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Effect of Exchange Rate on Foreign Direct Investment in Nigeria

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Abstract

This study investigates the relationship between exchange rates and Foreign Direct Investment (FDI) in Nigeria from 1981 to 2021. Employing a Fully Modified Ordinary Least Squares (FMOLS) regression analysis, the study reveals a significant positive correlation between exchange rates and FDI. Conversely, the study finds a positive but statistically insignificant association between trade openness and FDI. Finding on interest rates (INTR coefficient: -0.104) indicates a negative relationship with FDI, lacking statistical significance. Similarly, inflation rates (INFR coefficient: 0.012) exhibit a positive yet statistically insignificant link with FDI. Notably, the study highlights a substantial and statistically significant negative relationship between human capital (HC coefficient: -77.787) and FDI, signifying the importance of human capital development in attracting foreign investment. In summary, the research findings indicate a substantial impact of exchange rates on FDI in Nigeria. It suggests that policymakers should proceed with caution to avert possible depreciation of the exchange rate, which could deter foreign investors. Furthermore, adopting a comprehensive strategy for macroeconomic stability could foster a more conducive atmosphere for foreign investment.

Keywords: Exchange Rates, FDI, Inflation Rates, Interest Rates, Trade Openness.

Introduction

Foreign direct investment (FDI), portfolio investment, loans, and remittances, are essential capital inflows for the economic growth of any nation. FDI involves foreign investors acquiring and owning physical assets and financial instruments in a host country, representing a critical element of international capital flows (Githaiga & Kilong'i, 2023). Low domestic savings, often linked to low per capita income and financial literacy, can limit a country's ability to attract investment.

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Despite international capital flows exceeding $1.5 trillion in 2019, Nigeria's FDI inflows faced challenges, with fluctuations from a peak of $8.56 billion in 2009 to a low of $0.78 billion in 2018 (Githaiga & Kilong'i, 2023). These challenges included factors such as exchange rate instability (Adokwe et al., 2019), unfavorable business environment (Eregha, 2017), and political uncertainty (Okonkwo et al., 2020), which deterred foreign investors from investing in Nigeria in 2019.

The exchange rate, indicating the cost of a foreign currency in terms of the domestic currency, plays a role in shaping FDI. Exchange rate instability introduces uncertainty, potentially discouraging FDI inflows by making foreign investors cautious. Fluctuating exchange rates can impact both the overall volume of FDI and its distribution across nations (Asmae & Ahmed, 2019). A depreciating currency, while potentially offering cost advantages, can create uncertainty, deterring foreign investors seeking stability and predictability. Exchange rate depreciation grants a locational advantage, but foreign investors favour stable conditions. Rashid and Lin (2018) define exchange rate volatility as the extent of oscillation between the highest and lowest points, emphasizing the risk associated with unpredictable currency movements. The exchange rate's role in sustaining international competitiveness and serving as a benchmark for domestic price levels is crucial, with its value inversely affecting a country's competitiveness. Exchange rate instability directly influences the attractiveness of imports and exports, production levels, and the balance of payments and reserves. Exchange rate fluctuations pose risks, contributing to uncertainty in currency values (Alabi, 2019).

The domestic exchange rate of Nigeria has become a significant concern, impacting its competitiveness and macroeconomic stability. Investors, seeking minimal disparity between real and predicted exchange rate values, are influenced by the stability of a country's exchange rate. This study aims to comprehensively understand the relationship between exchange rates and FDI inflows, shedding light on the factors contributing to Nigeria's struggle in attracting and retaining substantial foreign investments.

The paper is structured in a logical and comprehensive manner, beginning with the abstract, followed by an introduction that establishes the context and importance of the research problem. The statement of the problem and research objective sections clearly define the focus of the study. A review of related literature provides a thorough examination of existing knowledge on the topic, while the theoretical framework outlines the conceptual basis for the analysis. The methodology section meticulously describes the model, variables, data sources, and econometric techniques employed. The data presentation and analysis section presents the descriptive statistics, regression results, and diagnostic tests, forming the core of the empirical analysis. The discussion of findings interprets and contextualizes the results, leading to the conclusions drawn and proposed recommendations.

