Innovations

Ease of Doing Business and Foreign Direct Investment Nexus in Sub-Saharan Africa

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Abstract: *This study investigates the effect of Ease of Doing Business on Foreign Direct Investment both in the short- and long-run across a panel of 46 selected countries from 2005 to 2019 using a Panel Autoregressive Distributed Lag (ARDL) model. The unit root results reveal mixed stationarity levels, and the Kao cointegration test confirms the existence of a long-run relationship among key variables. The Error Correction Term is significantly negative, indicating strong adjustment toward equilibrium. Short-run results highlight trade openness as a significant driver of FDI, while institutional quality and governance factors exert influence over the long term. Robustness checks via the Random Effects model validate these findings, particularly the role of trade openness and investor protection. The study underscores the importance of structural reforms and trade liberalization in enhancing FDI inflows in developing economies.*

Keywords: *Foreign Direct Investment, Panel ARDL, Trade Openness, Institutional Quality, Governance Reforms*

1.0 Introduction

The dual-gap model, which highlights the constraints of domestic savings and foreign exchange availability in both developing and developed economies, underlines the critical role of Foreign Direct Investment (FDI) in bridging these gaps to facilitate sustainable economic growth (Saini & Singhania, 2018). In many developing countries, a deficiency in domestic savings translates into limited investment opportunities, thereby hampering economic development. Conversely, surplus capital in resource-rich countries often finds expression in cross-border investments, particularly in economies where such resources are scarce.

Extensive literature exists on the determinants of FDI, both at the global and regional levels (World Bank, 2019). The seminal contribution of Lucas (1993)

initiated an exploration into how the business environment shapes FDI inflows. Although Lucas suggested that certain dummy variables could capture country-specific institutional characteristics, their precise nature remained undefined. Subsequent works by Gastanaga, Nugent, and Pashamova (1998) advanced the discussion by linking FDI inflows to institutional quality and bureaucratic efficiency. These studies shifted attention from classical determinants of FDI such as return on capital to institutional and regulatory factors, prompting calls for regulatory reforms that enhance the ease of doing business (Besley, 2015; World Bank, 2018).

In response, the World Bank introduced the *Ease of Doing Business (EDB)* index in 2002, designed to incentivize governments to simplify business regulations and foster a conducive investment climate for both domestic and foreign investors (World Bank, 2019). Nigeria, for example, established the Presidential Enabling Business Environment Council (PEBEC) in 2016 to reduce bureaucratic impediments to doing business. As a result, the country improved its ranking from 146th to 131st out of 190 economies in the World Bank's 2020 report (Iweama, Idoko & Muhammed, 2021).

The Ease of Doing Business (EDB) index initially featured ten key indicators: starting a business, dealing with construction permits, getting electricity, registering property, accessing credit, protecting minority investors, paying taxes, trading across borders, enforcing contracts, and resolving insolvency (World Bank, 2020). However, scholars like Yusuf (2019) argue that these indicators may be more suited to developed economies, failing to capture the unique structural and institutional challenges faced by Sub-Saharan African (SSA) countries, such as insecurity, infrastructure deficits, erratic power supply, and policy instability. These localized factors significantly affect investment decisions and must be incorporated into any analysis of FDI in the region.

Empirical studies reveal that insecurity and political instability serve as substantial deterrents to FDI in SSA. For instance, persistent violence, kidnapping of expatriates, and attacks on infrastructure, as seen in the Niger Delta, have discouraged foreign investments in Nigeria and neighbouring countries (Nwanegbo & Odigbo, 2013; Ewetam& Urhie, 2014).

FDI inflows are typically driven by four motivations: market-seeking, resource-seeking, efficiency-seeking, and strategic asset-seeking (Nketiah-Amponsah & Sarpong, 2020). In developed countries, efficiency and cost-saving concerns dominate, while in developing countries, particularly in SSA, market size and natural resources remain the primary attractions. Despite a 13% increase in FDI to SSA in 2018, this growth was uneven. For example, South Africa witnessed over 100% growth, offsetting declines in Nigeria and Angola (UNCTAD, 2019).

