

CHAPTER NINE

REMITTANCES PASS-THROUGH TO DOMESTIC INVESTMENT IN NIGERIA

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Abstract

Despite the substantial inflow of remittances into Nigeria, the understanding of their impact on domestic investment remains limited. This study addresses this gap by examining the influence of remittance inflows on domestic investment in Nigeria, particularly through the savings channel. The study adopted the self-interest theory of remittances. The study utilized quarterly data obtained from the CBN statistical bulletin from 1986Q1 to 2022Q4, and a structural vector autoregression (SVAR) model was employed for analysis. The findings revealed that remittances had a negative and statistically insignificant effect on savings. Conversely, savings demonstrated a positive and statistically significant effect on domestic investment, highlighting the critical role of savings in driving investment within the economy. On the basis of these findings, the Nigerian government should create a more conducive environment for domestic investment by reducing the bureaucratic obstacles associated with domestic investment, providing tax incentives to investors, and the Nigerian government, through NGOs, should be encouraged to promote financial literacy and the spirit of entrepreneurship among remittance recipients.

Keywords: Domestic Investment, Remittances, Savings, SVAR, Self-Interest

1. Introduction

Globally, remittances have emerged as a vital financial resource for development and are steadily growing in importance. Low-income households depend heavily on remittances as a primary income source, and they form a notable addition to the gross domestic product (GDP) of many developing nations (Hagen-Zanker & Siegel 2007). Extensive evidence suggests that the money sent by emigrants forms a substantial portion of revenue for developing nations around the world, often surpassing official development assistance (ODA) and other traditional channels of stable foreign finances. Private capital flows such as foreign direct investment (FDI) and foreign portfolio investment (FPI) are now overshadowed by remittance inflows to developing economies (Gupta 2005; Singh et al. 2010; Constantinescu & Schiff 2014; World Bank 2014a, 2014b).

Remittances in simple terms refer to those financial and other nonfinancial materials emigrant sent to their families who are residing in their home nations. Remittances represent part of the emigrant earnings from their country of residence, which is sent to their families back home. This is done to support their families financially and materially or to take advantage of an investment opportunity. The World Bank (2022) reported that remittance inflows to Africa from overseas increased by 5.2%, rising from \$50.244 billion to \$53 billion, with Nigeria receiving the largest share.

In many developing countries worldwide, including Africa, there are limited available resources required to fund investment initiatives. This scarcity arises from multiple challenges, including low income, underperforming financial systems, inadequate domestic savings, low tax revenue, macroeconomic instability, political instability, fluctuating exchange rates, and declining foreign exchange earnings. These factors adversely affect investment levels and consequently hinder the economic growth of these countries (Joseph, 2017). As a result, developing nations such as Nigeria have adopted policies aimed at enhancing the inflow of foreign financing, such as the “Naira for Dollar Policy” adopted in 2021 by the Nigerian government, which aims to pay an extra ₦5 on each dollar received as remittance in Nigeria (CBN 2021).

With respect to scholarly considerations, Juthathip (2007), Cheronon (2013), Joseph (2017) and Okeke (2021) argued that the low level of investment that is characterized in many developing economies motivates migrants to send a portion of their earnings back to their home nations. This is done to capitalize on untapped investment opportunities in such nations. According to this view, the motive behind remitting money home is to exploit these untapped investment prospects. These scholars asserted that remittances are drawn to the country of origin due to their low level of investment. Moreover, (Utomi & Ezenekwe 2019) argued that the increased influx of remittances into these countries actually stimulates higher rates of investment.

Investments are typically financed through savings, whether domestic or foreign. While advanced nations rely on domestic savings to fund investments, developing nations often supplement domestic savings with foreign financing. Investment plays a crucial role in determining a country's national income, as it serves as a driver of the country's aggregate demand (Iyoha, 2004). It is widely understood that increasing investment leads to improved productivity, which, in turn, raises living standards by reducing unemployment and poverty levels (Chimobi & Igwe, 2010).

Remittances directly impact the economy through many channels, such as migrant portfolio investment in their home country (investment/business channel). Additionally, it indirectly enhances domestic investment in the economy by stimulating the consumption (household income/consumption channel) of domestically produced goods and services, which leads to increased investment through the employment of additional inputs, raw materials, labor, and production expansion (Aor, Andohol & Doki, 2022)

Data from World Development Indicators (WDIs) revealed that Nigeria was among the top five recipients of remittances globally between 2011 and 2017, accounting for approximately 77% to 82% of total remittance inflows to West Africa. In 2015, Nigeria received a total of \$20.6 billion in remittances, which was higher than that of other developing countries in Africa and other developing nations

worldwide (World Bank 2018). As of 2018, Nigerians abroad remitted a total of \$24.31 billion, marking a 14% increase from the previous year (Pricewater Coopers, 2019). Nigeria remained the second highest beneficiary of remittance inflow in Africa after Egypt, receiving a substantial amount of \$19.48 billion in 2021, followed by Ghana, with \$4.5 billion. These figures exceed the previous estimates by \$3 billion, solidifying Nigeria's position as the second-highest recipient of remittances in Africa and the fifth-highest globally.