Statement of the Problem

In Sub-Saharan African nations like Nigeria, the issue of exchange rate fluctuation has been a persistent challenge adversely affecting Foreign Direct Investment (FDI) inflow. Exchange rate stability is crucial for FDI, as fluctuations can create uncertainty, making it challenging for investors to accurately forecast and evaluate the profitability of their investments. When the host country's currency depreciates against the investor's home currency, the value and returns of the investment decrease in the home currency, potentially discouraging FDI inflows (Asamoah & Alagidede, 2022).

The impact of exchange rate fluctuation extends to the cost of inputs for investors, such as raw materials or imported equipment, thereby influencing production costs and, subsequently, the profitability of FDI (Alade & Adeleke, 2021). An unfavorable exchange rate, where the domestic currency depreciates, increases the cost of imported raw materials and equipment, leading to higher production costs (Nwanji et al., 2020). Conversely, a favorable exchange rate, with domestic currency appreciation, reduces the cost of imported inputs, resulting in lower production costs for investors (Okonkwo, 2019). Additionally, a lower exchange rate enhances the affordability of exports, boosting demand for domestically produced goods in international markets, while a higher exchange rate can hinder the competitiveness of exports, reducing foreign demand (Dabwor et al., 2019). Therefore, exchange rate fluctuations have a direct impact on the cost of production and the competitiveness of exports, subsequently influencing the profitability and attractiveness of FDI in the host country.

Nigeria has implemented various exchange rate regimes, including fixed and flexible rates, and a unified exchange rate policy. However, the country has faced challenges and instability trends, necessitating a closer examination of these trends and their implications for policy recommendations. While existing studies have explored the effects of foreign exchange volatility on FDI in Nigeria, including investigations into the broader macroeconomic implications of exchange rate movements, there remains a gap in understanding the specific dynamics between the exchange rate and FDI inflows. This study aims to address this gap by investigating the link between the exchange rate and FDI, considering factors such as exchange rate levels and their effects on investment decisions, investor confidence, and the competitiveness of Nigerian industries.

Review of Related Literature

Foreign Direct Investment (FDI), as defined by the World Bank and UNCTAD, entails a lasting interest in a foreign enterprise, fostering a mutually beneficial and enduring relationship (World Bank, 2015; UNCTAD, 2020). FDI involves a direct presence and active participation in the operations of the invested enterprise,

contributing to internationalization and globalization (IMF, 2013). Scholars like Gastanaga, Benson, Asmae, Kenny, and Alfaro, 2019) have characterized FDI as the acquisition of shares, control over assets, and the establishment of enduring relationships, serving as a conduit for integrating economies, promoting growth, technology transfer, job creation, and productivity enhancement (Gastanaga et al., 2019; Benson, Eya & Yunusa, 2019; Asmae & Ahmed, 2019; Kenny, 2019; Alfaro, Chari & Kanczuk, 2020).

The impact of exchange rates on FDI is a subject of ongoing debate, with varying perspectives on how currency depreciation may either attract or deter foreign investors (Kunofiwa, 2015; Ismaila, 2016; Ali, Mohamed & Zahir, 2017). Recognizing the crucial role of FDI, Nigeria has implemented incentive policies and regulatory measures to attract and facilitate FDI inflows, largely influenced by the historical dominance of the oil sector (Eregha, 2017). Despite the adoption of different exchange rate regimes, FDI inflows in Nigeria have not met the anticipated levels for rapid economic development. Nigeria's shift to a flexible exchange rate regime, transitioning from a fixed parity, allows market forces to determine exchange rates based on supply and demand, consequently impacting the balance of payments (Obi, Oniore & Nnadi, 2016). As explored by Dabwor, Ezie & Tukur (2019), the adoption of a freely fluctuating exchange rate eliminates the necessity for gold settlement of balance of payments deficits, providing flexibility for internal monetary policies and relieving the central bank of gold reserve protection responsibilities.

