

Beyond a Single Governance Score: Rule of Law, Regulatory Quality and Foreign Direct Investment in Middle-Income Economies — A Within-Between Panel Analysis, 2006–2022

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Abstract

Purpose — This paper examines whether broad institutional quality or specific legal-regulatory dimensions better explain foreign direct investment (FDI) in middle-income economies. It separates persistent between-country institutional differences from shorter-run within-country change. **Design/methodology/approach** — An unbalanced panel combines revised Worldwide Governance Indicators with World Development Indicators for 87 current lower- and upper-middle-income economies. The final sample contains 1,408 country-year observations from 2006 to 2022. FDI net inflows as a percentage of GDP are modeled against one-year-lagged rule of law, regulatory quality, income, growth, trade openness, inflation, natural-resource rents and population. Pooled, two-way fixed-effects and Mundlak-type within-between models use country-clustered standard errors. **Findings** — A principal-component institutional index is insignificant in pooled, fixed-effects and within-between models. Once rule of law and regulatory quality enter jointly, their structural coefficients diverge. A one-standard-deviation higher country-average regulatory-quality score is associated with 1.513 percentage points more FDI (SE = 0.466, $p = 0.002$), whereas the conditional rule-of-law coefficient is -1.037 points (SE = 0.427, $p = 0.017$). Their between-country difference is 2.550 points ($p = 0.003$). Neither dimension shows a stable positive within-country association. The regulatory-quality result survives alternative outcome treatments, exclusion of the pandemic years, long-panel and large-population restrictions, resource-rent screening and every regional jackknife. Trade openness remains positive within and between countries. **Originality/value** — The study shows that governance averages can conceal institution-specific relationships. It cautions against treating legal security and market-regulatory capability as interchangeable, while also rejecting a causal interpretation of the conditional negative rule-of-law coefficient.

Keywords: foreign direct investment; rule of law; regulatory quality; institutional economics; middle-income economies; panel data

JEL classification: C23; F21; K20; O43

1. Introduction

Foreign direct investment is a long-horizon commitment. Unlike a portfolio investor who can exit by selling a traded claim, a multinational enterprise establishes or acquires productive assets, coordinates local suppliers and workers, and exposes capital to the host country's legal and regulatory environment. Market size, costs, trade access, infrastructure and natural resources therefore matter, but so do the rules that determine whether contracts can be enforced, property can be protected, permits can be obtained and policies can be implemented predictably. Institutional economics describes these formal and informal rules as the constraints that shape incentives and transaction costs (North, 1990).

A large empirical literature consequently reports that stronger institutions attract FDI. Governance infrastructure has been linked to both inward and outward investment (Globerman and Shapiro, 2002), institutional uncertainty and regulatory burden can deter bilateral FDI (Daude and Stein, 2007), and political risk, bureaucratic quality and law-and-order indicators predict inflows to developing economies (Busse and Hefeker, 2007). Cross-country and dynamic-panel studies frequently produce a positive coefficient on a composite institutional-quality index (Buchanan et al., 2012; Sabir et al., 2019). The policy message appears straightforward: improve governance to attract durable foreign capital.

That conclusion becomes less straightforward when institutions are unbundled. Rule of law and regulatory quality address related but distinct economic problems. Rule of law concerns confidence in societal rules, contract enforcement, property rights, policing and courts. Regulatory quality concerns the state's capacity to formulate and implement policies and regulations that enable private-sector development. A country may protect property reasonably well while maintaining opaque licensing, discretionary controls or weak regulatory implementation. Another may liberalize entry and capital movement while retaining uneven judicial performance. Combining the

two dimensions into one score assumes that they influence FDI through the same channel and with the same empirical sign.

Prior work provides reasons to reject that assumption. Acemoglu and Johnson (2005) show that property-rights and contracting institutions have different economic consequences. Bénassy-Quéré et al. (2007) find that several institutional dimensions matter independently, while Tag (2021) reports that judicial independence and impartiality predict FDI more consistently than contract enforcement. A meta-analysis of 97 primary studies finds a modest institutional effect but substantial heterogeneity across development levels, regions, industries and methods (Bailey, 2018). Recent evidence for lower-middle-income economies is especially relevant: Saha et al. (2022) find that regulatory quality and control of corruption raise inflows while higher rule-of-law and voice-and-accountability scores are negatively associated with them. These mixed results make dimension-specific estimation a substantive question rather than a robustness footnote.

A second problem is temporal interpretation. Cross-country regressions identify whether economies with persistently stronger institutions receive more FDI. Country fixed effects instead ask whether improvements within an economy are followed by higher inflows. Governance changes slowly and is measured with perception-based error, whereas FDI is volatile and responds to privatizations, commodity projects, tax structures and individual transactions. A positive structural coefficient may coexist with a weak short-run coefficient even when institutions matter. Pooling these two sources of variation can blur what the estimate means (Mundlak, 1978; Bell and Jones, 2015).

This paper addresses both problems using revised Worldwide Governance Indicators and World Development Indicators for current middle-income economies. The sample covers 1,408 observations from 87 countries during 2006–2022. Explanatory variables are lagged one year. The empirical design first tests a broad two-item institutional index and then enters rule of law and regulatory quality jointly, separating each into within-country and between-country components. Country-clustered inference, alternative outcome transformations, pandemic exclusions, sample restrictions, income-group splits and regional jackknives probe the stability of the result.

