

FDI and Growth in Emerging Economies: Is Governance the Game Changer?

Subaran Roy* & Chitrakalpa Sen[†]

December 2025

Abstract

This paper re-examines the FDI–growth nexus by focusing on the role of governance quality as a structural condition shaping how foreign capital is absorbed into developing economies. Using a balanced panel of 53 countries from 2003–2021, we construct a composite governance index based on all six Worldwide Governance Indicators to capture the systemic nature of institutional quality. Baseline pooled, fixed-effects, and random-effects estimates show that both FDI and governance exert independent, positive effects on per capita GDP growth. When interaction terms are introduced, governance significantly amplifies the growth impact of FDI, suggesting that institutional quality serves as an absorptive mechanism rather than a mere control variable. We explore dynamics and address potential endogeneity issues by employing the Generalized Method of Moments (GMM). To investigate nonlinearities, we employ panel threshold regression and fractional polynomial techniques. The threshold model identifies statistically significant governance regimes in which FDI becomes substantially more growth-enhancing, while the fractional polynomial specification reveals an S-shaped relationship between governance and growth, with reform gains strongest in very low and very high governance environments. Across all methods, the results confirm three robust insights: FDI consistently promotes growth, governance strengthens this effect, and the FDI–growth relationship is fundamentally nonlinear. The findings underscore that foreign investment yields its highest returns in institutional environments capable of effectively converting external capital into productive domestic outcomes.

Keywords: FDI, Governance, Growth, Generalized Method of Moments (GMM), Principal Component Analysis (PCA), Threshold Regression, Fractional Polynomial Regression (FPR).

JEL Codes: O43, O57, O110, O15

*Professor of Economics, Jindal School of Government and Public Policy, Jindal Global University. Email: subaran@jgu.edu.in

[†]Head of Economics, University of Southampton Delhi, Gurgaon, Haryana, India. Email: c.sen@soton.ac.uk.

Introduction

Foreign Direct Investment (FDI) remains a cornerstone of economic development strategies in developing countries, providing essential capital, facilitating technology transfer, and enhancing productivity (Borensztein, De Gregorio, & Lee, 1999; Ram and Zhang, 2002; Newman et. al. 2015). Yet, more than three decades of empirical research reveal a persistent puzzle: FDI does not consistently translate into faster economic growth. The extent to which FDI contributes to economic growth is not uniform and appears to be significantly influenced by the quality of governance in the host country. Some countries, such as Singapore, Vietnam, Malaysia, Thailand, Mauritius (OECD, 1999; Basu & Srinivasan, 2002; Alfaro et. al. 2004; Choi et.al., 2021) have leveraged foreign investment to transform their production structures. Many others, despite receiving comparable inflows, have seen little structural change or productivity gain. To name a few countries like Nigeria, Angola, Haiti, Zambia and Mozambique failed to register higher economic growth even after receiving considerable amount of FDI. This divergence raises a fundamental development question: *"Why do some countries convert FDI into growth while others do not?"*

Early empirical work highlights how FDI can raise productivity by introducing new technologies, enhancing organizational efficiency, and expanding the capital stock (Dunning, 1958, Globerman, 1979; Caves, 1996; Blomström & Kokko 1998). However, a large body of evidence suggests that the gains from FDI are conditional on a number of factors such as domestic investment, financial development, human capital or trade openness (Borensztein, De Gregorio, & Lee, 1998; De Mello, 1999; Hermes and Lensink, 2003; Khordagui & Saleh, 2013; Dinh, Nguyen, & Schinckus, 2019; Asada, 2022). There is also substantial skepticism about whether foreign firms generate meaningful linkages in countries with weak domestic capabilities (Rodrik, 2008; Moran, 2006). Also, meta-analyses highlight how estimated FDI effects vary dramatically depending on time period, country sample, governance environment, technology gap between domestic and foreign firms, ownership structure of investment projects and even empirical specification (Havranek & Irsova, 2012; Yerrabati and Shankar 2016; Demena & van Bergeijk, 2017). Without sufficient absorptive capacity, the productivity spillovers from foreign firms may be weak or non-existent (Balasubramanyam et al. 1996; Xu, 2000; Blomström et al. 1994).

For policy makers, this ambiguity is deeply problematic: if FDI pays off only under certain conditions, then blindly pursuing inflows may not be development enhancing. This growing uncertainty in the literature has turned attention toward the institutional environment as a potential missing mechanism.

Governance, encompassing dimensions such as control of corruption, government effectiveness, political stability, regulatory quality, rule of law, and voice and accountability, shapes the investment climate and determines how effectively FDI translates into economic progress (Busse & Hefeker, 2007; Hayat, 2017; Sabir, Rafique & Abbas, 2019). Also, governance affects the productivity of capital by shaping incentives,

lowering uncertainty, and supporting contract enforcement (North, 1990; Acemoglu and Robinson, 2012). Good governance can reduce rent seeking, improve regulatory quality, and create credible expectations about property rights (Rodrik et al., 2004). In such settings, multinationals are more likely to undertake long-horizon investments, invest in technologies with local spillovers, and integrate domestic suppliers into global value chains. Cross-country evidence consistently shows that institutional quality is a central determinant of long-run growth, productivity levels, and structural transformation (Keefer & Knack, 1997; Hall & Jones, 1999; Méon & Weill, 2010). Empirical work increasingly shows that strong institutions not only attract more stable, long-horizon FDI but also shape how external capital is absorbed into the domestic economy. Across studies (Kose et al. 2003; Igan et al. 2022; Challe et al. 2019), the consistent finding is that good governance channels foreign investment toward productive uses, reduces vulnerability to volatile flows, and prevents inflows from undermining institutional quality itself.

Building on this institutional perspective, several studies argue that FDI’s productivity effects materialize only in institutional environments capable of facilitating knowledge diffusion, protecting property rights, and ensuring efficient resource allocation. For instance, Addison and Heshmati (2003) find that corruption weakens FDI spillovers, while Wernick et al. (2009) show that political stability and regulatory quality shape the developmental outcomes of multinational activity. Jude and Leveuge (2017) provide compelling evidence that FDI becomes growth-enhancing only once countries reach a minimum institutional threshold - below which FDI can even be detrimental. Consistent with this view, Baiashvili and Gattini (2019) show that the growth impact of FDI varies non-linearly across income groups and is significantly amplified when a country’s institutional quality exceeds that of its peer group.

Taken together, the existing body of work highlights two central insights. First, FDI is not inherently growth-promoting; it requires a supportive domestic environment. Second, institutions play a critical but incompletely understood role in shaping how foreign capital is absorbed into the domestic economy. Yet despite these advancements, the literature remains fragmented and inconclusive.