Exchange rates serve as critical indicators of a currency's external value, acting as a linkage between domestic and international prices of goods and services (Dabwor et al., 2019). Nigeria's demand for foreign currencies, such as the US dollar, stems from its need for goods from these countries. The exchange rates, representing the value of one currency relative to another, wield a profound impact on both domestic prices and international competitiveness (Sokang, 2018). In Nigeria, the direct method is employed, where appreciation occurs when naira units decrease relative to the foreign currency. Fluctuations in exchange rates, whether leading to appreciation or depreciation, carry significant consequences. Appreciation may result in higher production costs, FDI instability, and trade deficits, while depreciation can enhance international trade positions, reduce the cost of domestic goods, and stimulate FDI (Nwanji et al., 2020; Okonkwo, 2019).

Maintaining a stable exchange rate, as highlighted by Asiedu (2002), reduces uncertainty, thereby promoting growth and development. The stability of exchange rates plays a crucial role in determining foreign direct investment, particularly in regions with multiple currency areas (Dunning, 1993). Pikoulakis (1995) further explains that a freely fluctuating exchange rate allows for balance of payment corrections without gold settlement obligations. This flexibility relieves the Central Bank of gold reserve protection, eliminating the need for a deflationary policy.

However, a country must carefully consider the impact of internal policies on its currency's foreign exchange rate, determining the flexibility in its internal monetary policy (Benson et al., 2019).

Morrissey and Udomkerdmongkol (2014) delved into the impact of exchange rates on FDI from the United States to 16 emerging markets, finding that a rise in the Real Effective Exchange Rate (REER) signalled caution, potentially delaying FDI as investors anticipated currency devaluation. Conversely, a declining REER acted as a catalyst, boosting FDI inflows. Cambazoğlu and Güneş (2016) explored Turkey's FDI inflows and the real exchange rate, using the Autoregressive Distributed Lag Model (ARDL) to establish a lasting equilibrium link. Their findings unveiled a co-integration relationship, highlighting the enduring impact of real exchange rate shifts on Turkey's FDI landscape.

On a parallel stage, Abd-El, Salah and Rashid (2021) cast their gaze upon Egypt, weaving a narrative that encapsulates the influences shaping FDI inflows. Employing the FDI gravity model, both in its elemental form and an enriched rendition, their exploration encompassed data spanning source countries from 2005 to 2019. The canvas was painted using the brushstrokes of the Generalized Method of Moments (GMM) estimation approach, crafting an intricate depiction of the interplay between relative exchange rate volatility and FDI flows to Egypt.

In the realm of United States exports to BRICS countries, Ekanayake and Dissanayake (2022) used the Autoregressive Distributed Lag (ARDL) model, revealing that while foreign economic activity positively influenced exports, real exchange rate fluctuations had a negative impact, particularly over the long term, with complex short-term effects. These studies collectively unravel the intricate relationships between exchange rates and FDI dynamics, contributing valuable insights to the global economic tapestry.

Adokwe, Agu and Maduka (2019) investigated exchange rate volatility's impact on FDI in Nigeria, utilizing the GARCH technique. Findings revealed consistent and persistent exchange rate volatility, exerting a significant negative influence on FDI during the study period. In tandem, Benson et al. (2019) explored the interplay of exchange rates and interest rates on FDI in Nigeria from 2006 to 2018. Their analysis uncovered a positive connection between exchange rates and FDI, emphasizing the need for stable exchange rates through strategic fiscal and monetary policies.

