IMPACT OF DOMESTIC SAVINGS, DOMESTIC INVESTMENT AND FOREIGN DIRECT INVESTMENT ON PER CAPITA INCOME IN NIGERIA

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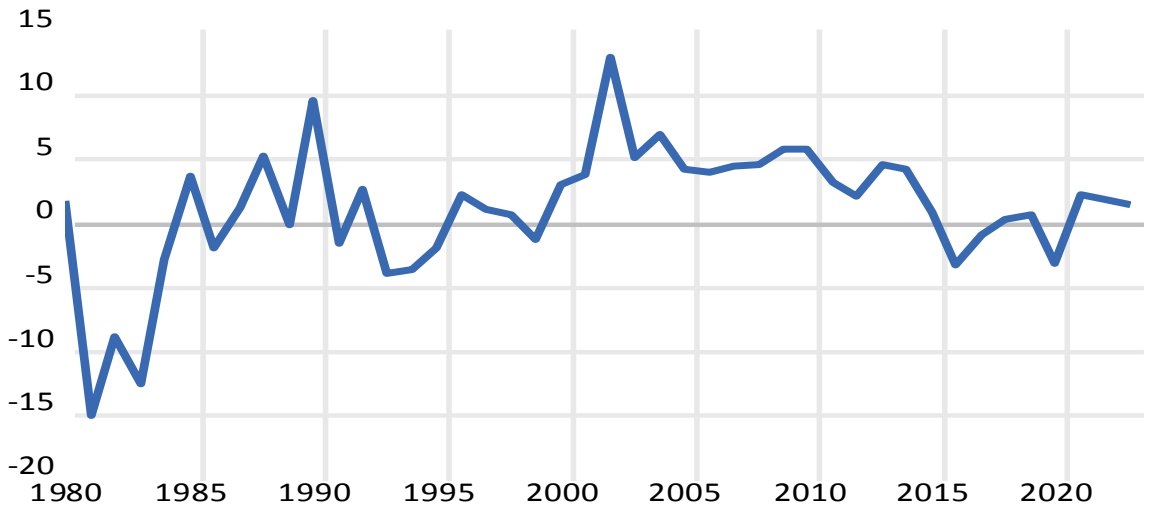
ABSTRACT
This study investigates the impact of domestic savings, foreign direct investment (FDI), and domestic investment on per capita income in Nigeria over the period 1980 to 2023, using the Autoregressive Distributed Lag (ARDL) approach. The findings reveal that, in the long run, domestic savings have a statistically significant negative effect on per capita income, suggesting inefficiencies in financial intermediation. In contrast, FDI exerts a positive and statistically significant impact, though its magnitude is modest. Domestic investment also exhibits a significant negative effect on per capita income, reflecting resource misallocation and structural bottlenecks. Inflation is statistically insignificant in the long run but has a significant negative effect in the short run. The error correction term is negative and statistically significant, confirming a stable long-run relationship. These results highlight the paradoxical nature of Nigeria's growth process, where traditional growth drivers underperform due to institutional weaknesses. Policy measures should focus on reforming the financial sector to mobilize and channel savings productively, improving the efficiency of public and private investments, and fostering a transparent environment to attract quality FDI. In addition, credible monetary policy is required to ensure price stability and enhance income growth.

Keywords: Per Capita Income, Domestic Savings, Foreign Direct Investment, Domestic Investment
JEL Codes: E21, E22, F21, O11

1. INTRODUCTION
Per-capita income remains one of the most widely used indicators for assessing the economic welfare of a nation's population. It reflects the average income earned per person and serves as a proxy for the standard of living and level of development in an economy. In Nigeria, per-capita income has fluctuated due to various macroeconomic imbalances, income inequality, and volatile growth patterns (World Bank, 2023). Despite periods of economic growth, the country's per-capita income has remained relatively low compared to other emerging economies, raising concerns about the sustainability and inclusiveness of growth. Real per-capita income remained stagnant due to high population growth and limited productivity expansion (IMF, 2024). This scenario is clearly depicted in figure 1.