Since the 2000s, Nigeria has consistently been among Africa's top recipients of remittances as a result of the increased number of Nigerians residing in foreign countries. These funds have been utilized to finance investment projects that foster job creation and economic growth (Urama, Nwosu, Yuni, & Aguegboh, 2017). Despite the significant influx of remittances into the nation, there is limited knowledge regarding its impact on domestic investment. Empirical studies such as Laniran & Adeniyi (2015), Chetachukwu, Chinanuife & Muogbo (2021) believe that remittances are utilized primarily for consumption purposes, whereas scholars such as Ezenekwe, Izuka & Chetachukwu (2019), Adenike (2021), Ezenekwe, Izuka and Chetachukwu (2019), and Aor, Andohol & Doki (2022) believe that rather than consumption, remittances are used for investment. However, these studies did not identify the specific channels through which remittances influence the economies of these countries.

Some scholars, such as Adenike (2021) and Ezenekwe, Izuka and Chetachukwu (2019), have suggested that inadequate investments in a country encourage migrants to remit a portion of their earnings to their home country as remittances; with the aim of taking advantage of investment opportunities in many less developed countries (LDCs), the motivation behind remittances is to take advantage of new prospects for investment in their country of origin. Consequently, these scholars believe that the inflow of remittances is driven by insufficient investments in migrants' country of origin. Others, such as Ezenekwe, Izuka and Chetachukwu (2019) and Dash (2020), argued that the continuous flow of remittances is the driving force behind increased investments.

Given the varying viewpoints regarding the relationships among remittances, savings, and domestic investment in Nigeria, the clarity of how diaspora remittance inflows specifically impact domestic investment remains elusive, posing significant policy implications for the Nigerian economy to policymakers in making policies related to remittance inflows. On the basis of this understanding, this study aims to analyze the investment channel of remittances in Nigeria, with the goal of ascertaining the impact of remittances on domestic investment via savings in Nigeria. This study is important for guiding policymakers, helping them understand the specific dynamics of remittances and how they influence domestic investment. On the basis of the aforementioned points, the central inquiry guiding this study was as follows: how do remittances influence domestic investment via savings in Nigeria? This paperwork aimed to explore and understand the direct impact of remittance inflows on domestic investment in Nigeria via the savings mechanism.

2. Literature Review

Theoretical Review

Self-interest theory, initially advanced by Becker in 1981 and subsequently refined by Stark in 1995, posits three primary motivations behind remittances, all rooted in self-interest. First, there is the aspiration for inheritance, where migrants transfer funds to secure investments in their homeland that they intend to inherit upon return. Second, there is an exchange motivation to invest in homeland assets, necessitating trust and confidence between migrants and their families to manage and safeguard these investments. Finally, remittances serve to maintain social ties by ensuring that connections with household members and friends remain intact, with additional funds often used to purchase goods in their place of origin. These remittance flows are influenced by factors such as family wealth and income, migrants' own financial situation, and their degree of risk aversion (Rosenzweig & Stark, 1989).

Nnyanzi, in his 2016 study focused on remittance inflows to Africa, reported that self-interest, alongside altruism, is a key

motivator, particularly in environments where financial development and reduced corruption exist, making such investments more secure and profitable. Another study examined the effects of remittances on economic growth and income inequality, highlighting how remittances, motivated by self-interest, contribute to savings and investment, leading to improved economic conditions in recipient countries (Meyer & Shera, 2017). These findings reinforce the idea that remittances are often a calculated financial decision rather than purely altruistic. Vasile et al. (2023) highlighted how remittances are used to secure long-term financial benefits for migrants, such as property acquisition and business ventures. These remittances are strategically managed to enhance migrants' financial stability and ties to their home communities. The self-interest theory of remittances, while valuable in explaining the economic motives behind remittances, has faced criticism for oversimplifying migrants' motivations. Critics argue that this theory neglects the emotional and social dimensions of remittances, such as the importance of familial bonds and cultural obligations (Massey et al., 1998). Additionally, it can overlook the role of altruism, where migrants send money purely to support their families without expecting direct financial returns (Lucas & Stark, 1985).

Empirical literature

Several empirical studies have explored the relationship between remittances and domestic investment across various economies. For example, Osei-Gyebi et al. (2023) examined the impact of remittance inflows on savings, and the moderating influence of financial inclusion in Nigeria was analyzed via a binary logit model. On the basis of World Bank survey data from 3,000 Nigerians, the study revealed that individuals with a bank account, whether through mobile banking or with a financial institution, are more likely to save than those without any bank account.

Magweere and Marozva (2023) examined the relationship between domestic investment and remittances in developing economies, particularly in Africa. With the use of panel autoregressive

distributed lag and Dumitrescu–Hurlin causality testing methods, the analysis was conducted with data from a panel of 30 African countries. The study revealed long-term positive relationships between domestic investment and remittance inflow in the countries under study. Although the study is centered in Africa, it is quite different from the current study, as the current study is a country-specific study (Nigeria).

Nyeadi, Adams and Musah (2022) investigated the effect of remittances on domestic investment across Africa by analyzing cross-sectional data from 41 African countries between 2004 and 2018. The study employed a system generalized method moments (GMMs) econometric estimator. The study revealed that migrant remittances have a direct negative effect on domestic investment in home countries. This study is quite different from the current study in that it focuses on the transmission channel through which remittances influence domestic investment via savings in Nigeria.

Okeke and Chinanuife (2022) examined the impact of financial development on the relationship between remittances and investment in Nigeria. Using annual secondary data from Q1 1981 to Q4 2020 and employing the autoregressive distributed lag (ARDL) model, their findings suggest that financial deepening mitigates the impact of remittances on private domestic investment.