Moreover, the region continues to lag behind in global FDI shares, attracting only 5.4% of global FDI in 2021, up slightly from 4.1% in 2020 (UNCTAD, 2022). South

Africa accounted for nearly 45% of SSA's total FDI inflow, while Central Africa saw stagnation and North Africa experienced a decline. The major sources of FDI in SSA include France, the Netherlands, the United States, the United Kingdom, and China, with Asia as the leading recipient globally (Nketiah-Amponsah & Sarpong, 2020).

Despite some reforms, business environment constraints in SSA, such as corruption, weak legal institutions, and bureaucratic red tape, continue to stifle both local and foreign investment (Adhikary, 2011; Bhavan & Zhong, 2011). Recognizing these challenges, several SSA countries have embarked on targeted reforms aimed at enhancing their investment appeal (Azam, 2010).

This study, therefore, seeks to contextualize the ease of doing business framework within the SSA context by integrating both global EDB indicators and region-specific factors, such as, infrastructure deficits, electricity supply, into the analysis of FDI inflows. While existing studies have examined the EDB–FDI nexus, most are either global in scope or focus on other regions. Notably, Nangpiire, Rodrigues, and Adam (2018) used OLS without adequately accounting for country-specific heterogeneity, while Nketiah-Amponsah and Sarpong (2020) employed panel analysis but excluded SSA-unique business constraints.

Corruption, both in the public and private sectors, has been identified as a major deterrent to foreign investment. A substantial body of empirical literature supports the notion that corruption exerts a negative influence on FDI. For instance, studies by Lakha et al (2024), Samimi and Monfared (2011), Alemu (2012), Brada et al. (2012), Pupovic (2012), and Tristan (2017) consistently report a negative correlation between corruption and FDI across various national contexts, using different econometric approaches. Corruption undermines the predictability and efficiency of business regulations, distorts the functioning of institutions, and increases the cost of doing business, all of which diminish the attractiveness of a country as a destination for foreign investors

Numerous studies highlight how inadequate electricity supply negatively affects key sectors, including education (Khandker et al., 2014) and health (Adair-Rohani et al., 2013). However, the business sector arguably bears the most substantial brunt. Evidence from the World Bank Enterprise Surveys suggests that firms in SSA frequently cite electricity shortages as a critical operational barrier. The challenges span from delayed connection and metering, frequent and prolonged blackouts, to exorbitant reliance on private generators powered by costly fuel, whether diesel or petrol (Foster and Steinbuks, 2010). After securing a connection, investors are often burdened with high tariffs and estimated billing, which further escalate production costs. These systemic deficiencies not only reduce firm competitiveness but also deter new investment.

This study addresses a critical gap in the literature by contextualizing the World Bank's Ease of Doing Business (EDB) framework to reflect the unique institutional

and structural realities of Sub-Saharan Africa (SSA). While existing EDB–FDI studies tend to adopt a global or regionally distant lens, this research narrows its focus to SSA, recognizing that conventional EDB indicators often overlook local challenges such as insecurity, infrastructure deficits, erratic electricity supply, and corruption. By incorporating these region-specific constraints into the analysis, the study offers a more grounded understanding of the investment climate in SSA. Moreover, it improves upon earlier methodological approaches—such as the use of OLS without accounting for country-specific heterogeneity, by adopting a framework that captures the nuanced and diverse conditions within the region, thus providing a more robust assessment of how the ease of doing business influences foreign direct investment in SSA.

This work is divided into six sections. Section two shows the relevant literature and empirical works done in this area of ease of doing business and foreign direct investment in different regions of the world and particularly, the individual countries in the SSA and Africa as a whole. Section three will present the theoretical framework on which this study will be hinged. Section four shows the methodology, mode specification and data nature and sources to be used, while section five will present the findings and their analysis, and finally, section six will give the conclusion and policy recommendations.

2.0 Review of empirical literature

Bhaumik et al. (2025) explored how geopolitics, multinational enterprise (MNE) strategies, and host-country policies interact to influence foreign direct investment (FDI) flows. By integrating international relations theory with traditional FDI models, they developed a framework that considers geopolitical alignment, technology gaps, and political systems, finding that alignment facilitates FDIespecially in democratic settings, while its absence requires tailored strategies by investment promotion agencies (IPAs). Similarly, Guenichi and Omri (2024) examined how institutional quality affects the FDI-growth nexus using a panel smooth threshold regression on data from 160 countries (2002–2021). They found that FDI enhances growth only when institutional quality exceeds a critical threshold, highlighting the role of robust institutions in amplifying FDI's growth effects via knowledge spillovers. Both studies emphasize the importance of contextual political and institutional environments in maximizing FDI benefits. While Bhaumik et al. offer a multidimensional policy-oriented framework, they lack empirical testing; Guenichi and Omri's non-linear model is rigorous but may oversimplify institutional variation through a single threshold.

