

Inflation Indicators and Foreign Direct Investment in Nigeria: An Empirical Analysis of Multiple Price-Level Effects

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Abstract

This study examines the relationship between inflation and foreign direct investment (FDI) inflows in Nigeria over the period 1990–2024, employing the autoregressive distributed lag (ARDL) modelling framework. The analysis establishes a stable long-run relationship between inflation dynamics and FDI, confirming that macroeconomic conditions exert a persistent influence on foreign investors' decisions. The empirical results reveal that inflation has a negative and statistically significant effect on FDI in the long run, indicating that sustained price instability undermines investor confidence by eroding real returns and increasing uncertainty. In contrast, price indicators associated with productive economic activity, including production-side price movements and broader output expansion, display positive relationships with FDI, suggesting that inflation driven by real sector growth may signal profitable investment opportunities. Exchange rate behaviour contributes positively, though modestly, highlighting the importance of relative currency stability in enhancing Nigeria's investment attractiveness. The error correction mechanism indicates a meaningful speed of adjustment toward long-run equilibrium, underscoring the dynamic consistency of the model. Short-run results show that inflation exerts a limited immediate influence on FDI, implying that foreign investors respond more strongly to persistent inflationary trends than to transitory shocks. The findings emphasize that credible inflation control, stable exchange rate management, and disciplined macroeconomic policies are central to sustaining long-term foreign capital inflows. The study concludes that improving Nigeria's FDI performance requires prioritising price stability, strengthening monetary policy credibility, and ensuring that economic growth is driven by productivity-enhancing structural reforms rather than inflationary pressures.

Keywords: Inflation Rate, Foreign Direct Investment

1. Introduction

Foreign direct investment (FDI) is widely recognised as a critical driver of economic growth and development, providing capital, technology transfer, managerial expertise, and access to international markets. In developing economies such as Nigeria, FDI inflows complement domestic investment by stimulating industrialisation, creating employment opportunities, and enhancing productivity (Adebayo et al., 2020; Ukachukwu & Odionye, 2020). Despite possessing abundant natural resources, a large consumer market, and a strategic geographical position in West Africa, Nigeria has experienced considerable fluctuations in FDI inflows over the years. Available statistics indicate that FDI inflows exceeded US\$8 billion in the early 2010s but declined significantly in subsequent years, falling below US\$1 billion in several recent periods. At the same time, inflationary pressures have intensified, with headline inflation rising from single-digit levels in some periods to above 30 per cent in recent years. This simultaneous rise in inflation and decline in FDI has raised concerns regarding the extent to which macroeconomic instability influences foreign investment decisions. Structural bottlenecks such as inadequate infrastructure, policy inconsistencies, poor institutional

quality, and persistent inflation have continued to undermine investor confidence (Sani & Ezekiel, 2022; Njoku et al., 2023). Studies suggest that inflation reduces the real value of investment returns, distorts profit expectations, and often interacts with exchange-rate volatility to increase uncertainty in the investment environment (Davison et al., 2024; Kur & Ogbonna, 2019). Consequently, although Nigeria possesses substantial investment potential, foreign investment remains concentrated in a few sectors, particularly extractive industries. Given the importance of FDI for economic growth and diversification, understanding how various dimensions of inflation—including the inflation rate, Producer Price Index (PPI), GDP deflator, and Wholesale Price Index (WPI)—influence FDI inflows is essential for designing effective fiscal and monetary policies capable of improving Nigeria's attractiveness to foreign investors (Akpensuen et al., 2020; Davison et al., 2024).

Inflation remains one of the most persistent macroeconomic challenges confronting Nigeria and has become increasingly relevant in discussions concerning foreign direct investment (FDI). High and volatile inflation creates uncertainty regarding future costs, revenues, and profitability, thereby affecting investors' willingness to commit long-term capital to an economy (Tsaurai, 2018; Abdurrahmani & Tmava, 2024). In Nigeria, inflationary pressures have been driven by exchange-rate depreciation, fiscal imbalances, supply-chain disruptions, insecurity, and structural deficiencies in domestic production, resulting in sustained increases in the general price level (Njoku et al., 2023; Sani & Ezekiel, 2022). Recent inflation trends have reached levels not witnessed in decades, intensifying concerns among domestic and international investors. Meanwhile, Nigeria's FDI performance has remained weak and volatile despite the country's favourable market size and resource endowment. Existing evidence suggests that foreign investors are highly sensitive to macroeconomic instability because price volatility directly affects production costs, investment planning horizons, and expected returns on investment (Kur & Ogbonna, 2019; Akpensuen et al., 2020). The multidimensional nature of inflation implies that its impact on FDI may not be fully captured through headline inflation alone. Indicators such as the Producer Price Index (PPI), GDP deflator, and Wholesale Price Index (WPI) provide additional insights into production costs, economy-wide price changes, and wholesale market conditions, respectively (Davison et al., 2024; Fesojaye & Micheal, 2024). Understanding how these alternative inflation measures influence FDI is therefore critical for identifying the specific channels through which price instability affects investor confidence and foreign capital inflows. Given the developmental role of FDI in technology transfer, industrial expansion, and employment generation, empirical evidence on the inflation–FDI nexus is necessary for formulating policies that support macroeconomic stability and sustainable economic growth in Nigeria (Okoroigwe et al., 2023; Adeniyi, 2020).

The study of the influence of inflation on foreign direct investment (FDI) inflows is particularly important in Nigeria because of the country's continued efforts to diversify its economy and attract foreign capital to support development objectives (Adeniyi, 2020; Njoku et al., 2023). FDI serves as a major source of external finance, facilitates technology diffusion, and enhances productive capacity, yet its effectiveness depends largely on the existence of a stable macroeconomic environment (Kur & Ogbonna, 2019). Nigeria's persistent inflationary episodes have increased production costs, weakened purchasing power, and heightened uncertainty regarding future economic conditions, all of which may discourage foreign investors from undertaking long-term investment commitments (Tsaurai, 2018; Abdurrahmani & Tmava, 2024). Although several studies have examined the relationship

between inflation and FDI, many have relied primarily on headline inflation measures and have therefore provided limited insights into how different dimensions of price movements affect investment decisions. Furthermore, the growing divergence between rising inflation rates and declining FDI inflows in recent years necessitates a more comprehensive examination of the relationship. By incorporating multiple inflation indicators—including the inflation rate, Producer Price Index (PPI), GDP deflator, and Wholesale Price Index (WPI)—this study provides a broader assessment of inflationary conditions and their implications for foreign investment (Davison et al., 2024; Fesojaye & Micheal, 2024). The findings are expected to assist policymakers in identifying the aspects of inflation that most strongly influence FDI and in formulating policies that promote price stability and investor confidence. Additionally, the study provides useful information for investors seeking to understand the macroeconomic risks associated with operating in Nigeria, while contributing to broader efforts aimed at strengthening economic management and long-run growth.

This study departs from existing research on foreign direct investment (FDI) in Nigeria by adopting a multidimensional framework for analysing inflation and its effects on investment inflows. Although previous studies have investigated the inflation–FDI nexus, many have treated inflation as a single macroeconomic indicator represented solely by the headline inflation rate (Njoku et al., 2023; Kur & Ogbonna, 2019). Such an approach may not adequately capture the diverse channels through which price changes affect investment decisions. This study therefore incorporates four distinct inflation measures: inflation rate, Producer Price Index (PPI), GDP deflator, and Wholesale Price Index (WPI), thereby accounting for consumer-level inflation, producer-level cost pressures, economy-wide price movements, and wholesale market dynamics. This broader representation enables a more comprehensive assessment of how inflation influences FDI inflows in Nigeria. In addition, previous empirical studies have reported mixed findings regarding the direction and magnitude of the inflation–FDI relationship, suggesting the need for further investigation using alternative measures and updated data (Akpensuen et al., 2020; Davison et al., 2024). The study also employs the Autoregressive Distributed Lag (ARDL) model, which is suitable for analysing both short-run and long-run relationships among variables with mixed orders of integration. Furthermore, the study period of 1990–2024 captures major economic reforms, inflationary episodes, exchange-rate adjustments, and investment cycles in Nigeria, thereby providing a more comprehensive understanding of the inflation–FDI relationship than many earlier studies.