Figure 1 illustrates the annual percentage change in per capita income in Nigeria from 1980 to 2023. The trend reveals a highly volatile pattern characterized by periods of sharp declines and intermittent recoveries. Between 1980 and 1984, per capita income experienced a significant downturn, falling below -15%, largely due to declining oil prices, economic mismanagement, and political instability (Ajakaiye & Fakiyesi, 2009; World Bank, 2020). From 1985 to 1990, there was a noticeable recovery, marked by strong but unstable growth, reflecting the effects of Structural Adjustment Programs (SAPs) and partial economic liberalization (Ogbu et al., 1993; Nadabo, Dakyong, & Ismail, 2024; Iyoha & Oriakhi, 2008).

Figure 1 Trends of per capita income in Nigeria from 1980 to 2023.



The period from 1991 to 1999 showed continued fluctuations, including several years of negative growth, coinciding with prolonged military rule, policy inconsistency, and economic mismanagement (Dauda, 2010; Abdullahi, & Jibril, 2024; Central Bank of Nigeria, 2019). A more sustained growth phase emerged from 2000 to 2007, with a notable peak around 2002, driven by democratic governance, debt relief under the Paris Club deal, and key economic reforms (Nadabo, et al. 2024; Okonjo-Iweala, 2014; Abdullahi, 2024; IMF, 2007). Between 2008 and 2014, per capita income growth was more moderate and stable, supported by high global oil prices, telecom sector expansion, and increased foreign direct investment (National Bureau of Statistics [NBS], 2015; UNCTAD, 2014). However, from 2015 to 2017, Nigeria entered another recession, as evidenced by negative growth rates. This downturn was primarily due to a sharp fall in oil prices, foreign exchange constraints, and macroeconomic instability (IMF, 2016; EIU, 2017). The final period, from 2018 to 2023, reflects a slow and uneven recovery, affected by the COVID-19 pandemic, inflationary pressures, currency devaluation, and ongoing structural challenges (World Bank, 2021; AfDB, 2022). Some of the most significant macroeconomic variables that support per capita income in the process of economic growth include domestic savings, foreign direct investment, and domestic investment, among others.

Domestic savings are crucial for development as they provide capital for investment, reduce dependence on foreign borrowing, and support financial stability. However, Nigeria's savings rate has remained low, averaging 15% of GDP between 2020 and 2023, limiting funds for long-term investments. Their contribution to per capita income can improve when complemented by foreign inflows such as FDI. FDI is a vital growth driver in developing economies, offering capital, technology, and market access (Yakubu, et al. 2023; Bala, & Abdullahi, 2019; Nadabo, et al. 2024; Nadabo, & Abdullahi, 2024). In Nigeria, inflows have been unstable due to political and infrastructural challenges, yet they remain significant in sectors like oil, telecommunications, and manufacturing. FDI promotes job creation and production, with its full benefits emerging when supported by strong domestic savings and investment (Abdullahi, & Maji, 2019; Abdullahi, & Nadabo, 2025).

In view of the foregoing therefore, this study explores the synergistic impact of domestic savings, FDI and domestic investment on per-capita income in Nigeria. It investigates whether the interaction between these variables can lead to a greater effect on income levels than when each is considered in isolation. By understanding this dynamic relationship, policymakers can

formulate integrated strategies that simultaneously mobilize local savings, enhance domestic investment and attract foreign investment to promote sustainable income growth.
The rest of the paper is organised as follows: Section 2 provides an overview of the literature review. Sections 3, 4 and 5 provide the methodology, results & discussion, and conclusions & policy implications, respectively.

LITERATURE REVIEW

2.1 Conceptual Literature

Per Capita Income (PCI): Per capita income is the average income earned per person in a country, calculated by dividing the national income (usually GDP) by the total population. It serves as a key indicator of economic welfare and living standards, reflecting how resources are distributed among citizens. A higher per capita income generally suggests improved productivity, better access to goods and services, and rising quality of life (Todaro & Smith, 2020; World Bank, 2023).

Domestic Savings: Domestic savings refer to the portion of national income that is not consumed but set aside for future use by households, firms, and governments. Savings are crucial for capital accumulation as they provide resources for investment, reducing dependence on external borrowing. Higher domestic savings enhance the pool of funds available for productive activities, thereby supporting economic growth and raising per capita income (Solow, 1956; CBN, 2023).