This motivates the three main gaps our study addresses. First, most studies examine governance and FDI separately, not jointly. Second, the literature treats institutional quality as linear. However, institutional capacity may have threshold effects. Small improvements in weak-governance countries could generate disproportionately large gains, while countries above a certain institutional level may experience diminishing returns. Third, governance is often measured in a fragmented way. Relying on individual Worldwide Governance Indicators (WGI) creates noise, overlap, and multicollinearity, making it difficult to capture the true institutional environment. A composite index offers a cleaner, more coherent measure of overall governance quality. These gaps limit our understanding of when and why FDI produces growth. And they create real policy uncertainty for governments designing investment strategies, especially in countries where institutions are evolving. Our paper addresses these gaps by examining whether, and

through which institutional channels, FDI translates into economic growth in developing economies. Using a balanced panel of 53 countries from 2003 to 2021, we construct a composite governance index that summarizes all six WGI pillars to reduce measurement error and capture the systemic nature of institutional quality.

Our empirical methodology is divided into four stages. We begin with baseline estimates from countries that show a direct connection between FDI inflows and growth in per capita GDP. This establishes the fundamental linear correlation. Next, we use interaction terms to examine how governance conditions influence the marginal returns to FDI. This will help us understand complementarities. This helps us determine whether the quality of institutions enhances, weakens, or moderates the growth effects of foreign capital. To examine non-linear institutional effects, we employ a panel threshold model (Hansen, 1999), which enables governance to influence not only the magnitude but also the sign and structure of the FDI–growth relationship by differentiating between various institutional regimes. We employ a fractional polynomial regression (FPR) framework, a flexible parametric method that enables the identification of smooth nonlinearities without relying on random functional forms. This is in addition to threshold estimation. It also allows governance to come in through fractional and negative powers, which enables it to capture shapes that are difficult to understand, such as S-curves or inverted-U patterns. The paper’s FPR method reveals that growth and governance are related in an S-shaped manner. This means that reform gains are biggest when governance is either very low or very high. This is in addition to the separate regime shifts seen in the threshold model.

This multi-layered approach enables us to isolate how institutions function as a “conversion device”, turning foreign capital into domestic growth. Our study conducts an empirical analysis spanning 20 years (2003-22) across developing countries. The selection of countries is based on data availability. The objective is to examine the combined impact of Foreign Direct Investment (FDI) and Governance Indicators on GDP Growth and GDP Per Capita Growth.

The paper is organized as follows: Section 2 provides a detailed review of data; Section 3 describes the estimation approach; Section 4 presents the empirical results and discusses the findings and their implications; and Section 5 concludes with policy recommendations and directions for future research.

Data

Our paper uses a balanced panel of 53 developing and emerging economies observed annually from 2003 to 2021, yielding 1,007 country-year observations. All macroeconomic variables, including net FDI inflows

as a share of GDP, GDP per capita growth, gross capital formation, trade openness, inflation, government consumption, and electricity access - are drawn from the World Development Indicators. FDI is expressed as net inflows relative to GDP. The 2003–2021 window ensures consistent institutional data availability and covers periods of major global shocks and reforms, allowing us to examine how governance structures shape the growth effects of foreign capital within a comparable, uninterrupted dataset.

In our study we focus on the five major pillars of governance. Namely, Control of Corruption, Government Effectiveness, Political Stability and Absence of Violence, Regulatory Quality, Control of Corruption and The Rule of Law. Control of Corruption assesses the degree to which public authority is utilized for personal benefit, encompassing both minor and major corruption, along with the efficacy of anti-corruption initiatives. This indicator is derived from various sources, including business environment surveys, expert assessments, and governance evaluations. The score is based on sub-components including bribery, embezzlement, state capture, and the enforcement of anti-corruption legislation. Elevated scores signify diminished corruption levels, promoting an atmosphere favorable to investment and economic stability. Government Effectiveness assesses the quality of public services, the autonomy of the civil service, the execution of policies, and the reliability of governmental commitments. It consolidates information from corporate surveys, expert evaluations, and governance documents, encompassing aspects such as bureaucratic efficiency, infrastructure quality, and regulatory enforcement. An elevated score indicates a government proficient in the efficient provision of public goods, thereby bolstering investor confidence and economic performance. Political Stability and Absence of Violence indicator evaluates the probability of governmental destabilization resulting from unconstitutional methods, political violence, or terrorism. It integrates information from conflict databases, expert assessments, and political risk reports. The sub-components encompass political instability, occurrences of violence, armed conflicts, and threats of terrorism. Elevated scores signify a stable political milieu, essential for fostering economic growth and enticing long-term investments. Finally, Regulatory Quality assesses a government’s capacity to devise and execute policies and regulations that foster private sector growth. It encompasses sub-components including the simplicity of initiating a business, trade liberalization, regulatory constraints, and competition regulations. This indicator is derived from surveys of the business environment and evaluations of institutional quality. An effective regulatory framework bolsters business operations, enhances investor confidence, and fosters economic growth.

To provide an initial visual overview of the key variables and inform the subsequent empirical analysis, Figures 1-3 present cross-country patterns based on country-level averages over the sample period. Figure 1 plots the government effectiveness ranks across the countries. The plot shows substantial cross-country variation in government effectiveness, with countries distributed widely across the ranking scale and no

clear ordering or clustering. While a few countries exhibit relatively high effectiveness, many others fall in the middle or lower ranges, highlighting pronounced institutional heterogeneity within the sample.

Figure 1: Government Effectiveness Ranks

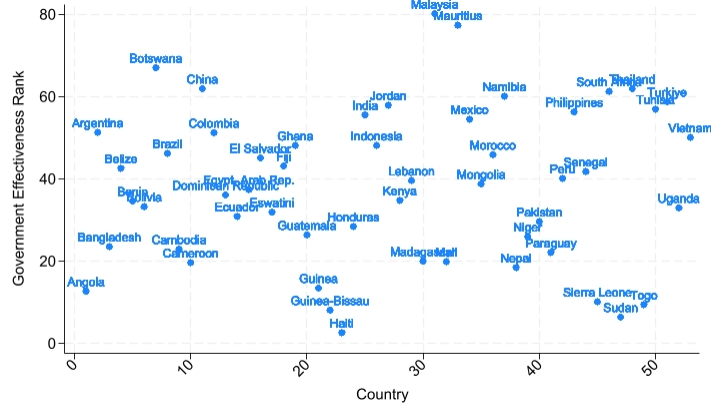


Figure 2 plots the average FDI inflows against average government effectiveness across the sample of economies. Countries in the sample display substantial cross-country variation in government effectiveness. This points to the relevance of governance in the FDI–growth relationship.