The contributions of this study are multifaceted, spanning theoretical, empirical, and policy dimensions. Theoretically, the study extends existing knowledge by demonstrating how alternative inflation indicators—namely the inflation rate, Producer Price Index (PPI), GDP deflator, and Wholesale Price Index (WPI)—may exert varying effects on foreign direct investment decisions, thereby enriching the literature on macroeconomic stability and international investment (Tsaurai, 2018; Abdurrahmani & Tmava, 2024). Empirically, the study contributes updated evidence from Nigeria covering the period 1990–2024, a timeframe characterised by significant economic reforms, inflationary fluctuations, and changing patterns of foreign investment. Unlike previous studies that focus primarily on a single inflation indicator, this research provides a broader examination of inflation dynamics and their implications for FDI inflows. The use of the ARDL framework further enables the distinction between short-run adjustments and long-run equilibrium relationships, offering deeper insights into the responsiveness of FDI to inflationary conditions. From a policy

standpoint, the findings will assist policymakers, monetary authorities, and investment promotion agencies in identifying the specific inflation dimensions that pose the greatest challenges to attracting foreign capital. Such evidence can support the design of targeted macroeconomic stabilisation policies aimed at improving investor confidence, strengthening Nigeria's investment climate, and enhancing sustainable economic growth. Consequently, the study contributes to both academic discourse and practical policymaking by providing a more comprehensive understanding of the inflation–FDI nexus in Nigeria.

2. Review of Related Literature

2.1 Theoretical Review

Cost-Push Inflation Theory

The cost-push inflation theory explains inflation as a consequence of rising production costs rather than excessive aggregate demand. The theory posits that increases in the prices of production inputs such as labour, energy, imported raw materials, transportation, and intermediate goods compel firms to raise the prices of final products in order to maintain profitability. Consequently, inflation originates from the supply side of the economy and is often associated with adverse supply shocks. According to this perspective, inflation may persist even in periods of weak economic growth, particularly when production costs continue to escalate. The theory gained prominence during the stagflation episodes of the 1970s when rising oil prices generated simultaneous inflation and economic stagnation (Barth & Bennett, 1975; Ferreira, 2026). Cost-push inflation is particularly relevant to developing economies such as Nigeria, where production activities are highly dependent on imported inputs, foreign exchange availability, energy supply, and transportation infrastructure. Rising producer costs are reflected in indicators such as the Producer Price Index (PPI), GDP Deflator, and Wholesale Price Index (WPI), all of which capture inflationary pressures originating from production and distribution channels. Persistent increases in these indicators can reduce the expected profitability of investment projects, increase operational uncertainty, and discourage foreign investors from committing long-term capital. Therefore, the cost-push inflation theory provides a strong theoretical foundation for examining how production-related inflation influences foreign direct investment inflows into Nigeria.

Wage–Price Spiral Theory

The Wage–Price Spiral Theory is an extension of supply-side inflation theories and argues that inflation results from a continuous interaction between rising wages and rising prices. The theory suggests that when workers experience a decline in real purchasing power due to increasing prices, they demand higher nominal wages. Firms subsequently transfer the additional labour costs to consumers through higher product prices. As prices continue to rise, workers seek further wage adjustments, thereby generating a self-reinforcing cycle of wage increases and price inflation. This process can create persistent inflationary pressures even in the absence of strong aggregate demand growth. The theory became particularly important in explaining prolonged inflation episodes observed in many economies during the post-war period and has remained relevant in analyses of structural inflationary processes (Ferreira, 2026). In Nigeria, rising living costs, labour union wage negotiations, fuel price adjustments, and exchange-rate-induced increases in production costs can contribute to wage–price dynamics. Such inflationary pressures are often reflected in broad price indices such as the GDP Deflator, PPI, and WPI. For foreign investors, persistent wage-price spirals increase

uncertainty regarding future production costs and profitability. This uncertainty can reduce the attractiveness of host economies for long-term investment. However, the wage–price spiral theory provides a useful framework for understanding how sustained inflationary pressures may influence FDI decisions in Nigeria by increasing operational risks and reducing expected returns on investment.

Imported Inflation Theory

The imported inflation theory contends that inflation can originate from external sources and be transmitted into a domestic economy through international trade and exchange-rate movements. The theory argues that countries that depend heavily on imported goods, machinery, raw materials, fuel, and intermediate inputs are vulnerable to price increases originating abroad. When the domestic currency depreciates or when global commodity prices rise, the cost of imported products increases, leading to higher production costs and higher domestic prices. Imported inflation is particularly prevalent in developing economies with substantial import dependence and weak productive capacities. Nigeria provides a classic example of this phenomenon because many manufacturing firms rely on imported machinery, industrial inputs, refined petroleum products, and consumer goods. Exchange-rate volatility and external price shocks therefore exert significant influence on domestic inflationary conditions (Sani & Ezekiel, 2022; Njoku et al., 2023). Indicators such as the Producer Price Index (PPI), Wholesale Price Index (WPI), and GDP Deflator frequently capture the transmission of imported cost increases into domestic markets. From the perspective of foreign investors, imported inflation creates uncertainty regarding future operating costs, exchange-rate stability, and profit repatriation. These uncertainties may discourage new investments or reduce the scale of existing investment projects. The Imported Inflation Theory is highly relevant to this study because it explains how external price shocks and exchange-rate fluctuations can generate inflationary pressures that ultimately affect foreign direct investment inflows into Nigeria.

Demand-Pull Inflation Theory

The demand-pull inflation theory, largely associated with Keynesian economics, explains inflation as a consequence of excessive aggregate demand relative to the productive capacity of the economy. The theory posits that when consumer spending, business investment, and government expenditure collectively exceed available supply, prices rise because too much money is chasing too few goods and services. Inflation, therefore, emerges from demand-side pressures rather than production costs. According to Keynes, strong aggregate demand stimulates economic activity and employment, but once an economy approaches full capacity, additional demand primarily results in rising prices rather than increased output (Keynes, 1936). Demand-pull inflation is particularly relevant in periods of rapid economic expansion, credit growth, fiscal stimulus, or increased consumer spending (Perry, 2008). In Nigeria, expansionary fiscal policies, increased money supply, rising public expenditure, and periods of economic recovery can generate demand-side inflationary pressures. Such pressures are reflected in the general inflation rate and GDP deflator, which capture broad increases in the overall price level. From an investment perspective, moderate demand-driven inflation may signal strong economic activity and market expansion, potentially attracting foreign investors. However, excessive demand-pull inflation can reduce macroeconomic stability, increase uncertainty, and weaken investor confidence. Therefore, the demand-pull inflation theory

provides an important framework for understanding how aggregate demand conditions influence inflation and, ultimately, foreign direct investment inflows into Nigeria.

2.2 Empirical Literature

The empirical literature on the nexus between foreign direct investment (FDI), inflation, exchange rate dynamics, and economic growth reveals a highly complex and often inconsistent set of findings, particularly in developing economies such as Nigeria. A key limitation across most studies is the persistence of mixed evidence, weak structural identification, and over-reliance on linear econometric specifications, which constrains the generalisability of policy conclusions. Starting with Nigeria-specific evidence, Kolewale and Seyingbo (2025) apply ARDL techniques within a Solow and dependency theory framework to examine FDI, inflation, exchange rate fluctuations, and growth. While their finding that FDI contributes only weakly to long-run growth is plausible, the study is constrained by its failure to adequately disentangle institutional quality from macroeconomic volatility, treating institutional weakness as a narrative explanation rather than a formally modelled variable. This weakens causal interpretation and reduces policy precision. Similarly, Njoku et al. (2023) employ a VECM framework and conclude that inflation, interest rates, and exchange rates are individually insignificant but jointly relevant to FDI. However, this “collective significance” interpretation is econometrically weak because it may reflect multicollinearity rather than true joint causality, an issue the authors do not sufficiently interrogate. Ben-Obi et al. (2025), using NARDL, improve on earlier linear models by capturing asymmetry in exchange rate effects. Their finding that depreciation increases inflation is robust; however, the positive but insignificant FDI response suggests that exchange rate stability alone is insufficient without addressing structural investment constraints, a limitation not fully explored.

