

Institutional Quality and Foreign Direct Investment in Fragile States: Evidence from Afghanistan Using the ARDL Bounds Testing Approach (2002–2023)

Authors Details

Naeemullah Momand^{1*}

Head of quality assurances, Directorate of Quality Assurance and accreditation, Ministry of Higher education, Kabul, Afghanistan.

Ghazi Patang²

Senior Teaching Assistant, Department of national economics, Faculty of Economics, Shaikh Zayed University, Khost, Afghanistan.

Mohammad Osman Sharifi³

Teaching Assistant, Department of Banking and finance, Faculty of economics, Shaikh Zayed University, Khost, Afghanistan.

Tooryalai Sangeen⁴

Teaching Assistant, Department of Business administration, Faculty of economics, Shaikh Zayed University, Khost, Afghanistan.

Corresponding Author: *Naeemullah Momand*

ABSTRACT: This study empirically examines the impact of institutional quality on Foreign Direct Investment (FDI) inflows in Afghanistan from 2002 to 2023. Utilizing annual time-series data from the World Bank's World Development Indicators (WDI) and Worldwide Governance Indicators (WGI), the study employs the Autoregressive Distributed Lag (ARDL) bounds testing approach. The results confirm a significant positive long-run relationship between political stability, government effectiveness, and FDI inflows. The effect of corruption control is counterintuitive, likely reflecting

Afghanistan's aid-dependent investment dynamics. The error correction model indicates a speed of adjustment of approximately 52% per year. Diagnostic tests, including CUSUM and CUSUMSQ, confirm the robustness of the model. Robustness checks using FMOLS and DOLS corroborate the findings. The study provides implications for other fragile economies seeking to improve their investment climate through institutional strengthening and governance reforms.

Keywords: *Institutional Quality, Foreign Direct Investment, ARDL, Afghanistan, Fragile States.*

1. Introduction

The relationship between institutional quality and foreign direct investment (FDI) is a central theme in development economics, particularly for post-conflict and fragile states (Acemoglu et al., 2001; North, 1990). Afghanistan presents a unique case where investment constraints are driven not by market size but by institutional uncertainty, security risks, and limited regulatory credibility. Despite over two decades of international engagement, FDI inflows have remained persistently low, reflecting the country's fragile institutional environment.

The period 2002–2023 witnessed significant fluctuations, including state-building efforts, electoral crises, and a major political transition in 2021. These oscillations directly correlate with Afghanistan's ability to attract foreign capital (World Bank, 2024). This study investigates the long-run relationship between governance indicators and FDI inflows, providing empirical evidence for policymakers and contributing to the limited literature on fragile states.

The remainder of this paper is organized as follows: Section 2 reviews the literature. Section 3 describes the data and methodology. Section 4 presents the results. Section 5 concludes with discussion and policy recommendations.

2. Literature Review

Good governance has become one of the fundamental pillars of sustainable economic development. International organizations define good governance as the effective management of public institutions through transparency, accountability, participation, regulatory efficiency, rule of law, and control of corruption. These institutional

characteristics create an environment that supports private-sector development, improves resource allocation, and strengthens investor confidence. Countries with effective governance systems generally experience higher economic growth and greater success in attracting domestic and foreign investment.

The Worldwide Governance Indicators (WGI) framework identifies six key dimensions of governance: voice and accountability, political stability and absence of violence, government effectiveness, regulatory quality, rule of law, and control of corruption. These indicators are widely applied in empirical studies to evaluate institutional performance and its influence on investment and economic growth.

Political stability is widely recognized as one of the most important determinants of foreign direct investment. Investors seek stable political environments where government policies remain predictable, contracts are enforced, and investment risks are minimized. Political instability, armed conflict, terrorism, and frequent policy changes increase uncertainty, discourage long-term investment, and reduce foreign capital inflows.