Figure 2. FDI inflows vs Government Effectiveness

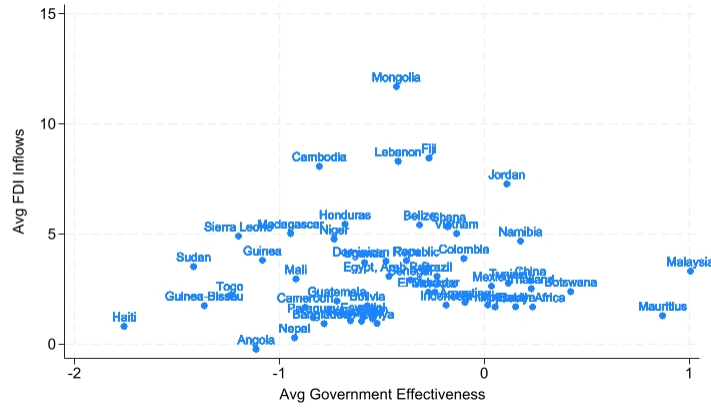
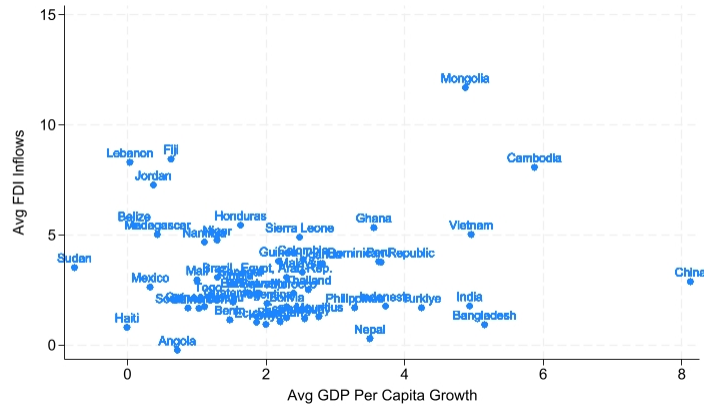


Figure 3 plots average FDI inflows against average GDP per capita growth and shows no clear relationship between the two variables. While some high-growth economies attract substantial FDI (Cambodia, Mongolia), others experience rapid growth with relatively modest inflows (Bangladesh, India, China),

and several countries with sizable FDI inflows exhibit only moderate and even low growth performance (Lebanon, Fiji, Jordan). This visual ambiguity suggests that the growth impact of FDI is unlikely to be uniform across countries and may depend on underlying structural characteristics.

Figure 3. FDI inflows vs Per Capita Growth Rate



Variables	VIF
Government Effectiveness	1.92
Regulation Quality	1.67
Rule of Law	1.61
Corruption	1.42
Political Stability	1.28
Net FDI inflows	1.30
Trade	1.23
Investment	1.46
Government Consumption	1.07
Electricity	1.10
Mean VIF	1.38

Table 1 presents the Variance Inflation Factor (VIF) results to assess multicollinearity among the explanatory variables. With a mean VIF of 1.38 and all individual values far below the critical level of 10, the results confirm the absence of serious multicollinearity. Hence, the governance, FDI, and macroeconomic indicators used are suitable for reliable regression analysis. In the next step before proceeding for the empirical analysis we check the pairwise correlation.

Table 2: Pairwise Correlation

Variables	FDI	Growth	Growth (pc)	Investment	Trade	Inflation	Government	Electricity	Corruption	Effect	Pol. Stab.	Reg.	Law.
FDI	1.00												
Growth	0.20	1.00											
Growth (pc)	0.19	0.97	1.00										
Investment	0.43	0.20	0.21	1.00									
Trade	0.26	0.32	0.30	0.32	1.00								
Inflation	0.01	-0.10	-0.09	-0.19	-0.01	1.00							
Government	-0.02	-0.12	-0.13	0.08	0.04	-0.13	1.00						
Electricity	-0.04	-0.13	-0.12	0.05	-0.16	-0.01	0.15	1.00					
Corruption	0.03	0.05	0.05	0.14	-0.04	-0.04	0.03	-0.01	1.00				
Effectiveness	0.06	0.05	0.04	0.13	-0.12	-0.19	0.11	0.04	0.47	1.00			
Political Stability	-0.03	0.02	0.02	0.10	-0.06	-0.03	0.10	0.12	0.19	0.30	1.00		
Regulation	0.06	0.07	0.07	0.13	-0.06	-0.14	0.08	-0.04	0.44	0.58	0.28	1.00	
Law.	0.03	-0.03	-0.04	0.06	-0.13	-0.06	0.05	0.11	0.38	0.51	0.42	0.41	1.00

Note: *Growth* refers to GDP growth, *Growth (pc)* stands for GDP per capita growth. Variable Effectiveness implies to Effectiveness of Government, and *Law* signifies the measure of rule of law.

Table 2 displays the pairwise relationships between growth, governance indicators, and foreign direct investment. The positive correlations found between FDI and GDP growth (0.20), per capita growth (0.19), investment (0.43), and trade (0.26) demonstrate a positive association between foreign inflows and domestic investment and openness. Apparently, there is a weak correlation between FDI and all the governance variables like corruption (0.03), rule of law (0.03), and corruption (0.03). The strong relationships observed between governance indicators—effectiveness and regulation (0.58), rule of law and effectiveness (0.51), and corruption and effectiveness (0.47)—show that the governance measures are complementary. It suggests that governance components typically show co-movement, improving overall institutional quality. The inverse relationship between inflation and growth & investment demonstrates its negative impacts on economic performance. The table also reflects the importance of trade and foreign direct investment (FDI) in the overall economic performance.

Estimation Strategy

The empirical analysis begins with baseline estimates derived from Pooled Ordinary Least Squares (OLS), followed by the application of Fixed Effects (FE) and Random Effects (RE) models. The pooled OLS model provides an initial assessment of the overall relationship by treating the data as a uniform cross-section and disregarding country-specific variations. The fixed effects method looks at things that don't change over time, like the history of an institution, its location, and its structural parts. Random effects model take these things into account, the expected coefficients could change. The random effects model posits that unobserved components are independent of the explanatory variables, thereby improving estimation accuracy based on this premise. The Hausman test (Hausman, 1978) finds the right model specification by comparing the random effects (RE) estimator to the fixed effects (FE) estimator. However we report results from both models. The linear estimates give the model a strong base that makes sure it stays stable and accurate before exploring nonlinearity. Following the preliminary regressions, we employ two advanced methodologies, namely Threshold Auto Regression and Fractional Polynomial Regression, to identify and quantify possible nonlinearities in the relationship among FDI, growth, and governance.

This study utilizes Threshold Regression and Fractional Polynomial Regression (FPR) methodologies to investigate the nonlinear interplay between Foreign Direct Investment (FDI), economic growth, and governance quality. Existing research (e.g., Borensztein et al., 1998; Alfaro et al., 2004) has thoroughly examined the linear specification; however, these models fail to capture the conditional and nonlinear dynamics inherent in the FDI-growth relationship. To fill this gap, we use the Panel Threshold Regression method created by Hansen (1999), which lets the marginal effect of FDI on growth change depending on

the type of governance. This method looks at whether the positive effects of foreign direct investment (FDI) on growth depend on certain governance thresholds. This aims to show that the effects may be regime-dependent. The Fractional Polynomial Regression method offers a versatile parametric framework for identifying nonlinearities in the relationship between FDI and growth, thus eliminating the necessity for arbitrary functional forms (Royston & Altman, 1994; Sarkar, 2018). The integration of these two methodologies facilitates the identification of both discrete (threshold-type) and continuous nonlinear patterns, further enhancing the understanding of how governance conditions affect the relationship between FDI and growth. This dual-method framework signifies an important progression in empirical growth literature, transcending traditional linear estimations to systematically investigate and model the intricate, nonlinear relationships among FDI, governance, and economic growth in developing economies. This part gives a short summary of the two ways.