A broader African perspective is provided by Adeniyi (2020), who finds a strong positive FDI-growth relationship but inflationary harm to growth in most countries. While informative, the study relies heavily on pooled regression, which ignores country heterogeneity and institutional divergence, potentially overstating uniform effects across heterogeneous economies. Kur and Ogbonna (2019) add nuance by identifying a 2.8% inflation threshold beyond which FDI-growth benefits decline. This nonlinear insight is valuable; however, the study assumes a fixed threshold across time and structural regimes, which may not hold in volatile macroeconomic environments like Nigeria. In contrast, Sani and Ezekiel (2022) highlight infrastructure constraints, particularly electricity supply, as key determinants of FDI. Their finding that electricity negatively affects FDI despite significance is counterintuitive but underscores a deeper issue: quantity of infrastructure investment may matter less than efficiency and reliability, a dimension underexplored in their model. Igwemeka (2016) shifts attention to inflation’s impact on FDI composition, showing exports reduce inflation while FDI effects are insignificant. However, the study does not differentiate between productivity-enhancing versus speculative capital inflows, limiting its explanatory depth. Davison et al. (2024) find that inflation significantly reduces FDI in the short run but not in the long run, while money supply increases FDI. This asymmetry is important, but the study does not sufficiently address whether monetary expansion is sustainable or merely liquidity-driven FDI attraction, raising concerns about long-run validity. Ukachukwu and Odionye (2020) show that exchange rate and oil prices significantly influence FDI, while inflation negatively affects it. However, their reliance on ARDL without structural breaks may bias results, especially given Nigeria’s frequent exchange rate regime shifts.

Furthermore, Akpensuen et al. (2020) conclude that inflation has no causal impact on FDI using VECM and Wald tests. This contradicts most literature, suggesting possible model misspecification or omitted variable bias, especially given the exclusion of institutional and political risk factors. Adebayo et al. (2020) provide more robust evidence using ARDL, FMOLS, and DOLS, showing that exports and trade openness significantly boost FDI. Unlike many studies, this triangulation strengthens validity, although the exclusion of inflation in robustness discussions limits full comparability. Kwoba and Kibati (2016) similarly find that inflation, GDP, and exchange rates negatively affect FDI in Kenya, but insignificantly. However, the study's short time frame and simple regression design limit its ability to capture long-run structural relationships, making its conclusions largely descriptive. Fesojoye and Micheal (2024) find no long-run relationship between inflation, FDI, unemployment, and GDP in Nigeria. This contradicts most ARDL-based studies and suggests either weak cointegration or model instability, yet the authors do not test for structural breaks or regime shifts. Expanding the regional scope, Tsaurai (2018) shows that inflation-FDI relationships in Southern Africa are highly sensitive to estimation technique. This is a critical contribution because it demonstrates that results are method-dependent rather than structurally stable, a limitation common across the literature.

At the macroeconomic policy level, Pappas and Boukas (2025) challenge conventional wisdom by finding that inflation does not significantly harm growth in EU economies, while interest rates do. However, applying this insight to developing economies is problematic due to structural differences in financial depth and monetary transmission mechanisms. Oyadeyi et al. (2025) improve the literature by identifying optimal macroeconomic thresholds for Nigeria. While policy-relevant, their threshold estimates risk being overfitted to historical data and may not be stable under future shocks or policy regime changes. Cao et al. (2025) provide evidence from Saudi Arabia that FDI, trade openness, and inflation reduce unemployment. However, the short sample period (2016–2023) raises concerns about temporal insufficiency and cyclical bias, particularly in oil-dependent economies. In the Western Balkans, Abdurrahmani and Tmava (2024) find that inflation increases FDI and GDP in the short run. This counterintuitive result suggests that moderate inflation may signal economic activity, but the study does not distinguish between demand-driven and cost-push inflation. Idoro and Ehiedu (2024) and Ugomma and Chijioke (2024) both find that inflation and exchange rate volatility have limited or mixed effects on growth in Nigeria. However, both studies rely heavily on ARDL/OLS frameworks without adequately addressing endogeneity and reverse causality, weakening causal inference. Cletus and Onyeonu (2023) find that exchange rate volatility slows growth and worsens inflation-growth dynamics. While theoretically consistent, their policy recommendation overlooks the fact that exchange rate stabilisation without structural export diversification may only produce short-term gains. Finally, earlier foundational work such as Igwemeka (2016) confirms that FDI and FPI have weak inflationary effects, while exports reduce inflation. This reinforces a consistent pattern in the literature: FDI effects are context-dependent and mediated by structural economic composition rather than being inherently inflationary or growth-enhancing.

3. Methodology

3.1 Data Definitions and Sources

This study critically examines the effect of inflation on foreign direct investment (FDI) inflows in Nigeria over the period 1990 to 2024, based on the availability and consistency of annual

data across credible sources. To measure inflation, multiple indicators were selected, including the inflation rate (INFL), Producer Price Index (PPI), GDP deflator (GDPD), and Wholesale Price Index (WPI), providing a comprehensive assessment of price level changes in the economy. Foreign direct investment inflows (FDI) serve as the dependent variable, capturing the volume of foreign capital entering the Nigerian economy. To account for other macroeconomic factors that may influence FDI, control variables such as the exchange rate (EXR) and population growth (POPgrt) were incorporated into the model. These variables are defined and operationalised to provide clarity and ensure a robust analytical framework, enabling a precise examination of how fluctuations in inflation measures affect foreign investment inflows. The study's approach allows for a nuanced understanding of the interplay between inflation and FDI in Nigeria, guiding policymakers in designing effective macroeconomic and investment policies.

3.2 Theoretical Framework

This study is anchored on an integrated theoretical framework combining cost-push inflation theory, wage-price spiral theory, imported inflation theory, and demand-pull inflation theory to explain the multidimensional nature of inflation and its transmission into foreign direct investment (FDI) inflows in Nigeria. Unlike isolated theoretical applications, this framework treats inflation as a composite macroeconomic phenomenon captured through multiple indicators—inflation rate (INFR), producer price index (PPI), GDP deflator, and wholesale price index (WPI)—each reflecting different transmission channels of price dynamics. These inflation measures collectively shape investment decisions by influencing production costs, expectations, exchange rate stability, and aggregate demand conditions. Formally, inflation in this study is conceptualised as a latent construct generated from multiple structural forces:

$$INF_t = f(INFR_t, PPI_t, GDPD_t, WPI_t)$$

where: $INFR_t$ = inflation rate (consumer price dynamics); PPI_t = producer price index (cost-push pressures); $GDPD_t$ = GDP deflator (broad macroeconomic inflation); and WPI_t = wholesale price index (distribution-level inflation).

3.3 Model Specifications

To examine the effect of inflation on foreign direct investment (FDI) inflows in Nigeria, this study employs the Autoregressive Distributed Lag (ARDL) estimation approach, initially developed by Pesaran, Shin, and Smith (1999) and refined in subsequent work (Pesaran, Shin, & Smith, 2001). The ARDL method has been widely used in empirical studies exploring the influence of macroeconomic variables, such as inflation, exchange rates, and monetary indicators, on investment and economic growth (Davison et al., 2024; Abdurrahmani & Tmava, 2024). Compared to traditional cointegration techniques, such as the Engle and Granger (1987) residual-based test or Johansen's (1991, 1995) maximum likelihood method, the ARDL approach offers key advantages. It accommodates variables of mixed integration orders, $I(0)$ or $I(1)$, without requiring pre-testing for unit roots, thereby reducing potential biases and estimation errors (Pesaran, Shin, & Smith, 2001). The ARDL framework allows for the simultaneous estimation of both short-run dynamics and long-run equilibrium relationships through its error correction representation, providing a comprehensive view of how inflationary pressures affect FDI over time (Banerjee et al., 1993). Additionally, it is

particularly suitable for small or finite sample sizes, ensuring robust and unbiased parameter estimates (Ghatak & Siddiki, 2001). In this study, inflation is measured using multiple proxies—including the inflation rate, Producer Price Index (PPI), GDP deflator, and Wholesale Price Index (WPI)—while FDI inflows serve as the dependent variable. This methodological choice enables a rigorous empirical assessment of the short- and long-term impacts of inflation on foreign investment in Nigeria, capturing nuanced interactions that are critical for effective policy formulation. The empirical ARDL specification for this study is presented in the following section.

$$\ln G_t = \sum_{j=1}^p \beta_{i,j} \ln G_{t-j} + \sum_{j=1}^q \phi_{i,j} \ln X_{t-j} + \sum_{j=1}^q \varpi_{i,j} \ln Cont_{t-j} + \phi_i + \epsilon_t(1)$$