The main finding is that aggregation hides divergence. The broad institutional score is not significant once macroeconomic controls and time effects are included. In the joint model, persistent regulatory quality has a positive association with FDI, while the conditional rule-of-law coefficient is negative. The difference between the two is statistically significant and the regulatory coefficient survives all regional jackknives. This does not mean that weakening courts or property rights attracts investment. It means that, holding regulatory quality and the observed economic environment constant, the residual cross-country variation in the broad rule-of-law measure does not behave like a generic FDI magnet in this sample. The paper's contribution is therefore methodological and policy-relevant: governance dimensions should be interpreted separately, and structural correlations should not be converted into claims about the immediate payoff from reform.

2. Literature Review and Hypotheses

2.1 Institutions as location advantages

The eclectic or ownership-location-internalization framework treats host-country conditions as part of the location advantage that determines where multinational firms deploy proprietary assets (Dunning, 1988). Early location studies emphasized agglomeration, infrastructure, costs and market access (Wheeler and Mody, 1992). Institutional theory adds that firms face transaction costs and political hazards that cannot be priced from market variables alone. Weak enforcement can expose assets to expropriation or contractual breach; corruption can operate like an uncertain tax; and unstable or discretionary regulation can delay entry and raise compliance costs (Henisz, 2000; Wei, 2000).

Empirical evidence broadly supports this channel. Globberman and Shapiro (2002) show that governance infrastructure predicts global investment flows. Asiedu (2006) finds that reliable legal systems, political stability and lower corruption help African economies attract FDI alongside resources and market size. Daude and Stein (2007) identify unpredictability, regulatory burden and lack of government commitment as important deterrents. Ali et al. (2010) find that property rights, rule of law and expropriation risk are especially relevant outside the primary sector. These studies imply that institutional quality can lower the risk-adjusted cost of committing capital.

Later work frequently summarizes governance through principal components or composite indices because individual dimensions are correlated. Buchanan et al. (2012) associate stronger institutional quality with more FDI and lower FDI volatility. Peres et al. (2018) and Sabir et al. (2019) report that institutional effects vary across development groups. Composite measures are useful for testing a broad governance hypothesis, but they can suppress dimension-specific effects if different institutions operate through different mechanisms.

H1: *Higher broad institutional quality is positively associated with FDI inflows in middle-income economies.*

2.2 Why rule of law and regulatory quality may differ

Rule of law provides a general assurance that property and agreements will not be arbitrarily displaced. Its economic value should be strongest for investments that depend on local contracts, specialized assets, intellectual property and long recovery periods. Judicial independence and impartiality may be more relevant than mechanical measures of enforcement speed because they determine whether formal remedies remain credible when a dispute involves powerful actors (Tag, 2021).

Regulatory quality is closer to the operating margin of market entry. It captures whether the state can formulate and implement policies that permit and promote private-sector development. Licensing clarity, capital-account rules, competition policy, customs procedures, sector regulation and the consistency of administrative implementation influence the time and uncertainty involved in establishing an affiliate. Daude and Stein's (2007) emphasis on regulatory burden and policy unpredictability, and Saha et al.'s (2022) positive regulatory-quality result, support a direct FDI channel.

The two measures are correlated, but correlation does not imply substitutability. Acemoglu and Johnson's (2005) unbundling argument suggests that institutional categories should be linked to the transactions they govern. In the present context, regulatory quality is expected to have the more immediate conditional relationship with inward investment because it directly shapes entry and operation. Rule of law remains socially and economically valuable, but part of its FDI association may be indirect, sector-specific or absorbed by income, regulatory capability and trade integration.

H2: Regulatory quality has a stronger positive conditional association with FDI than rule of law when both dimensions enter the same model.

2.3 Structural and transitional institutional effects

Institutions are persistent. Legal credibility, regulatory expertise and administrative routines are accumulated over years, while foreign investors respond to both current rules and reputations formed by past implementation. The country average of an institutional indicator therefore captures a durable environment. The annual deviation from that average captures shorter-run movement, which may reflect genuine reform, perception noise or political events.

A within-country coefficient asks whether an improvement relative to a country's own long-run level is followed by higher FDI. A between-country coefficient asks whether countries with persistently stronger institutions receive more FDI after other observed structural differences are held constant. The latter should be larger if credibility and implementation capability require time to influence location decisions. However, a between effect is also more exposed to omitted country characteristics and must not be interpreted as causal.

H3: Between-country institutional associations with FDI are stronger than within-country associations.

3. Data and Methodology

3.1 Data, sample and variable construction

The analysis merges two World Bank sources. FDI and macroeconomic controls come from World Development Indicators (WDI). Institutional measures come from the revised Worldwide Governance Indicators (WGI), which combine perception data from household, firm and expert sources using an unobserved-components framework (Kaufmann and Kraay, 2024). The current WGI release supplies annual estimates for more than 200 economies. Because the estimates carry margins of error, small annual movements should not be treated as precise institutional events.

The sampling frame consists of economies classified by the World Bank country metadata as lower-middle or upper-middle income at the access date. The outcome is observed from 2006 onward, and every explanatory variable is lagged one year. Complete-case observations are retained only for countries contributing at least eight years. This produces 1,408 country-year observations across 87 economies from 2006 to 2022; 70 countries contribute all 17 observed years. The design is intentionally unbalanced so that partial histories are not discarded.

