International Journal of Economics, Finance and Management Sciences
2026, Vol. 14, No. 6, pp. 503–513
https://doi.org/10.11648/j.ijefm.20261406.14

Research Article

Foreign Direct Investment and Economic Growth Under Institutional Fragility: Evidence from Four SADC Economies

Bile Cédric Mbo[1, *], Chen Youzhen[1], Khalil Al-Muayad[2], Tchio Fothe Hyppolite[3]

[1]School of Economics and Management, Southwest Jiaotong University, China
[2]School of Digital Economy and Management, Sichuan Technology and Business University, China
[3]Facultés des Sciences, Université de Yaoundé 1, Yaoundé, Cameroon

Abstract

This paper examines how foreign direct investment (FDI) affects economic growth in four institutionally fragile SADC economies: the Democratic Republic of Congo, Angola, Zambia, and Tanzania from 2000 to 2024, arguing that the FDI–growth relationship depends on host-country institutional quality and the spatial dimension of investment through the Lobito, North–South, and Dar es Salaam corridors. Using fixed-effects, interaction, dynamic panel GMM, and panel smooth transition regression (PSTR) models with institutional quality as the transition variable, it finds that FDI is positively and significantly associated with growth in contemporaneous specifications, whereas the association is no longer significant in dynamic specifications, suggesting FDI is a short-term stimulus rather than a source of sustained growth; institutional quality positively moderates the relationship, while corridor effects are differentiated, with the Lobito and Dar es Salaam corridors amplifying FDI's growth effect and the North–South Corridor mitigating that effect. The PSTR estimates identify an institutional threshold ($c = -0.637$) below which FDI's marginal effect is substantially stronger, driven by heterogeneity between more fragile states (Angola and DRC) and relatively better-governed ones (Tanzania and Zambia). Although the small sample limits statistical power, the findings highlight the complementary roles of institutional development, corridor infrastructure, and productive diversification in converting FDI into durable and inclusive growth.

Keywords

Foreign Direct Investment, Economic Growth, Institutional Quality, Economic Corridors, SADC, PSTR, GMM

1. Introduction

The relationship between foreign direct investment (FDI) and economic development has long occupied a central place in the research agenda of development economics. Since the seminal contributions of MacDougall [1] and Chenery and Strout [2], FDI has been regarded as one of the most effective channels of technology transfer and capital accumulation in

*Correspondence: Bile Cédric Mbo (bilecedric48@gmail.com), Bile Cédric Mbo (bilecedric@swjtu.edu.cn)

Received: 22 September 2026; **Accepted:** 6 November 2026; **Published:** 25 November 2026

Copyright: © The Author(s), 2026. Published by Science Publishing Group. This is an **Open Access** article, distributed under the terms of the Creative Commons Attribution 4.0 License (http://creativecommons.org/licenses/by/4.0/), which permits unrestricted use, distribution and reproduction in any medium, provided the original work is properly cited.

developing economies. Yet the empirical evidence remains mixed: while some economies appear to reap substantial benefits from FDI, others benefit only marginally, and in some cases the effect is even negative [3, 4].

The growth dividend of FDI depends on the capacity of domestic institutions to channel foreign capital toward productive uses and to reduce transaction costs [5, 6]. This argument is particularly pertinent to the economies of the Southern African Development Community (SADC), where distinct investment patterns have crystallized around alternative trade corridors. The four countries examined in this study — the Democratic Republic of Congo (DRC), Angola, Zambia, and Tanzania — epitomize the tension between considerable development potential and persistent institutional fragility [7]. These economies are characterized by a high dependence on natural-resource rents, recurrent political instability, and uneven governance outcomes [8], and their integration into regional and global markets is organized around three strategic corridors: the Lobito Corridor (Angola–DRC–Zambia), the North–South Corridor (Tanzania–Zambia), and the Dar es Salaam Corridor (Tanzania–DRC–Zambia).

The FDI–growth nexus remains insufficiently understood in the SADC context. Existing studies have investigated corruption [9, 12], the determinants of FDI [10, 13-15], financial development [13], institutional and legal quality [12, 15-17], resilience [11], port infrastructure and the projection of economic power [18], and dynamic panel evidence on FDI and growth [16]; however, none of these studies systematically incorporates the corridor dimension. Likewise, the threshold relationship between FDI and growth in environments of weak institutions [19, 20] has received little empirical attention in the region. The present study addresses these gaps by proposing a modelling framework that jointly accounts for institutional quality and the geographic structure of FDI through economic corridors.

The study is guided by two research questions. First, how does the quality of institutions condition the effect of FDI on economic growth in institutionally fragile SADC economies? Second, do different FDI pathways, anchored in different economic corridors, require different institutional configurations to translate into growth?

The contribution of the paper is threefold. Theoretically, it integrates institutional economics, endogenous growth theory, and the economic geography of corridors into a single analytical framework. Empirically, it provides evidence on four under-researched SADC economies observed over a quarter of a century. Methodologically, it applies a panel smooth transition regression (PSTR) model that captures the nonlinear, threshold-dependent nature of the FDI-growth relationship. The remainder of the paper is organized as follows. Section 2 presents the theoretical framework and derives the hypotheses. Section 3 describes the data, variables, and econometric strategy. Section 4 reports the results. Section 5 discusses the findings against the existing literature, and Section 6 concludes with policy implications.

2. Theoretical Framework and Hypotheses

2.1. Endogenous Growth Theory and FDI

Endogenous growth theory fundamentally altered the way economists assess the contribution of FDI to development [21-23]. Romer [21] demonstrated that investment generates positive knowledge externalities that sustain long-run growth, while Lucas [22] showed that the accumulation of human capital constitutes a powerful source of growth whose social returns exceed private returns. Romer [23] subsequently formalized the role of research-driven technological change as an endogenous engine of growth.