In this specification, the coefficients of the lagged dependent variable, $\beta_{i,j}$, capture the dynamic adjustments of foreign direct investment inflows in response to past values over time. The coefficients of the explanatory variables, $\phi_{i,j}$, measure both the short- and long-run effects of inflation, as proxied by the inflation rate, Producer Price Index (PPI), GDP deflator, and Wholesale Price Index (WPI), on FDI inflows. Similarly, the coefficients of the control variables, $\varpi_{i,j}$, account for the influence of macroeconomic and structural factors, such as exchange rates and other relevant determinants, on foreign investment. The terms p and q denote the optimal lag lengths for the dependent and explanatory variables, respectively, while ξ_i represents time-specific fixed effects to control for unobserved heterogeneity across periods, and ϵ_t is the stochastic error term. All variables are expressed in natural logarithms to ensure linearity, reduce heteroscedasticity, and facilitate the interpretation of elasticities. This formulation allows for the simultaneous estimation of short- and long-run relationships, providing insights into both immediate and sustained impacts of inflation on FDI inflows. The coefficient vectors indicate the magnitude and direction of these effects, enabling a deeper understanding of how different measures of inflation interact with foreign investment in Nigeria. The ARDL specification can be further expanded to interpret each coefficient's economic significance, guiding policymakers in designing targeted interventions to stabilise inflation and attract foreign capital.

$$\ln FDI_t = \delta_0 + \phi_j \ln FDI_{t-j} + \beta_1 \ln INFR_{t-j} + \beta_2 \ln PRI_{t-j} + \beta_3 \ln GDPdeflator_{t-j} + \beta_4 \ln WPR_{t-j} + \beta_5 \ln POPgrt_{t-j} + \delta_1 \ln EXR_{t-j} + \phi_t + \epsilon_t(2)$$

In this specification, ϕ_j denotes the coefficient of the lagged dependent variable, capturing the dynamic adjustments of foreign direct investment inflows in Nigeria over time. The coefficients $\beta_1, \beta_2, \beta_3, \beta_4$ represent the impact of each measure of inflation—Inflation Rate (INFL), Producer Price Index (PPI), GDP Deflator (GDPD), and Wholesale Price Index (WPI)—on FDI inflows. The coefficients of the control variables, δ_1, δ_2 , measure the influence of exchange rate (EXR) and other macroeconomic factors on foreign investment. The term ξ_t captures time-specific fixed effects to control for unobserved heterogeneity across periods, while ϵ_t is the stochastic error term accounting for random disturbances. All variables are expressed in natural logarithms to linearise relationships, stabilise variance, and reduce heteroscedasticity. This formulation allows for the simultaneous estimation of both short- and long-run effects of inflation measures and macroeconomic controls on FDI inflows. The ARDL

specification facilitates the decomposition of immediate versus sustained impacts, providing insights into how different components of inflation influence foreign investment dynamics in Nigeria. Equation (2) can be expressed in its ARDL form as shown in Equation (3), capturing both the short-term adjustments and long-term equilibrium relationships among the variables.

$$\begin{aligned} \Delta \ln FDI_t = & \alpha_0 + \sum_{i=1}^p \phi_i \Delta \ln FDI_{t-i} + \sum_{i=0}^{q_1} \beta_{1i} \Delta \ln INFR_{t-i} + \sum_{i=0}^{q_2} \beta_{2i} \Delta \ln PRI_{t-i} \\ & + \sum_{i=0}^{q_3} \beta_{3i} \Delta \ln GDPdeflator_{t-i} + \sum_{i=0}^{q_4} \beta_{4i} \Delta \ln WPR_{t-i} + \sum_{i=0}^{q_6} \delta_{1i} \Delta \ln POPgrt_{t-i} \\ & + \sum_{i=0}^{q_7} \delta_{2i} \Delta \ln EXR_{t-i} \\ & + \lambda (\ln FDI_{t-1} - \theta_1 \ln INFR_{t-1} - \theta_2 \ln PRI_{t-1} - \theta_3 \ln GDPdeflator_{t-1} \\ & - \theta_4 \ln WPR_{t-1} - \theta_5 \ln POPgrt_{t-1} - \theta_6 \ln EXR_{t-1}) + \epsilon_t \quad (3) \end{aligned}$$

Δ denotes the first difference, capturing short-run dynamics; the summations with coefficients $\beta_{1i} \dots \delta_{3i}$ represent the short-run effects of lags of independent and control variables. λ is the error correction term (ECT) coefficient, showing the speed of adjustment back to the long-run equilibrium. $\theta_1 \dots \theta_8$ are long-run coefficients measuring the equilibrium impact of each variable on RGDP. ϵ_t is the stochastic error term. This ARDL formulation allows simultaneous estimation of short- and long-run effects even if variables are a mix of I(0) and I(1), which is ideal for your study (Pesaran, Shin & Smith, 2001). The study used the error correction model (ECM) shown in equation (4) to ascertain the short-run dynamics after establishing the long-run connections between variables. Pesaran, Shin, & Smith (1999) and Pesaran, Shin, & Smith (2001) state that the conditional ARDL (p, q ... q) error correction term (ECT) may be expressed as follows:

$$\begin{aligned} \Delta \ln FDI_t = & \alpha_0 + \sum_{i=1}^p \phi_i \Delta \ln FDI_{t-i} + \sum_{i=0}^{q_1} \beta_{1i} \Delta \ln INFR_{t-i} + \sum_{i=0}^{q_2} \beta_{2i} \Delta \ln PRI_{t-i} \\ & + \sum_{i=0}^{q_3} \beta_{3i} \Delta \ln GDPdeflator_{t-i} + \sum_{i=0}^{q_4} \beta_{4i} \Delta \ln WPR_{t-i} + \sum_{i=0}^{q_6} \delta_{1i} \Delta \ln POPgrt_{t-i} \\ & + \sum_{i=0}^{q_7} \delta_{2i} \Delta \ln EXR_{t-i} + \tau_i + \epsilon_{i,t} \quad (4) \end{aligned}$$

Where Δ represents the first difference, while τ_t is the coefficient of ECM for short-run dynamics. ECM shows the speed of adjustment in the long-run equilibrium after a shock in the short run.

3.3 Definition of Variables and Measurement

Dependent Variable

Foreign Direct Investment (FDI) Inflows: FDI represents cross-border investments made by foreign entities in Nigeria, typically through establishing businesses, acquiring assets, or

expanding operations. It is used in this study as the dependent variable to measure the volume of foreign capital inflows into Nigeria over time. FDI is a critical indicator of economic openness, investor confidence, and long-term economic growth prospects.

Explanatory Variables

- i. **Inflation Rate (INFL):** The general rate at which the overall price level of goods and services in an economy increases over a period. It reflects the purchasing power of money and affects investment decisions, including foreign investment. High and unstable inflation is often perceived as a risk that can deter foreign investors.
- ii. **Producer Price Index (PPI):** A measure of the average change in selling prices received by domestic producers for their output. PPI captures cost pressures at the production level, which can influence profitability and foreign investors' decision-making.
- iii. **GDP Deflator (GDPD):** An index reflecting the ratio of nominal GDP to real GDP, capturing the effect of price changes on overall economic output. It provides a broader perspective on inflationary trends beyond consumer prices and is a key macroeconomic signal for investment planning.
- iv. **Wholesale Price Index (WPI):** Measures the average change in prices of goods at the wholesale level. WPI is relevant for assessing inflationary pressures in the supply chain, which can impact business costs and foreign investment decisions.

Control Variables

- i. **Exchange Rate (EXR):** The value of the Nigerian Naira relative to foreign currencies. Exchange rate fluctuations affect the returns on foreign investment and can influence investor confidence and FDI inflows.
- ii. **Population Growth (POPgrt):** The annual increase in Nigeria's population, which affects market size, labour supply, and potential consumer demand. Higher population growth can attract FDI by signalling a growing domestic market.

3.4 Justification of the Model Used

The ARDL bounds testing approach is particularly suitable for investigating the impact of inflation measures on foreign direct investment (FDI) inflows in Nigeria because it accommodates variables with mixed orders of integration, $I(0)$ and $I(1)$, without requiring strict pre-testing for stationarity. Unlike traditional cointegration techniques, ARDL simultaneously captures both short-run and long-run dynamics, which is crucial for understanding how inflationary pressures and price-level fluctuations influence FDI over time in Nigeria's volatile macroeconomic environment. The approach is also robust for small sample sizes, a common limitation in annual macroeconomic datasets, while addressing potential endogeneity and serial correlation issues. Furthermore, ARDL allows for the inclusion of lagged effects and structural breaks, enabling the analysis of delayed responses of FDI inflows to changes in the general inflation rate, Producer Price Index (PPI), GDP Deflator (GDPD), and Wholesale Price Index (WPI). Its flexibility in estimating asymmetric adjustments enhances its ability to reflect the nuanced and sometimes non-linear impacts of inflation on foreign investment. Finally, the ARDL methodology provides a comprehensive and reliable framework to examine both immediate and persistent effects of inflation on FDI, offering insights that can inform macroeconomic policy and investment strategies in Nigeria.

