

Anera Musliu¹
Leonora Sopaj Hoxha²
Altina Kamberaj³
Elif Hoxhaj⁴

Volume 35(4), 2026

INSTITUTIONAL QUALITY AND FDI IN CENTRAL AND SOUTH EAST EUROPEAN: EVIDENCE FROM PANEL MODELS AND ROBUSTNESS CHECKS⁵

This paper examines the impact of institutional quality and selected macroeconomic factors on foreign direct investment (FDI) inflows in 22 Central and South-Eastern European countries over the period 2007-2023. To account for endogeneity, unobserved heterogeneity, and the dynamic nature of FDI, the analysis employs dynamic panel data estimators, namely the Arellano–Bond difference GMM and the Blundell–Bond system GMM. Institutional quality is proxied by six Worldwide Governance Indicators: Control of Corruption, Government Effectiveness, Political Stability, Regulatory Quality, Rule of Law, and Voice and Accountability. In addition, the model controls for key macroeconomic determinants, including GDP per capita, trade openness, inflation, population size, and mobile subscriptions as a proxy for infrastructure development. The empirical results indicate that institutional quality indicators are generally not statistically significant across model specifications, with the exception of political stability, which consistently exhibits a positive association with FDI inflows. In contrast, macroeconomic variables – particularly population size and trade openness – emerge as robust determinants of FDI, while the lagged dependent variable confirms strong persistence in FDI inflows over time. Inflation is found to be positively associated with FDI in some specifications, suggesting that its effect may reflect short-term macroeconomic conditions rather than long-run stability. Overall, the findings suggest that, in Central and South-Eastern Europe, market size and economic openness play a more prominent role in attracting FDI than improvements in institutional quality. The study also highlights potential measurement limitations and structural rigidities that may obscure the observable impact of

¹ Anera Musliu, Professor Assistant, PhD, Faculty of Economics, University “Ukshin Hoti” Prizren, Prizren, Kosovo, <https://orcid.org/0000-0002-3549-2426>.

² Leonora Sopaj Hoxha (Corresponding Author), Teaching Assistant, PhD, Faculty of Economics, University “Ukshin Hoti” Prizren, Prizren, Kosovo, e-mail: leonora.sopaj@uni-prizren.com, <https://orcid.org/0000-0002-5329-6568>, Corresponding Author.

³ Altina Kamberaj, Teaching Assistant, PhD, Faculty of Economics, University “Ukshin Hoti” Prizren, Prizren, Kosovo, <https://orcid.org/0000-0002-0979-9651>.

⁴ Elif Hoxhaj, Student, Master Studies in Business Administration Program, Faculty of Economics, University “Ukshin Hoti” Prizren, Prizren, Kosovo.

⁵ This paper should be cited as: Musliu, A., Hoxha, L. S., Kamberaj, A., Hoxhaj, E. (2026). Institutional Quality and FDI in Central and South East European: Evidence from Panel Models and Robustness Checks. – *Economic Studies (Ikonomicheski Izsledvania)*, 35(4), pp. 41-57.

institutions on FDI, contributing to the ongoing debate on the relative importance of institutional reforms versus macroeconomic fundamentals in transition economies.

Keywords: Institutional Quality; Foreign Direct Investment (FDI); Dynamic Panel Data; GMM Estimation; CSEE Economies

JEL: F21; O43; C33; P33

1. Introduction

Since the 1990s, with the liberalisation of capital markets, both developed and developing economies have placed increasing emphasis on increasing the level of foreign direct investment (FDI) (Kurul, 2017). FDI is widely recognised as a driver of economic development, facilitating the transfer of technology, research and development (R&D) capabilities, and managerial know-how (Phi et al., 2024). By stimulating job creation, enhancing competition, and encouraging domestic firms to adopt more efficient production methods, FDI can reduce unemployment and improve productivity (Nayyra et al., 2014).

In pursuit of higher FDI inflows, governments have implemented various incentive measures, such as reducing tax rates, easing capital movement restrictions, providing subsidies, and improving infrastructure – critical for attracting foreign investors (Bhujabal et al., 2024). Conversely, high transaction costs, political instability, and inconsistent policies tend to deter investment. In 2023, developing economies accounted for 40% of global FDI inflows – amounting to USD 867 billion – though this represented a decline from previous years, raising concerns over the long-term sustainability of such inflows (UNCTAD, 2025).