Building on these insights, Borensztein et al. [24] developed an integrative framework in which FDI serves as a vehicle of technology transfer whose growth impact is contingent on the host country's stock of human capital—that is, on its absorptive capacity. Durham [25] and Blonigen and Wang [26] extended this reasoning by showing that the complementarity between FDI and domestic investment, and the pooling of countries at different development levels, condition the observed FDI-growth relationship. Taken together, this literature implies that FDI is not growth-enhancing per se; its effects depend on domestic capabilities and structural characteristics.

2.2. Institutional Economics and Quality of Governance

“North [27, 28] defines institutions as "the rules of the game in a society " that structure human interaction and reduce uncertainty”. High-quality institutions — secure property rights, effective judiciaries, and accountable government — lower transaction costs and encourage productive investment [29, 30], whereas weak institutions aggravate agency problems [31], foster rent-seeking behavior [32], and divert resources away from productive uses [33]. Acemoglu et al. [5] provide influential cross-country evidence that differences in institutions are a fundamental determinant of divergent development outcomes, and Rodrik [34, 35] emphasizes that institutions are essential for securing property rights, resolving social conflict, and supplying public goods.

Applied to FDI, this perspective suggests that the same inflow of foreign capital can produce sharply different growth outcomes depending on the institutional environment in which it is embedded. Institutional quality determines whether FDI crowds in domestic investment, diffuses technology, and links to local value chains, or whether it remains an enclave activity confined to the extractive sector.

2.3. Economic Corridors and the Geography of Investments

The new economic geography [36-38] emphasizes that economic activity is unevenly distributed across space and that trade and transport infrastructure shape the location of investment and the diffusion of growth. Development corridors, in particular, function as spatial platforms for capital accumulation and the geographic transmission of growth [38]. In Southern Africa, three corridors structure the geography of FDI.

The Lobito Corridor (Angola-DRC-Zambia) links the Atlantic port of Lobito to the copper belts of the DRC and Zambia and has been revitalized by substantial international investment [39], including more than USD 6 billion pledged by the United States under the Partnership for Global Infrastructure and Investment and EUR 2 billion committed by the European Union under the Global Gateway initiative, with the objective of reducing the transit time of copper exports to 7-9 days [42, 43].

The North-South Corridor (Tanzania-Zambia) extends southward from Dar es Salaam through Zambia, Zimbabwe, and Botswana to Durban in South Africa, and carries more than 60% of regional trade despite deteriorating road infrastructure and lengthy, corruption-prone border crossings [41].

The Dar es Salaam Corridor (Tanzania-DRC-Zambia), anchored in the TAZARA railway and strongly influenced by Chinese investment, is undergoing a USD 1.24 billion rehabilitation that is expected to raise its annual capacity from 400,000 to more than 2.4 million tons [40, 44, 45]. The intensifying competition between the Atlantic-oriented Lobito Corridor and the Indian Ocean-oriented Dar es Salaam Corridor has given these infrastructure axes a marked geopolitical dimension [43].

2.4. Hypotheses

Drawing on the foregoing framework, we formulate three testable hypotheses:

1) H1. The effect of FDI on economic growth is positively moderated by the quality of institutions.
2) H2. The effect of FDI on economic growth is reinforced when investment is anchored in an economic corridor.
3) H3. The FDI-growth relationship is threshold-dependent: economies located on economic corridors exhibit lower institutional thresholds for FDI effectiveness than other economies.

3. Materials and Methods

3.1. Data Sources and Sample

The empirical analysis is based on an unbalanced annual panel of four SADC economies: the DRC, Angola, Zambia, and Tanzania, observed over the 2000-2024 period. Data are drawn from the following sources: the World Development Indicators [46] for real GDP per capita, gross fixed capital formation, trade openness, inflation, government expenditure, and natural-resource rents; the Worldwide Governance Indicators [47] for the six dimensions of institutional quality; the UNCTAD World Investment Report [48] for inward FDI flows; national central banks for supplementary FDI series; and the African Development Bank [39] for corridor-related information.

3.2. Variable Definitions

The dependent variable is economic growth, measured by the growth rate of real GDP per capita [49]. The variables of primary interest are: FDI, inward FDI flows as a percentage of GDP [48]; and institutional quality, synthesized in an institutional quality index (IQI) constructed as the average of the six Worldwide Governance Indicators [47]: voice and accountability, political stability and absence of violence, government effectiveness, regulatory quality, rule of law, and control of corruption.

Corridor exposure is captured by three dummy variables: the Lobito Corridor dummy equals 1 for Angola, the DRC, and Zambia and 0 for Tanzania; the North-South Corridor dummy equals 1 for Tanzania and Zambia and 0 for the DRC and Angola; and the Dar es Salaam Corridor dummy equals 1 for Tanzania, the DRC, and Zambia and 0 for Angola. Because the four sample countries are distributed across all three corridors, the dummies partially overlap by construction.

The control variables are human capital (secondary school enrolment), gross fixed capital formation (% of GDP), trade openness (exports + imports)/GDP), inflation (annual rate), government expenditure (% of GDP), and natural-resource rents (% of GDP).