In conflict-affected countries such as Afghanistan, political stability plays an even more significant role because security conditions directly affect business operations and investment decisions. A stable political environment improves investor confidence, reduces transaction costs, and enhances the effectiveness of public institutions, thereby increasing the country's attractiveness to international investors.

Governance quality influences the investment climate through multiple channels. Effective governments provide efficient public services, transparent regulations, and reliable legal systems that reduce business uncertainty and transaction costs. Strong institutions also protect property rights, facilitate contract enforcement, and improve market efficiency. Conversely, corruption, bureaucratic inefficiency, and weak regulatory systems increase operational costs and discourage investment.

Numerous empirical studies have found a positive relationship between governance quality and foreign direct investment. Improvements in government effectiveness, regulatory quality, and rule of law have consistently been associated with higher levels of FDI, particularly in developing economies where institutional quality plays a central role in reducing investment risks.

Previous empirical research demonstrates that governance and political stability are significant determinants of foreign direct investment. Studies conducted across developing countries consistently show that improvements in governance indicators increase investor confidence and attract greater foreign capital inflows. Conversely, political instability, corruption, weak institutions, and policy uncertainty reduce investment attractiveness and hinder long-term economic development.

Research relating specifically to Afghanistan indicates that despite substantial international assistance and institutional reforms after 2001, governance weaknesses, corruption, political uncertainty, and security challenges have continued to constrain foreign investment. Although periods of relative political stability resulted in temporary improvements in FDI inflows, these gains were not sustained because of persistent institutional deficiencies and changes in the political environment.

3. Research Gap

Although extensive international literature has examined the relationship between governance quality and foreign direct investment, relatively few studies have comprehensively analyzed Afghanistan using recent data covering the period 2002–2023. Existing research frequently focuses on individual governance indicators or broader macroeconomic variables while overlooking the combined effects of governance quality and political stability. Furthermore, limited studies have employed modern time-series techniques capable of distinguishing short-run and long-run relationships. This study addresses these gaps by applying the Autoregressive Distributed Lag (ARDL) approach to evaluate the long-term and short-term effects of governance indicators on foreign direct investment in Afghanistan. The findings are expected to contribute to both academic literature and policy formulation by providing updated empirical evidence on the institutional determinants of foreign investment in Afghanistan.

4. Hypotheses

Based on the literature, this study proposes:

H1: Government Effectiveness has a significant positive effect on FDI.

H2: Political Stability has a significant positive effect on FDI.

H3: Control of Corruption has a positive effect on FDI.

H4: GDP Growth has a positive effect on FDI.

5. Methodology

This study uses annual time-series data for Afghanistan from 2002 to 2023 (T=22). Data are from the World Bank's World Development Indicators (WDI) and Worldwide Governance Indicators (WGI). FDI is measured as a percentage of GDP (Asiedu, 2006). The model is kept parsimonious to avoid over-parameterization.

Table 1: Variable Description and Sources

Variable	Symbol	Measurement
FDI	FDI_GDP	Net FDI Inflows (% of GDP)
Government Effectiveness	GE	Index (-2.5 to +2.5)
Political Stability	PS	Index (-2.5 to +2.5)
Control of Corruption	CC	Index (-2.5 to +2.5)
GDP Growth	GDP	Annual %

The ARDL bounds testing approach (Pesaran, Shin, & Smith, 2001) is used for its effectiveness with small samples and mixed integration orders.

Long-run relationship:

$$FDI_GDP_t = \alpha_0 + \beta_1 GE_t + \beta_2 PS_t + \beta_3 CC_t + \beta_4 GDP_t + \varepsilon_t$$

Where FDI_GDP_t represents net foreign direct investment inflows as a percentage of GDP at time t ; GE_t denotes government effectiveness; PS_t represents political stability; CC_t indicates control of corruption; GDP_t refers to economic growth (GDP growth rate); α_0 is the intercept term; $\beta_1, \beta_2, \beta_3, \beta_4$ are the long-run coefficients; and ε_t is the error term.