Domestic Investment: Domestic investment is the expenditure on capital goods such as machinery, infrastructure, and technology within a country. It increases productive capacity, creates jobs, and stimulates innovation. Investment in key sectors such as manufacturing, energy, and education improves productivity, which directly translates into higher per capita income (Jhingan, 2016; World Bank, 2022).

Foreign Direct Investment (FDI): FDI involves the inflow of capital from foreign entities into domestic industries, either through ownership, mergers, or establishing new enterprises. FDI provides not only financial resources but also access to advanced technology, managerial expertise, and international markets. This fosters economic growth, enhances productivity, and can significantly improve per capita income in developing countries (Borensztein, De Gregorio, & Lee, 1998; UNCTAD, 2023).

2.2 Theoretical Literature

Basically, four major theories explain the savings, investment, and consumption behaviours of Per Capita Income. These are:

Absolute Income Hypothesis (AIH): Developed by John Maynard Keynes in 1936, this theory links savings, income, and consumption. Keynes asserts that both savings and consumption are increasing functions of current disposable income.

Relative Income Hypothesis (RIH): Proposed by James Duesenberry in 1949, this theory argues that savings and consumption depend on relative income rather than absolute income, as Keynes suggested.

Permanent Income Hypothesis (PIH): Introduced by Milton Friedman in 1957, this theory suggests that savings and consumption are determined not by current or relative income, but by permanent or anticipated future income.

Life Cycle Hypothesis (LCH): Developed by Ando and Modigliani in 1963, this theory illustrates that as an individual's productivity increases, so does income. At the early stages of life, when income is low, individuals may accumulate debt to meet basic needs. In later stages, when income rises, they repay earlier debts and save for retirement.

2.3 Empirical Literature

In the area of empirical studies, Basabose (2020) examines the relationship between gross domestic savings, exports of goods and services, foreign direct investment, gross domestic income, and final expenditure in Rwanda for the period 1980 to 2018 using the Johansen cointegration technique. The test results indicate the presence of a cointegration relationship among the variables employed. Furthermore, the VECM coefficients reveal a positive and significant relationship between GDP, exports, FDI, and gross domestic savings, while final expenditure and population growth negatively affect domestic savings.

In the same vein, Usman and Ahmed (2022) investigate the long-run relationship between domestic savings and per capita income in Sub-Saharan Africa using the ARDL bounds testing approach. Their results reveal a significant and positive relationship between domestic savings and per capita income in the long run, suggesting that increased national savings lead to improved income levels across the population. The study emphasizes the role of savings in promoting capital accumulation and reducing income volatility in low-income countries.

Similarly, Ibrahim, Yusuf, and Abdulkarim (2022) assess the relationship between financial flows and per capita income in Nigeria using Fully Modified Ordinary Least Squares (FMOLS). The study reveals that both domestic savings and FDI contribute positively to per capita income. However, their combined effect yields a larger coefficient magnitude, indicating the presence of synergy. The authors recommend policies that simultaneously promote domestic savings mobilization and foreign investment attraction.

In a related study, Chukwuma and Hassan (2023) analyze the moderating effect of domestic savings on the influence of FDI on per capita income in West African countries. Employing a dynamic panel data model, their findings indicate that FDI has a stronger effect on per capita income when domestic savings levels are high. The statistically significant and positive interaction term between savings and FDI underscores a synergistic relationship. The study concludes that countries with higher savings rates are better positioned to leverage FDI for improved income outcomes.

Likewise, Bello and Musa (2023) conduct a cointegration analysis of FDI, domestic savings, and per capita income in Nigeria using data from 1991 to 2021. The Johansen cointegration results confirm a long-term relationship among the variables. Their VECM estimates further reveal that both FDI and domestic savings positively influence per capita income, with a faster speed of adjustment when both variables increase concurrently. The authors argue that the coordinated growth of domestic and foreign investment is essential for achieving sustainable income growth.