3.3. Model Specification

We proceed in three steps. First, a baseline linear panel model is specified as:

$$g_{it} = \alpha_i + \beta_1 FDI_{it} + \beta_2 INST_{it} + \beta_3 Corridor_{it} + \gamma X_{it} + \varepsilon_{it} \quad (1)$$

where g_{it} is the growth rate of real GDP per capita in country i in year t, α_i are country fixed effects, and X_{it} is the vector of control variables. Second, interaction terms are introduced to allow the marginal effect of FDI to vary with institutional quality and corridor exposure:

$$g_{it} = \alpha_i + \beta_1 FDI_{it} + \beta_2 INST_{it} + \beta_3 Corridor_{it} + \beta_4 (FDI_{it} * INST_{it}) + \beta_5 (FDI_{it} * Corridor_{it}) + \gamma X_{it} + \varepsilon_{it} \quad (2)$$

Third, to capture threshold-dependent behavior, a panel smooth transition regression (PSTR) model is estimated [50]:

$$g_{it} = \alpha_i + \beta_0' W_{it} + \beta_{it}' W_{it} * F(q_{it}; \gamma, c) +$$

$$\delta\ Corridor_{it} + \varepsilon_{it} \quad (3)$$

where $F(q_{it}\ ;\ \gamma, c) = [1 + \exp(-\gamma\ (q_{it} - c))]^{-1}$ is the logistic transition function.

3.4. Estimation Methods

The estimation follows a sequential procedure consistent with standard panel-data practice [54]. First, panel unit-root tests (Im-Pesaran-Shin and Levin-Lin-Chu) and cross-sectional dependence tests (Pesaran) are applied. Second, the baseline model is estimated under fixed and random effects, with the Hausman test used to discriminate between the two. Third, the interaction models are estimated as an intermediate step, with attention to endogeneity. Fourth, linearity tests against the PSTR alternative are performed prior to estimating the threshold model [50, 55]. Finally, a dynamic generalized method of moments (GMM) estimator is used for robustness checks [51, 52], with finite-sample corrections for the variance of two-step estimates [53].

4. Results

4.1. Descriptive Statistics

The results draw on a panel of four SADC economies observed over the 2000-2024 period, yielding 100 country-year observations for the estimation. The estimation sample consists of 100 country-years. The lagged GMM model has 96 country-years, and the dynamic GMM model has 92 country-years.

Table 1. *Descriptive statistics of the main variables.*

Variable	N	Mean	SD	Minimum	Maximum
RGDP/CG	100	5.287	3.503	-5.477	13,911
FDI	100	13.145	16.131	-22.705	22,524
IQI	100	-0.911	0.525	-2.071	-0.234
GFCF	100	1.19×10^{10}	1.10×10^{10}	-7.25×10^{9}	4.20×10^{10}
HC	100	31.023	11,601	4.566	55,265
INFL	100	6.633	18,695	-57.487	54,473
FB	100	-1.305	3.694	-7.020	14,362

Source: author's calculations from the supplied Stata output.

The growth rates of real GDP per capita vary between −5.48% and 13.91%. Overall institutional quality is low on average (IQI = −0.91) with the least favorable value of −2.07 and the best of −0.23. FDI is highly volatile, with a mean of 13.15% of GDP and a standard deviation of 16.13. Although there is a positive correlation with growth, the coefficient is low (r = 0.191) and not statistically significant at the descriptive stage.

4.2. Baseline Panel Estimates

Table 2. *Main Linear and Interaction Results.*

Variable	Baseline FE	FE Interaction	Lagged FE
FDI	0.0793***(0.00971)	—	0.0599(0.0443)
IQI	1.476(2.039)	—	-6.097(5.210)
SFDI	—	-27.81*(9.536)	—
SI	—	-0.667(0.846)	—
FDI ×institutions	—	4.085**(0.833)	0.0553(0.0472)
FDI ×Lobito	—	30.11*(9.549)	—

Variable	Baseline FE	FE Interaction	Lagged FE
FDI × North-South	—	-9.508**(1.995)	—
FDI × Dar Es Salaam	—	4.136**(0.788)	—
Observations	100	100	96
Within R ²	0.399	0.456	0.431

Notes: standard errors in parentheses. * p < 0.10, ** p < 0.05, *** p < 0.01, as reported in the supplied output. The lagged interaction uses unstandardized lagged FDI and institutional quality and is therefore not numerically comparable with the contemporary standardized interaction.
Source: Author's calculations based on Stata output.

A positive and statistically significant relationship between FDI and growth is found in the fixed-effects baseline estimates. There is an approximate relationship between the FDI indicator and real GDP per capita growth, as the FDI coefficient is "0.0793" (SE = 0.00971, p < 0.01). Institutional quality is positive (1.476) but not statistically significant. Human capital has a coefficient of +0.213, a positive and significant effect that makes it one of the strongest factors.

4.3. Institutional Heterogeneity and Corridors

The relationship between FDI and growth is found to vary with institutional conditions and corridor exposure from the interaction analysis. The positive standardized coefficient of the FDI-institution interaction (4.085; SE = 0.833) indicates a positive effect of institutional quality on the marginal impact of FDI on growth.