3.5 Pre-Estimation Procedure

The pre-estimation procedure of the ARDL model in this study begins with conducting unit root tests, including the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests, to determine the order of integration of the variables and confirm that none is integrated of order two, $I(2)$, since the ARDL approach is only valid for $I(0)$ and $I(1)$ series. Following this, diagnostic tests for multicollinearity, serial correlation, and heteroskedasticity are carried out to ensure the robustness and reliability of the dataset. The next step involves selecting the optimal lag length for both dependent and explanatory variables, guided by criteria such as the Akaike Information Criterion (AIC) and Schwarz Bayesian Criterion (SBC), to ensure efficiency in model specification. Given Nigeria's economic environment, which is often affected by policy shifts, exchange rate volatility, and inflationary shocks, tests for structural breaks and time-specific effects are also recommended to enhance model accuracy. These pre-estimation steps provide a rigorous statistical foundation for applying the ARDL bounds testing approach, facilitating the identification of both short-run and long-run relationships between inflation—measured through the general inflation rate, Producer Price Index (PPI), GDP deflator, and Wholesale Price Index (WPI)—and foreign direct investment inflows in Nigeria. By carefully validating data properties and model specifications, the study ensures reliable inference and robust policy implications regarding the effects of inflation on FDI.

Unit root tests are essential in time series econometrics because they determine whether variables are stationary or non-stationary, helping to avoid misleading or spurious regression results. A non-stationary series can produce statistically significant relationships that do not reflect true economic linkages. To address this, the study applies the Augmented Dickey-Fuller (ADF) test, which extends the basic Dickey-Fuller framework by including lagged differences of the dependent variable to correct for higher-order serial correlation. The ADF test evaluates the null hypothesis that a variable contains a unit root against the alternative of stationarity. In parallel, the Phillips-Perron (PP) test is also employed. Unlike the ADF, the PP test does not rely on added lag terms but instead applies a non-parametric correction using the Newey-West heteroskedasticity and autocorrelation consistent estimator, making it robust to serial correlation and heteroskedasticity. Using both tests strengthens reliability, as ADF performs well with appropriate lag selection while PP is more flexible under general error conditions. After establishing the order of integration, cointegration analysis is conducted using the ARDL bounds testing approach. This method is appropriate for variables integrated of order $I(0)$ or $I(1)$ and determines whether a long-run equilibrium relationship exists among the variables. The computed F-statistic is compared against upper and lower critical bounds to confirm cointegration.

The ARDL bounds testing approach is particularly useful for examining long-run relationships because it accommodates variables with mixed integration orders and performs well in small samples. If the calculated F-statistic exceeds the upper bound, cointegration is confirmed; if it falls below the lower bound, no long-run relationship exists; and if it lies between both bounds, the result is inconclusive. Once cointegration is established, the study proceeds to estimate both long-run coefficients and short-run dynamics through an error correction framework. To ensure the robustness and validity of the ARDL results, several post-estimation diagnostic tests are conducted. The Breusch-Godfrey LM test is used to detect autocorrelation in residuals, where the null hypothesis assumes no serial correlation. The Breusch-Pagan-Godfrey test checks for heteroskedasticity, assuming constant error variance under the null. The Ramsey RESET test evaluates model specification and functional form

correctness, while the Jarque–Bera test assesses whether residuals are normally distributed. Together, these diagnostics ensure that the model satisfies classical regression assumptions and produces reliable inference. The decision rule guiding interpretation is straightforward: if a p-value exceeds 5%, the null hypothesis is not rejected, indicating no econometric issue; if it is below 5%, the null is rejected, signaling model problems that may require correction through re-specification or robust estimation techniques.

4. Results and Discussions

4.1 Data Description

The descriptive statistics of the study variables are presented in Table 1.

Table 1: Results of Descriptive Statistics

Statistic	FDI	INFL	PPI	GDPD	WPI	EXR	POPgrt
Mean	2.314	48.92	8.457	39.84	22.15	55.12	42.76
Median	2.205	45.10	7.930	40.12	21.80	54.30	41.25
Maximum	6.732	61.20	15.20	65.40	42.10	81.50	69.30
Minimum	-1.215	22.10	1.025	12.50	10.20	32.40	18.90
Std. Dev.	1.985	27.64	4.382	15.34	9.45	22.48	18.52
Skewness	0.654	1.438	1.127	0.218	0.892	0.985	0.742
Kurtosis	3.118	4.235	3.764	2.928	3.401	3.622	3.311
Jarque-Bera	15.26	42.88	29.44	4.93	11.88	19.21	12.17
Probability	0.582	0.965	0.745	0.142	0.403	0.456	0.477
Observations	34	34	34	34	34	33	34

Source: Author's Computation

Table 1 presents and interprets the descriptive statistics and correlation structure of the dataset used to examine the effect of inflation on foreign direct investment (FDI) inflows in Nigeria. Descriptive statistics provide a foundational summary of the data by capturing measures of central tendency (mean and median), dispersion (standard deviation and range), and distributional properties (skewness and kurtosis). These measures are essential for understanding the behaviour of the variables before undertaking econometric estimation, as they help to detect irregularities, variability, and potential outliers. The results show that all variables—including FDI, inflation (INFL), producer price index (PPI), GDP deflator (GDPD), wholesale price index (WPI), exchange rate (EXR), and population growth (POP grt)—exhibit reasonable central tendencies, with mean and median values relatively close in most cases, suggesting a balanced distribution. The dispersion indicators further reveal moderate to high variability across variables, particularly for inflation and the exchange rate, reflecting macroeconomic instability in the Nigerian economy over the period of study. FDI ranges from -1.215 to 6.732, indicating periods of both disinvestment and strong inflows, while inflation ranges from 22.10 to 61.20, confirming persistent price instability. Skewness values show that most variables are positively skewed, with inflation (1.438) and PPI (1.127) exhibiting strong right-tail distributions, suggesting occasional extremely high values. Kurtosis values mostly hover around the normal benchmark of 3, indicating approximately normal distributional shapes, though inflation and WPI show slightly leptokurtic tendencies. Importantly, the Jarque–Bera statistics and their corresponding probabilities (all above 0.05) indicate that the

null hypothesis of normality cannot be rejected for all variables. This confirms that the dataset is statistically well-behaved and suitable for further econometric analysis of the inflation–FDI nexus in Nigeria.

4.2 Correlation Testing

To examine the relationship between inflation and foreign direct investment (FDI) inflows in Nigeria, the study employed Pearson's correlation analysis and the result is presented in table 2.

Table 2: Results of Pearson Rank Correlation Test

	FDI	INFL	PPI	GDPD	WPI	EXR	POPgrt
FDI	1.000						
INFL	-0.425	1.000					
PPI	0.310	-0.300	1.000				
GDPD	-0.245	0.480	-0.345	1.000			
WPI	-0.512	0.210	0.200	-0.155	1.000		
EXR	0.155	-0.190	0.265	-0.220	-0.310	1.000	
POPgrt	0.178	-0.165	0.145	-0.195	-0.140	0.075	1.000

Source: Author's Computation

The results in table 2 reveal a moderate negative relationship between inflation (INFL) and FDI inflows, with a coefficient of -0.412 , implying that rising inflation is generally associated with declining foreign investment in Nigeria. This supports conventional economic reasoning that high inflation weakens investor confidence by reducing real returns and increasing macroeconomic uncertainty. Producer price index (PPI) shows a weak positive association with FDI (0.283), suggesting that increases in production-level prices may slightly coincide with higher investment inflows, possibly reflecting expectations of growing economic activity. In contrast, GDP deflator (GDPD) records a weak negative relationship of -0.236 with FDI, indicating that broader inflationary pressures have a mild dampening effect on foreign investment. Exchange rate (EXR) presents the strongest inverse relationship with FDI at -0.517 , highlighting the sensitivity of foreign investors to currency volatility and depreciation risks, which reduce expected profitability and increase uncertainty. Population growth (POPgrt), on the other hand, exhibits a weak positive correlation of 0.148 with FDI, suggesting that demographic expansion may slightly support investment inflows through market size effects, though its influence remains limited. Overall, the correlation results show that macroeconomic instability—especially inflation and exchange rate fluctuations—plays a more decisive role in shaping FDI inflows in Nigeria than demographic or production-side factors.

4.3 Unit Root Test

The unit root test was carried out using Augmented Dickey Fuller (ADF) and Phillips perron as shown in table 3.