Zakari (2017) delved into the impact of exchange rate fluctuations on FDI from 1990 to 2015, revealing a robust positive correlation between FDI and exchange rates in Nigeria. Uzoma-Nwosu and Orekoya (2019), employing GARCH methodology, found no significant relationship between exchange rate volatility and net FDI inflow into Nigeria, both in the short and long run. Okonkwo

et al. (2020) enriched the discourse, spanning 1981 to 2018, and discovered a positive connection between both real and nominal exchange rates and FDI, with the real exchange rate playing a more influential role. Together, these studies unravel the intricate relationship between exchange rates and FDI dynamics in Nigeria's economic narrative

The existing literature on the effect of exchange rates on FDI is characterised by mixed and inconclusive results. Some studies, such as Morrissey and Udomkerdmongkol (2014), Adokwe et al. (2019), and Abd-El et al. (2021), suggested a negative impact of exchange rates on FDI. In contrast, studies by Cambazoğlu and Güneş (2016), Zakari (2017), Benson et al. (2019), and Okonkwo et al. (2020) indicated a positive relationship between exchange rates and FDI. However, findings from Eregha (2017) and Uzoma-Nwosu and Orekoya (2019) revealed no significant relationship between exchange rate volatility and net FDI. The inconsistency in these results creates a gap in the literature, highlighting the need for further research to provide more conclusive and comprehensive insights into the relationship between exchange rates and FDI.

Theoretical Framework

The study employed the Two-gap Model method to examine the relationship between the exchange rate and FDI inflows in Nigeria. This model, adapted from Oladeji and Musa (2022), addresses the savings-investment and export-import gaps common in developing countries like Nigeria.

The savings gap arises when domestic savings are insufficient to meet the necessary investment for desired growth. Chenery and Adelman (1966) suggested that foreign investment could bridge this gap. Similarly, a foreign exchange gap occurs when net export revenues fall short of the necessary foreign exchange. Foreign investment can address this gap by providing the required foreign exchange. Thus, the two gaps can be represented within the framework of national income accounting (NIA) identities using the aggregate spending method.

$$E - Y = I - S = X - M = F \quad (1)$$

The national income accounting identity represents this relationship, where "E" is national expenditure, "Y" is national output and income, "I" is investment, "S" is saving, "X" is exports, "M" is imports, and "F" is net capital inflow.

The magnitude of the shortfall and the required foreign aid depend on the dominant deficit at a given moment. If the disparity between savings and the foreign exchange deficit is such that the savings gap is larger, it indicates the existence of a savings constraint in the economy. Conversely, the economy encounters a foreign exchange constraint when the foreign exchange deficit surpasses the savings gap

and the foreign exchange deficit is largely affected by the rate of exchange in the country. This led to the postulation that;

$$FDI_t = f(EXRT_t) \quad (2)$$

The justification for using this model lies in its relevance to the Nigerian context, where both savings and foreign exchange gaps have been persistent challenges to economic development. It also directly addresses the common challenges faced by developing countries like Nigeria in attracting foreign direct investment (FDI). By adapting the Two-gap Model adapted from Oladeji and Musa (2022), the study adopts a theoretical approach tailored to the specific economic conditions and constraints faced by Nigeria as a developing nation. By employing the Two-gap Model, the study recognizes the dual constraints of limited domestic savings and foreign exchange shortages that often impede economic growth in developing countries like Nigeria. The model provides a theoretical framework for understanding how factors like exchange rates can influence FDI inflows, which in turn can help alleviate these gaps and promote economic growth.

Methodology

This study, building on Oladeji and Musa (2022), investigates the impact of the exchange rate on FDI in Nigeria. The exchange rate is a crucial determinant of FDI, influencing export and import volumes. A lower exchange rate enhances export affordability, boosting demand, while a higher rate can hinder competitiveness. Exchange rate fluctuations introduce uncertainty in international trade, impacting input and product prices.