Error correction representation: α_1

$$\Delta FDI_GDP_t = \alpha_0 + \sum_{i=1}^p \alpha_{1i} \Delta FDI_GDP_{t-i} + \sum_{i=0}^{q1} a_{2i} \Delta GE_{t-i} + \sum_{i=0}^{q2} a_{3i} \Delta PS_{t-i} + \sum_{i=0}^{q3} a_{4i} \Delta CC_{t-i} + \sum_{i=0}^{q4} a_{5i} \Delta GDP_{t-i} + \lambda ECT_{t-1} + \varepsilon_t$$

5. Estimation Procedure

1. ADF unit root tests (Dickey & Fuller, 1981).
2. Bounds test for cointegration (Pesaran et al., 2001).
3. Long-run and short-run estimation (AIC lag selection).
4. Diagnostic tests: serial correlation (Breusch-Godfrey LM), heteroskedasticity (Breusch-Pagan), normality (Jarque-Bera), functional form (Ramsey RESET).
5. Parameter stability: CUSUM and CUSUMSQ tests.
6. Variance Inflation Factor (VIF) for multicollinearity.
7. Structural break tests: Chow (1960) and Bai-Perron (2003) with breakpoint at 2021 (chosen a priori due to the political transition).
8. Robustness checks: FMOLS and DOLS estimators (Phillips & Hansen, 1990; Stock & Watson, 1993).

6. Results

Table 2: Descriptive Statistics

Variable	Mean	Std. Dev.	Min	Max
FDI_GDP	0.91	0.86	0.02	2.8
GE	-1.52	0.45	-2.1	-0.8
PS	-2.15	0.55	-2.9	-1.1
CC	-1.45	0.33	-1.9	-0.9
GDP	3.2	6.8	-20.7	14.5

Source: Author's calculations based on WDI and WGI (2024).

Table 3: Correlation Matrix

Variable	FDI_GDP	GE	PS	CC	GDP
FDI_GDP	1.00				
GE	0.62	1.00			
PS	0.71	0.68	1.00		
CC	-0.58	-0.52	-0.45	1.00	
GDP	0.35	0.22	0.18	-0.15	1.00

Table 4: ADF Unit Root Test Results

Variable	Level t-Stat	1st Diff t-Stat	Order	Lag
FDI_GDP	-2.15	-4.98***	I (1)	1
GE	-1.85	-4.12***	I (1)	1
PS	-3.45**	-	I (0)	0
CC	-2.45	-5.21***	I (1)	1
GDP	-4.10***	-	I (0)	0

***p<0.01, **p<0.05. Critical values: -3.75 (1%), -2.99 (5%). Mixed integration justifies ARDL.

Table 5: Variance Inflation Factor (VIF)

Variable	VIF	Tolerance
GE	2.85	0.351
PS	3.12	0.321
CC	2.41	0.415
GDP	1.18	0.847

All VIF values < 5, Tolerance > 0.2 → No serious multicollinearity.

ARDL Bounds Test: Optimal lag: ARDL (1,1,1,1,1) selected by AIC (minimum AIC = -2.84; SIC = -1.95).

Table 6: ARDL Bounds Test Results

Significance	I (0) Bound	I (1) Bound
10%	2.45	3.52
5%	2.86	4.01
1%	3.74	5.06

F-statistic (6.78) > I (1) at 1% (5.06) → Cointegration confirmed.

Table 7: Long-run ARDL Estimates

Variable	Coefficient	Std. Error	t-Statistic	P-Value
GE	0.54	0.15	3.60	0.003
PS	0.82	0.18	4.56	0.001
CC	-0.65	0.21	-3.10	0.007
GDP	0.18	0.08	2.25	0.041
C	-1.45	0.55	-2.64	0.019

$R^2 = 0.68$, Adjusted $R^2 = 0.61$, F-statistic = 8.45, DW = 1.92.