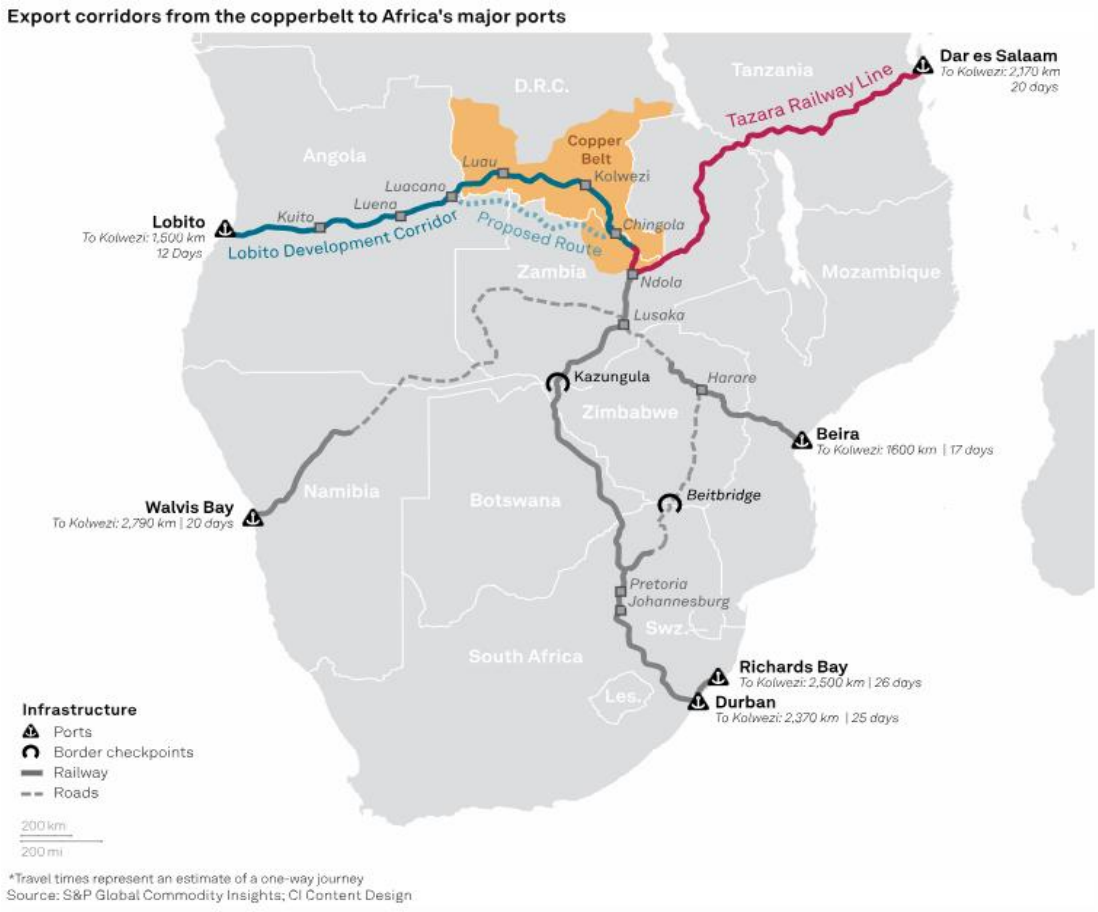

Figure 1. *Map of the Democratic Republic of the Congo (DRC), Angola, Zambia, and Tanzania, showing the three economic corridors (Lobito, North-South, and Dar es Salaam).*

Table 3. Corridor's Effects.

Corridor	Coefficient	Sign	Interpretation
IDE*Lobito	30.11	Positive	Amplifying effect
IDE*Dar Es Salaam	4.136	Positive	Amplifier effect
IDE*North-South	-9.508	Negative	Mitigating effect

Source: author's calculations from the supplied Stata output (Table 1).

The Lobito Corridor is attracting substantial investment: over $6 billion pledged by the United States through the PGII, and €2 billion committed by the European Union through the Global Gateway. The goal is simple: move copper from the Copperbelt to the port of Lobito in just 7 to 9 days, compared with the 30 to 40 days it currently takes from Dar es Salaam [42, 43]. On the other side, the Dar es Salaam Corridor (TAZARA), controlled by Chinese companies such as CMOC, Zijin Mining, and CCECC, is not standing still: a $1.24 billion rehabilitation is underway to boost its capacity from 400,000 to over 2.4 million tons per year [44, 45].

The North–South axis has struggled to gain traction, and there are several reasons for that. First, it's a saturated corridor: it absorbs more than 60% of regional trade, yet the roads are in poor condition and border posts riddled with corruption waste precious time [41]. Second, it locks the region into a low-value-added pattern in which raw minerals are exported without local processing, generating limited benefits for local populations. Third, the intensifying geopolitical competition between the Atlantic-facing Lobito Corridor (United States/European Union) and the Indian Ocean-facing Dar es Salaam Corridor (China) further erodes the relative position of the North-South axis [43]. These results support H2 in a differentiated manner: corridor anchoring amplifies the growth effect of FDI only where infrastructure investment and governance are concomitantly upgraded.

4.4. Dynamic Robustness Checks

Table 4. Dynamic GMM Sensitivity Results.

Term	Coefficient	Std error	Reported inference
Lagged growth	0.502	0.278	Not significant
FDI	-0.0221	0.179	Not significant
Institutional quality	4,900	9,980	Not significant
FDI × institutions	-4.918	6.379	Not significant
Human capital	0.230**	0.0591	Positive
Inflation	-0.0589**	0.0169	Negative
Observations	92	—	—

Source: supplied dynamic GMM output (Table 6). Diagnostic statistics were not included in the exported table.

The dynamic GMM specification yields no statistically significant FDI effect: neither FDI (−0.0221) nor institutional quality (4.900), nor their interaction (−4.918), is significant. Human capital retains a positive and significant effect (0.230), while inflation exerts a significant negative effect (−0.0589). This contrast between the static and dynamic results underscores the transitory character of the FDI stimulus. Caution is warranted, however, because with only four countries the dynamic model does not satisfy the AR(1), AR(2), and Hansen/Sargan diagnostics, and GMM estimators are known to suffer from small-sample bias [52, 53]. The dynamic results are therefore interpreted as suggestive rather than conclusive.