Panel Threshold Regression PTR framework analyzes the nonlinear interplay among Foreign Direct Investment (FDI), governance quality, and economic growth. According to Hansen (1999), the PTR model permits the slope coefficients to vary among regimes based on the crossing of a threshold variable over an estimated value. This paradigm is very effective in determining if the growth impact of FDI fluctuates with the quality of governance.

The baseline specification of the model is given by:

$$y_{it} = \mu_i + \beta_1 x_{it} I(g_{it} \leq \gamma) + \beta_2 x_{it} I(g_{it} > \gamma) + \varepsilon_{it} \quad (1)$$

where y_{it} denotes the real GDP growth rate of country i at time t ; x_{it} represents the main explanatory variable, namely FDI inflows (as a percentage of GDP); g_{it} is the *threshold variable*—the governance index; μ_i captures country-specific fixed effects; γ is the unknown threshold value; and ε_{it} is the error term assumed to be i.i.d. with zero mean and finite variance. The indicator function $I(\cdot)$ splits the sample into two regimes depending on whether governance is below or above the estimated threshold γ .

The coefficients β_1 and β_2 represent the marginal effects of FDI on growth in the low-governance and high-governance regimes, respectively. A statistically significant difference between these coefficients ($\beta_1 \neq \beta_2$) provides evidence of a nonlinear, threshold-dependent effect of FDI on growth.

Following Hansen (1999), the threshold parameter γ is estimated by minimizing the sum of squared residuals (SSR):

$$\hat{\gamma} = \arg \min_{\gamma} SSR(\gamma) \quad (2)$$

The method uses a nonstandard bootstrap approach to test the statistical significance of the estimated threshold because the null hypothesis of linearity does not identify the threshold parameter. After the threshold is validated, regime-specific parameters are calculated using the fixed-effects least squares estimator.

To address potential endogeneity concerns related to FDI, the study incorporates lagged values and employs a robustness check using the *system-GMM* estimator as proposed by Arellano (1995A) and Blundell(1998). This ensures consistent estimation of the nonlinear FDI–growth relationship conditional on governance quality.

In entirety, the threshold regression model gives an exhaustive empirical framework for figuring out if and how FDI affects economic growth differently at different regimes of governance.

This study employs the Fractional Polynomial Regression (FPR) technique to enhance threshold analysis and investigate the nonlinear link among Foreign Direct Investment (FDI), governance quality, and economic growth. The FPR framework enhances ordinary polynomial regressions by using fractional and negative powers of continuous variables, rather than solely utilizing integer powers of explanatory factors. This approach facilitates the identification of smooth nonlinearities through a straightforward and adaptable parametric framework. The FPR model, initially offered by royston1994regression and subsequently elaborated by royston1999use, has attained increasing importance in empirical economics for modeling complex nonlinear connections when the true functional form remains unknown sarkar2018nonlinear, lv2021governance.

Let y_{it} be the economic growth rate of country i in year t , and x_{it} be the percentage of FDI inflows to GDP. A fractional polynomial of degree m typically appears as follows:

$$y_{it} = \alpha_i + \sum_{j=1}^m \beta_j x_{it}^{p_j} + \gamma Z_{it} + \text{varepsilon}_{it} \quad (3)$$

where α_i reflects country-specific effects, Z_{it} is a vector of control variables (such as trade openness, inflation, and government consumption), and ε_{it} is the random error term. The powers p_j are selected from a specified set of real numbers: When $p = 0$, it means a logarithmic transformation, which means that $x^0 = \ln(x)$. *The polynomial degree* tells you how many power terms are used in the model. There is typically one (FP1) or two (FP2) to ensure the model is both adaptable and straightforward.

The **first-degree fractional polynomial (FP1)** model is represented as:

$$y_{it} = \alpha_i + \beta_1 x_{it}^{p_1} + \gamma Z_{it} + \varepsilon_{it} \quad (4)$$

while the **second-degree fractional polynomial (FP2)** model takes the form:

$$y_{it} = \alpha_i + \beta_1 x_{it}^{p_1} + \beta_2 x_{it}^{p_2} + \gamma Z_{it} + \varepsilon_{it} \quad (5)$$

To avoid collinearity, the second term is changed to $x^{p_1} \ln(x)$ if the two chosen powers are the same ($p_1 = p_2$). This formulation allows the FPR model to approximate various functional shapes—U-shaped, inverted-U, S-shaped, concave, or convex—depending on the data.

In the FPR framework, model selection entails identifying the optimal degree m and the most suitable power terms p_j for the data. The algorithm developed by royston1994regression and enhanced by sauerbrei1999building employs a sequential testing approach that evaluates models of increasing complexity. You can use the Akaike Information Criterion (AIC), the Bayesian Information Criterion (BIC), and the likelihood ratio (LR) tests to compare different models. Taking into account both fit and simplicity, the model with the lowest AIC or BIC is chosen as the best fit. The best model is formally shown by:

$$\hat{m}, \hat{p}_1, \hat{p}_2 = \arg \min_{m, p_1, p_2} AIC(m, p_1, p_2) \quad (6)$$

where AIC is defined as $AIC = -2 \ln(L) + 2k$, with L denoting the maximized likelihood function and k the number of estimated parameters. Typically, the process begins with a linear model ($m = 1, p = 1$) and subsequently tests whether higher-degree fractional polynomials significantly improve model performance.

The FPR model’s coefficients tell us how strong the link between FDI and growth is and which way it is going. But the link isn’t linear, thus the marginal effects shift as the FDI distribution changes. To explain these results, marginal effect plots need to be created to illustrate the diversity in the growth impact of FDI across its spectrum, so identifying potential thresholds or decreasing returns. The second-degree fractional polynomial (FP2) model is the major one used in this work since it has enough curvature to represent complicated interactions while keeping the estimation stable. Robustness checks involve re-estimating the model with different powers and control variables, and the best specification is found using the AIC and BIC criterion.

By permitting the data to dictate the form of the FDI–growth function, the method integrates persistent nonlinearities that enhance the discrete regime changes discerned via the Threshold Regression model. These methodologies work together to produce a complete empirical framework that encompasses both gradual and sudden cases of nonlinearity in the FDI-governance-growth nexus. This makes the empirical growth literature more comprehensive.

Results & Discussion

In this section we discuss our empirical findings in detail. We start our analysis by using each governance indicator at a time. Our baseline regression is pooled OLS regression. The pooled regression results with per capita GDP growth as the dependent variable are shown in Table 3. With coefficients ranging from 0.097 to 0.105, all of which are highly significant, the estimates demonstrate that FDI consistently and significantly contributes to growth. This emphasizes how important foreign investment is for boosting economic growth. Additionally, trade openness has a significant and favorable impact (0.074–0.079), demonstrating its value in connecting economies to international markets and fostering growth.