Hossain and Sunmoni (2021) analyzed empirical evidence regarding the impact of remittances on household investment choices. Using data from the World Bank's Migration and Remittances Household Survey, a recursive bivariate probit model, and an instrumental variable approach to address endogeneity issues, the research revealed that households in sub-Saharan Africa receiving remittances are more inclined to invest in human and social capital than those not receiving remittances.

A study conducted by Okeke, Chinanuife, and Muogbo (2021) focused on the nexus between foreign remittances and domestic investment in Nigeria. Quarterly data from 1981Q1–2020Q4, obtained from the CBN, were used. To analyze the data, the Phillips–Perron unit root test (PP) and the Toda–Yamamoto causality test were

used. The results revealed unidirectional causality running from remittances to Nigeria's private investment. Similarly, Dash (2020) conducted research on the connection between remittances and domestic investment across six South Asian countries from 1991--2017" via panel cointegration and causality techniques. The findings of this study indicate that foreign remittances promote domestic investment in both the short and long terms, suggesting that they can be used for both consumption and investment purposes. Furthermore, the study revealed a one-way causal relationship flowing from remittances to domestic investment. Importantly, this study was conducted in South Asia; therefore, its conclusions cannot be directly applied to the situation in Nigeria, differentiating it from the current study.

Okeke, Utomi, and Ezenekwe (2019) examined the effect of international remittances on private investment in Nigeria. They employed ordinary least squares (OLS) to analyze time series data obtained from the World Development Indicators. Their findings indicated that remittances increase the rate of private investment in Nigeria and that past investment levels influence current investment.

Similarly, Okeke, Utomi, and Uju (2019) conducted an assessment of the effect of remittances on Nigeria's private investment from 1986--2017, utilizing the error correction model for analysis. The study revealed that remittances positively influence investment in Nigeria. While this study investigated the nexus between remittances and private investment, Ohiomoje and Abiodun (2019) examined the effects of different types of remittances on household investments across Nigeria's rural, urban, and geopolitical zones from 1992--2016. The study utilized ordinary least squares (OLS) estimation for modeling and conducted probit regression as a robustness check. The findings indicated that remittances had a positive effect on household investments in Nigeria's various regions. Although the study explored the impact of remittances on investment, its methodology was deemed insufficient, whereas the upcoming study will employ a more reliable methodology.

Moreover, Oluwatosin et al. (2019) investigated the impact of foreign remittances and financial development on the savings– gap in 18 sub-Saharan African countries from 1990–2017. The study utilized a panel autoregressive distributed lag (ARDL) model for data analysis. The results revealed that remittances significantly reduced the gap between savings and investment in the long run. This study differs from the present study in that it does not explicitly state how remittances transmit to economic growth and through which channels.

Similarly, Lee (2018) conducted a study on the impact of foreign remittances on domestic investment in 19 developing countries in the Asia-Pacific region from 1980–2015. The analysis employed two-stage least squares (2SLS). The findings revealed a negative relationship between remittances and domestic investment in these nations. The study also indicated that GDP annual per capita growth, official development assistance, domestic credit, gross savings, and inflation had positive effects on domestic investment. This study is region-specific and differs from the current study, as the findings cannot be directly applied to the Nigerian context.

In a related study, Onyeisi, Odo, and Anoke (2018) examined private sector domestic lending and foreign remittances in the Nigerian context from 1981–2017. The study employed cointegration tests within the framework of the vector error correction mechanism (VECM) for model estimation. The results indicated that in the short term, remittance inflows had a positive yet insignificant correlation with domestic credit to the private sector, whereas development aid was negatively correlated with domestic credit to the private sector. This study differs from the current study in that it does not explore the effect of remittances on Nigeria's economic growth. Its methodology may not be robust enough for a study of this magnitude, highlighting the need for a more robust methodology.

In a similar vein, Ezike and Ogboi (2017) examined household inflow remittances and Nigeria's productive investment from 1988–2015. The study utilized the generalized method of moments (GMM) estimator for data analysis, considering variables such as productive investment, remittances, private sector credit, the lending rate, the

inflation rate, imports, GDP, the real exchange rate, trade openness, and final consumption expenditure. The findings revealed that while remittance inflows tend to discourage domestic productive investment, they contribute to an increase in the consumption of imported goods. This study differs from the current study in that it focused solely on the impact of remittances on productive investment, omitting their transmission to economic growth in Nigeria. Additionally, owing to the dynamic nature of the economy, the findings of the study may be outdated.

An empirical gap exists in previous studies, particularly those focused on the Nigerian economy; there has been a notable absence of empirical research exploring how remittances impact domestic investment through savings. Existing studies often analyze the direct impact of remittances on domestic investment without considering the intermediary role of savings. This study addresses this gap by employing the structural VAR method to investigate this relationship, emphasizing the role of savings as a crucial transmission mechanism.

3. Methodology

To examine the pass-through impact of remittances on domestic investment through savings in Nigeria, the structural vector autoregressive (SVAR) model was employed. Quarterly data spanning from 1986Q1 to 2022Q4 were derived from the Central Bank of Nigeria Statistical Bulletin (CBN) and World Bank Statistical Publications. The data employed in this study include the remittance inflows to Nigeria, which were sourced from the World Bank development index, domestic investment measured in Naira in billion dollars, and savings measured in naira in billion dollars obtained from the CBN Statistical Bulletin. The choice of the SVAR plus other variations of VAR was predicated on the verity that the structural vector autoregression (SVAR) is a type of VAR that sufficiently accommodates the pass-through effects in the midst of macroeconomic variables. This approach is based on the combination of all other techniques.