Among the factors influencing the sustainability of FDI inflows, institutional quality has attracted particular scholarly attention. A country's institutional environment shapes investor perceptions of risk and return; few multinational enterprises commit significant resources without first evaluating the host country's governance framework (OECD, 2012). Following Kaufmann et al. (1999), institutional quality is typically proxied by six indicators: Control of Corruption (CC), Government Effectiveness (GE), Political Stability and Absence of Violence/Terrorism (PS), Regulatory Quality (RQ), Rule of Law (RL), and Voice and Accountability (VA). Alongside these institutional factors, also some macroeconomic variables, such as GDP per capita, population size, trade openness, inflation, and mobile subscriptions per 100 inhabitants, are also considered as key determinants of FDI.

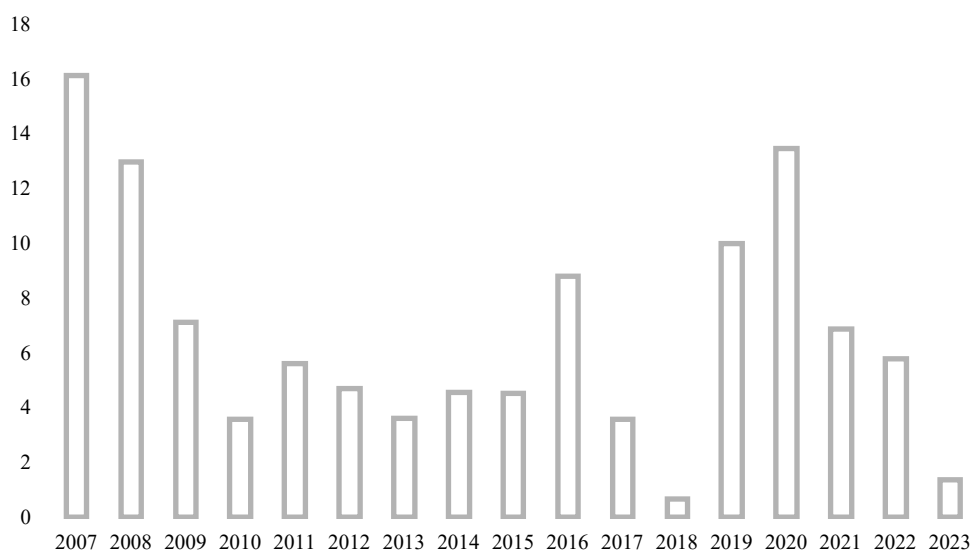
This paper tried to explain the effects of institutional quality and macroeconomic variables on FDI inflows for the case of 22 countries located in Central and South Eastern Europe (CSEE) over the period 2007–2023, by employing two dynamic panel estimators (Arellano-Bond and System GMM). The dynamic estimators are used in order to address potential endogeneity and persistence in FDI flows. The focus on CSEE countries is motivated by three factors:

1. Underexplored region – Limited empirical research has specifically analysed the institutional–FDI link in this region.
2. Economic transition and EU integration – Many CSEEC economies are either EU members or candidates, undergoing significant institutional and structural reforms.

3. Policy relevance – Identifying the most influential determinants of FDI can guide policy strategies to enhance competitiveness and growth.

Despite global FDI declines in recent years – due to factors such as the war in Ukraine, U.S.–China tensions, higher interest rates, and financial market instability, the CSEE countries have experienced notable resilience, with average FDI inflows reaching 13.45% of GDP in 2020 as presented in Figure 1 (World Bank, World Development Indicators, 2025).

Figure 1: Average FDI inflow as % of GDP



Source: World Bank, World Development Indicators, 2025.

The sharp decline and volatility in FDI inflows observed during 2020–2021 coincide with the COVID-19 pandemic, which disrupted global value chains, delayed investment projects, and increased uncertainty. Although the dynamic specification controls for time persistence and common shocks, the pandemic period represents an exogenous global shock that temporarily weakened the role of structural determinants, including institutional quality.

So, this study contributes to the literature in three ways. First, it provides a focused analysis of Central and South-Eastern European economies, a region characterised by institutional transition and heterogeneous integration into the European Union. Second, by relying on dynamic panel estimators, the paper explicitly accounts for the persistence of FDI inflows, an aspect often overlooked in static frameworks. Third, the findings show that once persistence and endogeneity are controlled for, institutional quality indicators lose statistical significance, suggesting that market size and openness dominate institutional effects in the medium run.