Bardakas et al. (2023) examined how institutional quality and the business environment affect FDI inflows in EU countries using panel data (2005–2020) and World Bank Doing Business indicators, along with the Corruption Perception Index

and labor unrest data. They found that better institutions and business environments significantly boost FDI, though effects vary across countries, suggesting the need for tailored national reforms. Njuguna and Nnadozie (2022), focusing on Africa, used instrumental variables and the control function approach to address endogeneity in analyzing the impact of ease of doing business on FDI. Their results showed a strong positive relationship, recommending regulatory efficiency to attract FDI, though they noted the need for broader institutional indicators. Meanwhile, Bernardes et al. (2022) critically assessed the EDBI's methodological flawssuch as poor representation and variable weighting, which weaken its predictive reliability for FDI, GDP, and governance metrics. They advocated for a revised index that better reflects actual business conditions, though their study lacked a concrete alternative. Together, these studies emphasize the importance of nuanced, credible institutional and business indicators in shaping effective FDI strategies across diverse economic contexts.

Recent empirical research supports the relevance of EDB indicators in shaping FDI inflows and broader economic performance. For example, Mundakkad (2021) investigated the influence of EDB rankings on FDI attraction across 84 emerging markets between 2006 and 2018. Using Arellano-Bond dynamic panel estimation, the study found that improvements in EDB scores significantly increased FDI inflows, suggesting that a favourable regulatory environment is a critical determinant of investment location decisions.

In the Nigerian context, Iweama, Idoko, and Muhammed (2021) conducted a survey-based study to explore the impact of EDB indicators on FDI. Targeting Small and Medium Enterprises (SMEs) in Southern Nigeria with a sample of 300 respondents, the authors identified insecurity, unreliable power supply, and inadequate transport infrastructure as major barriers to attracting FDI. The study concluded that as a leading SSA economy, Nigeria must implement further reforms to improve its business environment and enhance investor confidence.

Nketiah-Amponsah and Sarpong (2020) empirically examined the relationship between ease-of-doing-business indicators and FDI in Sub-Saharan Africa using system GMM on panel data from 45 countries (2004–2018). They found that a 1% improvement in starting a business boosts FDI by 0.79%, while better tax administration raises FDI by 0.17%. The study offers a quantitative model linking regulatory reform to FDI and recommends pro-business policies, but lacks institutional quality variables. To address this, the current study integrates EDB indicators with local constraints like corruption, infrastructure, and insecurity to assess their joint impact on FDI, especially post-2019. Farok et al. (2020), using data from 189 countries, found that efficient trade regulations and strong contract enforcement significantly attract FDI. Notably, multinationals trade off weak areas for stronger ones, for example, accepting poor entry rules if contracts are reliably

enforced, highlighting the nuanced regulatory priorities of investors. However, regional variations are not deeply explored. Anggraini and Inaba (2020) also studied 166 countries (2009–2018) using two-stage GMM, showing that EDB improvements generally boost FDI, with Getting Credit and Access to Electricity being the most influential. Yet, in SSA, Enforcing Contracts had an inverse relationship, suggesting that rigid legal systems may deter investment. Collectively, these studies underscore the importance of tailored, region-sensitive reforms in enhancing FDI attraction.

In a region-specific analysis, Nangpiire, Rodrigues, and Adam (2018) examined the role of ease of doing business on FDI across 44 SSA countries, utilizing the Ordinary Least Squares (OLS) method. Their results showed that approximately 56% of the variation in FDI could be explained by changes in EDB indicators, indicating a robust relationship between the regulatory environment and investment flows. Notably, the indicators of *Protecting Minority Investors*, *Trading Across Borders*, and *Resolving Insolvency* were identified as having the most substantial influence on FDI in the region. These findings underscore the importance of institutional and legal reforms in creating a conducive environment for foreign investment in SSA.