The general form of the structural vector autoregressive (SVAR) model is presented as follows:

$$A_0 Z_t = A_1 Z_{t-1} + \varepsilon_t \quad (1)$$

where A_0 is an $n \times n$ matrix representing the contemporaneous effects of the endogenous variables

$Z_t = n \times 1$ matrix of column vector estimable endogenous variables,

$A_1 = n \times n$ lagged estimable endogenous variables matrix

$Z_{t-1} = n \times 1$ column vector of lagged estimable endogenous variables, matrix and

$\varepsilon_t = n \times 1$ column vector of the error term in the system.

Model specification

On the basis of self-interest theory, the self-interest theory of remittances suggests that migrants send money home to increase their savings and investments. This approach allows them to build and manage assets in their country of origin, such as purchasing property, starting businesses, or saving for future returns. Thus, the transmission mechanism can be expressed as follows

$$\uparrow RMIT \rightarrow \uparrow SAV \rightarrow \uparrow DINV$$

where $RMIT$ represents foreign remittance inflows, SAV represents savings and $DINV$ represents domestic investment.

Transposing the transmission yields

$$DINV_t = f(DINV_{t-1}, SAV_{t-1}, RMIT_{t-1}, SAV_t, RMIT_t) \text{ ----- (2)}$$

$$SAV_t = f(DINV_{t-1}, SAV_{t-1}, RMIT_{t-1}, DINV_t, RMIT_t) \text{ ----- (3)}$$

$$RMIT_t = f(DINV_{t-1}, SAV_{t-1}, RMIT_{t-1}, DINV_t, SAV_t) \text{ ----- (4)}$$

By normalizing equations 2 to 4 and presenting them as an SVAR (1) system, we obtain the following expressions:

$$DINV_t = \beta_{11}^1 DINV_{t-1} + \beta_{12}^1 SAV_{t-1} + \beta_{13}^1 RMIT_{t-1} + \beta_{12}^0 SAV_t + \beta_{13}^0 RMIT_t + \epsilon_{1t} \dots\dots\dots (5)$$

$$SAV_t = \beta_{21}^1 DINV_{t-1} + \beta_{22}^1 SAV_{t-1} + \beta_{23}^1 RMIT_{t-1} + \beta_{21}^0 DINV_t + \beta_{23}^0 RMIT_t + \epsilon_{2t} \text{-----} (6)$$

$$RMIT_t = \beta_{31}^1 DINV_{t-1} + \beta_{32}^1 SAV_{t-1} + \beta_{33}^1 RMIT_{t-1} + \beta_{31}^0 DINV_t + \beta_{32}^0 SAV_t + \epsilon_{3t} \text{-----} (7)$$

Shifting the contemporaneous effects to the left-hand side (LHS) yields the following expressions:

$$DINV_t - \beta_{12}^0 SAV_t - \beta_{13}^0 RMIT_t = \beta_{11}^1 DINV_{t-1} + \beta_{12}^1 SAV_{t-1} + \beta_{13}^1 RMIT_{t-1} + \epsilon_{1t} \text{-----} (8)$$

$$-\beta_{21}^0 DINV_t + \beta_{21}^0 SAV_t - \beta_{23}^0 RMIT_t = \beta_{21}^1 DINV_{t-1} + \beta_{22}^1 SAV_{t-1} + \beta_{23}^1 RMIT_{t-1} + \epsilon_{2t} \text{-----} (9)$$

$$-\beta_{31}^0 DINV_t - \beta_{31}^0 SAV_t + \beta_{33}^0 RMIT_t = \beta_{31}^1 DINV_{t-1} + \beta_{32}^1 SAV_{t-1} + \beta_{33}^1 RMIT_{t-1} + \epsilon_{3t} \text{-----} (10)$$

Expressing equations 8 to 10 in matrix form,

$$\begin{bmatrix} 1 & -\alpha_{12}^0 & -\alpha_{13}^0 \\ -\alpha_{21}^0 & 1 & -\alpha_{23}^0 \\ -\alpha_{31}^0 & -\alpha_{32}^0 & 1 \end{bmatrix} \begin{bmatrix} DINV_t \\ SAV_t \\ RMIT_t \end{bmatrix} = \begin{bmatrix} \alpha_{11}^1 & \alpha_{12}^1 & \alpha_{13}^1 \\ \alpha_{21}^1 & \alpha_{22}^1 & \alpha_{23}^1 \\ \alpha_{31}^1 & \alpha_{32}^1 & \alpha_{33}^1 \end{bmatrix} \begin{bmatrix} DINV_{t-1} \\ SAV_{t-1} \\ RMIT_{t-1} \end{bmatrix} + \begin{bmatrix} \epsilon_{1t} \\ \epsilon_{2t} \\ \epsilon_{3t} \end{bmatrix} \text{-----} (11)$$

$$\text{Hence, } A_0 Z_t = A_1 Z_{t-1} + \epsilon_1 \text{-----} (12)$$

where

$A_0 = 3 \times 3$ contemporaneous effects matrix of endogenous parameters.