2. Literature Review

The importance of institutions has been mentioned since the work of North (1990). In his work, institutions are described as man-made constraints that encompass structural, economic, political and social aspects. According to him, institutions consist of formal and informal rules that govern the interactions of actors and economic agents with the aim of maximising profits. Nowadays, countries are interested in having good institutions as it means reduced transaction, production and manufacturing costs, which directly then increases profitability and lowers the overall cost of doing business. Conversely, weak institutions lead to higher monitoring costs and a slowdown in economic activity, as poorly protected property rights and difficult contract enforcement create a risky environment that discourages international investors.

In general, countries with stronger institutions are expected to attract a higher level of FDI as they offer better returns. Lucas (1993) emphasises that institutional indicators are particularly important for attracting FDI in emerging markets. Dunning (1998) also emphasises that foreign investors seek locations with optimal economic and institutional conditions and make their investment decisions dependent on the quality of institutions and other macroeconomic factors.

The link between institutional quality and economic performance has been widely explored in the academic literature. According to North and Thomas (1973), institutional quality – along with factors such as capital accumulation, technological innovation, and income per capita – is a key determinant of economic growth and overall development. The seminal example by Acemoglu et al. (2006) illustrates that despite sharing a common history and cultural roots, North and South Korea exhibit stark differences in economic performance largely due to differences in institutional quality.

Earlier studies primarily examined the influence of institutions on economic growth (North, 1990; King and Levine, 1993; Knack and Keefer, 1995; Mauro, 1995; Acemoglu and Verdier, 1998; Ali et al., 2010). However, it is only in more recent decades that researchers have increasingly focused on the specific impact of institutional quality on foreign direct investment (FDI). The empirical findings remain mixed, with studies reporting positive, negative, or insignificant effects of institutional quality on FDI inflows.

Several studies find a positive and significant relationship between institutional quality and FDI inflows.

Sabir et al. (2019) reported that institutional quality positively affects FDI in all country groups, with a stronger effect observed in developed economies. Peres et al. (2018) similarly concluded that institutional quality boosts FDI in developed countries, but found no such effect in developing economies, where weaker institutional structures may limit investor confidence. Chen and Jiang (2021) also confirmed that better institutional frameworks have a stronger effect within economically integrated regions.

Lucke and Eichler (2015) found a positive institutional effect for developing countries, noting that in certain cases, foreign investors in developed countries may still invest in more corrupt or unstable destinations if other strategic benefits exist. Bhujabal et al. (2024) suggested that

most of the institutional quality indicators significantly enhance FDI inflows in South Asian and Southeast Asian economies.

Conversely, some studies suggest that certain institutional improvements may deter FDI. IN the studies of Bénassy-Quéré et al. (2007) and Buchanan et al. (2012), it is suggested that stronger institutions, particularly in areas like property rights enforcement, control of corruption, and government effectiveness, can be associated with lower FDI inflows. One explanation is that multinational enterprises may prefer environments where regulatory enforcement is weaker, enabling them to operate with greater flexibility or lower compliance costs.

Other research finds no significant relationship between institutional quality and FDI such as in the study of Asongu et al. (2018) which was conducted for the case of BRICS (Brazil, Russia, India, China, South Africa) and MINT (Mexico, Indonesia, Nigeria, Turkey) countries and was suggested statistically insignificant effect of institutional indicators for the attraction of FDI. Jurcic et al. (2020) similarly found no significant effect for Croatia. These results suggest that in some contexts, other factors, such as market size, cost advantages, or geographic proximity, may play a more decisive role than institutional quality.

However, what is common across the literature is the six main indicators as developed by Kaufmann et al. (1999), which are widely used as proxies for institutional quality. More specifically, these indicators try to measure and assess:

- CC measures the perception of corruption and the protection of foreign investors from illegal payments.
- GE assesses the quality of bureaucracy and public service, which influence foreign investment by limiting the discretionary powers of the authorities.
- PS indicate the ability of the government to remain in power and create a stable environment that encourages FDI.
- RQ assesses the impact of excessive regulations and anti-market policies that influence FDI by reducing government intervention.
- RL examines the effectiveness of the judicial system and the enforceability of contracts that promote FDI by minimising uncertainty in business.
- VA reflect the ability of citizens to influence government action, which encourages FDI by promoting political reliability and participation.

These indicators are intended to capture three broad institutional dimensions: political stability, administrative quality, and democratic accountability. While some studies, such as Peres et al. (2018), focus on a subset (e.g., corruption and rule of law), others, such as Bhujabal et al. (2024) and Saha et al. (2022), include all six, with mixed findings on which are most influential for FDI. For example, Saha et al. (2022) reported that only control of corruption and regulatory quality had a significant positive effect on FDI, whereas Abdella et al. (2018) found corruption to be insignificant but trade openness and political stability to be significant for BRIC countries.