Table 3: Pooled Regression Results (Dependent Variable: Per Capita GDP Growth)

Variables	Corruption	Effectiveness	Regulation	Law	Political Stability
FDI	0.102*** (0.009)	0.101*** (0.007)	0.097** (0.012)	0.100** (0.013)	0.105*** (0.008)
Governance	1.164 (0.118)	1.400** (0.049)	1.525** (0.076)	-0.140 (0.858)	0.598** (0.079)
Trade	0.076*** (0.000)	0.079*** (0.000)	0.077*** (0.000)	0.074*** (0.000)	0.076*** (0.000)
Investment	0.079 (0.135)	0.077 (0.155)	0.079 (0.139)	0.090* (0.087)	0.081 (0.129)
Inflation	-0.032** (0.095)	-0.029 (0.114)	-0.030 (0.110)	-0.033* (0.100)	-0.032* (0.099)
Government Cons.	-0.301*** (0.002)	-0.315*** (0.001)	-0.312*** (0.001)	-0.301*** (0.002)	-0.311*** (0.002)
Electricity	-0.025 (0.129)	-0.025 (0.141)	-0.023 (0.167)	-0.026 (0.114)	-0.028* (0.099)
Constant	1.639 (0.311)	1.682 (0.326)	1.479 (0.384)	0.907 (0.590)	1.636 (0.337)
Number of Groups	53	53	53	53	53
Observation	1007	1007	1007	1007	1007
Wald λ^2	95.59	99.85	119.37	105.95	124.55
<i>Prob</i> $>\lambda^2$	0.000	0.000	0.000	0.000	0.000

The results of governance dimensions are mixed but instructive. Significantly positive effects are exerted by political stability (0.598**), regulatory quality (1.525**), and government effectiveness (1.400**), indicating that stronger institutions play a positive and significant role in the process of economic growth. However, despite being positive, the coefficients for rule of law and corruption control are statistically insignificant, suggesting that the pooled framework has weaker direct effects. However, the general trend demonstrates that governance quality acts as a stimulant to maintain faster growth.

More clarity is provided by the control variables. Given its destabilizing effect on growth, inflation

exhibits a negative correlation (roughly -0.029 to -0.033). Results also suggest that excessive public spending can jeopardize growth prospects, government consumption continuously exhibits negative and highly significant coefficients (-0.301 to -0.315). Despite having the anticipated positive sign, investment only reaches significance once (0.090*), indicating that its growth effects might take longer to manifest. Only in the political stability model (-0.028*) does the availability of electricity have a marginally significant impact. All of these findings point to three important conclusions: first, trade and foreign direct investment (FDI) continue to be dependable growth engines; second, governance, in particular effectiveness, regulation, and stability, reinforces the growth process; and third, macroeconomic stability, attained through low inflation and restrained public spending, is necessary to maintain long-term growth in per capita income.

Tables 4 and 5 present the Fixed Effects (FE) and Random Effects (RE) regression estimates, utilizing per capita GDP growth as the dependent variable. Both tables provide a consistent picture of how FDI, governance, and macroeconomic factors shape long-run growth dynamics. In both models, foreign direct investment (FDI) demonstrates a positive and statistically significant effect (0.097–0.105), confirming that foreign capital inflows consistently play the role of stable and reliable driver of economic growth. The variable trade also exhibits strong and statistically significant coefficients (0.074–0.079), highlighting the essential role of global integration in enhancing per capita income.

Table 4: Fixed Effect Regression Results (Dependent Variable: Per Capita GDP Growth)

Variables	Corruption	Effectiveness	Regulation	Law	Political Stability
FDI	0.102** (0.011)	0.101** (0.010)	0.097** (0.015)	0.100** (0.016)	0.105** (0.011)
Governance	1.164 (0.124)	1.400 (0.055)	1.525* (0.082)	-0.140 (0.859)	0.598* (0.085)
Trade	0.076*** (0.000)	0.079*** (0.000)	0.077*** (0.000)	0.074*** (0.000)	0.076*** (0.000)
Investment	0.079 (0.141)	0.077 (0.161)	0.079 (0.146)	0.090* (0.093)	0.081 (0.135)
Inflation	-0.032* (0.101)	-0.029 (0.120)	-0.030 (0.116)	-0.033* (0.106)	-0.032* (0.105)
Government Cons.	-0.301*** (0.003)	-0.315*** (0.002)	-0.312*** (0.002)	-0.301*** (0.003)	-0.311*** (0.003)
Electricity	-0.025 (0.135)	-0.025 (0.147)	-0.023 (0.173)	-0.026 (0.120)	-0.028* (0.105)
Constant	1.639 (0.315)	1.682 (0.330)	1.479 (0.388)	0.907 (0.593)	1.636 (0.341)
Number of Groups	53	53	53	53	53
Observation	1007	1007	1007	1007	1007
Wald λ^2	13.66	14.26	17.05	15.14	17.79
<i>Prob</i> $>\lambda^2$	0.000	0.000	0.000	0.000	0.000

Table 5: Random Effect Regression Results (Dependent Variable: Per Capita GDP Growth)

Variables	Corruption	Effectiveness	Regulation	Law	Political Stability
FDI	0.102*** (0.009)	0.101*** (0.007)	0.097** (0.012)	0.100** (0.013)	0.105*** (0.008)
Governance	1.164 (0.118)	1.400** (0.049)	1.525* (0.076)	-0.140 (0.858)	0.598* (0.079)
Trade	0.076*** (0.000)	0.079*** (0.000)	0.077*** (0.000)	0.074*** (0.000)	0.076*** (0.000)
Investment	0.079 (0.135)	0.077 (0.155)	0.079 (0.139)	0.090* (0.087)	0.081 (0.129)
Inflation	-0.032* (0.095)	-0.029 (0.114)	-0.030 (0.110)	-0.032* (0.100)	-0.032* (0.099)
Government Cons.	-0.301*** (0.002)	-0.315 (0.001)	-0.312*** (0.001)	-0.301*** (0.002)	-0.311*** (0.002)
Electricity	-0.025 (0.129)	-0.025 (0.141)	-0.023 (0.167)	-0.026 (0.114)	-0.028* (0.099)
Constant	1.639 (0.311)	1.6822 (0.326)	1.479 (0.384)	0.907 (0.590)	1.636 (0.337)
Number of Groups	53	53	53	53	53
Observation	1007	1007	1007	1007	1007
Wald λ^2	95.59	99.85	119.37	105.95	124.55
<i>Prob</i> $>\lambda^2$	0.000	0.000	0.000	0.000	0.000

The results of the governance variables are complex but significant. In both the FE and RE models, government effectiveness (1.400) and regulatory quality (1.525) are positive and statistically significant, underscoring the growth dividends of improved regulatory environments and stronger institutional capacity. Additionally, political stability (0.598*) makes a positive contribution, suggesting that investment and economic activity are encouraged by a safe and stable political environment. The rule of law and corruption control, on the other hand, are not statistically significant despite having a positive sign, indicating

that their effects might be indirect, longer-lasting, or dependent on other institutional factors. These preliminary results also support well-known macroeconomic principles among the control variables. The fact that inflation is continuously negative (-0.029 to -0.033) highlights how it adversely affects growth. In both cases we find that government consumption is highly significant and strongly negative (-0.301 to -0.315), indicating that excessive or inefficient public spending lowers the potential for growth. The investment is marginally significant but positively signed, suggesting potential long-term benefits of investment on growth by enhancing the production capacity of an economy. The effects of electricity availability are generally minor, with significance only showing up in a few specifications, suggesting that infrastructure is insufficient on its own without supportive governance.