$Z_t = 3 \times 1$ matrix of column vector estimable endogenous variables,

$A_1 = 3 \times 3$ lagged estimable endogenous variables matrix

$Z_{t-1} = 3 \times 1$ column vector of lagged estimable endogenous variables, matrix and

$\varepsilon_{it} = 3 \times 1$ column vector of the error term in the system.

The model presented is over parameterized and cannot be estimated via SVAR. However, to address the identification problem in SVAR, specific restrictions are applied to some parameters of the AO matrix on the basis of economic theory and institutional knowledge. Using a recursive approach, these constraints set the elements above the matrix diagonal to zero, as illustrated below.

$$-\beta_{12}^0 = -\beta_{13}^0 = -\beta_{23}^0 = 0$$

The parsimonious form of the SVAR is thus given in line with the restrictions as follows:

$$A_0 = \begin{bmatrix} 1 & 0 & 0 \\ -\alpha_{21}^0 & 1 & 0 \\ -\alpha_{31}^0 & -\alpha_{32}^0 & 1 \end{bmatrix} \begin{bmatrix} DINV_t \\ SAV_t \\ RMIT_t \end{bmatrix} = \begin{bmatrix} \varepsilon_{1t} \\ \varepsilon_{2t} \\ \varepsilon_{3t} \end{bmatrix} \quad \text{-----} \quad 13$$

where $\varepsilon_i = \beta\eta_i$, and

$$\beta = \begin{bmatrix} \delta_1^2 & 0 & 0 \\ 0 & \delta_2^2 & 0 \\ 0 & 0 & \delta_3^2 \end{bmatrix} = \text{Unit variance, i.e., } Var(\eta_i) = 1 \quad \text{-----} \quad 14$$

$$A_0 = \begin{bmatrix} 1 & 0 & 0 \\ -\alpha_{21}^0 & 1 & 0 \\ -\alpha_{31}^0 & -\alpha_{32}^0 & 1 \end{bmatrix} \begin{bmatrix} DINV_t \\ SAV_t \\ RMIT_t \end{bmatrix} = \begin{bmatrix} \delta_1^2 DINV & 0 & 0 \\ 0 & \delta_2^2 SAV & 0 \\ 0 & 0 & \delta_3^2 RMIT \end{bmatrix} \begin{bmatrix} \mu_t^{DINV} \\ \mu_t^{SAV} \\ \mu_t^{RMIT} \end{bmatrix} \quad \text{-----} \quad 15$$

This means that the normalized SVAR of the form $A_0 Z_t = A_1 Z_{t-1} + \varepsilon_t$ reduces to $A_0 e_t = \beta \eta_t$. $\beta \eta_t = \beta \mu_t$ Therefore, the baseline for the estimable SVAR model is specified in the reduced form as follows:

$$A_0 e_t = \beta \mu_t \quad \text{-----} 16$$

where A_0 = the long-term contemporaneous effects matrix

e_t = column vector matrix of error for the respective variables

β = matrix of structural shocks in the model, and

μ_t = column vector of structural shocks in the model.

Hence, the ‘S’ matrix is specified as follows:

$$e_t = A_0 \beta \mu_t = \begin{bmatrix} e_t^{DINV} \\ e_t^{SAV} \\ e_t^{RMIT} \end{bmatrix} = \begin{bmatrix} 1 & 0 & 0 \\ -\alpha_{21}^0 & 1 & 0 \\ -\alpha_{31}^0 & -\alpha_{32}^0 & 1 \end{bmatrix} \begin{bmatrix} \mu_t^{DINV} \\ \mu_t^{SAV} \\ \mu_t^{RMIT} \end{bmatrix} \quad \text{-----} 17$$

These represent the initial shocks within the SVAR model, whereas the impulse responses reveal the ultimate effects of these shocks. Therefore, the influence of remittances in Nigeria can be examined through the following channels.

$-\alpha_{21}^0$ is expected to measure the impact of savings on domestic investment

$-\alpha_{31}^0$ is expected to measure the impact of remittances on domestic investment

$-\alpha_{32}^0$ is expected to measure the impact of remittances on savings

4. Results and Discussion

Prior to estimating the model, the series were analyzed via descriptive statistics and tested for unit roots.

Descriptive Properties of the Data

The statistical characteristics of the variables utilized in the study are detailed in Table 1. The descriptive statistics include the mean, maximum, and minimum values, as well as the standard deviations of

the variables. Skewness and kurtosis statistics are employed to assess the distributional properties of the variables, whereas the Jarque-Bera test is used to evaluate the normality of their distributions. For clarity and accuracy, raw data were used in the descriptive statistics.

Table 1: Descriptive statistics

	DINV	SAV	RMIT
Mean	10022.80	909348.7	1.97E+12
Median	4723.720	242256.3	3.03E+11
Maximum	58293.95	4503671.	7.46E+12
Minimum	108.8700	9761.500	8059170.
Std. Dev.	13789.50	1281808.	2.29E+12
Skewness	2.022652	1.485253	0.862561
Kurtosis	6.448809	3.981448	2.590752
Jarque-Bera	174.2624	60.35408	19.38511
Probability	0.000000	0.000000	0.000062
Observations	148	148	148