Interpretation:

- ❖ 1-unit improvement in PS → FDI increases by 0.82% of GDP.
- ❖ 1-unit improvement in GE → FDI increases by 0.54% of GDP.
- ❖ CC negative: reflects Afghanistan's fragile context where aid-driven dynamics may have dominated investment decisions.

4.7 Short-run Dynamics (ECM)

Table 8: Error Correction Model (ECM) Results

Variable	Coefficient	Std. Error	t-Statistic	P-Value
ECT (-1)	-0.52	0.12	-4.33	0.001
Δ (GE)	0.31	0.14	2.21	0.045
Δ (PS)	0.45	0.16	2.81	0.011
Δ (CC)	-0.28	0.18	-1.56	0.135

ECT (-1) negative and significant (-0.52) → 52% annual adjustment speed.

4.8 Hypothesis Results

Table 9: Diagnostic Tests

Hypothesis	Result
H1: GE → Positive	Supported
H2: PS → Positive	Supported
H3: CC → Positive	Not Supported
H4: GDP → Positive	Supported

4.10 Parameter Stability Tests

Table 10: Chow Breakpoint Test (2021)

Test	Statistic	P-Value	Result
Breusch-Godfrey LM	1.23	0.32	No autocorrelation
Breusch-Pagan	0.89	0.45	Homoskedastic
Jarque-Bera	2.10	0.35	Normal residuals
Ramsey RESET	0.67	0.42	Correct functional form

4.11 Structural Break Tests

Table 11: Bai-Perron Multiple Break Tests

Breakpoint	F-statistic	P-Value
2021	2.45	0.08
Test	Statistic	P-Value
LRT (max breaks=2)	3.21	0.12

Results do not reject the null of no structural break at the 5% level. However, given the limited post-2021 observations, post-transition dynamics are interpreted with caution.

4.12 Endogeneity Assessment

Potential endogeneity between institutional quality and FDI may bias coefficient estimates. Reverse causality, omitted variables (e.g., natural resources, aid flows), and measurement error in governance indicators are possible. The ARDL approach partially mitigates these concerns through lagged variables, but does not fully eliminate them. The FMOLS and DOLS estimators, which are robust to endogeneity, yield qualitatively similar results (see Section 4.13). However, causal interpretation requires caution, and future studies should consider instrumental-variable approaches or system-based methods when appropriate.

4.13 Robustness Checks

Table 12: FMOLS and DOLS Long-run Estimates

Variable	FMOLS Coefficient (t-stat)	DOLS Coefficient (t-stat)	ARDL Coefficient (t-stat)
GE	0.48 (3.21)	0.52 (3.45)	0.54 (3.60)
PS	0.75 (4.12)	0.78 (4.32)	0.82 (4.56)
CC	-0.58 (-2.85)	-0.62 (-3.01)	-0.65 (-3.10)
GDP	0.15 (2.01)	0.17 (2.12)	0.18 (2.25)

Alternative estimators yield qualitatively similar results, confirming the robustness of the findings.

5. Discussion and Conclusion]

The findings support H1, H2, and H4. Political stability is the strongest driver of FDI, consistent with North (1990), Hymer (1976), and recent studies Government effectiveness

also boost FDI. The positive effect of GDP growth suggests market expansion provides opportunities.

The negative CC coefficient is counterintuitive. This may reflect Afghanistan's fragile, aid-dependent context, where periods of increased international engagement coincided with temporary FDI despite weak institutional frameworks. The unexpected sign may also indicate potential endogeneity, omitted-variable bias, or the dominance of security-related investment decisions over governance indicators during aid-intensive years (Busse & Hefeker, 2007). The Chow and Bai-Perron tests indicate no statistically significant structural break in 2021, but given the limited post-2021 observations, this result should be interpreted with caution. VIF results show no serious multicollinearity, and diagnostic tests confirm model robustness. FMOLS and DOLS robustness checks corroborate the ARDL findings.

5.2 Conclusion

Institutional quality, particularly political stability and government effectiveness, is critical for FDI in Afghanistan. The counterintuitive corruption control result highlights the need for context-specific analysis in fragile states.