FDI is measured as net inflows divided by GDP. The series includes equity capital, reinvested earnings and other capital associated with a lasting management interest. Because a few transactions, disinvestments and special-purpose structures create extreme ratios, the baseline outcome is winsorized at the pooled first and ninety-ninth percentiles (−4.018% and 18.812% of GDP). Robustness models use the raw outcome, its inverse-hyperbolic-sine transformation and a 2.5% tail-trimmed sample.

Rule of law and regulatory quality are used both separately and as a broad index. Each indicator is standardized, and the first principal component is extracted. Both loadings equal 0.707 and the component explains 84.1% of their common variance. A higher score therefore represents jointly stronger legal and regulatory institutions. The disaggregated model retains both standardized dimensions to test whether the composite masks distinct associations.

Controls follow the FDI literature: log real GDP per capita captures development and purchasing power; real GDP growth captures market momentum; trade as a share of GDP captures international integration; inflation captures macroeconomic instability; natural-resource rents capture resource-seeking investment; and log population captures market size. Calendar-year indicators absorb common shocks such as the global financial crisis and the COVID-19 period.

Table 1. Variables, indicators and operational definitions

Variable	Indicator code	Source	Operational definition
FDI inflows	BX.KLT.DINV.WD.GD.ZS	WDI	Net inward FDI as a percentage of GDP; baseline winsorized at 1% and 99%.
Rule of law	GOV_WGI_RL.EST	WGI	Confidence in societal rules, contract enforcement, property rights, police and courts; lagged one year.
Regulatory quality	GOV_WGI_RQ.EST	WGI	Ability to formulate and implement policies and regulations supporting private-sector development; lagged one year.
Real GDP per capita	NY.GDP.PCAP.KD	WDI	Constant-price GDP per person, natural logarithm; lagged one year.
GDP growth	NY.GDP.MKTP.KD.ZG	WDI	Annual percentage growth of real GDP; lagged one year.
Trade openness	NE.TRD.GNFS.ZS	WDI	Exports plus imports of goods and services as a percentage of GDP; lagged one year.
Inflation	FP.CPI.TOTL.ZG	WDI	Annual percentage change in the consumer price index; lagged one year.
Resource rents	NY.GDP.TOTL.RT.ZS	WDI	Total natural-resource rents as a percentage of GDP; lagged one year.
Population	SP.POP.TOTL	WDI	Resident population, natural logarithm; lagged one year.

Notes: WDI = World Development Indicators; WGI = Worldwide Governance Indicators. All explanatory variables are lagged one year.

3.2 Econometric strategy

The first model is pooled ordinary least squares with year indicators. The second introduces country and year fixed effects:

$$FDI_{it} = \alpha_i + \lambda_t + \beta Inst_{i,t-1} + \gamma'X_{i,t-1} + e_{it}$$

Here α_i denotes country effects, λ_t denotes year effects, $Inst$ is institutional quality and X is the control vector. Country fixed effects remove time-invariant country characteristics, but the coefficient is identified only from movement within each economy.

The third specification decomposes each time-varying regressor into its country mean and its deviation from that mean:

$$Z_{it} = (Z_{it} - \bar{Z}_i) + \bar{Z}_i$$

$$FDI_{it} = \lambda_t + \beta_w(Z_{it} - \bar{Z}_i) + \beta_B \bar{Z}_i + \gamma_w X_{wit} + \gamma_B X_{Bi} + u_{it}$$

This Mundlak-type within-between specification estimates the transitional coefficient β_w and structural coefficient β_B in one equation (Mundlak, 1978). Every continuous within and between component is standardized separately, so coefficients represent the change in FDI percentage points associated with a one-standard-deviation increase in the relevant source of variation. The dimension-specific model enters rule of law and regulatory quality jointly. A Wald contrast tests whether their between-country coefficients differ.

Inference is two-sided and standard errors are clustered by country. The baseline uses $p < 0.05$ as the significance threshold and reports $p < 0.10$ as suggestive. The models are descriptive, not causal. One-year lags, country effects, year effects and extensive controls improve temporal and conditional interpretation but do not eliminate omitted institutions, reverse causality, policy endogeneity or measurement error.

3.3 Robustness strategy

Robustness tests replace winsorized FDI with the raw and inverse-hyperbolic-sine outcomes; remove 2020 and 2021; trim the outer 2.5% of FDI observations; retain only countries observed for at least 15 years; exclude populations below one million; exclude countries whose mean resource rents exceed 10% of GDP; and estimate lower- and upper-middle-income groups separately. Regional jackknives then re-estimate the model after removing each World Bank region in turn.

The tests focus on coefficient sign, magnitude and uncertainty rather than isolated threshold crossings. Special attention is paid to the difference between regulatory quality and rule of law, because a positive coefficient on one dimension and a negative coefficient on another can mechanically disappear in an average governance index.