Sources: Authors’ computations via E-views 10

Table 1 presents the descriptive properties of the series utilized in the analysis. The table clearly shows that domestic investment (DINV) has a mean value of N10022.80 billion, with a maximum of N58293.95 billion in 2021, which is due primarily to the Central Bank of Nigeria's (CBN) intervention programs and policies aimed at increasing local production and economic recovery following the COVID-19 pandemic. and a minimum of N108.87 billion in 1986. This may be attributed to the SAP's emphasis on reducing government spending and liberalizing trade, creating an uncertain business environment and discouraging private investment. The Jarque – Bera statistic of 174.3 is significant at the 5% level, indicating a departure from a normal distribution. Similarly, savings (SAV) averaged N909348.7 billion, a maximum value of N4503671 billion in 2014, which was due to a combination of factors, including strong economic growth, relatively high oil prices that boosted government revenue, and a favorable investment climate that encouraged savings and investment and a minimum value of N9761.497 billion in 2021. This

may be due to high levels of public debt and fiscal deficits, coupled with limited financial inclusion and access to savings instruments, contributing to the overall low savings rate, with a Jarque-Bera statistic of 60.35, which is also significant at the 5% level, suggesting a nonnormal distribution. Similarly, Remittances (RMIT) had a mean of ₦1.97 billion, with maximum and minimum values of ₦7.46 billion recorded in the 1st--4th quarters of 2018. This situation may be due to the continued trend of migration among Nigerians, particularly to the U.S., Europe, and other African countries. As the number of Nigerians living abroad has increased, so has the volume of remittances. The variable has a minimum value of ₦8059170 million recorded in the 1st--4th quarters of 1986; this is attributed to the introduction of the Structural Adjustment Program in Nigeria in 1986, which led to economic instability and a significant devaluation of the Nigerian naira and was a key factor that resulted in low remittances during that period. The Jarque-Bera statistic of 19.4 is significant at the 5% level, indicating a no normal distribution for this series as well.

To prevent inaccurate regression estimates, unit root tests were conducted on the series. Specifically, the augmented Dickey-Fuller (ADF) and Kwiatkowski-Phillips-Schmidt-Shin (KPSS) tests were employed, with the results shown in Table 2.

Table 2: Unit root test results

Variable	ADF			KPSS			Order of integration
	At level	Prob. Value	First Difference	Critical Values 5%	Prob. Value	I.M. Stats	
DINV	-2.046600	0.2669	-10.30100	-2.881541	0.0000	0.270423	I(1)
SAV	-1.073782	0.7250	-8.210898	-2.882279	0.0000	0.168437	I(1)
RMIT	-2.308624	0.1706	-12.54594	-2.881260	0.0000	0.395731	I(1)

Source: Extract from E-views 10 output

Note: The lag lengths were selected on the basis of the Shwarz-info criterion. The constant, trends and intercept are included in the level and first difference equation.

The unit root tests show that none of the series were stationary at their initial levels; however, they all became stationary after first differencing, indicating that they are integrated of order one, or I(1). This suggests that all series have mean-reverting properties, meaning that any shocks to these series gradually diminish. Following these results, the Johansen cointegration test was performed to explore the long-term relationships among the series, with the outcomes summarized in Table 3.

Table 3a: Trace and Max-Eigen statistics

Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None	0.116959	29.28537	29.79707	0.0572
At most 1*	0.064853	21.24973	15.49471	0.0066
At most 2	0.010477	1.527224	3.841466	0.2165

Source: Author's Computation via Eviews 10

The result of the unrestricted rank test (Trace) revealed the existence of 1 cointegrating equation among the series. The null hypothesis of no cointegration among series was therefore rejected, in favor of the alternate hypothesis. This finding highlights the presence of long-run relationships among the variables.

Table 3b: Unrestricted Cointegration Rank (Maximum – Eigenvalue)

Hypothesized		Max-Eigen	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None	0.116959	18.03565	21.13162	0.1285
At most 1*	0.064853	19.72250	14.26460	0.0308
At most 2	0.010477	1.527224	3.841466	0.2165

Source: Author's Computation Using E-views 10

The result of the unrestricted cointegration rank (maximum–eigenvalue) reveals the existence of 1 cointegrating equation among the series. This suggests the presence of a long-run relationship between the variables used in the model.

To determine the short-term relationships among the variables, the contemporaneous structural parameters were estimated, and the results are shown in Table 4.

Table 4: Estimated Contemporaneous Structural Parameters

	DINV	SAV	RMIT
DINV	1	0	0
SAV	0.354 (0.0394)	1	0
RMIT	-1.263 (0.0001)	-0.056 (0.2394)	1

Probability values in parentheses

Source: Author’s Computation via Eviews 10

The estimated contemporaneous structural parameters have shown that remittances had a negative effect on savings and that this effect is statistically insignificant in the short run during the period of this study. This means that a 1% increase in the contemporaneous impact of remittances led to a 0.056% reduction in savings in Nigeria within the study period. This may be attributed to the fact that remittances created a sense of dependency among the recipients, leading them to rely on these funds rather than their own savings or income-generating activities.

The estimated contemporaneous structural parameters again showed that savings positively impact domestic investment in Nigeria in the short run. This implies that a 1% increase in the contemporaneous impact of savings led to an increase in domestic investment of 0.354% in Nigeria. This is because increased savings provide a pool of capital that can be lent to businesses or used to fund new projects. This capital formation leads to more investments in machinery, technology, infrastructure, and other productive assets, which, in turn, boost economic growth.

Prior to estimating the impulse responses and conducting forecast error variance decompositions, several diagnostic tests for SVAR were conducted, with the outcomes detailed in Table 5.