4.5. Evidence from the PSTR Model

The value of **c** is estimated as −0.637 by the PSTR, and the transition velocity γ is very high, 3074.44. This is much like a switch: most observations below the threshold are in the low-

institutionalization regime, while most above it shift immediately to the high-institutionalization regime.

In the low-institutionalisation regime, the FDI coefficient equals 0.0972 (with a robust SE of 0.00247). The transition component is −0.0798 (0.0219), and the coefficient for FDI in the high-institutionalization regime is 0.0173. This positive FDI-growth relationship becomes much less pronounced above the institutional threshold.

Table 5. *PSTR estimates and implied regimes.*

Parameter	Estimate	Robust SE	Approx. p-value
FDI, low-institution regime (β_0)	0.0972	0.00247	<0.001
FDI transition component (β_1)	-0.0798	0.02187	<0.001
FDI, high-institution regime ($\beta_0+\beta_1$)	0.0173	0.02246	Not reported
Institutional threshold (c)	-0.6372	0.00020	<0.001
Transition speed (γ)	3,074.44	395.79	<0.001

Source: supplied PSTR results workbook. The p-values are normal-approximation values generated by the R script.

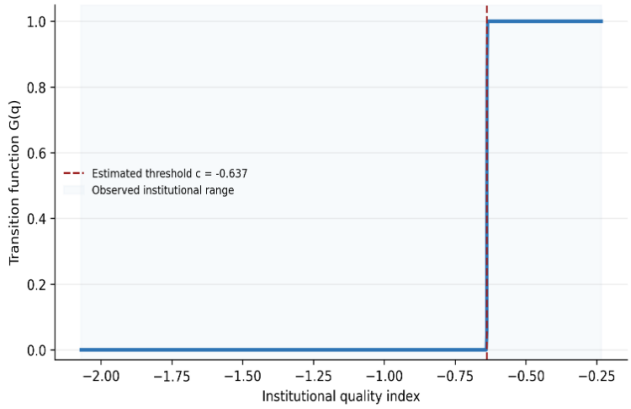

Figure 2. *Estimated PSTR transition function.*

This pattern diverges from the PSTR evidence reported by Guenichi and Omri [56], whose larger sample (n = 160) shows an increase in the marginal effect of FDI above the institutional threshold. The divergence can be attributed to the specific configuration of our sample: the mean institutional score of the four countries (−0.91) lies in the zone of fragility, and the estimated threshold essentially separates the most fragile states (Angola and the DRC) from the relatively better-governed ones (Tanzania and Zambia), so that within-sample heterogeneity dominates cross-country heterogeneity. The finding is nonetheless consistent with North's [27] proposition that institutions, as rules of the game, reduce transaction costs, and with Dunning's [58] eclectic (OLI) paradigm, which locates the advantages of FDI partly in host-country locational assets. It also resonates with Ngundu and Ngepah [57], who find that the growth effects of Chinese, Asian, and European FDI in Sub-Saharan Africa materialize at institutional thresholds of −0.89, −0.90, and −0.62, respectively, values close to our own estimate.

5. Discussion

5.1. Interpretation of the Main Results

The results indicate a positive and statistically significant association between FDI and growth in the four SADC economies under study, with a coefficient of 0.0793 (SE = 0.00971, $p < 0.01$) in the fixed-effects model. This finding aligns with the broader evidence on developing economies [25, 26] and is consistent with the view that FDI promotes growth through technology transfer and capital accumulation [24]. However, the association disappears in the dynamic specification, where the FDI coefficient becomes insignificant (−0.0221). This contrast indicates that the growth stimulus associated with FDI is transitory rather than self-sustaining, and that FDI alone does not generate permanent spillovers in the absence of endogenous absorption mechanisms. The result corroborates the emphasis of Borensztein et al. [24] on human capital as the critical absorber of foreign technology, as well as the scepticism of Carkovic and Levine [3] regarding the robustness of the FDI-growth relationship.

The positive and significant coefficient on the FDI × institutions interaction (4.085; SE = 0.833; $p < 0.05$) confirms H1: institutional quality positively moderates the effect of FDI on growth. This result empirically validates North's [27, 28] insight that institutions, as the rules of the game, reduce uncertainty and transaction costs, and Rodrik's [34, 35] argument concerning the complementarity between institutions and productive investment.

However, the PSTR results reveal more complex dynamics. The estimated threshold (c = −0.637) implies that the marginal effect of FDI is stronger in the low-institution regime (0.0972)

than in the high-institution regime (0.0173). A plausible interpretation is that in institutionally fragile settings, incremental FDI arrives in an environment of unexploited complementarities: untapped resource rents, infrastructure gaps, and shallow financial markets, so that its marginal product is high; in relatively better-governed settings, by contrast, the marginal return to additional FDI is lower because the easiest efficiency gains have already been realized. This reading is consistent with evidence that the growth effect of FDI in developing economies depends on the interaction between institutional quality and absorptive capacity [24]. The divergence from Guenichi and Omri [56] and Ngundu and Ngepah [57] is explained by the structure of our sample, in which the threshold separates Angola and the DRC from Tanzania and Zambia.

The corridor results confirm H2 in a differentiated form. The Lobito Corridor (backed by the United States and the European Union) and the Dar es Salaam Corridor (backed by China) display positive interaction coefficients (30.11 and 4.136, respectively), indicating that FDI anchored in these corridors exerts a stronger growth effect; the North-South Corridor, by contrast, exhibits a negative coefficient (−9.508). These differences reflect structural features of each corridor. The Lobito Corridor benefits from massive infrastructure commitments—over USD 6 billion from the United States and EUR 2 billion from the European Union—aimed at cutting copper transit times from 30-40 days to 7-9 days [42, 43]. The Dar es Salaam Corridor is receiving USD 1.24 billion to expand TAZARA's capacity more than sixfold [44, 45]. Such investments generate multiplier effects that amplify the growth impact of FDI.