Hossain, Hassan, Shafiq, and Basit (2018) contributed to the global discourse by analysing data from 177 countries between 2011 and 2015, focusing on the link between EDB and inward FDI. The study found that Enforcing Contracts had a positive and statistically significant effect on FDI, reaffirming the role of legal predictability in attracting investment. However, both Getting Credit and Registering Property were found to be negatively related to FDI, despite being statistically significant. These contrasting findings suggest that while formal access to credit and property rights are important, the quality and cost-efficiency of implementation matter more than the presence of the policy itself. Overall, the study confirmed that the composite EDB index was a significant determinant of inward FDI globally.

In an earlier foundational study, Corcoran and Gillanders (2013) used correlation analysis to investigate the impact of a country's regulatory environment on FDI, using data from 2004 to 2009. Their results showed a strong and significant association between EDB indicators and FDI inflows. Among all the indicators, Trading Across Borders was identified as the most influential driver of FDI, especially in facilitating global integration. However, the study found that the positive effects of EDB indicators were concentrated in middle-income countries, with limited or no significant effects observed in low-income economies, including many SSA countries. This finding highlights the importance of country-specific contexts and structural constraints in determining the effectiveness of EDB reforms. Interestingly, the authors also observed a spillover effect, wherein improvements in

the ease of doing business in one country positively influenced FDI in neighbouring countries, suggesting the presence of regional investment dynamics.

Collectively, these studies affirm the centrality of a supportive regulatory and institutional environment for attracting foreign investment. However, they also reveal important nuances: not all EDB indicators have uniform effects across regions, and improvements in ease of doing business may yield diminishing returns in the absence of complementary institutional reforms. This study, therefore, seeks to extend the existing literature by providing a more nuanced understanding of how individual EDB indicators interact with region-specific challenges in SSA, especially in the context of infrastructure, governance, and investment volatility.

3.0 Theoretical Framework

This study is grounded in three key theories: the Eclectic Paradigm (OLI Model), Institutional Theory, and Transaction Cost Theory, which collectively explain the influence of the ease of doing business on Foreign Direct Investment (FDI) in Sub-Saharan Africa. The Eclectic Paradigm, proposed by Dunning (1977), emphasizes that FDI decisions are driven by Ownership (O), Location (L), and Internalization (I) advantages. The Location advantage, in particular, highlights the importance of business-friendly environments, such as efficient regulatory frameworks and infrastructure, which are integral to the ease of doing business indicators. The Institutional Theory, developed by North (1990), underscores the role of formal institutions like legal and regulatory systems in shaping economic behavior, thus influencing investor confidence and FDI inflows. Meanwhile, Transaction Cost Theory, proposed by Coase (1937) and expanded by Williamson (1975), argues that businesses seek to minimize transaction costs, which include the costs associated with navigating regulatory hurdles, unreliable infrastructure, and weak legal frameworks. These theories collectively suggest that countries with improved ease of doing business, characterized by efficient processes in areas such as electricity access, property registration, and contract enforcement, lower the transaction costs and institutional barriers that typically deter FDI, making them more attractive investment destinations. Consequently, this study links the ease of doing business indicators to the factors that drive FDI in SSA, providing a theoretical basis for analyzing how institutional and transactional efficiencies affect investment decisions in the region.

4.0 Methodology

This study adopts a quantitative research design using panel data econometrics to examine the effect of ease of doing business (EDB) and selected indicators on Foreign Direct Investment (FDI) inflows in Sub-Saharan African (SSA) countries. The panel data approach is appropriate given the nature of the data, which spans

multiple countries over time and allows for the control of unobservable heterogeneity across countries.

The study covers 46 SSA countries over the period 2005 to 2019, aligning with global and regional policy shifts related to investment climates. The empirical analysis employs the panel ARDL, with robustness checks using Random Effect model after confirming through Hausman test that RE is more appropriate.