4. Results

4.1 Descriptive evidence

Table 2. Descriptive statistics

Variable	N	Mean	SD	Min	Max
FDI, raw (% GDP)	1408	3.812	4.592	-37.173	43.912
FDI, winsorized (% GDP)	1408	3.773	3.872	-4.018	18.812
Institutional-quality index	1408	0.000	0.899	-2.470	2.698
Rule of law estimate	1408	-0.504	0.555	-1.797	1.164
Regulatory-quality estimate	1408	-0.397	0.536	-1.990	1.137
Real GDP per capita (log)	1408	8.017	0.724	6.402	9.526
GDP growth (%)	1408	3.854	5.500	-50.339	86.827
Trade openness (% GDP)	1408	79.634	34.278	22.106	320.939
Inflation (%)	1408	6.386	17.921	-16.860	557.202
Natural-resource rents (% GDP)	1408	7.684	11.233	0.000	66.060
Population (log)	1408	16.021	1.969	11.533	21.070

Mean winsorized FDI equals 3.773% of GDP, with substantial dispersion across observations. Both governance estimates are negative on average because the sample is restricted to middle-income economies. The broad institutional index is centered near zero in the estimation sample. Trade openness is also heterogeneous, ranging from 22.1% to 320.9% of GDP, while extreme inflation and growth observations justify cautious robust inference.

Table 3. Pairwise correlations

Variable	1	2	3	4	5	6	7
FDI	1.000	–	–	–	–	–	–
Institution index	0.098	1.000	–	–	–	–	–
Log GDP pc	0.056	0.368	1.000	–	–	–	–
GDP growth	0.083	-0.032	-0.084	1.000	–	–	–
Trade	0.362	0.131	0.127	0.077	1.000	–	–
Inflation	-0.043	-0.141	-0.078	-0.071	-0.068	1.000	–
Resource rents	0.064	-0.391	0.108	0.142	0.070	0.052	1.000

Notes: 1 = FDI; 2 = institutional index; 3 = log real GDP per capita; 4 = GDP growth; 5 = trade openness; 6 = inflation; 7 = natural-resource rents. N = 1,408.

The raw correlation between FDI and the institutional index is only 0.098, compared with 0.362 for trade openness. Rule of law and regulatory quality correlate at 0.686, high enough to justify testing aggregation but not so high as to make joint estimation meaningless. Their bivariate correlations with FDI are positive (0.073 and 0.105 respectively); the negative conditional rule-of-law coefficient reported below therefore emerges only after the dimensions and controls are separated.

4.2 Broad institutional-quality models

Table 4. Broad institutional-quality models

Regressor	Pooled	Two-way FE	Hybrid W	Hybrid B
Institutional quality	0.213 (0.307)	-0.250 (0.382)	-0.064 (0.104)	0.242 (0.340)

Regressor	Pooled	Two-way FE	Hybrid W	Hybrid B
Log real GDP per capita	0.072 (0.264)	1.366 (0.906)	0.185 (0.181)	0.195 (0.271)
GDP growth	0.257 (0.196)	0.089 (0.136)	0.101 (0.127)	0.565* (0.295)
Trade openness	1.057*** (0.310)	1.202*** (0.374)	0.422*** (0.129)	0.950*** (0.301)
Inflation	-0.007 (0.065)	0.010 (0.038)	0.008 (0.034)	0.011 (0.170)
Resource rents	0.165 (0.370)	-0.386 (0.478)	-0.139 (0.180)	0.199 (0.396)
Log population	-0.645** (0.316)	7.586 (5.408)	0.245 (0.248)	-0.851** (0.352)
Country fixed effects	No	Yes	Decomposed	Decomposed
Year fixed effects	Yes	Yes	Yes	Yes
Observations	1,408	1,408	1,408	1,408
Countries	87	87	87	87
Overall R-squared	0.196	0.594	0.216	0.216

Notes: W = within-country; B = between-country. Continuous regressors in pooled and fixed-effects models are standardized over the estimation sample; within and between components are standardized separately. Country-clustered standard errors are in parentheses. *** $p < 0.01$; ** $p < 0.05$; * $p < 0.10$.

H1 is not supported. The broad index coefficient is 0.213 in the pooled model (SE = 0.307, $p = 0.489$) and -0.250 in the two-way fixed-effects model (SE = 0.382, $p = 0.514$). The hybrid model reaches the same conclusion: its within coefficient is -0.064 ($p = 0.539$) and its between coefficient is 0.242 ($p = 0.479$). Averaging rule of law and regulatory quality therefore yields no detectable independent relationship with FDI after the macroeconomic environment and common year shocks are considered.

Trade openness is the most stable covariate. A one-standard-deviation within-country increase is associated with 0.422 percentage points more FDI (SE = 0.129, $p = 0.002$), and a one-standard-deviation higher country mean is associated with 0.950 points more FDI (SE = 0.301, $p = 0.002$). This result is consistent with export-platform, imported-input and market-integration channels. The negative between-population coefficient partly reflects the use of FDI as a share of GDP and the influence of small open economies; a large-population restriction is therefore included below.

4.3 Unbundling rule of law and regulatory quality

Table 5. Dimension-specific within-between model

Regressor or contrast	FDI inflows (% of GDP)
Rule of law: within	0.122 (0.105)
Rule of law: between	-1.037** (0.427)
Regulatory quality: within	-0.187* (0.109)
Regulatory quality: between	1.513*** (0.466)
Log GDP pc: within	0.160 (0.178)
Log GDP pc: between	-0.113 (0.265)
GDP growth: within	0.103 (0.126)
GDP growth: between	0.513* (0.269)

Regressor or contrast	FDI inflows (% of GDP)
Trade openness: within	0.424*** (0.130)
Trade openness: between	0.758*** (0.269)
Inflation: within	0.003 (0.036)
Inflation: between	0.133 (0.187)
Resource rents: within	-0.132 (0.182)
Resource rents: between	0.457 (0.415)
Log population: within	0.220 (0.243)
Log population: between	-1.438*** (0.363)
Rule of law: B – W	-1.159** (0.446)
Regulatory quality: B – W	1.700*** (0.481)
Regulatory quality – rule of law: B	2.550*** (0.819)
Year fixed effects	Yes
Observations	1,408
Countries	87
Overall R-squared	0.256