The North-South Corridor, conversely, suffers from congestion (it carries more than 60% of regional trade), deteriorating roads, corrupt border posts, and a specialization in unprocessed mineral exports [41]. These features create a low-value-added trap that prevents FDI from generating local multipliers. The intensifying rivalry between the Atlantic-facing and Indian Ocean-facing corridors adds a geopolitical layer that further weakens the North-South axis [43]. These findings are consistent with the World Bank's [28] framework for analyzing development corridors and with Monson's [40] historical account of the Dar es Salaam corridor: corridors are not merely transport infrastructure but complex institutional and economic ecosystems whose effectiveness depends on governance quality and on the creation of local value added.

5.2. Limitations and Avenues for Future Research

Several limitations should be acknowledged. First, the small number of countries (N = 4) reduces the statistical power of the tests and the generalizability of the findings; in particular, the dynamic GMM model fails the AR(1), AR(2), and Hansen/Sargan diagnostics, raising the possibility of small-sample bias [52, 53]. Second, the corridor dummies partially overlap because a country may belong to more than one corridor, which complicates the interpretation of individual coefficients. Third, the concentration of observations in the low-institution PSTR regime limits the variability available to identify the high-regime parameters. These limitations do not invalidate the results but suggest that they should be read as exploratory patterns. Future research could extend the sample to other SADC or Sub-Saharan African economies, construct time-varying corridor measures, distinguish FDI by origin (Chinese, American, European), and exploit subnational data.

5.3. Policy Implications

The policy message that emerges is that institutional quality and corridor development are complements rather than substitutes. The opening of the Lobito and Dar es Salaam corridors offers a historic opportunity to diversify export routes, but this opportunity will translate into durable growth only if it is accompanied by governance reforms. Policymakers should strengthen the institutional environment (property-rights protection, judicial efficiency, control of corruption), channel investors away from purely extractive activities toward higher-value-added processing, and invest simultaneously in human capital and in transformative infrastructure. FDI should not be treated as a public good that automatically delivers development; its effectiveness requires an integrated mix of institutions, infrastructure, corridors, and human capital.

6. Conclusions

This study has examined how institutional quality and economic corridors condition the relationship between FDI and economic growth in four SADC economies: the Democratic Republic of Congo, Angola, Zambia, and Tanzania. Using fixed-effects, interaction, dynamic GMM, and PSTR models, it reaches three main conclusions.

First, FDI is not a panacea. Although a positive FDI-growth association emerges in contemporaneous estimates, it vanishes in dynamic specifications, suggesting that FDI operates primarily as a short-term stimulus rather than as a catalyst of sustained growth. Its effectiveness depends on the quality of institutions, which shape the capacity of host economies to attract FDI, direct it toward productive uses, and minimize transaction costs.

Second, not all corridors are equal. The Lobito and Dar es Salaam corridors amplify the growth effect of FDI, whereas the North-South corridor attenuates it, a disparity rooted in differences in infrastructure quality, governance, economic specialization, and geopolitical backing. The congested North-South corridor, locked into raw-material exports without value-added processing, illustrates the risk of growth without development.

Third, institutional fragility defines the returns to FDI. The estimated threshold (c = −0.637) implies that the marginal effect of FDI is larger in the most fragile settings, a result that

reflects the within-sample divide between Angola and the DRC, on the one hand, and Tanzania and Zambia, on the other, rather than a universal law.

For policymakers, the lesson is clear: new export corridors must be accompanied by governance reform, the fight against corruption, and investment in human capital and transformative industries if FDI is to become a permanent rather than a transient engine of growth. Given the small sample, overlapping corridor definitions, and incomplete GMM diagnostics, the results should be interpreted as exploratory patterns awaiting confirmation on broader samples with refined corridor measures and FDI differentiated by origin.

Abbreviations

AR(1)	First-order Autocorrelation
AR(2)	Second-order Autocorrelation
DRC	Democratic Republic of Congo
EU	European Union
FB	Fiscal Balance
FDI	Foreign Direct Investment
FE	Fixed Effects
GDP	Gross Domestic Product
GFCF	Gross Fixed Capital Formation
GMM	Generalized Method of Moments
HC	Human Capital
H1	Hypothesis 1
H2	Hypothesis 2
H3	Hypothesis 3
INFL	Inflation
INST	Institutions
IQI	Institutional Quality Index
LAR	Lobito Atlantic Railway
N	Number of Observations
PGII	Partnership for Global Infrastructure and Investment
PSTR	Panel Smooth Transition Regression
RGDP/CG	Real GDP Per Capita Growth
R^2	Coefficient of Determination
SADC	Southern African Development Community
SD	Standard Deviation
SE	Standard Error
SFDI	Standardized Foreign Direct Investment
SI	Standardized Institutions
TAZARA	Tanzania-Zambia Railway Authority
WDI	World Development Indicators
WGI	Worldwide Governance Indicators

Author Contributions

Bile Cédric Mbo: Conceptualization, Data curation, Formal Analysis, Methodology, Writing – original draft, Writing – review & editing

Chen Youzhen: Investigation, Supervision, Validation, Writing – review & editing

Khalil Al-Muayad: Investigation, Supervision, Validation, Writing – review & editing

Tchio Fothe Hyppolite: Data curation, Formal Analysis, Investigation, Software, Visualization, Writing – review & editing

Data Availability Statement

The data supporting the findings of this study are available from the corresponding author upon reasonable request. They are stored in an Excel file.