Furthermore, Okoli and James (2024) investigate the joint impact of domestic savings and foreign direct investment on per capita income in Nigeria using the ARDL framework over the period 1990 to 2022. Their findings confirm the existence of a stable long-run relationship among the variables. Additionally, the results indicate that both domestic savings and FDI have significant positive effects on per capita income, with their combined interaction yielding a more pronounced impact than when considered independently. This highlights the complementary role of savings and foreign investment in enhancing economic well-being.

In the same view, Eze and Okonkwo (2024) explore the effect of FDI inflows on per capita income in Nigeria using a Vector Error Correction Model (VECM) covering the period 1985 to 2022. Their findings show that FDI alone exerts a positive but weak short-run effect on per capita income, while its long-run effect becomes significant only when interacted with domestic savings. The study suggests that without a strong domestic capital base, the benefits of FDI may not fully translate into improved living standards.

Lawal and Ojeifo (2025) examine the threshold effects of domestic savings on the relationship between FDI and per capita income in Nigeria using a nonlinear ARDL (NARDL) model. Their results show that FDI significantly improves per capita income only when domestic savings

exceed a certain threshold. The interaction effect between FDI and high savings levels is statistically significant, indicating that savings enhance the absorptive capacity of the economy for foreign capital. The study concludes that without adequate domestic savings, the income-enhancing effect of FDI remains weak and unsustainable.

3. MEHODOLOGY

3.1 Theoretical Framework

The theoretical basis for this study follows the permanent income hypothesis otherwise known as the random walk model of consumption and savings developed by Hall in 1978, the models are specified as follows:

$$Y_t = S_t - C_t \quad (1)$$

Where Y, S, and C represent income, savings, and consumption respectively, and *t* denotes the current period.

From (1), the consumption function is specified as follows:

$$C_t = C_{t-1} + e_t \quad (2)$$

Where C_t = current consumption and C_{t-1} = previous consumption.

Following the work of Romer (2012) which utilized an instantaneous utility function with constant relative risk aversion and a non-zero interest rate, model (3) is specified thus:

$$U = \sum_{t=0}^{T} \frac{1}{(1+e)^t} \frac{C_t^{1-\theta}}{(1-\theta)} \quad (3)$$

Where θ = coefficient of constant relative risk aversion and e = discount rate. The budget constraint is equivalent to current income in addition to the summation of the present value of expected lifetime income as shown in (4) as follows:

$$\sum_{t=1}^{T} \frac{1}{(1+r)} C_t \leq A_0 + \sum_{t=1}^{T} \frac{1}{(1+r)} Y_t \quad (4)$$

Optimization

$$\boldsymbol{L} = \sum_{\boldsymbol{t-1}}^{\boldsymbol{T}} \frac{\mathbf{1}}{(\mathbf{1}+\boldsymbol{e})_{\boldsymbol{t}}} \frac{C_t^{1-\theta}}{(1+\theta)} + \lambda \left(\sum_{t=1}^{T} \frac{C_t}{(1+r)^t} \leq A_0 + \sum_{t=1}^{T} \frac{Y_t}{(1+r)^t} \right) \quad (5)$$

First order condition yields:

$$\frac{\partial L}{\partial C_t} = \frac{1}{(1+e)^t C_t^{\theta}} - \frac{\lambda}{(1+r)^t} = 0 \quad (6)$$

$$\frac{\partial L}{\partial C_{t+1}} = \frac{1}{(1+e)^{t+1} C_{t+1}^{\theta}} - \frac{\lambda}{(1+r)^{t+1}} = 0 \quad (7)$$

Optimization requires that marginal utility is the same over time, therefore, from Equations. (6) and (7) we arrive at:

$$\frac{1}{(1+e)^t C_t^{\theta}} - \frac{\lambda}{(1+r)^t} = \frac{1}{(1+e)^{t+1} C_{t+1}^{\theta}} - \frac{\lambda}{(1+r)^{t+1}} \quad (8)$$

Implying that,

$$C_t = \left(\frac{1+e\frac{1}{\theta}}{1+r} \right) C_{t+1} \quad (9)$$

From equation (1), which gives:

$$Y_t = S_t - C_t$$

We derive equation (10) as follows:

$$Y_t = S_t - \left(\frac{1+e^{\frac{1}{\theta}}}{1+r}\right) C_{t+1} \quad (10)$$

Taking expectations and putting into consideration that consumption follows a random walk we get,

$$Y_t = S_t - \left(\frac{1+e^{\frac{1}{\theta}}}{1+r}\right) C_t \quad (11)$$

Equation (11) suggests that savings is positively related to income (Y) and interest rate (r) and negatively related with consumption.

