country's economic growth and development.

The Keynesian Harrod-Domar model (HDM)

The Harrod-Domar model is a general theory of economic development developed in the years following the Great Depression. The model was widely used and popularized when economic development's primary goal was accelerating economic growth and structural changes (De Janvry&Sadoulet, 2016). The model further provides two networks via which the degree of capital accumulation is determined and explicitly emphasizes the significance of capital accumulation in maintaining sustainable development. It emphasizes that technology and savings drive capital accumulation (Domar, 1957).

Initially, this theory focused on how investments and savings help people build up their capital because evidence from the past indicates that less developed nations have lower savings rates than more developed nations, which could be a factor in the economic stagnation of many developing nations. Hence, studies have emerged incorporating foreign remittances as a substitute for domestic savings and investments. Also, a pertinent question that is begging to be answered in this regard is: Can international remittances be the solution that will help solve this problem by augmenting insufficient domestic savings to bring about economic growth and development in these economies and ultimately enable countries to achieve income

convergence in the long run? If domestic savings are insufficient to induce an appropriate level of desired savings in the economy. The Harrod-Domar growth model indicates that "YES" is the appropriate response to this query.

To comprehend the potential role of international remittances in the growth process, specifically the mechanisms by which they can supplement insufficient domestic savings to achieve an ideal savings rate in the economy, it is necessary first to examine the underlying assumptions of the Keynesian Harrod-Domar growth model.

The model makes five fundamental assumptions (Domar, 1957):

i. The model presupposes a closed economic structure; thus, there will not be any international commerce or foreign direct investment. This implies that all economic investments must come from household and business savings. This suggests that I=sY, where I represent investments and sY represents savings as a percentage of GDP.
ii. The proportions of the production elements labor (L) and capital (K) are fixed. Therefore, there are no opportunities for input replacement.
iii. Capital is a scarce resource and a growth inhibitor. Since there is abundant input "labor," growth is not constrained by it. There is a constant return to scale for each factor of production, namely capital and labor.
iv. The production function in the Leontief fixed-proportions technology, where K=K/Y=ICOR (the increment capital-output ratio), is such that a fixed amount of extra capital (K) results in a fixed proportionate increment in output (Y). The less productive the technology in use, the greater the ICOR.

Three equations make up the model's structural form:

a) The increment capital-output ratio (ICOR) concept led to the following aggregate production function: $Y = \frac{1}{K}\Delta K$
b) A savings function: $S = sY$
c) A financial function $I \equiv \Delta K + \delta K = S$, where is the capital depreciation rate.
These three equations can be used to derive the endogenous result of interest: the economic growth rate.

The model will be specified in its reduced version as follows:

$$Y = \frac{\Delta \dot{Y}}{Y} = \frac{1}{k}\frac{\Delta K}{Y} = \frac{1}{k}\frac{S - \delta K}{Y} = \frac{s}{k} - \frac{k\delta}{k} = \frac{s}{k} - \delta$$

This general growth model's economic interpretation states that the rate of economic growth ((Y)) rises with the rate of savings (s) and falls with the ICOR (k) and the rate of depreciation of capital inputs (k). If the fraction of savings is insufficient for s/k to exceed the capital depreciation rate, there could be zero or even negative growth.

Furthermore, the development was derived in per capital income $y = \frac{Y}{P.}$ Taking the logarithms gives $lny = lnY - lnP$, and taking the derivate of the logarithms concerning time gives the rate of growth of per capita income:

$$\dot{y} = \dot{Y} - \dot{P} = \frac{s}{k} - (\delta + n)$$

As a result, the rate of growth in the per capita income model specification now specifies that in a time of low domestic savings and investment, foreign remittances influence a country's rise in per capita income.

The role of international remittances and the big push in the HDM

Remittances from abroad can be a crucial instrument to boost inadequate domestic savings. A remittance function is required to include migrant remittances in the Harrod-Domar growth model. Let $Rem = remY$. We attribute remittances as a share of gross domestic product and add it to domestic savings (sY). The addition of remittances and domestic savings $(sY + RemY)$ gives the economy's growth rate equal to

$Y = \left(s + \frac{Rem}{k}\right) - \delta$ and the growth rate in per capita income equal to $\dot{y} = \left(s + \frac{\dot{Rem}}{k}\right) - \delta + n$.