Table 5: SVAR diagnostic tests

Tests	Statistics	Probability values
Autocorrelation (Breusch-Godfrey LM test)	9.020022	0.4355
Heteroskedasticity (Breusch–Pagan-Godfrey)	117.1947	0.9968

Source: Author’s Computation via Eviews 10

Table 5 shows the acceptances of all the null hypotheses of the diagnostic tests, implying that the model had no misspecification problems, autocorrelation problems, or heteroskedasticity problems. In addition, the CSUM test was conducted, and the results are presented in Figure 1.

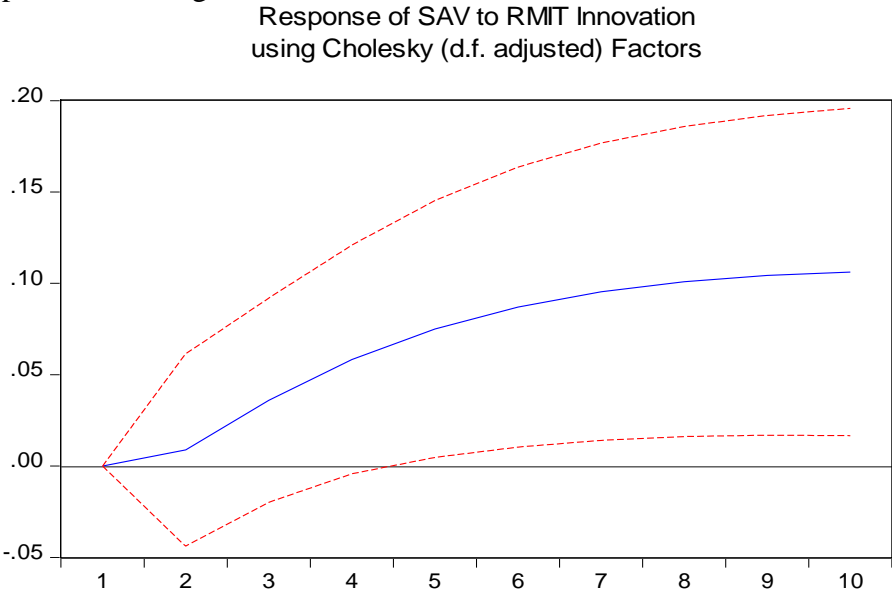


Figure 1: Impulse response of savings to remittances

The impulse response function graph of domestic investment shows that from the first period, the response of savings from innovation in remittances within the positive region from the first period increased until the 10th period. The economic implication is that remittances have a positive and persistent impact on savings in the economy, which could indicate that households use remittance income to increase their savings.

Furthermore, the impulse response function of domestic investment to savings innovations was estimated and is presented in Figure 2.

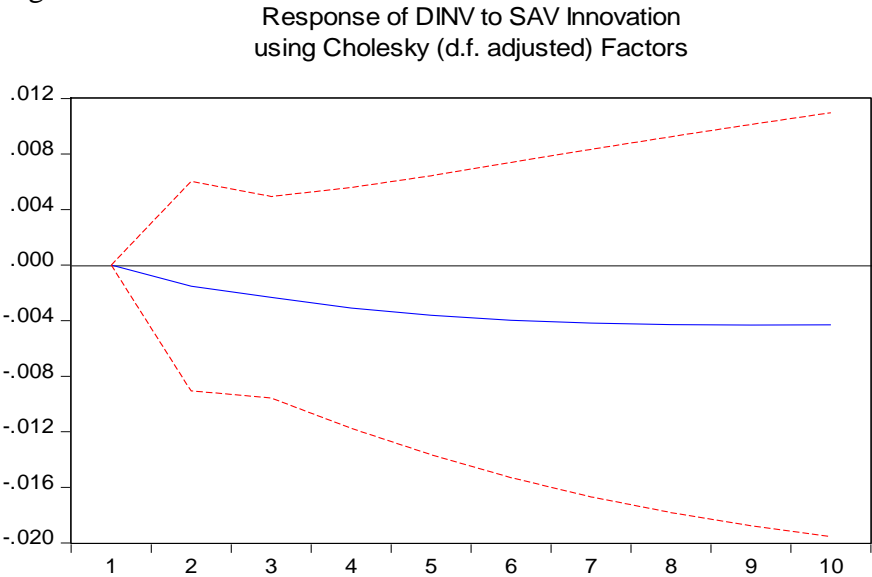


Figure 2: Impulse response of domestic investment to savings

The impulse response of domestic investment to innovations from savings caused domestic investment to respond from the negative region, and this response continued within the negative region until the 10th period region. The economic implication is that in the short term, an increase in savings may slightly reduce domestic investment, possibly due to a shift in funds from investment activities to savings. To further analyze the dynamics of the pass-through impact of remittances on domestic investment through savings.

The forecast error variance decomposition (FEVD) reveals the extent to which fluctuations in a sequence are attributed to its own shocks versus the shocks from other variables within the system. The FEVD was calculated, and the findings are shown in Table 6.