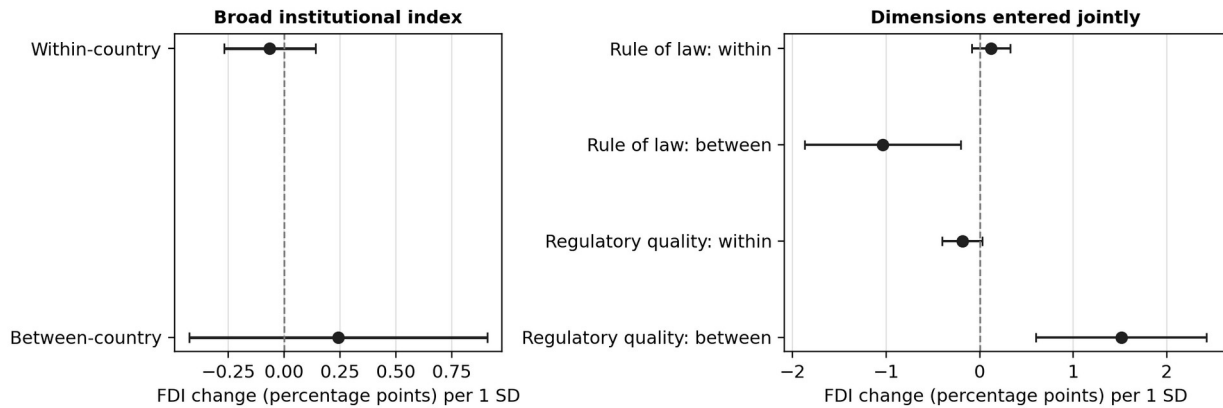
Notes: W = within-country; B = between-country. Each component is standardized separately. Coefficients are FDI percentage-point differences per one-standard-deviation increase. Country-clustered standard errors are in parentheses. *** $p < 0.01$; ** $p < 0.05$; * $p < 0.10$.

The dimension-specific model supports H2. Regulatory quality has a positive between-country coefficient of 1.513 (SE = 0.466, $p = 0.002$), while the conditional rule-of-law coefficient is -1.037 (SE = 0.427, $p = 0.017$). The 2.550-point difference between them is statistically significant (SE = 0.819, $p = 0.003$). Because their bivariate FDI correlations are both positive, this divergence should be read as a conditional institutional-composition result: among countries with the same measured regulatory quality and controls, higher residual rule-of-law scores are associated with lower FDI/GDP.

H3 receives dimension-specific rather than general support. The regulatory-quality between coefficient exceeds its within coefficient by 1.700 points ($p < 0.001$), consistent with accumulated regulatory credibility. The within estimate is negative and only suggestive (-0.187, $p = 0.090$), so the data do not show an immediate common FDI increase after marginal improvements in the annual score. For rule of law, the between-within contrast is negative (-1.159, $p = 0.011$), contrary to the hypothesized general structural premium.

The negative rule-of-law coefficient is not evidence that weak law is desirable. Rule of law supports welfare, domestic investment, finance, rights and long-run development beyond the narrow FDI/GDP outcome. The coefficient may reflect the composition of FDI, resource-seeking inflows, small-state ratios, outward-investment capacity, perception measurement error or omitted tax and treaty arrangements. It is also conditional on regulatory quality, which shares 69.5% correlation in its between component. The policy-relevant result is the positive and comparatively stronger regulatory-quality association, not a recommendation to trade legal integrity for capital inflows.

Figure 1. Institutional coefficients from broad and dimension-specific models



Notes: Points are standardized-component coefficients; bars are 95% confidence intervals based on country-clustered standard errors. The outcome is winsorized net FDI inflows as a percentage of GDP.

4.4 Robustness and heterogeneity

Table 6. Robustness of the dimension-specific between-country estimates

Specification	Rule of law B	Reg. quality B	RQ – RL (B)	N / countries
Baseline winsorized FDI	–1.037** (0.427)	1.513*** (0.466)	2.550*** (0.819)	1408 / 87
Unwinsorized FDI	–1.058** (0.437)	1.562*** (0.481)	2.620*** (0.844)	1408 / 87
IHS-transformed FDI	–0.221* (0.132)	0.361*** (0.131)	0.582** (0.245)	1408 / 87
Exclude 2020–2021	–1.040** (0.432)	1.611*** (0.487)	2.651*** (0.850)	1239 / 87
Trim outer 2.5%	–0.934** (0.382)	1.352*** (0.390)	2.285*** (0.708)	1336 / 87
At least 15 years	–0.898** (0.407)	1.358*** (0.451)	2.256*** (0.787)	1284 / 76
Population at least one million	–0.398 (0.476)	1.038** (0.496)	1.435 (0.900)	1202 / 74
Mean resource rents ≤ 10%	–1.231*** (0.430)	1.149** (0.515)	2.380*** (0.859)	1071 / 66
Lower-middle income only	–1.174* (0.632)	1.731*** (0.611)	2.905** (1.204)	655 / 41
Upper-middle income only	–0.944 (0.667)	1.036 (0.682)	1.981 (1.246)	753 / 46

Notes: B = between-country. Entries are standardized-component coefficients with country-clustered standard errors in parentheses. The IHS outcome is on the inverse-hyperbolic-sine scale and is not magnitude-comparable with percentage-point models. *** $p < 0.01$; ** $p < 0.05$; * $p < 0.10$.