Furthermore, remittances can finance the gap between desirable savings (s^*) and actual domestic savings (s) to attain a preferred rate of per capita income growth ($\dot{y^*}$). The financing gap provided by international remittances is the $Rem = s^* - s$. The impact of remittances from abroad will start a "big push" effect by first accelerating the availability of investible funds in the economy, which would then spur financial openness, financial development, economic expansion, and increases in per capita income (Shrestha &Chowdhury, 2005). Also, Sibindi (2014) suggested that exchange rate stability is essential in ensuring the BIG PUSH under the neoclassical theory. This might slow down the rate of poverty and help impoverished countries achieve income convergence (De Janvry&Sadoulet, 2016).

According to the Harrod-Domar growth model framework, foreign aid may have impacts similar to remittances; nevertheless, it is only likely to spur economic growth if and only if it is used for investments (Domar, 1957). This theory explains why so many impoverished nations that receive a lot of aid are still underperforming. One feasible argument is the absence of fundamental growth-promoting factors in these economies, such as weak institutions and governments, openness, and inequality. These elements could lead to misusing foreign aid and failing to achieve its intended goals, as the Keynesian Harrod-Domar growth model outlined. Unlike foreign aid, remittances are not misappropriated; instead, they efficiently reach their intended recipients and are frequently used for consumption and investments in improving human capital (education and health), which eventually boosts GDP per capita. The impact is greater in nations with per capita incomes below $1200 (Ziesemer, 2016).

METHODOLOGY

This study applied *an ex post facto* design because it investigated the effect of cross-border payments on economic development in retrospect, specifically from 1981 to 2022.

To empirically explore the effect of cross-border payments on economic development in Nigeria, the Agyei (2021) model was used as a guide. The functional form of the model is as specified in equation (1):

$$GDPPC = F(REM, ODA, GCF, CPI) \quad . \quad (1)$$

The mathematical form of equation 3.1 is specified in equation (2):

$$GDPPC = \beta_0 + \beta_1(REM) + \beta_2(ODA) + \beta_3(GCF) + \beta_4(CPI) \quad (2)$$

The econometric form of equation 3.2 is depicted by equation (3):

$$GDPPC = \beta_0 + \beta_1(REM) + \beta_2(ODA) + \beta_3(GCF) + \beta_4(CPI) + \varepsilon \quad (3)$$

Where,
GDPC = GDP per capita
REM = aggregate personal cross-border payments to GDP ratio
ODA = official development assistance to GDP ratio
CPI = consumer price index

For the current study, Eqn. (1) was modified by using the two components of aggregate personal cross-border payments (personal transfers and compensation of employees). Also, in line with prior studies such as Ekong and Asuquo (2022) and Ofori et al. (2022), who had earlier observed the moderating effects of some macroeconomic factors, control variables such as financial development, real exchange rate dynamics, and financial openness were introduced into the model. Consequently, the model that was used in the final analysis is stated thus:

$$GDPPCG = \beta_0 + \beta_1(PTRF)_{it} + \beta_2(CPEP)_{it} + \beta_3(FNDV)_{it} + \beta_4(REXV)_{it} + \beta_5(FNOP)_{it} + \varepsilon \quad (4)$$

GDPPCG = GDP per capita growth rate
PTRF = personal transfers (expressed as a percentage of nominal GDP)
CPEP = compensation of employees (expressed as a percentage of nominal GDP)
FNDV = financial development (private credit expressed as a percentage of nominal GDP)
REXV = real exchange rate volatility
FNOP = financial openness (capital inflows as a percentage of nominal GDP)
β_0 = Constant parameter

$\beta_1 - \beta_5$ = Coefficient of the independent variables
ε = Stochastic term
t = time period
i = Country i starting from 1 to 3

The Autoregressive Distributed Lag (ARDL) model was employed as an analytical tool.