5.3 Limitations and Future Research

This study is limited by small sample size ($T=22$) and the use of aggregate FDI data. Potential endogeneity between institutional quality and FDI may bias coefficient estimates. Future research could use sectoral data, higher-frequency information, or instrumental-variable approaches.

5.4 Policy Recommendations

1. Strengthen governance credibility through transparent institutions.
2. Reform the judiciary for independent dispute resolution.
3. Enhance anti-corruption through transparency and oversight.
4. Simplify investment laws and protect investor rights.
5. Engage with international financial institutions for technical assistance.

References

1. Acemoglu, D., Johnson, S., & Robinson, J. A. (2001). The Colonial Origins of Comparative Development. *American Economic Review*, 91(5), 1369-1401. <https://doi.org/10.1257/aer.91.5.1369>
2. Akaike, H. (1974). A New Look at the Statistical Model Identification. *IEEE Transactions on Automatic Control*, 19(6), 716-723. <https://doi.org/10.1109/TAC.1974.1100705>
3. Asiedu, E. (2006). FDI in Africa: The Role of Political Instability. *World Development*, 34(7), 111-125. <https://doi.org/10.1016/j.worlddev.2005.11.004>
4. Bai, J., & Perron, P. (2003). Computation and Analysis of Multiple Structural Change Models. *Journal of Applied Econometrics*, 18(1), 1-22. <https://doi.org/10.1002/jae.659>
5. Busse, M., & Hefeker, C. (2007). Political Risk, Institutions and FDI. *European Journal of Political Economy*, 23(2), 397-415. <https://doi.org/10.1016/j.ejpoleco.2006.02.003>
6. Chow, G. C. (1960). Tests of Equality Between Sets of Coefficients in Two Linear Regressions. *Econometrica*, 28(3), 591-605. <https://doi.org/10.2307/1910133>
7. Dickey, D. A., & Fuller, W. A. (1981). Likelihood Ratio Statistics for Autoregressive Time Series with a Unit Root. *Econometrica*, 49(4), 1057-1072. <https://doi.org/10.2307/1912517>
8. Dunning, J. H. (1981). *International Production and the Multinational Enterprise*. Allen & Unwin.
9. Globerman, S., & Shapiro, D. (2003). Governance Infrastructure and US FDI. *Journal of International Business Studies*, 34(1), 19-39. <https://doi.org/10.1057/palgrave.jibs.8400001>
10. Hymer, S. H. (1976). *The International Operations of National Firms*. MIT Press.

11. Kaufmann, D., Kraay, A., & Mastruzzi, M. (2010). *The Worldwide Governance Indicators: Methodology and Analytical Issues*. World Bank Policy Research Working Paper No. 5430. <https://doi.org/10.1596/1813-9450-5430>
12. North, D. C. (1990). *Institutions, Institutional Change and Economic Performance*. Cambridge University Press.
13. Pesaran, M. H., Shin, Y., & Smith, R. J. (2001). Bounds Testing Approaches to the Analysis of Level Relationships. *Journal of Applied Econometrics*, 16(3), 289-326. <https://doi.org/10.1002/jae.616>
14. Phillips, P. C. B., & Hansen, B. E. (1990). Statistical Inference in Instrumental Variables Regression with I(1) Processes. *Review of Economic Studies*, 57(1), 99-125. <https://doi.org/10.2307/2297545>
15. Stock, J. H., & Watson, M. W. (1993). A Simple Estimator of Cointegrating Vectors in Higher Order Integrated Systems. *Econometrica*, 61(4), 783-820. <https://doi.org/10.2307/2951763>
16. World Bank. (2024). *World Development Indicators*. Washington, DC. <https://databank.worldbank.org/source/world-development-indicators>
17. World Bank. (2024). *Worldwide Governance Indicators*. Washington, DC. <https://databank.worldbank.org/source/worldwide-governance-indicators>