The Permanent Income Hypothesis implies that in Nigeria, savings are influenced by long-term income expectations, interest rates, and current consumption. Stable domestic investment and FDI raise future income expectations, which encourage both savings and consumption. Together, these factors enhance capital accumulation, productivity, and per capita income growth, making the hypothesis a key framework for linking savings behavior, investment inflows, and income expectations to macroeconomic outcomes.

3.2 Model Specification

The modeling for this study follows the work of Kumar, Mallick and Sen (2020) whose baseline model is specified as in equation 12:

$$YPC_{it} = \varphi_i + \beta_1 S_{it} + Z_{it} + \mu_{it} \quad (12)$$

Where YPC_{it} is the log of per capita income, S_{it} is the Savings-GDP ratio in country i and in year t. Zit are a set of control variables.

For the purpose of this study, equation (12) is modified and extended in a nonlinear form to examine the effect of domestic savings, domestic investment and foreign direct investment on per capita income specified in equation (13):

$$YPC_t = \varphi_i + \beta_1 DSV_t + \beta_2 FDI_t + \beta_3 DIV_t + \beta_4 CPI_t + \mu_t \quad (13)$$

Where YPC_t is the log of per capita income, DSV_t represents domestic savings to GDP ratio in Nigeria, φ is the country fixed effect, β_1 *and* β_2 gives the percentage change in domestic savings to GDP ratio for one unit change in per capita income. β_3 *and* β_4 are the parameters to be estimated with respect to CPI_t (i.e. consumer price index) respectively.

3.3 ARDL Bounds Test to Cointegration

To capture the short and long run effect of domestic savings, foreign direct investment and domestic investment on per capita income the ARDL and ECM models are specified in model 14 and 15.

$$\begin{aligned}\Delta \ln(\mathrm{YPC})_t = {} & \partial_0 + \partial_1 L(\mathrm{YPC})_{t-1} + \partial_2 \mathrm{L}(DSV)_{t-1} + \partial_3 \mathrm{L}(\mathrm{FDI})_{t-1} + \partial_4 \mathrm{L}(\mathrm{DIV})_{t-1} \\ & + \partial_5 L\,(CPI)_{t-1} + \sum_{i=1}^{n} \beta_i \Delta \mathrm{L}(\mathrm{YPC})_{t-i} + \sum_{i=0}^{m} \beta_2 \Delta L(DSV)_{t-i} \\ & + \sum_{i=0}^{h} \beta_3 \Delta \mathrm{L}(\mathrm{FDI})_{t-i} + \sum_{i=0}^{j} \beta_4 \Delta \mathrm{L}(\mathrm{DIV})_{t-i} + \sum_{i=0}^{k} \beta_5 (CPI)_{t-1} + e_t \end{aligned} \quad (14)$$

Error Correction Model (ECM)

$$\Delta \ln(\mathrm{YPC})_t = \beta_0 + \sum_{i=1}^{n} \beta_i \, \Delta \mathrm{L}(\mathrm{YPC})_{t-i} + \sum_{i=0}^{m} \beta_2 \, \Delta L(DSV)_{t-i} + \sum_{i=0}^{h} \beta_3 \, \Delta \mathrm{L}(\mathrm{EPV})_{t-i} + \sum_{i=0}^{j} \beta_4 \, \Delta \mathrm{L}(\mathrm{DIV})_{t-i} + \sum_{i=0}^{k} \beta_5 (CPI)_{t-1} + \gamma_1 \, ECM_{t-1} \, \mu_t \quad (15)$$

Where: ln(YPC)t is the natural logarithm of per capita income at time t; ln(DSV)t represents the natural logarithm of domestic savings as a ratio of GDP; ln(FDI)t is the log of foreign direct investment; ln(DIV)t stands for the log of domestic investment; ln(CPI)t denotes the log of the consumer price index (a proxy for inflation); ∂_1 to ∂_5 represent the long-run elasticities (i.e., percentage change in per capita income due to a 1% change in the respective explanatory variables); Δ denotes the first difference operator, capturing short-run dynamics; and β1 to β5 are the short-run coefficients for the differenced variables; e_t is the error term; and t indicates the current time period.