RESULTS AND DICUSSIONS

The summary statistics of the dataset used for the study were presented in Tables 1

Table1: Descriptive statistic of data

	GDPPCG	PTRF	CPEP	FNDV	REX	FNOP
Panel A: Nigeria						
Mean	0.389048	2.521905	3.568333	16.80214	-9.635000	1.440092
Median	1.000000	1.555000	1.655000	13.89000	2.340000	1.078745
Maximum	12.28000	18.03000	9.100000	27.38000	45.90000	5.790847
Minimum	-15.70000	0.510000	0.080000	9.060000	-294.5400	-0.039128
Std. Dev.	5.174960	3.389808	2.428804	6.060426	59.13479	1.242847
Skewness	-0.894257	0.444200	1.833820	0.449726	-3.768479	1.737501
Kurtosis	4.915530	1.896040	5.064290	1.508639	17.12812	6.157161
Jarque-Bera	12.01907	3.513968	30.99753	5.308049	448.7165	38.57578
Probability	0.002455	0.172565	0.000000	0.070367	0.000000	0.000000
Observations	42	42	42	42	42	42

Stationarity Tests

Before the ARDL estimation, the variables' integration order was established. Stationarity is exhibited when the ADF and PP t-statistics are greater than the McKinnon critical values at 1% or 5%. Alternatively, a variable is said to be stationary when its p-value is less than 0.05. The ADF and PP unit root test results are presented in Table 2.

The results of the ADF and PP show that the stationarity of the variables is mixed. Looking at the tests, the variables are either integrated at level (I(0)) or first difference I(1)) and no variable is integrated of order two (I(2)). This result makes the ARDL (Autoregressive Distributed Lag) approach to co-integration developed by Pesaran et al. (2001) most appropriate to estimate the model. The ARDL is applicable regardless of whether the variables are purely zero-order integrated (I(0)), first-order integrated (I(1)), or mutually co-integrated. Again, it can overcome correlation and endogeneity problems in the variables under study. Also, the ARDL approach can estimate the parameters using a single equation rather than a vector approach, where a system of equations is required. It is also more efficient and robust for small samples than other techniques.

Table 2: Unit root test results

Variable	ADF test			PP test		
	I(0)	I(1)	Remark	I(0)	I(1)	Remark
Panel A: Nigeria						
GDPPCG	-2.963362 {0.1548}	-10.69064 {0.0000}	Non-stationary	-4.209089 {0.0097}	-	Stationary
PTRF	-4.421468 {0.0057}	-	Stationary	-2.831311 {0.1949}	-12.46778 {0.0000}	Non-stationary
CPEP	-4.463425 {0.0050}	-	Stationary	-4.667689 {0.0029}	-	Stationary
FNDV	-2.913976 {0.1691}	-5.173411 {0.0007}	Non-stationary	-2.072378 {0.5453}	-8.188913 {0.0000}	Non-stationary
EXRV	-5.750541 {0.0001}	-	Stationary	-5.858635 {0.0001}	-	Stationary
FNOP	-3.802244 {0.0265}	-	Stationary	-3.695544 (0.0339}	-	Stationary

Source: Author's computations using EViews 10.0

In general, since none of the variables were stationary at the second difference, that is, I(2), and the order of integration was a mixture of I(0) and I(1), the ARDL model was estimated.

Test For Multicollinearity

The test for multicollinearity was carried out to ensure that the independent variables were not highly correlated. This test was carried out using the variance inflation factor (VIF), which measures how much an explanatory variable's dynamics (variance) is inflated or influenced by its interaction with other explanatory variables. In general, if the VIF values fall between 5 and 10, it shows evidence of high correlation. However, if the VIF is greater than 10, multicollinearity becomes a significant problem (Sheater, 2009).

Table 3: Variance inflation factor (VIF)

Variable	Nigeria
GDPPCG	0.000470
PTRF	0.012315
CPEP	0.001760
FNDV	0.005993
EXRV	0.001892
FNOP	0.009706

Source: Author's computations using EViews 10.0

As displayed in Table 4.2, since VIF values for the independent variables across all models were below five, it was concluded that there was a low risk of multicollinearity in the specified model. Hence, all the explanatory variables were retained in the model.