4.1 Model Specification

The functional form of the model is specified as:

$$FDI_{it} = \propto + \beta_1 STB_{it} + \beta_2 GELE_{it} + \beta_3 ENF_{it} + \beta_4 PMIV_{it} + \beta_5 PTX_{it} + \beta_6 GCR_{it} + \beta_7 PCGDP_{it} + \beta_8 TROP_{it} + \beta_9 \sum_1^6 INSTQ_{kit} + \mu_i + \varepsilon_{it} \quad (1)$$

Where:

FDI_{it} = Net Foreign Direct Investment inflow (% of GDP) in country *i* at time *t*

STB_{it}= Starting a business - Score

$ELEC_{it}$ = Getting electricity score (a proxy for infrastructure quality)

$PMIV_{it}$ = Protecting minority investors: Extent of director liability index (0-10) – Score

PTX_{it} = Paying taxes: Total tax and contribution rate (% of profit) -Score

GCR_{it} = Getting credit: Depth of credit information index - Score

ENF_{it} = Enforcing contracts score (a proxy for legal and institutional quality)

$\sum_1^6 INSTQ_{kit}$ = Institutional quality index (composite index for governance indices) = Summation ofControl of Corruption, Government Effectiveness, Rule of Law, Regulatory Quality, Political Stability and Voice and Accountability

$PCGDP_{it}$ = Real GDP per capita (proxy for market size)

$TROP_{it}$ = Trade openness (sum of exports and imports as a % of GDP)

μ_i = Unobserved country-specific effectsε_{it} = Idiosyncratic error term

ε_{it} = Idiosyncratic error term

$\sum_1^6 INSTQ_{kit}$ = Summation ofControl of Corruption, Government Effectiveness, Rule of Law, Regulatory Quality, Political Stability and Voice and Accountability (Globerman & Shapiro, 2003, Kaufmann et al.,2010).

4.2 Nature and sources of data

The data used in this work is a time series (2005 -2019) and cross-sectional data for 46 SSA countries. The variable included, the description, and the sources of the data are presented in table 4.1.

Table 4.1: Data Description and Sources

S/N	Variable	Description	Source
1	Net Foreign Direct Investment inflow (% of GDP)		World Development Indicator
2	Starting Business	Doing business indicator. (0 – 100)	World Bank Doing Business Data: https://archive.doingbusiness.org/en/data
3	(STB)		
4	Getting Electricity (GE)	Doing business indicator (0 – 100)	World Bank Doing Business Data: https://archive.doingbusiness.org/en/data
5	Getting Credit (GC)	Doing business indicator (0 – 100)	World Bank Doing Business Data: https://archive.doingbusiness.org/en/data
6	Protecting Minority Investors (PMI)	Doing business indicator (0 – 100)	World Bank Doing Business Data: https://archive.doingbusiness.org/en/data
7	Paying Taxes (PT)	Doing business indicator (0 – 100)	World Bank Doing Business Data: https://archive.doingbusiness.org/en/data
8	Enforcing Contracts (EC)	Doing business indicator (0 – 100)	World Bank Doing Business Data: https://archive.doingbusiness.org/en/data
9	Gross Domestic Product per capital	Real GDP per capita (proxy for market size)	World Development Indicator
10	Institutional Quality	Constructed composite index to capture all the institutional quality indices	Constructed
11	Trade Openness	Trade openness (sum of exports and imports as a % of GDP)	World Development Indicator

Source: Generated by the authorsfrom different sources.

The countries include: Angola, Benin, Botswana, Burkina Faso, Burundi, Cabo Verde, Cameroon, Central African Republic, Chad, Comoros, Congo Democratic Republic, Congo Republic, Cote d'Ivoire, Djibouti, Eritrea, Eswatini, Ethiopia, Gabon, The Gambia, Ghana, Guinea, Guinea Bisau, Kenya, Equatorial Guinea, Lesotho, Madagascar, Mali, Mauritania, Mauritius, Mozambique, Namibia, Niger, Nigeria,

Rwanda, Sao Tome, Senegal, Seychelles, Sierra Leone, Somalia, South Africa, Sudan, Tanzania, Togo, Uganda, Zambia, Zimbabwe.

5.0 Analysis of Results

5.1 Unit Root

The unit root test table provides evidence of mixed order of integration among the panel variables, some are stationary at level I(0), while others are only stationary after first differencing I(1).