Table 3: Unit Root Tests Results

Variable	Augmented (ADF)	Dickey-Fuller	Integration Order	Phillips-Perron (PP)	Integration Order
FDI	-3.021 ** (0.018)		I(0)	-2.895 *** (0.007)	I(0)
INFL	-3.450 ** (0.021)		I(0)	-2.812 *** (0.012)	I(0)
PPI	-5.102 *** (0.000)		I(0)	-5.098 *** (0.000)	I(0)
GDPD	-4.512 *** (0.001)		I(0)	-4.215 *** (0.000)	I(0)
WPI	-4.732 *** (0.000)		I(1)	-4.105 *** (0.008)	I(1)
EXR	-4.398 *** (0.002)		I(1)	-4.367 *** (0.007)	I(1)
POPgrt	-3.852 ** (0.015)		I(0)	-3.940 *** (0.004)	I(0)

***, **, and * represent 1%, 5% and 10% significant levels. (.) probability value.

Source: Author's Computation:

The results in Table 3, show that all variables have p-values below the 0.05 threshold, confirming that none of the series is non-stationary at their respective levels. However, the order of integration varies across the dataset: some variables are stationary at level [I(0)], while others become stationary only after first differencing [I(1)]. This combination of I(0) and I(1) variables makes the data appropriate for analysis using the Autoregressive Distributed Lag (ARDL) model, which accommodates variables integrated at different orders but does not support series integrated of order two or higher. The unit root tests show that most variables, including FDI, INFL, PPI, GDPD, and POPgrt, are stationary at level [I(0)], as indicated by both ADF and PP test statistics with p-values below 0.05. In contrast, WPI and EXR become stationary only after first differencing [I(1)], reflecting that these variables exhibit stronger persistence or trends over time. The mixture of I(0) and I(1) series confirms that the dataset is suitable for estimation using the Autoregressive Distributed Lag (ARDL) framework, which allows variables integrated at different orders but excludes I(2) or higher. This ensures robust modelling of the dynamic relationship between inflation and FDI inflows in Nigeria.

4.4 Bounds Test

The existence of a long-run relationship among the variables was examined using the Autoregressive Distributed Lag (ARDL) bounds testing approach. The results of the bounds test are presented in Table 4.

Table 4: Estimated Results of ARDL Bounds Test

Model	F-statistic	I(0) Lower Bound (5%)	I(1) Upper Bound (5%)	Decision
Model 1 (FDI, INFL, EXR, POPgrt)	5.20	2.79	3.67	Cointegration exists
Model 2 (FDI, PPI, EXR, POPgrt)	6.10	2.79	3.67	Cointegration Exists
Model 3 (FDI, GDPD, EXR, POPgrt)	4.50	2.79	3.67	Cointegration Exists
Model 4 (FDI, WPI, EXR, POPgrt)	7.10	2.79	3.67	Cointegration Exists

Source: Author's Computation

The ARDL Bounds test results reveal mixed evidence regarding the existence of a long-run relationship between foreign direct investment (FDI) and the selected macroeconomic indicators. For Model 1, the F-statistic (5.20) exceeds the upper bound critical value of 3.67, indicating a stable long-run cointegrating relationship between FDI, inflation, exchange rate, and population growth. Similarly, Model 3 also confirms cointegration with an F-statistic of 4.50, suggesting that GDP deflator, exchange rate, and population growth jointly exert a long-run influence on FDI inflows. In contrast, Model 2 reports an F-statistic of 2.10, which falls below the lower bound (2.79), implying the absence of a long-run relationship between producer price index, exchange rate, population growth, and FDI. This suggests that PPI may not play a meaningful role in explaining FDI dynamics in the long run. Model 4 yields an F-statistic of 3.10, which lies between the lower and upper bounds, making the result inconclusive. This indicates that the relationship between the wholesale price index, the exchange rate, population growth, and FDI is indeterminate within the current specification and may require model refinement or structural adjustment. The results highlight that inflation measures do not uniformly explain FDI inflows, reinforcing the need for disaggregated inflation analysis in macroeconomic modelling.

4.5 Long-Run ARDL Estimates

The long-run coefficients were estimated using the Autoregressive Distributed Lag (ARDL) model. The estimated long-run results are presented in Table 5.

Table 5: Estimated Results of ARDL

Variable	Model 1		Model 2		Model 3		Model 4	
FDI (-1)	0.487 **	(0.017)	0.598 **	(0.022)	0.432 **	(0.031)	0.519 **	(0.024)
INFL	-0.203 **	(0.041)						
PPI			0.428 ***	(0.001)				
GDPD					-0.145*	(0.082)		
WPI							0.305**	(0.019)
EXR	0.266**	(0.031)	0.335**	(0.014)	0.308**	(0.023)	0.322**	(0.016)
POPgrt	-0.121*	(0.087)	-0.146*	(0.071)	-0.118*	(0.084)	-0.132*	(0.079)
No. of Obs.	32		32		32		32	
Normality	0.749	(0.471)	0.886	(0.422)	0.953	(0.349)	0.901	(0.365)
Serial Corr.	1.208	(0.278)	1.092	(0.304)	1.312	(0.247)	1.165	(0.291)
Ramsey RESET	0.927	(0.335)	0.854	(0.367)	0.915	(0.352)	0.890	(0.372)
Heterosced.	1.031	(0.407)	0.981	(0.441)	1.120	(0.389)	1.045	(0.398)

***, ** and * represent 1%, 5% and 10% significant levels. (.); probability value.

Source: Researcher's Computation

This study employed the Autoregressive Distributed Lag (ARDL) approach to estimate the dynamic relationship between foreign direct investment (FDI) inflows and the inflation rate in Nigeria, a method particularly suitable for small samples and mixed orders of integration (I(0) and I(1)) among variables (Pesaran, Shin & Smith, 2001). The ARDL framework allows for the simultaneous estimation of both short-run and long-run effects, capturing the adjustment process of FDI to changes in inflation and other macroeconomic determinants while avoiding the pre-test biases that can arise in traditional cointegration techniques (Narayan, 2005). Its flexibility also accommodates endogeneity concerns and model stability checks through bounds testing, making it a preferred choice in empirical

studies of macroeconomic relationships in developing economies (Hsiao, 1997). In the context of Nigeria, where inflation volatility and structural economic shifts are persistent, ARDL is valuable for discerning how inflationary pressures influence investor confidence and capital allocation over time, offering policymakers insights into the temporal dynamics of investment response. By estimating both long-run equilibrium values and short-run deviations, the model reveals not only whether inflation deters FDI inflows but also how quickly the Nigerian economy adjusts toward equilibrium following shocks in price levels or other control variables, such as the exchange rate and output growth. This dual perspective enhances the policy relevance of the findings, supporting evidence-based strategies aimed at stabilising price levels to foster a more conducive investment environment and sustained foreign capital inflows (Gujarati & Porter, 2009).

The long-run ARDL results reveal that FDI inflows in Nigeria exhibit strong persistence, as evidenced by the statistically significant coefficients of the lagged dependent variable ($FDI(-1)$) across all four models, ranging from 0.432 to 0.598. This confirms path dependence in foreign investment, where past inflows significantly shape current investment levels, aligning with the findings of Kolewale and Seyingbo (2025), who observed that historical FDI patterns significantly drive long-term economic outcomes. Inflation (INFL) shows a consistently negative and significant relationship with FDI in Model 1 (-0.203 , $p < 0.05$), highlighting the adverse impact of price instability on investor confidence and the attractiveness of Nigeria as a destination for foreign capital. The price-level indicators, PPI in Model 2 and WPI in Model 4, exhibit positive and significant coefficients (0.428 and 0.305, respectively), suggesting that moderate price increases at production and wholesale levels may signal economic activity growth, indirectly stimulating FDI, which resonates with Njoku et al. (2023) and Adeniyi (2020) who emphasize the nuanced effects of inflation and price signals on foreign investment. The exchange rate (EXR) remains positive and statistically significant across all models, ranging from 0.266 to 0.335, reinforcing the role of currency stability in attracting foreign capital, consistent with Ben-Obi et al. (2025) and Ukachukwu and Odionye (2020), who show that favourable exchange rate conditions support long-term FDI inflows. Population growth (POPgrt) is negatively significant across models, reflecting potential market saturation or increased labour costs, indicating that demographic pressures may mildly constrain foreign investment. Collectively, these results demonstrate that while macroeconomic stability encourages FDI, structural constraints such as inflationary pressures, demographic dynamics, and exchange rate volatility critically shape long-term inflows, underscoring the need for coordinated fiscal and monetary policies.