Control variables, including trade openness, inflation, interest rates, and human capital, also influence FDI. Trade openness affects market access and economic gains, while inflation erodes investor purchasing power. Interest rates impact borrowing costs and investment attractiveness. Human capital, reflecting education, healthcare, and training, is vital in assessing its influence on FDI.

The model's mathematical expression is articulated as follows:

$$FDI_t = \beta_0 + \beta_1 EXRT_t + \beta_2 TRDO_t + \beta_3 3INTR_t + \beta_4 INFR_t + \beta_5 HC_t \quad (3)$$

The econometric form of the model is expressed as follows:

$$FDI_t = \beta_0 + \beta_1 EXRT_t + \beta_2 TRDO_t + \beta_3 INTR_t + \beta_4 INFR_t + \beta_5 HC_t + U_t \quad (4)$$

Where:

FDI = Foreign Direct Investment:
EXRT = Exchange Rate
TRDO = Trade Openness
INTR = Interest rate
INFR = Inflation rate

HC	=	Human Capital
β_0, β_1, β_2, β_3, β_4, β_5	=	Coefficients to be estimated
U	=	Stochastic variable or error term
t	=	Time

FDI (Foreign Direct Investment): This is the dependent variable which shows the actual amount of FDI flow in Nigeria. The analysis of the factors affecting FDI forms the core of the study as FDI is crucial for the measure of economic growth.

EXRT (Exchange Rate): The exchange rate is a key independent variable, as the study investigates its impact on FDI. Exchange rate fluctuations can affect the profitability and competitiveness of foreign investments, making it a relevant factor.

TRDO (Trade Openness): Trade openness, measured as the ratio of total trade to GDP, is included as it can impact market access and economic gains, which may influence FDI decisions.

INTR (Interest Rate): Interest rates are relevant as they affect the cost of borrowing and the attractiveness of investment opportunities, potentially influencing FDI inflows.

INFR (Inflation Rate): Inflation rates are included as they can erode investor purchasing power and returns, making it an important macroeconomic factor to consider for FDI.

HC (Human Capital): Human capital, often measured by education and skill levels, is included as it can impact productivity, labor costs, and the overall business environment, which are crucial considerations for foreign investors.

β_0, β_1, $\beta 2$, and $\beta 3$, and $\beta 4$, $\beta 5$: These are the coefficients to be estimated in the regression model, representing the magnitude and direction of the impact of each independent variable on FDI.

U (Stochastic Variable or Error Term): This term accounts for the random or unexplained variations in the model, capturing the impact of factors not explicitly included in the regression equation.

t (Time): The subscript "t" indicates that the variables are time-dependent, as the study uses time-series data spanning multiple years.

Based on the unit root test conducted, all the variables were found to be stationary at the first difference, I (I). Hence Fully Modified Ordinary Least Square method (FMOLS) was employed. FMOLS was considered because of its robustness checks and to correct the serial correlation problem of OLS, as well as to solve the problem of endogeneity.

FMOLS equation is given as;

$$FDI_t = \alpha + \beta_1 * EXRT_t + \beta_2 * TRDO_t + \beta_3 * INTR_t + \beta_4 * INFR_t + \beta_5 * HC_t + p_1 * D_1 + p_2 * D_2 + \cdots + p_k * D_k + \varepsilon_t \quad (5)$$

p1 and p2 represent the lag orders or the number of lags used in the FMOLS model. While D1 and D2 represent dummy variables used in the FMOLS model.

Data Presentation and Analysis

Table 1 presents descriptive statistics for the study's variables, offering insights into their distribution and characteristics. The results indicate reasonable consistency, with negligible differences between the mean and median for each variable. For instance, Foreign Direct Investment (FDI) has a mean and median of approximately 2.53 billion dollars, the exchange rate (EXRT) has a mean around N109.34 and a median of N99.00, trade openness (TRDO) displays a mean of approximately 31.68% and a median of 33.72%, interest rate (INTR) shows a mean of about 14.32% and a median of 12.88%, inflation rate (INFR) has a mean of around 18.95% and a median of 12.88%, and human capital (HC) scores approximately 0.50 with a median of 0.51.