The regulatory-quality coefficient is positive in every reported specification. It equals 1.562 with raw FDI ($p = 0.002$), 0.361 on the IHS scale ($p = 0.007$), 1.611 after excluding 2020–2021 ($p = 0.001$), 1.352 after trimming the outer 2.5% ($p = 0.001$), and 1.358 among countries observed for at least 15 years ($p = 0.004$). It remains positive when populations below one million are removed (1.038, $p = 0.040$) and when resource-dependent economies are screened out (1.149, $p = 0.029$).

Income-group estimates reveal heterogeneity. The regulatory coefficient is 1.731 in lower-middle-income economies ($p = 0.007$) but 1.036 and imprecise in the upper-middle-income group ($p = 0.136$). The difference between regulatory quality and rule of law is significant in the lower-middle group but not in the upper-middle group. These subgroup results are consistent with institutional effects depending on development stage, but the smaller group samples make definitive comparisons inappropriate.

Regional jackknives provide a demanding stability test. Removing each region in turn leaves the regulatory-quality between coefficient positive, ranging from 1.267 to 1.680, and significant at 5% in all six re-estimations.

The conditional rule-of-law coefficient ranges from -0.541 to -1.376 and becomes insignificant when East Asia and the Pacific is removed. The regulatory-minus-rule-of-law contrast remains positive in every jackknife, although its p-value rises to 0.060 after that same exclusion. The regulatory result is therefore more stable than the negative rule-of-law result.

Within-country coefficients are less stable across checks. They change magnitude and occasionally cross conventional significance thresholds, but they do not provide a consistent pattern in which annual institutional-score improvements predict immediate FDI gains. This reinforces the distinction between persistent institutional configurations and short-run score movement.

5. Discussion

5.1 Why the composite index fails

The null result for the composite index does not refute institutional economics. It shows that an average of correlated dimensions is not a neutral measurement choice. When component coefficients differ in sign, the index estimates a weighted net relationship that can approach zero even when one dimension has a sizeable association. A governance score is most defensible when theory predicts common mechanisms and signs; otherwise, aggregation can hide the policy margin that matters.

This finding helps reconcile conflicting evidence. Studies using broad indices often report a positive institutional premium (Buchanan et al., 2012; Sabir et al., 2019), whereas dimension-specific studies find that coefficients vary by income group, sector and institutional category (Ali et al., 2010; Saha et al., 2022; Tag, 2021). Bailey's (2018) meta-analysis similarly identifies substantial contextual and methodological heterogeneity. The present analysis adds a temporal explanation: the strongest result is between countries, not within them.

5.2 Interpreting regulatory quality

Regulatory quality is the governance dimension most directly connected to establishing and operating a private enterprise. Clear entry rules, coherent sector regulation, transparent approvals, predictable customs administration, feasible capital movement and credible implementation can reduce fixed costs and uncertainty. These conditions are especially relevant to foreign firms, which face information disadvantages and must coordinate headquarters' expectations with host-country procedures.

The stronger between-country coefficient suggests that investors respond to a regulatory reputation and implementation stock rather than to a one-year change in perceptions. Announcing reform may not raise FDI if agencies lack capacity, subordinate rules conflict or firms doubt that implementation will persist. Credibility may require repeated application across political and business cycles. This interpretation aligns with Daude and Stein's (2007) emphasis on policy unpredictability and excessive regulatory burden.

Trade openness remains positive even after institutional dimensions are separated. This result supports a complementary interpretation: regulatory capability reduces the friction of operating, while trade integration expands the economic usefulness of the location. Neither variable alone identifies investment quality. High inflows can concentrate in extractive projects or special-purpose entities, and low inflows can coexist with productive domestic investment. Policy should therefore evaluate sector, employment, technology transfer and tax outcomes alongside the aggregate FDI ratio.

5.3 Legal and economic policy implications

First, governments should diagnose institutional dimensions separately. A single governance ranking cannot reveal whether the binding problem is judicial independence, contract enforcement, licensing, regulatory overlap, customs administration, competition policy or implementation capacity.

Second, regulatory reform should emphasize predictability and execution, not deregulation as an end in itself. Stable timelines, published criteria, reasoned administrative decisions, interoperable digital procedures, appeal mechanisms and coordinated agencies can lower uncertainty without weakening labour, environmental, consumer or competition safeguards.

Third, rule-of-law reform should never be judged only by contemporaneous FDI. Courts, property rights, policing and impartial administration support citizens, domestic firms, finance and long-run development. The conditional negative coefficient in this paper is an empirical warning about composition and omitted factors, not a welfare ranking or causal treatment effect.

Fourth, investment-promotion agencies should pair facilitation with measurement. Approval time, regulatory variance, dispute resolution, reinvested earnings, greenfield employment, local procurement, export intensity and technology transfer provide a richer performance dashboard than headline inflows.

Finally, future evaluation should exploit specific reforms and legal discontinuities. Staggered licensing reforms, judicial case-management changes, treaty revisions and digitized customs procedures can support event-

study or difference-in-differences designs. Bilateral and sectoral FDI data would allow institutional mechanisms to be matched to the transactions they are expected to govern.