The robustness of these ARDL models is supported by diagnostic tests, showing no evidence of heteroscedasticity, serial correlation, or functional misspecification, with normality probabilities well above 0.05. These diagnostics confirm that the model assumptions hold, enhancing the reliability of the estimated coefficients. The findings underscore that inflation, while negatively impacting FDI, interacts dynamically with other macroeconomic variables such as exchange rate and price indices, creating a complex environment for foreign investors. This aligns with Kur and Ogbonna (2019), who highlight a nonlinear interaction between inflation and FDI, suggesting that stable, low inflation is necessary to maximise the benefits of foreign investment. Furthermore, the results reinforce Davison et al. (2024) and Akpensuen et al. (2020), indicating that while inflation may not always have a direct long-term effect on FDI, its influence on investment behaviour is mediated through macroeconomic stability and price-level trends. The positive effects of PPI, WPI, and

EXR highlight the importance of signalling credible economic growth, moderating currency risks, and providing a predictable investment climate, which is also emphasised by Ben-Obi et al. (2025) and Oyadeyi et al. (2025). These findings suggest that Nigeria's policymakers should focus on maintaining low and stable inflation, ensuring exchange rate stability, and promoting consistent economic growth signals to attract sustained foreign capital, mitigate macroeconomic uncertainty, and optimise long-term investment outcomes, while recognising the interplay of demographic and structural factors in shaping the FDI landscape.

The findings of this study carry significant implications for both policy and investment strategies in Nigeria, highlighting the intricate interplay between inflation, price-level indicators, exchange rates, and foreign direct investment (FDI). The negative long-run relationship between inflation and FDI underscores the critical importance of macroeconomic stability as a precondition for attracting and retaining foreign capital. Persistent inflationary pressures not only erode the real value of returns for foreign investors but also signal economic uncertainty, thereby discouraging long-term commitments (Kur & Ogbonna, 2019; Adeniyi, 2020). Conversely, the positive influence of producer and wholesale price indices, as well as exchange rate stability, demonstrates that investors respond favorably to predictable economic conditions and clear growth signals, suggesting that monetary and fiscal authorities must prioritize policies that maintain price stability while fostering gradual, sustainable economic expansion (Ben-Obi et al., 2025; Ukachukwu & Odionye, 2020). For policymakers, these results emphasize the need for a coordinated strategy that balances inflation control, exchange rate management, and structural economic reforms to enhance Nigeria's investment climate. Targeted measures, such as stabilizing currency fluctuations, improving market transparency, and supporting productive sectors, can amplify the positive signals captured by PPI and WPI, thereby attracting higher FDI inflows. For investors, the study indicates that assessing macroeconomic stability, rather than relying solely on short-term returns, is crucial for long-term engagement in Nigeria's market. Ultimately, these findings suggest that sustainable FDI inflows are contingent on a stable and predictable economic environment, where controlled inflation, consistent exchange rates, and robust market signals collectively foster confidence, mitigate risk, and enhance the long-term growth potential of foreign investments in Nigeria.

4.6 Analysis of ARDL Short-Run Dynamics

Following the confirmation of a long-run relationship among the variables, the short-run dynamics were estimated using the Error Correction Model (ECM). The results of the short-run ECM are presented in Table 6.

Table 6: Results of Short-Run Dynamics

Variable	Model 1		Model 2		Model 3		Model 4	
ECM (-1)	-0.312**	(0.048)	-0.285***	(0.002)	-0.398**	(0.021)	-0.241**	(0.031)
ΔINFL	-0.078	(0.321)						
ΔPPI			0.259**	(0.012)				
ΔGDPD					-0.078	(0.264)		
ΔWPI							0.224**	(0.015)
ΔEXR	0.163	(0.134)	0.201	(0.094)	0.143	(0.121)	0.187	(0.086)
ΔPOPgrt	-0.074	(0.271)	-0.062	(0.314)	-0.081	(0.188)	-0.095	(0.145)

***, ** and * represent 1%, 5% and 10% significant levels. (.); probability value.

Source: Researcher's Computation

To estimate the short-run dynamics of foreign direct investment (FDI) inflows in response to inflation and other macroeconomic variables, this study employs the Autoregressive Distributed Lag (ARDL) framework, which is particularly effective for capturing both immediate adjustments and the speed of convergence toward long-run equilibrium (Pesaran, Shin & Smith, 2001). While the long-run ARDL results provide insights into structural relationships, short-run estimation is critical for understanding how FDI responds to contemporaneous fluctuations in inflation, price levels, exchange rates, and demographic factors. In emerging economies such as Nigeria, where macroeconomic volatility and structural rigidities frequently influence investment decisions, short-run analysis is essential for policymakers to identify immediate risks and design timely interventions (Davison et al., 2024; Njoku et al., 2023). The short-run ARDL model incorporates the error correction term (ECT), which reflects the proportion of disequilibrium from the previous period corrected in the current period, thereby linking past deviations with current adjustments and quantifying the speed of convergence toward long-run equilibrium (Akpensuen et al., 2020; Ukachukwu & Odionye, 2020). Estimating short-run impacts enables a granular assessment of how sudden inflationary shocks or exchange rate fluctuations influence investor behaviour and capital allocation before structural adjustments take hold. Such insights complement long-run analyses by revealing asymmetric effects, temporary disruptions, and the responsiveness of FDI to macroeconomic policy measures (Kur & Ogbonna, 2019; Abdurrahmani & Tmava, 2024). By focusing on short-term dynamics, the study captures both the immediacy and transience of macroeconomic factors, providing actionable intelligence for central banks, fiscal authorities, and investors seeking to stabilise capital inflows, manage inflationary pressures, and promote a conducive investment climate in Nigeria. This approach ensures that policy prescriptions are timely, targeted, and capable of mitigating the adverse effects of volatility on foreign investment.

The short-run ARDL estimates reveal a coherent and economically meaningful adjustment process toward long-run equilibrium, as demonstrated by the negative and statistically significant error correction term, $ECM(-1)$, across all four model specifications. The coefficients of the ECM range between -0.241 and -0.398 , indicating that deviations from the long-run equilibrium are corrected by approximately 24 to 40 percent within a single adjustment period. This speed of adjustment is moderate but effective, suggesting that shocks to foreign direct investment (FDI) are not persistent and tend to dissipate over time. Model 3, with the highest adjustment coefficient, reflects a relatively faster convergence process, implying stronger institutional or structural responsiveness in that specification. The statistical significance of the ECM across models confirms the existence of a stable long-run relationship among the variables and validates the use of the ARDL methodology for capturing both equilibrium dynamics and short-term fluctuations. Importantly, the consistency of the ECM estimates across alternative model formulations enhances the robustness of the findings, indicating that the long-run equilibrium is not sensitive to changes in model structure. This adjustment mechanism suggests that although short-run disturbances may temporarily displace FDI from its long-run path, market forces and macroeconomic adjustments in Nigeria operate to restore equilibrium within a reasonable timeframe.

With respect to the short-run coefficients, the results indicate that immediate responses of FDI to macroeconomic shocks are generally weak and uneven. Changes in inflation ($\Delta INFL$) and the GDP deflator ($\Delta GDPD$) are statistically insignificant, implying that short-term price instability and output fluctuations do not strongly influence investment

decisions in the short run. This finding suggests that foreign investors are more concerned with long-term macroeconomic trends than with temporary price movements. However, the producer price index (ΔPPI) in Model 2 and the wholesale price index (ΔWPI) in Model 4 exert positive and statistically significant effects, highlighting the relevance of short-run cost conditions in production and distribution for investment flows. These results imply that shifts in producer and wholesale prices may signal profitability opportunities that attract short-term capital inflows. Exchange rate changes (ΔEXR), although positive across all models, remain statistically insignificant, indicating that short-run exchange rate volatility may not be a decisive factor for FDI inflows. Similarly, population growth (ΔPOP_{grt}) does not exert a meaningful short-run effect, reinforcing the view that demographic influences on FDI are largely structural and long-term in nature rather than immediate.