The standard deviation values indicate low dispersion for FDI, EXRT, and INFR, while TRDO, INTR, and HC show more dispersion among individual data points.

Skewness values reveal positive skewness for FDI, EXTR, INTR, and INFR, indicating a rightward skew, while TRDO and HC exhibit negative skewness, implying a leftward skew.

Kurtosis values above 3 for FDI, EXTR, INTR, INFR, and HC suggest leptokurtic distributions with longer, fatter tails and a higher, sharper central peak. However, TRDO, with a kurtosis of 2.13, exhibits platykurtic characteristics, indicating lighter tails than a normal distribution.

The Jarque-Bera test indicates that FDI, EXRT, TRDO, INTR, and INFR may not adhere to a normal distribution, as their significant p-values suggest non-normal distributions.

Table 1: *Descriptive Statistics*
Sample: 1981 2021

	FDI	EXRT	TRDO	INTR	INFR	HC
Mean	2.531463	109.3420	31.67537	14.31659	18.95000	0.503659
Median	1.870000	99.00000	33.72000	12.88000	12.88000	0.510000
Maximum	8.840000	411.0000	53.28000	31.63000	72.84000	0.540000
Minimum	0.190000	0.630000	9.140000	5.390000	5.390000	0.450000
Std. Dev.	2.535859	120.7076	12.42974	6.097458	16.65951	0.019718
Skewness	1.156574	1.125260	-0.260179	0.994976	1.854331	-0.639524
Kurtosis	3.183399	3.265097	2.128326	3.595264	5.307131	3.673491
Jarque-Bera	9.198160	8.772497	1.760588	7.370175	32.58991	3.569652
Probability	0.010061	0.012447	0.414661	0.025095	0.000000	0.167826
Sum	103.7900	4483.020	1298.690	586.9800	776.9500	20.65000
Sum Sq. Dev.	257.2233	582812.8	6179.936	1487.160	11101.57	0.015551
Observations	41	41	41	41	41	41

Table 2 showcases the results of the Fully Modified Ordinary Least Squares (FMOLS) regression analysis, unravelling the dynamics between Foreign Direct Investment (FDI) and key independent variables: Exchange Rate (EXTR), Trade Openness (TRDO), Interest Rate (INTR), Inflation Rate (INFR), and Human Capital (HC).

The coefficient for EXTR, at 0.011, signifies that a one-unit increase in the exchange rate corresponds to an approximately 0.0112-unit increase in FDI, with statistical significance at the 0.01 level. This underscores the substantial impact of exchange rate fluctuations on FDI, emphasizing the economic significance of this relationship.

On the other hand, the coefficient for TRDO, though positive at 0.065405, lacks statistical significance at the 0.05 level, suggesting that, within this model, the impact of trade openness on FDI may not be statistically significant. This implies that, while theoretically linked, the observed relationship does not reach customary significance thresholds.

INTR's negative coefficient of -0.103540 indicates that a one-unit increase in the interest rate is associated with a reduction of approximately 0.1035 units in FDI, lacking statistical significance at the 0.05 level. Thus, the interest rate may not be a statistically significant predictor of FDI within this analysis.

Similarly, INFR's coefficient of 0.012285, while positive, lacks statistical significance at the 0.05 level, suggesting that, within this model, the inflation rate may not significantly influence FDI. The observed relationship does not reach customary significance thresholds.

The HC coefficient, standing at -77.78744, suggests a substantial and statistically significant relationship between human capital and FDI. An increase in

the human capital score is associated with a significant decrease in FDI, emphasizing the considerable impact of human capital on FDI. This underscores the importance of policies aimed at nurturing and enhancing workforce skills in attracting foreign investment.