Hypotheses Testing

HO_1: Personal transfers have no significant effect on gross domestic product per capita in Nigeria,
HA_1: Personal transfers have a significant effect on gross domestic product per capita in Nigeria,
The probability values associated with the long-run estimated coefficient of PTRF were 0.0406 < 0.05 for Nigeria and 0.0000 < 0.05. This implied that the effect of PTRF on Nigeria's GDP per capita growth rate was statistically significant. Hence, the null hypothesis (HO_1) was rejected in favor of the alternative hypothesis (HA_1).
HO_2: Compensation of employees has no significant effect on gross domestic product per capita in Nigeria.
HA_2: Compensation of employees has a significant effect on gross domestic product per capita in Nigeria.
The probability values of CPEP for Nigeria were 0.0749 > 0.05. This indicates that the effect of CPEP on Nigeria's GDP per capita growth rate was not statistically significant. As such, the null hypothesis (HO_2) was accepted.

Discussion

The long-run results obtained for this study were discussed based on their conformity with *a priori* expectation (expected outcome) and prior empirical studies. The long-run estimates of the ARDL model were further summarized in Table 4to aid the understanding of the discussions presented in this section.

Table 4: Summary of economic *a priori* test for the ARDL models

		Nigeria	
Sign →	Expected	Observed	Significant
PTRF	+	-	Yes
CPEP	+	-	No
FNDV	+	+	No
EXRV	-	+	No
FNOP	+	-	No

Source: Extracted from Tables 2

From Table 4, the long-run effect of cross-border payments on economic development varied. This was attributed to the fact that the studies were carried out for different countries at different times using diverse methodological approaches. Also, the measure of cross-border payments can cause differing results as few studies used the IMF BOP (BPM6) while many others were based on the aggregate of remittances. Again, the measure of economic development differed in the studies as some used the monetary value of GDP per capita while others used the growth rate of GDP per capita. The findings of this study are discussed sequentially in line with the objectives.

Effect of personal transfers on the gross domestic product per capita in Nigeria

The effect of PTRF was significant which implied that PTRF had a considerable effect on GDP per capita in Nigeria. Regarding the effect of personal transfers (PTRF), it was observed that the *a priori* expectation of a positive coefficient was not the case for Nigeria was found to be positive. For Nigeria, this implied that the Harrod-Domar model that foreign capital inflows enhance domestic savings, investments, and economic development. Also, the findings for Nigeria agree with the developmental pessimistic theory that cross-border payments do not promote sustainable development. A plausible reason for this could be that beneficiaries of cross-border payments in Nigeria used them for consumables. In contrast, the beneficiaries in other countries invested them in economically productive activities. The negative and significant coefficient of PTRF observed for Nigeria agrees with Aliu and Ogbeide-Osaretin (2022), Nyasha and Odhiambo (2021);

Effect of compensation of employees on gross domestic product per capita of Nigeria

Again, it was realized that compensation to employees (CPEP), which was expected to be positive, turned out negative for Nigeria. This meant that CPEP appeared to have a diminishing effect on economic development in Nigeria. Had the converse been the case, then it could be averred that it could be attributed to the fact that such countries have a substantial number of nonresident workers who earn money from their parent companies due to their stable economies compared to Nigeria.

CONCLUSION AND RECOMMENDATIONS

The study revealed that remittances have a varying effect on Nigeria's economic development. The paper found that personal transfers significantly affected Nigeria's economic development. This indicates that well-invested cross-border payments would yield economic development and prosperity for Nigeria. Also, the study observed that compensation to employees in Nigeria had a negative but statistically insignificant effect on economic development.

The following recommendations were proposed based on the findings from the study:

a) Following the finding that personal transfers had a statistically significant effect on Nigeria's economic development, it was recommended that the Central Bank of Nigeria continue to encourage personal transfers. This can be done by assisting money transfer institutions in developing reliable, rapid, and low-cost remittance transaction support.
b) With the observation that compensation to employees exerted an insignificant effect on Nigeria's economic development, it was recommended that, for the sake of national development, governments should attract more nonresident employees who would invest in the country by enabling a business-friendly environment and ensuring better laws to boost the confidence of local investors to tap cross-border payments from abroad.
c) Remittance inflows through compensation to employees need to be invested in productive sectors. Without such investments, the inflows cannot play any significant role in the economy. Hence, governments will have to expand the financial sector and make the process of transferring cross-border payments to home countries much easier and less expensive. This will enable the economy to capture remittance inflows that come in through informal channels, which are usually difficult to capture officially.
d) There is a need to strategically harness the contribution of workers' remittances by ensuring that the money is spent on locally produced goods instead of imported goods, thereby ensuring a positive relationship with economic growth in Nigeria.

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