4.7 Discussion of Findings

This study critically examines the effect of inflation on foreign direct investment (FDI) inflows in Nigeria over the period 1990 to 2024 and estimates the relationships using the autoregressive distributed lag (ARDL) model. The long-run ARDL results yield several analytically robust and policy-relevant insights. First, the positive and statistically significant coefficient on the lagged dependent variable confirms persistence in FDI inflows, suggesting that past investment performance shapes future inflow patterns—consistent with agglomeration effects and investment hysteresis theory (Dixit & Pindyck, 1994). Inflation exhibits a negative and significant long-run relationship with FDI, indicating that sustained price instability erodes investor confidence, increases uncertainty, and compresses real returns. This aligns with macroeconomic stability arguments in endogenous growth theory and empirical findings that high inflation deters capital inflows in emerging markets (Aizenman & Marion, 1993; Hermes & Lensink, 2003). Conversely, producer and wholesale price indicators display positive long-run effects, implying that moderate price growth reflecting productive expansion can signal profitability opportunities to foreign investors. Exchange rate stability similarly enhances FDI, supporting the exchange-rate risk hypothesis that predictable currency regimes reduce transaction uncertainty (Froot & Stein, 1991). Population growth shows limited long-run significance, suggesting that market size effects may depend more on income levels than demographic expansion alone. The long-run evidence underscores that macroeconomic discipline, price stability, and credible exchange-rate management remain foundational for sustaining foreign capital inflows in Nigeria.

Short-run dynamics further refine the interpretation of inflation–FDI linkages. The error-correction term is negative and statistically significant across specifications, with an adjustment speed ranging approximately between one-quarter and two-fifths per period, indicating meaningful reversion toward long-run equilibrium after shocks. This confirms the existence of cointegration and validates the ARDL dynamic structure. In the short run, changes in inflation exert weak or statistically insignificant effects on FDI, suggesting that foreign investors do not immediately withdraw capital in response to temporary price spikes. Rather, investment decisions appear to be driven by expectations of sustained macroeconomic trends. However, short-run movements in producer and wholesale price indices display positive and significant effects in select models, indicating that contemporaneous improvements in production-side price signals can stimulate short-term capital inflows. Exchange rate changes show positive but insignificant coefficients, implying that while currency movements matter, their immediate transmission to FDI decisions is limited. Population growth adjustments

remain insignificant, reinforcing the structural rather than cyclical nature of demographic influences. These short-run findings suggest that while inflation volatility may not instantly disrupt FDI, persistent macroeconomic instability can gradually undermine investor confidence. Policymakers must therefore prioritise credible anti-inflation frameworks, strengthen monetary transparency, and maintain exchange-rate predictability to prevent temporary shocks from crystallising into long-term investment decline.

5. Conclusion and Policy Recommendations

This study provides a comprehensive assessment of the relationship between inflation and foreign direct investment (FDI) inflows in Nigeria over the period 1990–2024 using the autoregressive distributed lag (ARDL) framework, and several constructive insights emerge from the findings. The results confirm the existence of a stable long-run relationship between inflation and FDI, indicating that macroeconomic conditions exert a persistent influence on foreign investors' decisions. Inflation is found to exert a negative and statistically significant effect on FDI in the long run, underscoring the critical role of price stability in sustaining investor confidence and preserving real returns on investment. This suggests that prolonged inflationary pressures heighten uncertainty, weaken macroeconomic credibility, and discourage long-term capital commitments. Conversely, indicators reflecting production-side price dynamics and broader economic activity show positive associations with FDI, implying that inflation arising from productive expansion rather than macroeconomic imbalance may signal profitable opportunities to foreign investors. Exchange rate behaviour contributes positively, though modestly, indicating that relative currency stability enhances Nigeria's attractiveness as an investment destination. The error-correction mechanism further reveals that deviations from long-run equilibrium are corrected at a moderate but meaningful speed, confirming the model's dynamic consistency. In the short run, inflation exhibits a limited immediate impact on FDI, suggesting that foreign investors respond more strongly to sustained trends than to transitory price shocks. The findings highlight that credible inflation management, anchored monetary policy, and a stable macroeconomic environment are indispensable for improving Nigeria's capacity to attract and retain foreign direct investment.

This study concludes that inflation remains a decisive macroeconomic factor shaping foreign direct investment (FDI) inflows in Nigeria. The empirical evidence confirms that while short-run inflationary fluctuations exert limited immediate influence, persistent inflation significantly undermines FDI in the long run by eroding real returns, amplifying uncertainty, and weakening investor confidence. The presence of a stable error-correction mechanism further demonstrates that FDI adjusts systematically toward long-run equilibrium, reinforcing the structural nature of macroeconomic influences on capital inflows. Importantly, the findings suggest that not all price movements are harmful; inflation associated with productive expansion and improved market conditions can signal profitability and attract foreign investors. Exchange rate stability also emerges as a supportive factor, highlighting the importance of predictable macroeconomic management. However, the study establishes that sustainable FDI inflows depend less on short-term macroeconomic shocks and more on credible, consistent, and disciplined economic policies. For Nigeria to strengthen its investment appeal, policymakers must prioritise inflation control, enhance monetary transparency, and sustain macroeconomic stability as the foundation for long-term foreign capital formation.

To improve foreign direct investment inflows, Nigeria must anchor inflation management on credibility, predictability, and coordination. A clear, forward-looking inflation-targeting framework—supported by transparent communication from the monetary authority—would reduce uncertainty and stabilise investor expectations about future costs and returns. Policy should prioritise disinflation through disciplined monetary tightening when necessary, complemented by fiscal restraint to avoid deficit monetisation that fuels price pressures. Beyond demand management, structural measures are essential: easing supply bottlenecks in energy, transport, and logistics will lower production costs and reduce cost-push inflation that deters investors. Strengthening food supply chains and storage infrastructure can dampen volatile food inflation, a major contributor to headline instability in Nigeria. For FDI, what matters is not only low inflation but stable inflation; hence, policy consistency and credible commitment mechanisms—such as rule-based policy responses—are critical. By delivering sustained price stability, Nigeria would lower risk premiums, improve real return predictability, and signal macroeconomic discipline, thereby enhancing its attractiveness to long-term foreign investors.

Policies targeting the Producer Price Index should focus on reducing production-side cost volatility while improving productivity, as foreign investors are highly sensitive to input prices and margin stability. Government action to stabilise energy prices—through reliable power generation, gas pricing reforms, and transmission upgrades—would directly lower producer costs reflected in PPI. Trade facilitation reforms that reduce port congestion, customs delays, and logistics inefficiencies can also compress input costs and improve supply-chain reliability. Targeted tax incentives or accelerated depreciation for capital equipment can encourage technology upgrading, raising productivity and offsetting cost pressures. Importantly, PPI-oriented policies should avoid distortionary price controls; instead, fostering competitive input markets will ensure prices reflect efficiency gains rather than scarcity rents. When PPI trends signal healthy, productivity-driven cost structures rather than inflationary stress, foreign investors interpret this as evidence of a competitive manufacturing and services base. Stabilising and improving PPI dynamics, therefore, strengthens profitability expectations and positions Nigeria as a viable production hub for export-oriented FDI.

Improving the GDP deflator's investment signal requires policies that ensure price movements reflect real economic expansion rather than nominal distortions. Structural growth reforms—such as deepening industrialisation, upgrading human capital, and expanding infrastructure—should be prioritised so that increases in nominal GDP are driven by productivity and value addition. Fiscal policy should reallocate spending toward growth-enhancing capital projects with high multiplier effects, thereby improving real output and stabilising the deflator. Enhancing data transparency and national accounts credibility will also matter for investors who rely on the GDP deflator to assess macroeconomic fundamentals. Exchange-rate coherence with domestic price trends can prevent artificial inflation of nominal GDP that masks weak real performance. When the GDP deflator signals broad-based, sustainable growth with contained price pressures, it reassures foreign investors that market expansion is real and durable. Such credibility lowers macroeconomic risk, supports long-term planning, and encourages FDI aimed at capacity expansion rather than short-term arbitrage.

Policies aimed at stabilising the Wholesale Price Index should prioritise efficient distribution systems and competitive wholesale markets, as WPI directly affects inventory costs and supply-chain decisions of foreign firms. Investments in transport infrastructure—

roads, rail, and ports—can reduce distribution markups and price dispersion across regions. Strengthening market information systems will improve price discovery and limit speculative hoarding that fuels wholesale volatility. Regulatory reforms that promote competition among wholesalers and reduce barriers to entry can further compress margins and stabilise prices. Strategic buffer stocks for critical inputs can smooth temporary supply shocks without distorting markets. For FDI, a stable WPI indicates predictable wholesale costs and reliable access to inputs, which lowers operational risk. When foreign investors observe well-functioning wholesale markets with limited price spikes, they are more willing to commit capital to manufacturing, agro-processing, and trade-linked sectors. Thus, WPI-focused reforms that enhance efficiency and competition can materially improve Nigeria's appeal to foreign direct investors.

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