In addition to institutional quality, macroeconomic variables are frequently examined as control variables in the FDI literature. These include GDP per capita (proxy for income level), population (proxy for market size), trade openness, inflation rate, and infrastructure indicators such as mobile subscriptions per 100 people.

Asongu et al. (2018) found that market size, infrastructure availability, and trade openness positively influence FDI inflows, while natural resource availability had no significant effect. Such variables are included alongside institutional quality indicators in the present study to capture the broader economic environment influencing FDI decisions.

Despite the extensive literature, studies focusing specifically on CSEEC remain limited. This region presents a unique setting due to its economic transitions, EU integration processes, and diverse institutional trajectories. The mixed empirical evidence from other regions underscores the need for targeted analysis to understand whether institutional quality plays a decisive role in attracting FDI for the case of CSEE countries, or whether market size and openness dominate investor decision-making.

3. Methodology and Data

Institutions, described by North (1990) as “man-made constraints” that structure political, economic, and social interactions, influence transaction costs, investment risks, and business efficiency. Strong institutions reduce uncertainty, protect property rights, and enforce contracts, creating a favourable investment climate (Lucas, 1993; Dunning, 1998). Conversely, weak institutions increase monitoring costs, hinder contract enforcement, and discourage foreign investors.

Following Dunning’s eclectic paradigm and North’s institutional theory, we model FDI inflows as a function of institutional quality, market size, and macroeconomic conditions:

$$FDI_{it} = \alpha + \rho FDI_{i,t-1} + \beta_1 INST_{it} + \beta_2 X_{it} + u_{it} \quad (1)$$

where:

FDI_{it} represents the ratio of FDI inflows as % to GDP of country i at time t ;

FDI_{t-1} is the first lag of the dependent variable

$INST_{it}$ represent the vector of institutional indicators of the host country i at time t ;

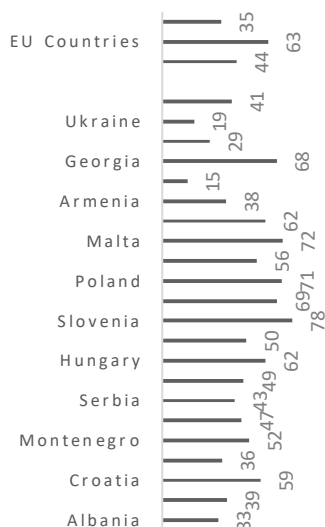
X_{it} represent the vector of macroeconomic variables (control variables) of the host country i at time t

As proxies for institutional quality are used, indicators as are developed by Kaufmann et al. (1999). These indicators are reported as percentile ranks, ranging from 0 to 100, where higher values indicate better institutional performance relative to other countries. A percentile rank of, for example, 60 implies that a country performs better than 60 per cent of the countries included in the WGI sample, rather than representing a percentage measure of institutional quality.

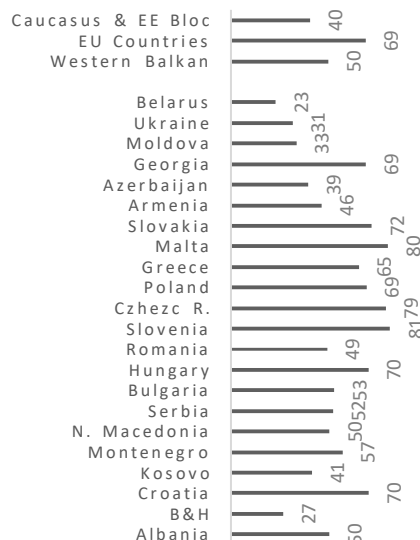
Figure 2 tries to present the average institutional indicators for each of the countries considered in this study for the period 2007-2023.