When comparing the two methods, the Random Effect model takes cross-country variation into account, whereas the Fixed Effect model takes within-country dynamics into account. The results are more robust because of the wide consistency of the coefficients between the two approaches. Notably, the RE model's increased emphasis on governance indicators implies that institutional quality differs significantly between nations and is a key factor in explaining variations in growth.

In the following step, the Governance Index replaces the place of individual governance measures. There are multiple advantages to using a composite index rather than separate indicators. First of all, by avoiding excessive emphasis on any one aspect of governance, like political stability or corruption, it provides an even representation of institutional quality. Second, the index is less exposed to measurement error since noise and country-specific distortions that could impact individual indicators are eliminated during the aggregation process. Third, the composite measure is better suited for cross-country empirical analysis since it provides a single framework for assessing governance effects as opposed to interpreting multiple, potentially correlated variables separately. Overall, the Governance Index developed for this research provides a comprehensive and robust proxy for institutional quality. By reducing the complex nature of governance into a single metric, it advances our understanding of the relationship between governance, FDI, and growth as well as the empirical investigation of how governance influences the growth impact of FDI. Political stability, regulatory quality, rule of law, government efficacy, and corruption control are the five key indicators that form the basis of the Governance Index, which is constructed in this study using Principal Component Analysis (PCA). When taken together, these dimensions provide a thorough understanding of governance performance, with each one representing an essential element of institutional quality. Individual indicators capture distinct features, but because of their strong interdependence, it is more analytically meaningful to combine them into a single composite measure. PCA ensures that the index captures the common variance across these five dimensions by determining the latent factor that represents overall governance quality. This approach addresses the problem of multicollinearity, which arises when multiple governance indicators are simultaneously added to regression models. At the

same time, it reduces dimensionality, allowing for a more cost-effective governance representation without compromising important data.

Table 6: Regression Results using Governance Index (Dependent Variable: Per Capita GDP Growth)

Variables	Pooled	Fixed Effect	Random Effect
FDI	0.101*** (0.008)	0.101*** (0.009)	0.101*** (0.007)
Governance Index	0.150* (0.062)	0.150** (0.030)	0.150** (0.025)
Trade	0.078*** (0.000)	0.078*** (0.000)	0.078*** (0.000)
Investment	0.076 (0.165)	0.076** (0.030)	0.076** (0.025)
Inflation	-0.030* (0.101)	-0.030*** (0.002)	-0.030*** (0.002)
Government Cons.	-0.312*** (0.001)	-0.312*** (0.000)	-0.312*** (0.000)
Electricity	-0.026* (0.125)	-0.026** (0.038)	-0.026** (0.033)
Constant	1.133 (0.500)	1.133 (0.421)	1.133 (0.409)
Number of Groups	53	53	53
Observation	1007	1007	1007
Wald λ^2	114.05	24.64	181.94
<i>Prob</i> $>\lambda^2$	0.000	0.000	0.000

Using a composite governance index, Tables 6 and 7 assess how governance and FDI together affect the growth of per capita GDP. The baseline regressions are shown in Table 6, and an interaction term is

added to Table 7 to further the analysis.¹

For all pooled, fixed, and random effects specifications, FDI shows a consistently positive and highly significant effect in Table 6 (0.101***). Given that a one-unit increase in FDI is linked to an approximate 0.1 percentage point increase in per capita GDP growth, this finding implies that FDI inflows, even when taken into account separately, significantly contribute to economic growth. With coefficients of 0.150 that are significant at the 5% level for fixed and random effects and at the 10% level for pooled models, the governance index is likewise positive. This highlights governance as a separate growth driver, albeit one of lesser magnitude than foreign direct investment. In both fixed and random effects estimations, investment becomes significant, while government consumption and inflation have negative and significant effects. Trade openness, on the other hand, is robustly positive (~ 0.078 ***). The availability of electricity has a minor but negative impact.

The complementarities between FDI and governance are highlighted in Table 7. The interaction term (0.830–0.875***) is large, positive, and highly significant. This finding shows that the growth benefits of foreign direct investment (FDI) depend on the quality of governance: stronger institutions significantly increase the return on foreign inflows. The marginal effect of FDI, which is $0.101 + 0.830(\text{GI})$, shows that FDI’s contribution to growth rises sharply as the governance index rises. Therefore, governance serves two purposes: it increases the absorptive capacity for external capital while also directly fostering growth. All things considered, these findings clearly show that FDI stimulates growth, governance boosts growth on its own, and the combination of the two produces the biggest gains. While macroeconomic instability and excessive government spending continue to be harmful, trade openness consistently promotes growth. The data shows that in order to ensure that such inflows result in long-lasting economic benefits, sustained growth necessitates both foreign investment and robust governance frameworks.

¹The composite Governance Index in this study is derived from a Principal Component Analysis (PCA) of the six Worldwide Governance Indicators: control of corruption, government effectiveness, regulatory quality, rule of law, political stability, and voice and accountability. PCA makes it easier to reduce the number of dimensions by finding the underlying latent factor that contains the most shared variation among these strongly correlated governance dimensions. This reduces multicollinearity and measurement noise. Eigenvalues greater than one were employed as the retention criterion for component selection, ensuring that only statistically significant common factors affected the index. The governance measure is based on the first principal component, which accounts for the bulk of the total variance. This presents a clear and evidence-based picture of the quality of institutions. This composite index gives a greater picture of how government operates as a whole than single measures do.

Table 7: Regression Results using Governance Index with Interaction Term (Dependent Variable: Per Capita GDP Growth)

Variables	Pooled	Fixed Effect	Random Effect
FDI	0.101*** (0.008)	0.101*** (0.009)	0.101*** (0.007)
Governance Index (GI)	0.150* (0.063)	0.150** (0.030)	0.150** (0.026)
<i>FDI</i> × <i>GI</i>	0.830*** (0.001)	0.875*** (0.002)	0.830*** (0.006)
Trade	0.078*** (0.000)	0.078*** (0.000)	0.078*** (0.000)
Investment	0.076 (0.162)	0.076** (0.029)	0.076** (0.024)
Inflation	-0.030* (0.101)	-0.030*** (0.002)	-0.030*** (0.002)
Government Cons.	-0.313*** (0.001)	-0.314*** (0.000)	-0.313*** (0.000)
Electricity	-0.026 (0.126)	-0.026** (0.039)	-0.026** (0.034)
Constant	1.128 (0.503)	1.128 (0.424)	1.128 (0.411)
Number of Groups	53	53	53
Observation	1007	1007	1007
Wald λ^2	117.68	21.60	182.24
<i>Prob</i> > λ^2	0.000	0.000	0.000

Table 8 reports GMM estimates of per capita GDP growth, estimated both with and without the interaction between FDI and a composite Governance Index (GI). The choice of GMM is deliberate. Growth–FDI models are dynamic and subject to endogeneity, since FDI inflows may respond to growth prospects, while governance is correlated with unobserved shocks. Standard estimators such as OLS or

fixed effects cannot address this adequately. The Arellano–Bond (1991) difference GMM and its extension by Blundell and Bond (1998) provide consistent estimates by exploiting internal instruments—namely, lagged values of endogenous regressors. In this setting, the second lag of FDI is used as an instrument because it is assumed to be uncorrelated with current shocks, but correlated with current FDI. This approach is well grounded in the literature, which also highlights that FDI spillovers are not immediate but often realized with a delay (Borensztein et al. 1998).