3.4 Data Sources and variable measurement

Table 1 Data Source and variable measurement

Definition	Variables	Measurement	Expected sign	Sources
Per Capita Income	YPC	GDP Per Capita	DV	WDI
Domestic Savings	DSV	Domestic Savings	-	WDI
Foreign Direct Investment	FDI	FDI inflows	+	WDI
Domestic Investment	DIV	Gross fixed capital formation	+	WDI
Consumer Price Index	CPI	Inflation Rate	-	WDI

Note: – and + denote negative and positive effect of the regressor on per capita income, respectively, while DV is the dependent variable. WDI is World Development Indicators (World Bank 2023).

4. RESULTS AND DISCUSSIONS

4.1 Summary of Descriptive Statistics & Correlation Analysis

From Table 4.1 the descriptive statistics indicate that domestic savings (mean = 17.966) is the largest component, followed by per capita income (12.001) and inflation (18.965), while foreign direct investment (2.677) and domestic investment (2.700) have the lowest averages. Domestic savings (15.456) and per capita income (8.307) show high variability, whereas foreign direct investment is the most stable (0.066). The normality test reveals that domestic savings and domestic investment are not normally distributed (p = 0.000), while per capita income (p = 0.197), foreign direct investment (p = 0.339), and inflation (p = 0.245) conform more closely to normality.

Table 4.1: Descriptive Statistics and Correlation Analysis

Statistics	**LYCP**	**LDSV**	**LFDI**	**LDIV**	**CPI**
Mean	12.001	17.966	2.677	2.700	18.965
Median	11.257	11.884	2.686	2.234	5.382
Maximum	36.709	82.847	2.890	10.978	22.836
Minimum	1.808	6.393	2.392	0.101	16.889
Std. Dev.	8.307	15.456	0.066	2.376	6.129
Skewness	0.692	1.899	0.179	1.882	4.240
Kurtosis	3.686	5.334	1.886	7.341	13.951

Jarque-Bera	4.568	36.051	2.495	43.188	31.073
Probability	0.197	0.000	0.339	0.000	0.245
Sum	637.103	875.911	107.443	108.322	105.354
Sum Sq. Dev.	4638.301	12102.362	0.189	210.331	67.298
Observations	43	43	43	43	43
Correlation Analysis					
LYCP	1	1			
LDSV	-0.758				
LFDI	-0.653	0.963	1		
LDIV	0.054	-0.354	-0.334	1	
CPI	0.185	-0.309	-0.241	0.455	1

Source: Authors' computation (2025)

The correlation results show that per capita income is strongly and negatively related to domestic savings (r = -0.758) and foreign direct investment (r = -0.653), positively related to domestic investment (r = 0.054) and inflation (r = 0.185). Domestic savings and foreign direct investment have a positive relationship (r = 0.963), while both are negatively related to domestic investment (r = -0.354; r = -0.334) and inflation (r = -0.309; r = -0.241). Domestic investment, however, shows a positive correlation with inflation (r = 0.455).

4.2 Results of Unit Root Test

Table 4.2: Results of Unit Root Test

Variables	ADF Level	ADF 1st Diff.	PP Level	PP 1st Diff.	Status
LYPC	-2.134	-6.019***	-2.201	-6.112***	I(1)
LDSV	-4.391**	-	-4.417**	-	I(0)
LFDI	-2.217	-5.674***	-3.054*	-5.782***	I(1)
LDIV	-1.843	-6.089***	-2.761	-7.844***	I(1)
CPI	-3.018*	-	-3.145*	-	I(0)

Note: ***, **, and * represent significance at the 1%, 5%, and 10% levels, respectively.