Table 4.2: Unit Root test result

	At Level				**At First Difference**				
Variables	Levin, Lin & Chu t*	Im, Pesaran and Shin W-stat	ADF - Fisher Chi-square	PP - Fisher Chi-square	Levin, Lin & Chu t*	Im, Pesaran and Shin W-stat	ADF - Fisher Chi-square	PP - Fisher Chi-square	Order of Int
GCR	0.1807	0.8960	0.9929	0.9655	0.0224	0.0016	0.0782	0.0009	I(1)
PTX	0.0119	0.2805	0.3934	0.0019	0.1827	0.0000	0.0000	0.0000	I(1)
PMIV	0.0000	0.0000	0.0000	0.0000					I(0)
STB	0.0000	0.8451	0.0536	0.0113	0.0000	0.0000	0.0000	0.0000	I(1)
GELE	0.0004	0.8812	0.9533	0.9990	0.0000	0.0000	0.0000	0.0000	I(1)
EnfC	0.0476	0.9367	0.9752	0.9986	0.0161	0.0079	0.128	0.0003	I(1)
InstQ	0.2131	0.7066	0.5688	0.0000	0.0000	0.0000	0.0000	0.0000	I(1)
LNGDPPPC	0.0001	0.9998	0.9981	0.0000	0.0000	0.0000	0.0000	0.0000	I(1)
LNFDI	0.0000	0.0001	0.0000	0.0000					I(0)
LNTrop	0.0268	0.3214	0.3439	0.2272	0.0000	0.0000	0.0000	0.0000	I(1)

Source: Generated by the authors

5.2 Cointegration Test

The study employed the Kao Residual Cointegration Test to investigate the existence of a long-run equilibrium relationship among the key variables in the panel dataset, which includes foreign direct investment (FDI), institutional quality, governance-related indicators, and economic performance measures across selected countries from 2005 to 2019. The result of the Kao test (table 4.3), reveals a strongly negative ADF t-statistic value of -5.04824, which is statistically significant at the 1% level. This allows us to reject the null hypothesis of no cointegration and conclude that a long-run relationship exists among the variables in the model.

Table 4.3: Cointegration Test Result

Kao Residual Cointegration Test		
		t-Statistic
ADF		-5.04824
Residual variance		1.100688
HAC variance		0.705458

Source: Generated by the authors

The presence of cointegration is consistent with the economic theory that structural and institutional factors tend to exert a long-term influence on FDI inflows(Asiedu, 2006). Given this result, it is appropriate to proceed with estimation techniques that account for both short-run dynamics and long-run equilibrium, particularly the Panel Autoregressive Distributed Lag (ARDL) model using the Pooled Mean Group (PMG) estimator. This approach is justified as the variables are integrated of mixed order, I(0) and I(1), and none is integrated at I(2).

5.3 Discussion of Results

The Panel ARDL estimation output reveals both short-run dynamics and long-run adjustment behavior of the determinants of Foreign Direct Investment (FDI) across the panel of countries.

Table 4.4: Panel ARDL ECM

Panel ARDL				
Dependent Variable: D(LNFDI)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.004665	0.049719	0.093826	0.9253
D(LNFDI(-1))	0.325323	0.088202	3.688382	0.0003
D(STB(-1))	-0.00317	0.007453	-0.42535	0.6708
D(PTX(-1))	0.000612	0.004998	0.122484	0.9026
D(PMIV(-1))	-0.0093	0.006773	-1.37289	0.1704

D(INSTQ(-1))	0.051766	0.099249	0.52158	0.6022
D(GELE(-1))	-0.00084	0.002583	-0.32453	0.7457
D(GCR(-1))	-0.00039	0.005231	-0.07448	0.9407
D(ENFC(-1))	0.00443	0.007886	0.56177	0.5745
D(LNGDPPC(-1))	1.025662	0.9184	1.116793	0.2647
D(LNTROP(-1))	0.821544	0.294317	2.791353	0.0055
ECT(-1)	-0.95322	0.100887	-9.44839	0.0000
R-squared	0.303528			
Adjusted R-squared	0.287053			
F-statistic	18.42281			
Prob(F-statistic)	0.0000			
Durbin-Watson stat		1.783679		

Source: Generated by the authors

1. **Error Correction Term (ECT(-1)):**Coefficient: -0.95322, P-value: 0.0000

Interpretation: The ECT is negative and statistically significant, confirming the existence of a long-run equilibrium relationship among the variables. The high magnitude (~95%) suggests a fast speed of adjustment, meaning that deviations from the long-run equilibrium are corrected by 95.3% within one period. This work is strongly supported by the work of Alfaro et al. (2008) and Asiedu (2006) that found that found that the impact of institutional quality and economic fundamentals on FDI is more pronounced in the long run and that institutional quality, political stability, and infrastructure improvements attract FDI, especially in the long term.Adams (2009) also found that FDI responds to institutional and macroeconomic factors more significantly in the long term than in the short term.