Table 8: GMM Estimation Results (Dependent Variable: Per Capita GDP Growth)

Variables	Without Interaction Term	With Interaction Term
FDI (Lag 1)	-0.097 (0.333)	-0.092 (0.342)
FDI (Lag 2)	0.157* (0.102)	0.154* (0.101)
Governance Index (GI)	0.165** (0.031)	0.165** (0.031)
<i>FDI × GI</i>		0.531* (0.062)
Trade	0.112*** (0.000)	0.112*** (0.000)
Investment	0.134** (0.050)	0.138** (0.050)
Inflation	-0.018 (0.378)	-0.018 (0.378)
Government Cons.	-0.438 (0.000)	-0.439*** (0.000)
Electricity	-0.022 (0.235)	-0.022 (0.236)
Constant	-1.192 (0.552)	-1.181 (0.556)
Number of Groups	53	53
Observation	901	901
<i>AR(2) Z – Stat</i>	-4.990	-5.000
<i>Prob > z</i>	0.000	0.000
Hansen Test of Overid. <i>Prob >Chi2</i>	1.000	1.000
<i>Wald Chi(2)</i>	2793.30	2816.80
<i>Prob >Chi2</i>	0.000	0.000

The results yield significant insights. The second FDI lag is positive and slightly significant (0.157 without interaction; 0.154 with interaction, $p \approx 0.10$), but the first lag is negative and not significant. This supports the idea that the positive effects of foreign direct investment on growth take time to show themselves. A positive and statistically significant governance index (≈ 0.165 , $p \approx 0.03$) corroborates the autonomous contribution of robust institutions to economic growth. The positive and marginally significant coefficient on FDI \times GI (0.531, $p \approx 0.06$) when the interaction term is taken into account shows that there is strong complementarity. Specifically, the marginal effect of FDI is $\frac{\delta g}{\delta FDI} = \beta_1 + \beta_2 GI$. According to what the literature says about absorptive capacity, greater governance boosts the growth yield from FDI. The control variables behave as anticipated. Government consumption has a big negative influence, which is in line with crowding-out. On the other hand, trade openness and investment have positive and important benefits. The result shows that foreign direct investment (FDI) leads to growth, but not right away. It also shows that the quality of governance affects how well FDI works. Foreign direct investment (FDI) can promote growth overall, and reaps more benefit if there are robust governance systems in place.

Table 9: Threshold Regression Results (Dependent Variable: Per Capita GDP Growth)

Variables	Column (1)	Column (2)	Column (3)
FDI	0.101*** (0.008)	0.084** (0.053)	0.087** (0.050)
FDI (Lag 1)		-0.007 (0.984)	-0.040 (0.372)
FDI (Lag 2)			0.056 (0.157)
Governance Index (Regime 1)	0.401*** (0.005)	0.478*** (0.001)	0.628*** (0.000)
Governance Index (Regime 2)	0.046 (0.591)	-0.057 (0.554)	-0.044 (0.620)
Trade	0.080*** (0.000)	0.092*** (0.000)	0.101*** (0.000)
Investment	0.068** (0.051)	0.084** (0.022)	0.093** (0.016)
Inflation	-0.029*** (0.004)	-0.010** (0.038)	-0.018* (0.085)
Government Cons.	-0.318*** (0.000)	-0.340*** (0.000)	-0.371*** (0.000)
Electricity	-0.024** (0.051)	-0.020 (0.138)	-0.016 (0.254)
Constant	1.255 (0.373)	0.003 (0.998)	-0.791 (0.636)
Threshold Value (level=95)	-2.261	-1.935	-2.644
Lower Limit	-2.292	-1.956	-2.653
Upper Limit	-2.205	-1.918	-2.596
<i>F</i> – Value	22.13	21.41	19.64
<i>Prob</i> > <i>F</i>	(0.000)	(0.000)	(0.000)

As a next step of our empirical analysis we use Hansen (1999)- the panel threshold regression method. It allows the effect of governance on growth to vary across regimes determined by an estimated threshold τ . The model is:

$$y_{it} = \alpha + \beta FDI_{it} + \delta' X_{it} + \theta_1 G_{it} I(q_{it} \leq \tau) + \theta_2 G_{it} I(q_{it} > \tau) + \mu_i + \varepsilon_{it}, \quad (7)$$

where y_{it} is per-capita GDP growth, FDI_{it} denotes foreign direct investment inflows, G_{it} is the governance index, and X_{it} represents control variables. The indicator function $I(\cdot)$ partitions the sample into two regimes. Hansen's method estimates τ via grid search and constructs bootstrap confidence intervals by inverting the likelihood ratio statistic.

Across specifications, FDI remains positive and significant. In Column (1), $\hat{\beta} = 0.101^{***}$, indicating that a one-unit increase in FDI is associated with a 0.101 percentage point rise in growth. Columns (2) and (3) yield slightly lower but still robust estimates (0.084** and 0.087**), underscoring that the growth-enhancing role of FDI persists under alternative specifications. The governance index displays strong regime dependence. In Regime 1, governance significantly boosts growth ($\theta_1 = 0.401^{***}$ in Column (1); 0.628*** in Column (3)). By contrast, Regime 2 coefficients are small and statistically insignificant, implying that governance reforms contribute to growth only when the economy lies below (or above) the estimated threshold. This nonlinearity captures the fact that governance improvements matter in one regime but are growth-irrelevant in the other.

The estimated thresholds (e.g., -2.261) are statistically significant, with tight confidence bounds, and the reported F-statistics (e.g., 22.13, $p < 0.01$) confirm the presence of structural regime shifts. This aligns with Hansen's inference procedure, rejecting linearity in favour of a threshold effect. The results imply that in the regime where governance is effective, FDI inflows are likely to be absorbed more productively, reinforcing the view that strong governance amplify the growth benefits of FDI. To sum up, the findings confirm two key insights. First, FDI exerts a consistently positive impact on growth. Second, governance influences growth only in specific regimes, highlighting nonlinear governance thresholds. Together, these results indicate that FDI and governance jointly contributes to growth.