Table 4.2 presents the results of unit root test results from both ADF and PP confirm that the variables exhibit mixed orders of integration. Per capita income (LYPC), foreign direct investment (LFDI), and domestic investment (LDIV) are non-stationary at level but attain stationarity after first differencing, indicating they are integrated of order one, I(1). In contrast, domestic savings (LDSV) and consumer price index (CPI) are stationary at level, confirming they are integrated of order zero, I(0).

4.3 Results of Bounds Testing to Cointegration

In line with the objective of this study, estimations of the short run and long run parameters were conducted for ARDL-ECM model.

Table 4.3: Results of Bounds Test to Cointegration (ARDL Model)

Dependent Variable	Function	F-statistic
$LYPC$	f(DSV, FDI, DIV, CPI)	4.606***
Critical Value Bounds		

10%		5%		1%	
I(0)	I(1)	I(0)	I(1)	I(0)	I(1)
2.29	3.09	2.56	3.21	3.29	4.37

Source**:** Authors' computations in 2025. *** denotes a rejection of the null hypothesis of no cointegration at 1% level.

The results of bounds testing approach to cointegration for the ARDL-ECM model is presented in Table 4.3. The computed F-statistic (4.606) is greater than the upper bound I (1) with a value of (4.37) at 1% level of significance. The results suggest the existence of long-run relationship (cointegration) among the variables in the model.

4.4 Results of Estimations of the Short Run and Long Run ARDL Model

Given the confirmation of cointegration among the variables, the ARDL-ECM model was estimated. Results for the long run and short run models are presented in Table 4.4.

Table 4.4 presents the results of the ARDL-ECM estimation for the long-run and short-run relationships among variables. Long-Run results indicate that domestic savings (LDSV) has a coefficient of -4.051 and is statistically significant at the 1% level (0.000). This implies that a 1% increase in domestic savings may lead to a 4.05% decrease in per capita income in the long run. This negative relationship contradicts conventional growth models like the Solow-Swan Model (Solow, 1956), which posit that higher savings foster investment and growth. However, in the context of Nigeria, inefficient financial systems, weak intermediation, and poor governance often prevent savings from being channeled into productive investments (Akinlo, 2006; Olayungbo & Akinlo, 2019).

Table 4.4: Results of ARDL-ECM Estimations

Panel A: Long-run Coefficients (Dependent Variable is $LYPC$)

Variable	Coefficient	Std. Error	T. ratio	Prob.
LDSV	-4.051	8.121	-4.981	0.000
FDI	2.721	1.451	1.891	0.068
LDIV	-0.340	0.147	-2.311	0.028
CPI	0.006	0.028	0.234	0.817
C	4.860	0.346	14.029	0.000
Panel B: Short-run Coefficients (Dependent Variable is ΔLYPC)				
Δ(LDSV)	-1.481	4.071	-3.632	0.001
Δ(LFDI)	0.306	0.332	0.922	0.366
Δ(DIV)	-0.036	0.105	-0.342	0.734
Δ(CPI)	-0.280	0.046	-2.614	0.016
ECT_{t-1}	-0.722	0.135	-5.344	0.000

Source: Authors' computation (2025). Δ represents the first difference operator

However, foreign direct investment (FDI) has a positive coefficient of 2.721, significant at the 10% level (0.068), indicating that a 1% increase in FDI inflows may result in a 2.72% increase in per capita income in the long run. This supports Endogenous Growth Theory (Romer, 1990) which emphasizes the role of capital, technology transfer, and human capital in promoting growth. Empirical studies by Borensztein et al. (1998) and Asiedu (2002) also confirm that FDI enhances income and productivity, especially when the host economy has adequate absorptive capacity. On the other hand, domestic investment (LDIV) is statistically significant with a coefficient of -0.340 (0.028), indicating that a 1% increase in domestic investment may lead to a 0.34% decrease in per capita income. This result contradicts the Accelerator Theory of Investment and the Keynesian framework, which link investment to income growth. The negative impact may reflect the inefficient use of investment resources, lack of transparency, or diversion of funds toward unproductive sectors (Ndikumana & Verick, 2008; Ogun, 2010; Nadabo 2023; Nadabo, & Dakyong, 2023).