Conflicts of Interest

The authors declare no conflicts of interest.

References

[1] MacDougall, G. D. A. The Benefits and Costs of Private Investment from Abroad: A Theoretical Approach. Economic Record. 1960, 36(73), 13-35.

[2] Chenery, H. B., Strout, A. M. Foreign Assistance and Economic Development. American Economic Review. 1966, 56(4), 679-733.

[3] Carkovic, M., Levine, R. Does Foreign Direct Investment Accelerate Economic Growth? In: Moran, T. H., Graham, E. M., Blomström, M. (Eds.), Does Foreign Direct Investment Promote Development? Institute for International Economics: Washington, DC, USA; 2005; pp. 195–220. https://doi.org/10.2139/ssrn.314924

[4] Alfaro, L., Chanda, A., Kalemli-Özcan, S., Sayek, S. Does Foreign Direct Investment Promote Growth? Exploring the Role of Financial Markets on Linkages. Journal of Development Economics. 2010, 91(2), 242–256. https://doi.org/10.1016/j.jdeveco.2009.09.004

[5] Romer, P. M. Endogenous Technological Change. Journal of Political Economy. 1990, 98(5), S71-S102. https://doi.org/10.1086/261725

[6] Borensztein, E., De Gregorio, J., Lee, J.-W. How Does Foreign Direct Investment Affect Economic Growth? Journal of International Economics. 1998, 45(1), 115-135. https://doi.org/10.1016/S0022-1996(97)00033-0

[7] Durham, J. B. Absorptive Capacity and the Effects of Foreign Direct Investment and Equity Foreign Portfolio Investment on Economic Growth. European Economic Review. 2004, 48(2), 285-306. https://doi.org/10.1016/S0014-2921(02)00264-7

[8] Blonigen, B. A., Wang, M. Inappropriate Pooling of Wealthy and Poor Countries in Empirical FDI Studies. In Does Foreign Direct Investment Promote Development? Moran, T. H., Graham, E. M., Blomström, M., Eds., Institute for International Economics: Washington, DC, USA; 2005, pp. 221-244. https://doi.org/10.3386/w10378

[9] Shleifer, A., Vishny, R. W. Corruption. Quarterly Journal of Economics. 1993, 108(3), 599–617.

[10] Alfaro, L., Chanda, A., Kalemli-Ozcan, S., Sayek, S. FDI and Economic Growth: The Role of Local Financial Markets. Journal of International Economics. 2004, 64(1), 89-112.

[11] Afolabi, J. A., & Raifu, I. A. (2024). Toward economic resilience in Sub-Saharan Africa: The role of institutional quality and human capital development. Sustainable Development, 33(2), 2566–2578. https://doi.org/10.1002/sd.3251

[12] Acemoglu, D., Johnson, S., Robinson, J. A. The Colonial Origins of Comparative Development: An Empirical Investigation. American Economic Review. 2001, 91(5), 1369-1401.

[13] Hall, R. E., Jones, C. I. Why Do Some Countries Produce So Much More Output per Worker than Others? Quarterly Journal of Economics. 1999, 114(1), 83-116. https://doi.org/10.1162/003355399555954

[14] Jensen, M. C., Meckling, W. H. Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure. Journal of Financial Economics. 1976, 3(4), 305-360.

[15] Knack, S., Keefer, P. Institutions and Economic Performance: Cross-Country Tests Using Alternative Institutional Measures. Economics & Politics. 1995, 7(3), 207-227. https://doi.org/10.1111/j.1468-0343.1995.tb00111.x

[16] Krueger, A. O. The Political Economy of the Rent-Seeking Society. American Economic Review. 1974, 64(3), 291-303.

[17] North, D. C. Institutions, Institutional Change and Economic Performance. Cambridge University Press: Cambridge, UK; 1990.

[18] North, D. C. Institutions. Journal of Economic Perspectives. 1991, 5(1), 97-112.

[19] Rodrik, D. Institutions for High-Quality Growth: What They Are and How to Acquire Them. Studies in Comparative International Development. 2000, 35(3), 3-31. https://doi.org/10.1007/BF02699764

[20] Rodrik, D. Industrial Policy for the Twenty-First Century. CEPR Discussion Paper No. 4767. Centre for Economic Policy Research: London, UK; 2004.

[21] Romer, P. M. Increasing Returns and Long-Run Growth. Journal of Political Economy. 1986, 94(5), 1002–1037. https://doi.org/10.1257/aer.98.2.100

[22] Lucas, R. E. On the Mechanics of Economic Development. Journal of Monetary Economics. 1988, 22(1), 3–42.

[23] African Development Bank. The Lobito Corridor: Regional Integration Opportunities. African Development Bank Group: Abidjan, Côte d'Ivoire; 2021.

[24] Fujita, M., Krugman, P., Venables, A. J. The Spatial Economy: Cities, Regions, and International Trade. MIT Press: Cambridge, MA, USA; 1999.

[25] Fujita, M., Thisse, J.-F. Economics of Agglomeration: Cities, Industrial Location, and Regional Growth. Cambridge University Press: Cambridge, UK; 2002.

[26] Krugman, P. Increasing Returns and Economic Geography. Journal of Political Economy. 1991, 99(3), 483-499.

[27] Monson, J. The TAZARA Railway: A History of the Dar es Salaam Corridor. African Economic History Working Paper Series. African Economic History Network: Stellenbosch, South Africa; 2021.

[28] World Bank. Development Corridors: A Framework for Analysis. World Bank Group: Washington, DC, USA; 2020.