Table 10: Fractional Polynomial Regressions - Model Comparison Table (Dependent Variable: Per Capita GDP Growth)

Governance Index	Deviance Diff.	P	Powers
Omitted	90536	0.151	
Linear	4.517	0.485	1
m=1	3.864	0.431	0.5
m=2	2.881	0.416	-2, -0.5
m=3	0.000	-	1, 2, 3

Finally, table 13 shows the results of a model comparison exercise that used fractional polynomial (FP) regressions. The dependent variable was per capita GDP growth, and the Governance Index served as the primary explanatory variable. Royston and Altman (1994) first came up with the FP method, which is a flexible way to model nonlinear functional forms of a continuous covariate. FP does not restrict the specification to linear or quadratic terms. Instead, it lets the variable come in as a fraction or a negative number. The table shows how different specs are alike. The "Omitted" model, which doesn't have governance, has a deviation of 90,536, which means it doesn't fit well. Adding governance lowers deviation by a lot (4.517), but the p-value (0.485) shows that this isn't very statistically significant. When governance is introduced with a fractional polynomial of order one (m=1, power=0.5), the deviation rises (3.864), indicating that a square-root transformation of governance more accurately represents its correlation with growth. Polynomials of higher order work best. The m=2 model with powers -2 and -0.5 lowers deviance to 2.881. The m=3 model with powers (1, 2, 3) gets the lowest deviance, which is 0.000. The deviance difference test strongly suggests the cubic FP specification, which means that the relationship between governance and growth is very nonlinear. Table 13 shows that we need to look beyond linear specifications; a simple linear model doesn't explore the complicated relationship between governance and growth, but FP regressions do confirm significant nonlinearities.

Table 11: Fractional Polynomial Results (Dependent Variable: Per Capita GDP Growth)

Variables	Column (1)
FDI	0.102*** (0.006)
Governance Index (Power 1)	0.531** (0.021)
Governance Index (Power 2)	-0.327** (0.024)
Governance Index (Power 3)	0.025** (0.028)
Trade	0.080*** (0.000)
Investment	0.072** (0.033)
Inflation	-0.029*** (0.004)
Government Cons.	-0.327*** (0.000)
Electricity	-0.024** (0.045)
Constant	1.245 0.366
Number of Observations	1007
<i>F – Value</i>	20.76
<i>Prob > F</i>	(0.000)

Table 11 presents the fractional polynomial (FP) regression estimates for the selected model (m=3, with powers 1,2 and 3) with per capita GDP growth as the dependent variable. The coefficient on FDI is positive and highly significant (0.102***). This implies that a one-unit increase in FDI inflows raises per capita GDP growth by roughly 0.10 percentage points, controlling for other variables. The result confirms

the widely observed growth-enhancing role of FDI through channels such as capital accumulation, technology transfer, and spillovers to domestic firms. Importantly, the stability and significance of the FDI effect across specifications suggest its impact is robust and less sensitive to nonlinearities in other regressors. The governance index enters the model through three powers, revealing a distinctly nonlinear relationship with growth. The linear term (0.531^{**}) is positive, suggesting that improvements in governance initially stimulate growth. The squared term (-0.327^{**}) indicates diminishing returns at intermediate governance levels. The cubic term (0.025^{**}) then turns positive again, pointing to renewed growth-enhancing effects when governance quality is already high. Together, these coefficients trace an S-shaped curve: strong growth effects at very low and very high governance levels, but weaker impacts at middle ranges. This pattern is consistent with theories of institutional thresholds, where reforms are particularly transformative in fragile states and complementary in already well-functioning systems. Trade openness exerts a positive and highly significant effect (0.080^{***}), underscoring the role of external integration in fostering growth. Inflation is negative and significant (-0.029^{***}), reflecting the adverse consequences of macroeconomic instability. Government consumption is strongly negative (-0.327^{***}), indicating that excessive or inefficient public spending constrains growth, possibly by crowding out private investment. By contrast, private investment contributes positively (0.072^{**}), while electricity infrastructure shows a small negative coefficient (-0.024^{**}), perhaps reflecting inefficiencies in the energy sector rather than capital scarcity per se.

Conclusion

This research illustrates that the growth effects of Foreign Direct Investment (FDI) in developing economies are neither consistent nor automatic; rather, they are primarily influenced by the institutional context in which foreign capital is integrated. All estimation methods—pooled, fixed and random effects models, GMM, panel threshold regressions, and fractional polynomial specifications—show the same three main patterns. First, FDI has a strong and positive effect on the growth of per capita GDP. However, the dynamic estimates show that these benefits tend to happen with a delay, which is due to the time it takes for technology transfer, spillovers, and capacity building. Second, governance amplifies growth on its own, with regulatory quality, government effectiveness, and political stability being the most important parts of the system. Third, and above all, the relationship between governance and FDI is both statistically significant and economically important implying countries with sound institutional frameworks reap more benefits from FDI inflows.

The nonlinear results confirm the existence of governance thresholds and intricate institutional dynam-

ics. Panel threshold estimates suggest that improvements in governance primarily foster growth within specific institutional frameworks, whereas fractional polynomial regressions reveal an S-shaped correlation, indicating that governance reforms yield the most significant marginal benefits at both very low and very high institutional tiers. These results show that governance works as an absorptive mechanism that not only sets the size of the growth benefits from FDI but also the direction they take.

These insights have clear implications for policy. Efforts to attract foreign direct investment (FDI) on their own are unlikely to lead to long-term growth unless institutional quality is deliberately improved at the same time. Strengthening regulatory frameworks, improving administrative efficiency, making sure that rules are enforced fairly, and promoting political stability should all be seen as important parts of national FDI strategies. Countries with weak governance can see a big increase in the growth payoff from FDI with even small changes to their institutions. On the other hand, countries with strong governance can benefit from institutional-capital interactions that support long-term development.

Appendix

Descriptive Statistics (Overall)

Variables	Mean	Std. Deviation	Minimum	Maximum
Net FDI inflows (% of GDP)	3.19	3.91	-37.17	43.91
Exports (% of GDP)	31.60	17.65	2.25	115.37
Imports (% of GDP)	38.21	17.01	1.87	95.00
Investment (% of GDP)	21.90	6.34	3.46	52.41
Inflation	7.49	12.96	-16.76	35.51
GDP growth rate	4.03	4.02	-21.4	21.07
GDP per-capita growth rate	2.25	3.97	-22.31	18.14
Govt. Consumption (% of GDP)	13.60	4.74	2.36	36.14
Corruption (Est.)	-0.54	0.49	-1.59	1.24
Effectiveness (Est.)	-0.42	0.58	-2.21	1.23
Political Stability (Est.)	-0.52	0.75	-2.81	1.20
Regulation (Est.)	-0.34	0.50	-1.67	1.19
Rule of Law (Est.)	-0.51	0.513	-1.73	1.02
Electricity	71.90	29.76	2.6	100

Note: Growth rates refer to annual growth rates. *Electricity* refers to access to electricity. *Est.* is estimate values obtained from World Governance Indicators. The total number of observations is 1007 in all cases.

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