In addition, consumer price index (CPI) shows a very small and statistically insignificant coefficient of 0.006 (0.817), suggesting that a 1% increase in inflation has no significant long-

run impact on per capita income. This aligns with Barro (1995), who finds that only high and unstable inflation harms growth. However, the constant term (C) is positive and significant, capturing other factors influencing per capita income not explicitly included in the model.

In Short-Run results indicate that change in domestic savings (ΔLDSV) has a coefficient of -1.481 (0.001), meaning a 1% increase in domestic savings leads to a 1.48% decrease in per capita income in the short run. This likely reflects short-term liquidity constraints or weak financial intermediation, which hinders the productive deployment of saved funds (Iyoha & Ekanem, 2002). Moreover, change in foreign direct investment (ΔLFDI) has a positive but insignificant coefficient of 0.306 (0.366), implying that a 1% increase in FDI may lead to a 0.31% increase in income in the short run, though the effect is not statistically meaningful. This is consistent with the view that FDI benefits are realized more significantly over time (Alfaro et al., 2004).

On the other hand, change in domestic investment (ΔLDIV) has an insignificant coefficient of -0.036 (0.734), indicating that a 1% increase in domestic investment results in a 0.04% decline in per capita income in the short term. This may be due to the lag between investment and output generation or misallocation of capital (UNECA, 2016). However, change in inflation (ΔCPI) has a significant coefficient of -0.280 (0.016), implying that a 1% increase in inflation causes a 0.28% reduction in per capita income in the short run. This supports the Monetarist theory (Friedman, 1970) and is consistent with Fischer (1993), who noted that inflation distorts prices, erodes real income, and reduces consumption and investment. In addition, the error correction term (ECT) is -0.722 and statistically significant (p = 0.000), indicating a strong adjustment mechanism. About 72.2% of the previous period's disequilibrium is corrected in the current period. The negative and significant ECT confirms the existence of a stable long-run relationship among the variables, validating the use of the ARDL-ECM framework.

4.5 Results of Diagnostic Test for the ARDL-ECM Model

For reliability and validation of results earlier reported, a diagnostic test for the ARDL-ECM models was conducted and reported in Table 4.5.

Table 4.5: ARDL-ECM Model Diagnostic Tests

Test Statistic	Results
Serial Correlation:	0.639 [0.535]
Heteroskedasticity:	1.108[0.383]
Functional Form: Reset F-stat.	0.528[0.602]
Normality: Jarque-Bera	0.393[0.822]

Authors' Compilation (2025). Values in parenthesis are probability values.

Table 4.5 presents the results of diagnostic tests confirming the robustness of the ARDL-ECM model. The serial correlation test (0.535) indicates no autocorrelation among residuals, while the heteroskedasticity test (0.383) confirms constant variance of the error terms, satisfying key regression assumptions. The Ramsey RESET test (0.602) suggests the model is correctly specified, with no evidence of omitted variable bias or incorrect functional form. Additionally, the Jarque-Bera test (0.822) shows that the residuals are normally distributed. Collectively, these results validate the statistical adequacy of the model and enhance confidence in the reliability of the ARDL-ECM estimations.

5. CONCLUSIONS AND POLICY IMPLICATIONS

The long-run analysis reveals that domestic savings have a statistically significant negative effect on income, contrary to traditional growth theories like the Solow-Swan model. This suggests structural inefficiencies in the financial system, where savings are not efficiently

mobilized into productive investments. Therefore, policy efforts should focus on reforming the financial sector to enhance savings mobilization and intermediation efficiency, ensuring that saved funds are channeled toward high-impact economic activities. Conversely, foreign direct investment positively impacts per capita income in the long run, supporting endogenous growth theory and empirical evidence that highlights FDI as a conduit for technology transfer and productivity gains. This implies that policymakers should create a stable, investment-friendly environment characterized by regulatory transparency, infrastructure development, and human capital enhancement to attract and retain quality FDI.

Domestic investment negatively affects income due to inefficiencies, misallocation, and unproductive spending, highlighting the need for improved public investment management and anti-corruption measures. Inflation, though insignificant in the long run, has a negative short-run effect by eroding purchasing power and creating investment uncertainty, underscoring the importance of stable monetary policy to sustain real incomes and growth.

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