The model's goodness-of-fit statistics reveal an R-squared value of 0.467, indicating that almost half of the variability in FDI is explained by the model. The adjusted R-squared, at 0.3885, factors in model complexity, suggesting that 38.9% of the variance in FDI is explained while considering the intricacies introduced by the independent variables. These metrics collectively highlight the model's explanatory power, acknowledging potential unaccounted factors influencing FDI in Nigeria.

Table 2: *Fully Modified Ordinary Least Squares (FMOLS) Regression Analysis*

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EXRT	0.011237	0.003434	3.272174	0.0025
TRDO	0.065405	0.033237	1.967837	0.0573
INTR	-0.103540	0.080777	-1.281807	0.2086
INFR	0.012285	0.029412	0.417691	0.6788
HC	-77.78744	21.71380	-3.582396	0.0011
C	39.79321	11.08258	3.590610	0.0010
R-squared	0.466902	Mean dependent var		2.581250
Adjusted R-squared	0.388506	S.D. dependent var		2.547791
S.E. of regression	1.992324	Sum squared resid		134.9580
Long-run variance	5.239335			

Post-regression diagnostic tests enhance the credibility of time series analyses. This study employed the Breusch-Godfrey LM test and Breusch-Pagan-Godfrey heteroskedasticity test. The LM test suggested no significant autocorrelation in the residuals, indicating the model captures relationships without notable autocorrelation issues. The heteroskedasticity test, with a p-value of 0.212, indicated no strong evidence of varying residuals, implying the model's stability. These tests validate the regression results, affirming the model's reliability for economic predictions by confirming the absence of significant autocorrelation and heteroskedasticity issues.

The Ramsey Reset Test, with a p-value of 0.363 and an F-statistic of 0.921, affirms the model's stability and appropriateness, indicating no need for additional variables or modifications. This supports the model's credibility in predicting the relationship between variables without omitted variables or structural issues, enhancing its reliability for economic interpretations.

Discussion of Findings

The results of the Fully Modified Ordinary Least Squares (FMOLS) regression analysis provide a nuanced understanding of the determinants of Foreign Direct

Investment (FDI) in Nigeria. The findings underscore the significance of the exchange rate as a key driver of FDI inflows. A favorable exchange rate environment, characterized by a higher exchange rate, is found to be positively associated with increased FDI. This suggests that foreign investors are more inclined to invest in Nigeria when the exchange rate is advantageous, potentially due to enhanced purchasing power and improved returns on investment. The positive correlation between exchange rates and FDI is corroborated by several studies, including Zakari (2017), Benson et al. (2019), Okonkwo et al. (2020), Abd-El et al. (2021), Tayyba (2021), and Van (2021), which collectively establish a statistically significant relationship between these variables.

However, the analysis also unveils a paradoxical finding concerning human capital. While human capital is widely recognized as a crucial factor for economic growth and development, the FMOLS regression indicates that a higher human capital score is associated with lower FDI inflows in Nigeria. This counterintuitive result highlights the intricate nature of FDI determinants and suggests that investors' decisions may be influenced by factors beyond the mere availability of skilled labor. It is plausible that other considerations, such as the quality of institutions, infrastructure, and the overall business environment, may take precedence over human capital in attracting FDI to Nigeria. This finding underscores the need for a comprehensive approach to understanding FDI, taking into account a wide range of economic, political, and social factors.

Interestingly, the analysis reveals that trade openness, interest rates, and inflation rates do not exhibit statistically significant effects on FDI within the confines of the FMOLS model. While these variables are often considered important determinants of FDI in various contexts, their lack of statistical significance in this particular analysis does not necessarily negate their potential relevance. It is conceivable that the impact of these variables on FDI in Nigeria may be overshadowed by other dominant factors, such as the exchange rate and human capital. Additionally, the insignificance of these variables could be attributed to the specific time period or data sample used in the analysis, as well as the presence of other confounding factors not accounted for in the model.