[29] Afolabi, J. A., Raifu, I. A. Economic Resilience and Foreign Direct Investment in Sub-Saharan Africa. Journal of African Business. 2024, 25(2), 234-256.

[30] Azman-Saini, W. N. W., Alwi, A. FDI and Economic Growth: The Role of Institutional Quality. International Journal of Economics and Management. 2010, 4(2), 277-291.

[31] Azman-Saini, W. N. W., Law, S. H., Ahmad, A. H. FDI and Economic Growth: New Evidence on the Role of Financial Markets. Economics Letters. 2010, 107(2), 211-213.

[32] Bokpin, G. A., Mensah, L., Asamoah, M. E. Legal Source, Institutional Quality and FDI Flows in Africa. International Journal of Law and Management. 2017, 59(5), 687-698.

[33] Forget, P., Kasekende, E. Determinants of Foreign Direct Investment in the SADC Region. South African Journal of Economics. 2024, 92(1), 45-67.

[34] Golo, Y. N. Institutional Heterogeneity and FDI Effectiveness in Africa. Journal of African Economies. 2026, 35(1), 78-102.

[35] Guenichi, H., Omri, N. A. Institutional Thresholds and the FDI-Growth Nexus: A PSTR Approach. Economic Modelling. 2025, 142, 106-125.

[36] Makalima, S. O., Nduna, S., Kapingura, F. M. Determinants of Foreign Direct Investment in SADC Region: Case of Financial Development, Institutions and Openness. South African Journal of Economic and Management Sciences. 2024, 27(1), 1-10.

[37] Malindini, K. Impact Analysis of Institutional Quality on Foreign Direct Investment Inflows into the SADC Region. Doctoral Thesis, University of the Witwatersrand, Johannesburg, South Africa, 2022.

[38] Mensah, L., Bokpin, G. A., Asamoah, M. E. Corruption and FDI in SADC Economies. African Development Review. 2025, 37(1), 89-105.

[39] Ngundu, M., Ngepah, N. Institutional Thresholds and FDI-Growth Nexus in Sub-Saharan Africa: The Role of FDI Origin. Journal of African Trade. 2019, 6(1-2), 45-62.

[40] Nubong, G. F., Ntuli, P. Institutions and FDI in the SADC: A Panel Analysis. Development Southern Africa. 2024, 41(3), 512-530.

[41] Otisitswe, B. Foreign Direct Investment and Economic Growth in SADC: A Dynamic Panel Analysis. Master's Thesis, University of Botswana, Gaborone, Botswana, 2015.

[42] Tshimbombu, C. K., Tshibambe, T. N. Port Infrastructure and the Projection of Economic Power in Sub-Saharan Africa. African Journal of Political Economy. 2025, 12(2), 145-168.

[43] Arellano, M., Bond, S. Some Tests of Specification for Panel Data: Monte Carlo Evidence and an Application to Employment Equations. Review of Economic Studies. 1991, 58(2), 277-297.

[44] Blundell, R., Bond, S. Initial Conditions and Moment Restrictions in Dynamic Panel Data Models. Journal of Econometrics. 1998, 87(1), 115-143.

[45] González, A., Teräsvirta, T., van Dijk, D., Yang, Y. Panel Smooth Transition Regression Models. SSE/EFI Working Paper Series in Economics and Finance, No. 604. Stockholm School of Economics: Stockholm, Sweden; 2005.

[46] Gujarati, D. N., Porter, D. C. Basic Econometrics. 5th ed. McGraw-Hill: New York, NY, USA; 2009.

[47] Hansen, B. E. Threshold Effects in Non-Dynamic Panels: Estimation, Testing, and Inference. Journal of Econometrics. 1999, 93(2), 345-368.

[48] Jude, C., Levieuge, G. Growth Effect of FDI in Developing Economies: The Role of Institutional Quality. Banque de France Working Paper No. 493. Banque de France: Paris, France; 2013.

[49] Kaufmann, D., Kraay, A., Mastruzzi, M. The Worldwide Governance Indicators: Methodology and Analytical Issues. World Bank Policy Research Working Paper No. 5430. World Bank Group: Washington, DC, USA; 2010.

[50] Windmeijer, F. A Finite Sample Correction for the Variance of Linear Efficient Two-Step GMM Estimators. Journal of Econometrics. 2005, 126(1), 25-51.

[51] UNCTAD. World Investment Report 2023. United Nations Conference on Trade and Development: Geneva, Switzerland; 2023.

[52] World Bank. World Development Indicators. World Bank Group: Washington, DC, USA; 2024.

[53] Bloomberg. Chinese Miners Back TAZARA Upgrade with $1.24 Billion. Bloomberg News. 2026. Available from: https://www.bloomberg.com/ [Accessed 17 September 2026].

[54] China Daily. TAZARA Modernization to Boost Capacity to 2.4 Million Tons per Year. China Daily. 2026. Available from: https://www.chinadaily.com.cn/ [Accessed 17 September 2026].

[55] SADC. North-South Corridor: Trade and Transport Facilitation. Southern African Development Community: Gaborone, Botswana; 2025.

[56] Skillings.net. Lobito Corridor: Strategic Impact on the Global Copper Map. Skillings Mining Review. 2025. Available from: https://skillings.net/ [Accessed 17 September 2026].

[57] The Africa Report. Lobito or Tazara? The Battle Intensifies. The Africa Report. 2026. Available from: https://www.theafricareport.com/ [Accessed 17 September 2026].

[58] Dunning, J. H. The Eclectic (OLI) Paradigm of International Production: Past, Present and Future. International Journal of the Economics of Business. 2001, 8(2), 173–190.