Table 6: Variance decomposition of DINV

Period	S.E.	DINV	SAV	RMIT
1	0.044568	100.0000	0.000000	0.000000
2	0.057546	99.84948	0.069557	0.080964
3	0.068548	99.76971	0.163406	0.066889
4	0.077661	99.59090	0.285751	0.123352
5	0.085669	99.33590	0.412455	0.251648
6	0.092851	99.03591	0.533159	0.430932
7	0.099401	98.71372	0.641729	0.644550
8	0.105440	98.38496	0.735664	0.879376
9	0.111055	98.05942	0.814450	1.126126
10	0.116309	97.74288	0.878727	1.378389

Source: Author’s Computation via Eviews 10

The analysis of variance decomposition indicates that own shocks to domestic investment dominate from the first to the tenth period, declining slightly from 100% to 97.74% over this period. This suggests that savings and remittances are predictors of domestic investment. Specifically, in the second period, shocks to savings account for 0.07% of the forecast error variance of domestic investment, with this contribution rising to 0.87% by the tenth period. Similarly, a one-unit change in remittances contributes 0.08% to the forecast error variance of domestic investment in the second period, growing to 1.37% by the tenth period. These findings underscore that remittances are a better predictor of domestic investment than savings over time.

Table 7: Variance decomposition of SAVs

Period	S.E.	DINV	SAV	RMIT
1	0.310990	0.257272	99.74273	0.000000
2	0.425386	0.441058	99.51620	0.042741
3	0.498164	0.621710	98.82415	0.554140
4	0.550995	0.833815	97.59405	1.572138
5	0.592610	1.058638	95.98192	2.959443
6	0.627188	1.287826	94.14678	4.565397
7	0.656959	1.514983	92.21682	6.268196
8	0.683204	1.736239	90.28475	7.979011
9	0.706701	1.949376	88.41236	9.638268
10	0.727957	2.153352	86.63736	11.20929

Source: Author's Computation via Eviews 10

The variance decomposition analysis indicated that own shocks to savings were predominant from the first to the tenth period, decreasing from 99.74% to 86.63% over time. This finding indicates that domestic investment and remittances are key predictors of savings. Specifically, a one-unit change in domestic investment accounted for approximately 0.25% of the forecast error variance in savings during the first period, rising steadily to 2.15% by the tenth period. In a similar vein, remittances initially contributed 0.042% to the forecast error variance of savings in the second period, rising notably to 11.20% by the tenth period. These findings underscore that remittances are a better predictor of savings in Nigeria during the study period.

Table 8. Variance decomposition of RMIT

Period	S.E.	DINV	SAV	RMIT
1	0.187478	8.740471	0.856992	90.40254
2	0.252843	7.069872	1.033184	91.89694
3	0.299267	7.077656	1.562572	91.35977
4	0.334712	7.309172	2.256179	90.43465
5	0.363641	7.644233	3.025885	89.32988
6	0.388143	8.007676	3.815253	88.17707
7	0.409452	8.374839	4.589754	87.03541
8	0.428333	8.733789	5.328558	85.93765
9	0.445294	9.079425	6.020052	84.90052
10	0.460690	9.409752	6.658762	83.93149

Source: Author's Computation via Eviews 10

The results of variance decomposition indicate that remittances were influenced primarily by their own shocks over a ten-period horizon, decreasing from 90.40% to 83.93%. This finding indicates that domestic investment and savings serve as predictors for remittances in Nigeria. Specifically, a one-unit change in domestic investment accounted for 8.74% of the forecast error variance of remittances in the first period, with this percentage steadily increasing to 9.40% by the tenth period. Similarly, a one-unit change in savings contributed 0.85% to the forecast error variance of remittances in the first period; it increased significantly to 6.65% by the tenth period. These findings underscore that savings and domestic investment are robust predictors of remittances in the Nigerian context.

Discussion of Findings

This paper analyzes the nexus between the relationships among remittances, savings and domestic investment in Nigeria. The study first revealed that remittances had a negative and statistically insignificant impact on savings, which may be attributed to the fact that remittances can create a sense of dependency among recipients, leading them to rely on these funds rather than their own savings or income-generating activities. This dependency can reduce the

incentive to save for the future since they may assume that remittances will continue to cover their basic needs. The study also showed that savings had a positive and statistically significant effect on domestic investment in Nigeria because increased savings provided a pool of capital available to lend to businesses or used to fund new projects. This capital formation led to more investments in machinery, technology, infrastructure, and other productive assets, which, in turn, boosted economic growth. This study also revealed that domestic investment positively affects real gross domestic product (economic growth) in Nigeria, which implies that an increase in domestic investment promotes the expansion of businesses within the economy, which leads to increased production of goods and services.

5. Conclusion and Policy Recommendations

On the basis of the findings of this paper, it was concluded that remittances may have an adverse impact on savings; this is attributed to a potential sense of dependency among recipients, which could lead them to overlook income-generating opportunities. Conversely, savings are identified as contributing positively to domestic investment, as increased savings levels furnish businesses with essential capital for investment purposes. Additionally, the study reaffirms the positive correlation between domestic investment and economic growth within the Nigerian context. These findings carry significant policy implications for the Nigerian economy. The Nigerian government should create a conducive environment for domestic investment by reducing bureaucratic hurdles, providing incentives, and offering low-interest loans or grants to businesses looking to invest in infrastructure, technology, and other productive sectors. In addition, to address the potential negative impact of remittances on savings, the Nigerian government through nongovernmental governments is encouraged to promote financial literacy and entrepreneurship spirit among remittance recipient households. Additionally, the culture of saving and investment should be encouraged by the government through promoting savings mobilization schemes and providing incentives for individuals to engage in long-term financial planning.

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