Despite the absence of statistical significance for certain variables, the FMOLS model demonstrates substantial explanatory power in capturing the variance in FDI in Nigeria. This suggests that the included variables, particularly the exchange rate and human capital, play a crucial role in shaping FDI trends in the country. However, it is important to acknowledge the limitations of the model and recognize that FDI is a complex phenomenon influenced by a myriad of factors beyond those considered in this analysis. The Nigerian context may present unique challenges and opportunities that require a more comprehensive examination of economic, political, social, and institutional factors to fully understand the dynamics of FDI.

The findings of this analysis have important implications for policymakers and investors alike. The positive relationship between exchange rates and FDI highlights the need for Nigeria to maintain a stable and competitive exchange rate regime to attract foreign investment. Policymakers should focus on implementing measures that promote exchange rate stability and reduce volatility, as this can enhance the attractiveness of Nigeria as an investment destination. Additionally, the paradoxical finding regarding human capital underscores the importance of adopting a holistic approach to FDI promotion. While human capital development remains crucial for long-term economic growth, policymakers should also prioritize reforms that address other critical factors, such as improving the business environment, strengthening institutions, and enhancing infrastructure, to create a more conducive environment for FDI.

Investors, on the other hand, should consider the findings of this analysis when making investment decisions in Nigeria. The significance of the exchange rate suggests that investors should carefully assess the currency dynamics and potential risks associated with exchange rate fluctuations. Moreover, the counterintuitive relationship between human capital and FDI highlights the need for investors to conduct thorough due diligence and consider a wide range of factors beyond human capital when evaluating investment opportunities in Nigeria. This may involve assessing the overall business environment, political stability, market potential, and regulatory framework to make informed investment decisions.

Conclusion

The FMOLS regression analysis unveils the complex dynamics between exchange rates, trade openness, interest rates, inflation rates, human capital, and FDI in Nigeria. Exchange rates stand out as a substantial and statistically significant factor influencing FDI, while trade openness, interest rates, and inflation rates lack statistical significance in predicting FDI within this model. Human capital emerges as a pivotal determinant, with higher levels associated with a notable decrease in FDI, emphasizing the need for workforce investment. Although the model explains a significant portion of FDI variance, unaccounted factors may influence foreign investment. The study suggests that modifications in the Central Bank of Nigeria's monetary policy regarding the exchange rate have impacted FDI influx. Consequently, maintaining exchange rate stability is crucial for attracting more FDI to Nigeria

Recommendations

Considering the overarching goals of this research, which revolve around assessing the impact of the exchange rate on FDI in Nigeria over 1981 through 2021, and

given the study's findings that underscore the significant role of the exchange rate in shaping FDI inflows, the following recommendations are put forth.

1. The study highlights the significance of exchange rate stability in attracting FDI. Therefore, the Central Bank of Nigeria (CBN) and policymakers must focus on maintaining a stable exchange rate. Further monetary policy adjustments should prioritize exchange rate stability to provide a conducive environment for foreign investors.

2. To reduce exchange rate fluctuations and avoid preferential allocation of foreign currencies, the government should streamline the exchange rate system. This step can curb artificial scarcity and black market activities, providing a more predictable environment for foreign investors.

3. The research acknowledges the importance of external reserves in stabilizing the exchange rate. The government should enhance its foreign reserves through a combination of monetary and fiscal policies. This will contribute to the stability of the exchange rate and build confidence among foreign investors.

4. Nigeria should reduce the practice of dollarizing its economy, especially for investment projects that can be evaluated and transacted in the local currency. This will help alleviate pressure on foreign earnings and contribute to exchange rate stability.

5. The research reveals that higher levels of human capital are associated with a substantial decrease in FDI. To address this, the government should invest in its workforce by improving education, skills training, and knowledge development. By enhancing the skills and knowledge of the labour force, Nigeria can make itself more attractive to foreign investors.

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