5.4 Limitations and future research

The analysis is observational. Country and year effects, lagging and within-between decomposition clarify identifying variation but do not solve endogeneity. FDI can influence institutional reform, and both may respond to treaties, political coalitions, commodity cycles or crises. Coefficients are conditional associations rather than causal effects.

WGI measures are perception-based aggregates with margins of error. The analysis does not propagate those margins into regression uncertainty, and annual changes may reflect source composition as well as institutional change. Future work should triangulate WGI with objective measures of court performance, regulatory procedures, enforcement and firm experience.

Aggregate FDI/GDP is volatile and does not distinguish greenfield investment, mergers and acquisitions, reinvested earnings, special-purpose entities, round-tripping or disinvestment. Sectoral motives also differ: property-rights institutions may matter more in manufacturing and services than in primary-resource projects. Bilateral, sectoral and project-level data are required to test those channels.

The current income classification offers a transparent contemporary sample but creates reclassification and survivorship concerns. The complete-case rule can also select countries with stronger statistical systems. Historical classifications, multiple imputation and explicitly balanced panels would be useful extensions.

The joint coefficients should not be interpreted as independent institutional treatments. Rule of law and regulatory quality remain correlated and may interact with corruption control, government effectiveness, political stability, taxation, exchange-rate regimes, investment treaties and regional agreements. The negative conditional rule-of-law coefficient is less stable than the regulatory coefficient and may be a suppressor pattern. Replication with alternative institutional datasets and penalized or Bayesian multilevel models is warranted.

6. Conclusion

This paper asks a simple question with an important measurement consequence: do better institutions attract FDI, or do particular institutions matter in different ways? Evidence from 1,408 observations across 87 middle-income economies shows that a broad rule-of-law and regulatory-quality index has no independent association with FDI after macroeconomic conditions and year effects are controlled. Once the dimensions are entered jointly, persistent regulatory quality is positively associated with FDI, whereas the conditional rule-of-law coefficient is negative and less stable. Trade openness remains a strong positive correlate.

The result is not a case against rule of law. It is a case against collapsing legal security and regulatory capability into a single policy score and then interpreting the average as a causal lever. Middle-income economies seeking durable investment should build predictable, transparent and implementable regulation while strengthening courts, rights and accountability for their broader social value. Research should evaluate those reforms with sectoral and quasi-experimental designs rather than infer immediate causal returns from aggregate country scores.

References

- Acemoglu, D. and Johnson, S. (2005), 'Unbundling institutions', *Journal of Political Economy*, Vol. 113 No. 5, pp. 949–995. <https://doi.org/10.1086/432166>
- Ali, F.A., Fiess, N. and MacDonald, R. (2010), 'Do institutions matter for foreign direct investment?', *Open Economies Review*, Vol. 21 No. 2, pp. 201–219. <https://doi.org/10.1007/s11079-010-9170-4>
- Asiedu, E. (2006), 'Foreign direct investment in Africa: the role of natural resources, market size, government policy, institutions and political instability', *The World Economy*, Vol. 29 No. 1, pp. 63–77. <https://doi.org/10.1111/j.1467-9701.2006.00758.x>
- Bailey, N. (2018), 'Exploring the relationship between institutional factors and FDI attractiveness: a meta-analytic review', *International Business Review*, Vol. 27 No. 1, pp. 139–148. <https://doi.org/10.1016/j.ibusrev.2017.05.012>
- Bell, A. and Jones, K. (2015), 'Explaining fixed effects: random effects modeling of time-series cross-sectional and panel data', *Political Science Research and Methods*, Vol. 3 No. 1, pp. 133–153. <https://doi.org/10.1017/psrm.2014.7>
- Bénassy-Quéré, A., Coupet, M. and Mayer, T. (2007), 'Institutional determinants of foreign direct investment', *The World Economy*, Vol. 30 No. 5, pp. 764–782. <https://doi.org/10.1111/j.1467-9701.2007.01022.x>
- Blonigen, B.A. (2005), 'A review of the empirical literature on FDI determinants', *Atlantic Economic Journal*, Vol. 33 No. 4, pp. 383–403. <https://doi.org/10.1007/s11293-005-2868-9>
- Buchanan, B.G., Le, Q.V. and Rishi, M. (2012), 'Foreign direct investment and institutional quality: some empirical evidence', *International Review of Financial Analysis*, Vol. 21, pp. 81–89. <https://doi.org/10.1016/j.irfa.2011.10.001>
- Busse, M. and Hefeker, C. (2007), 'Political risk, institutions and foreign direct investment', *European Journal of Political Economy*, Vol. 23 No. 2, pp. 397–415. <https://doi.org/10.1016/j.ejpoleco.2006.02.003>