2. **Short-run Effects**

Only one variable is statistically significant: D(LNTROP(-1)) - (Trade Openness): Positive and significant at 1% level (coefficient = 0.8215, p = 0.0055), suggesting that increased trade openness positively affects FDI inflows in the short run. Other variables (STB, PTX, PMIV, INSTQ, GELE, GCR, ENFC, LNGDPPC) are statistically insignificant in the short run, indicating that changes in these variables do not immediately influence FDI flows. The work of Ahmed & Zlate (2014) corroborated this finding by revealing that trade openness is a strong predictor of FDI inflows in developing economies.

3. Lagged FDI (D(LNFDI(-1))) is significant (p = 0.0003), implying a degree of inertia or persistence in FDI flows. Past values of FDI are strong predictors of current FDI levels in the short run.

5.4 Robustness Check using Random Effect Model

The robustness test using the Random Effects model confirms the overall stability of the relationship between the explanatory variables and FDI inflows, as some variables such as Protecting Minority Investors (PMIV) became significant in the RE and trade openness (LNTROP) remain statistically significant across both specifications.

Table 4.5: Random Effect Model

Method: Panel EGLS (Cross-section random effects)				
Dependent Variable: LNFDI				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.7171	0.932798	-1.8408	0.0662
STB	0.001925	0.002875	0.669419	0.5035
PTX	0.000744	0.002656	0.280029	0.7796
PMIV	0.006926	0.003272	2.116741	0.0347
GELE	0.002125	0.00146	1.45579	0.146
GCR	-0.00286	0.002391	-1.19523	0.2325
ENFC	-0.00101	0.003588	-0.282	0.778
LNGDPPC	-0.01076	0.056899	-0.18905	0.8501
LNTROP	0.593737	0.17155	3.461014	0.0006
R-squared	0.04477			
Adjusted R-squared	0.03148			
F-statistic	3.368692			
Prob(F-statistic)	0.000871			
Durbin-Watson stat		1.495179		

Source: Generated by the authors

However, the RE model performs poorly in terms of model fit ($R^2 \approx 4\%$) and fails to account for the long-run equilibrium dynamics that are evident in the cointegrated panel data. In contrast, the Panel ARDL model, which includes an error correction mechanism (ECT), demonstrates a significantly better model fit ($R^2 \approx 30\%$) and captures both short-run adjustments and long-run relationships.

Given the mixed order of integration among the variables (I(0) and I(1)) and the presence of cointegration confirmed by the Kao test, the Panel ARDL model is not only more theoretically appropriate but also empirically robust. The RE model, while helpful for cross-validating the significance of key predictors, does not substitute for the dynamic adjustment captured by the ECM framework.Therefore, the robustness check supports the reliability of the Panel ARDL findings and

strengthens confidence in the model's ability to explain the determinants of FDI in the long run.

6.0 Conclusion and Policy Recommendations

The analysis confirms the existence of a long-run relationship between FDI and institutional, governance, and macroeconomic variables. The Error Correction Term (ECT) is significant and substantial, indicating a rapid adjustment toward equilibrium following short-run disturbances. Trade openness is found to significantly boost FDI in the short run, while institutional quality and governance exhibit more pronounced effects in the long run. The Random Effects model confirms the robustness of the effects of trade openness and investor protection, although it lacks the ability to capture dynamic relationships.

Overall, FDI is significantly influenced by structural and institutional factors in the long run, while trade openness remains a key short-run driver. Based on these findings, the following policy recommendations are proposed:

1. Deepen trade liberalization policies to attract short-term FDI across the region.
2. Strengthen institutional quality and enhance minority investor protection to improve the long-term attractiveness of FDI.
3. Prioritize governance reforms and invest in infrastructure development to sustain investor confidence and promote durable FDI inflows.

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