- Daude, C. and Stein, E. (2007), 'The quality of institutions and foreign direct investment', *Economics & Politics*, Vol. 19 No. 3, pp. 317–344. <https://doi.org/10.1111/j.1468-0343.2007.00318.x>
- Dunning, J.H. (1988), 'The eclectic paradigm of international production: a restatement and some possible extensions', *Journal of International Business Studies*, Vol. 19 No. 1, pp. 1–31. <https://doi.org/10.1057/palgrave.jibs.8490372>
- Globerman, S. and Shapiro, D. (2002), 'Global foreign direct investment flows: the role of governance infrastructure', *World Development*, Vol. 30 No. 11, pp. 1899–1919. [https://doi.org/10.1016/S0305-750X\(02\)00110-9](https://doi.org/10.1016/S0305-750X(02)00110-9)
- Henisz, W.J. (2000), 'The institutional environment for multinational investment', *Journal of Law, Economics, and Organization*, Vol. 16 No. 2, pp. 334–364. <https://doi.org/10.1093/jleo/16.2.334>
- Kaufmann, D. and Kraay, A. (2024), *The Worldwide Governance Indicators: Methodology and 2024 Update*, Policy Research Working Paper 10952, World Bank, Washington, DC. <https://doi.org/10.1596/1813-9450-10952>
- Kaufmann, D., Kraay, A. and Mastruzzi, M. (2011), 'The Worldwide Governance Indicators: methodology and analytical issues', *Hague Journal on the Rule of Law*, Vol. 3 No. 2, pp. 220–246. <https://doi.org/10.1017/S1876404511200046>
- Kurul, Z. and Yalta, A.Y. (2017), 'Relationship between institutional factors and FDI flows in developing countries: new evidence from dynamic panel estimation', *Economies*, Vol. 5 No. 2, Article 17. <https://doi.org/10.3390/economies5020017>
- La Porta, R., Lopez-de-Silanes, F., Shleifer, A. and Vishny, R.W. (1998), 'Law and finance', *Journal of Political Economy*, Vol. 106 No. 6, pp. 1113–1155. <https://doi.org/10.1086/250042>
- Mundlak, Y. (1978), 'On the pooling of time series and cross section data', *Econometrica*, Vol. 46 No. 1, pp. 69–85. <https://doi.org/10.2307/1913646>
- North, D.C. (1990), *Institutions, Institutional Change and Economic Performance*, Cambridge University Press, Cambridge. <https://doi.org/10.1017/CBO9780511808678>
- Peres, M., Ameer, W. and Xu, H. (2018), 'The impact of institutional quality on foreign direct investment inflows: evidence for developed and developing countries', *Economic Research-Ekonomska Istraživanja*, Vol. 31 No. 1, pp. 626–644. <https://doi.org/10.1080/1331677X.2018.1438906>
- Sabir, S., Rafique, A. and Abbas, K. (2019), 'Institutions and FDI: evidence from developed and developing countries', *Financial Innovation*, Vol. 5, Article 8. <https://doi.org/10.1186/s40854-019-0123-7>
- Saha, S., Sadekin, M.N. and Saha, S.K. (2022), 'Effects of institutional quality on foreign direct investment inflow in lower-middle income countries', *Heliyon*, Vol. 8 No. 10, e10828. <https://doi.org/10.1016/j.heliyon.2022.e10828>
- Tag, M.N. (2021), 'Judicial institutions of property rights protection and foreign direct investment inflows', *International Review of Law and Economics*, Vol. 65, 105975. <https://doi.org/10.1016/j.irle.2020.105975>
- Wei, S.-J. (2000), 'How taxing is corruption on international investors?', *Review of Economics and Statistics*, Vol. 82 No. 1, pp. 1–11. <https://doi.org/10.1162/003465300558533>
- Wheeler, D. and Mody, A. (1992), 'International investment location decisions: the case of U.S. firms', *Journal of International Economics*, Vol. 33 Nos 1–2, pp. 57–76. [https://doi.org/10.1016/0022-1996\(92\)90050-T](https://doi.org/10.1016/0022-1996(92)90050-T)
- Wooldridge, J.M. (2010), *Econometric Analysis of Cross Section and Panel Data*, 2nd ed., MIT Press, Cambridge, MA.
- World Bank (2026a), *World Development Indicators database*, World Bank, Washington, DC, available at: <https://databank.worldbank.org/source/world-development-indicators> (accessed 3 September 2026).
- World Bank (2026b), *Worldwide Governance Indicators database*, World Bank, Washington, DC, available at: <https://www.worldbank.org/en/publication/worldwide-governance-indicators> (accessed 3 September 2026).

Appendix A. Estimation Sample

The 87 economies in the complete-case estimation sample are listed by World Bank region. Income categories reflect the classification returned by the country metadata at the access date.

East Asia & Pacific: Cambodia, China, Fiji, Indonesia, Kiribati, Lao PDR, Malaysia, Mongolia, Philippines, Samoa, Solomon Islands, Thailand, Tonga, Vanuatu, Viet Nam.

Europe & Central Asia: Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Georgia, Kazakhstan, Kosovo, Kyrgyz Republic, Moldova, Montenegro, North Macedonia, Serbia, Tajikistan, Türkiye, Ukraine, Uzbekistan.

Latin America & Caribbean: Belize, Bolivia, Brazil, Colombia, Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Mexico, Nicaragua, Paraguay, Peru.

Middle East, North Africa, Afghanistan & Pakistan: Algeria, Djibouti, Egypt, Arab Rep., Iran, Islamic Rep., Iraq, Lebanon, Libya, Morocco, Pakistan, Tunisia, West Bank and Gaza.

South Asia: Bangladesh, Bhutan, India, Maldives, Nepal, Sri Lanka.

Sub-Saharan Africa: Angola, Benin, Botswana, Cabo Verde, Cameroon, Comoros, Congo, Rep., Côte d'Ivoire, Equatorial Guinea, Gabon, Ghana, Guinea, Kenya, Lesotho, Mauritania, Mauritius, Namibia, São Tomé and Príncipe, Senegal, South Africa, Tanzania, Togo, Zambia, Zimbabwe.