Figure 2: Average institutional quality indicators for the period 2007-2023

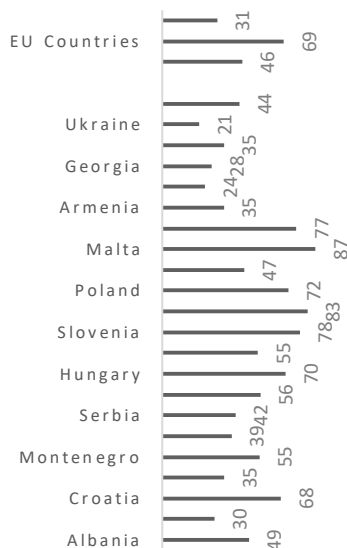
Average Control of Corruption 2007-2023



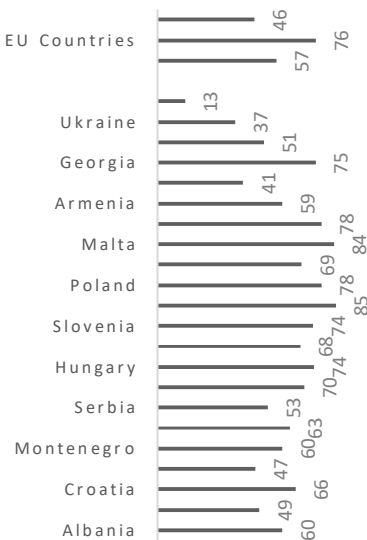
Average Government effectiveness 2007-2023

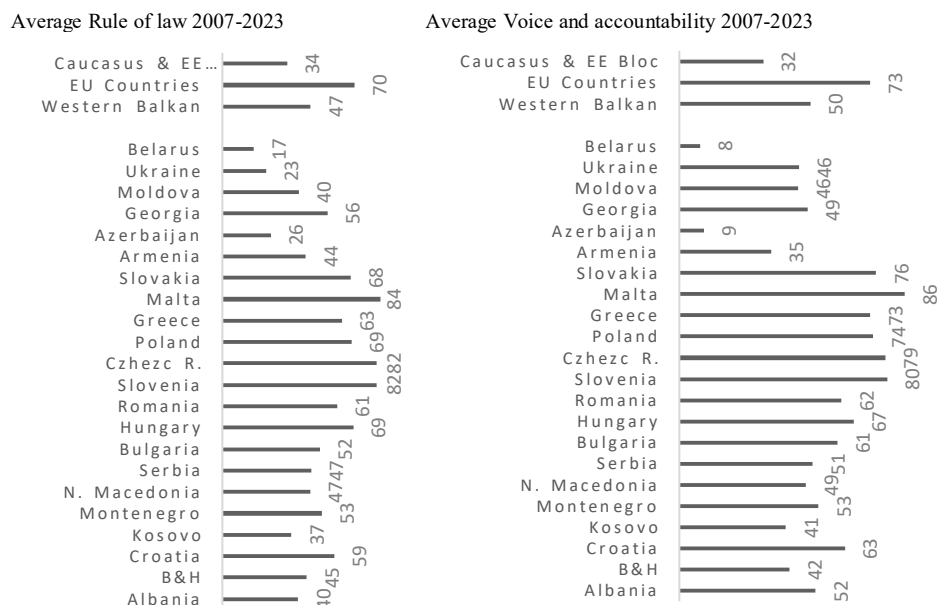


Average Political stability 2007-2023



Average Regulatory quality 2007-2023





Source: World Bank, WGI, 2025.

Note: The percentile rank represents a country's position relative to all countries included in the aggregate indicator, where 0 corresponds to the lowest rank and 100 to the highest. These percentile ranks have been adjusted to account for changes over time in the number and composition of countries covered by the Worldwide Governance Indicators (WGI, World Bank, 2025).

In addition to institutional quality indicators, in this study, are also considered a number of macroeconomic variables, also referred to as economic variables such as: GDP per capita, population, trade openness, inflation rates, and mobile subscription per 100 people.

In many studies, GDP (Gross Domestic Product) has been used as a factor for determining a country's economic performance, but also as a proxy for market size. However, in this study, the **GDP per capita** (loggdp_pc) will be used as a proxy for the income level and the economic development of a country. This variable (in its logarithmic form) is used in the study of: Hayakawa et al., 2013; Kurul and Yalta, 2017; Neumayer and Spess, 2005; Bénassy-Quéré et al. (2007). GDP per capita is expected to have a positive effect, as the higher the GDP per capita is, the more income is available to people for buying goods and services and is expected to increase the level of FDI inflows (Sabir et.al., 2019)

The variable of **population**, as a proxy for market size, is also considered in this analysis because it is an indicator of the labour force. A higher number of people living in a country means there is a higher number of people in the labour force, meaning more production at a lower cost. This variable is expected to attract a higher level of FDI. In line with many other studies, also in this study if going to be used **mobile phone subscription per 100 people** as

proxy for infrastructure (Sabir et al. 2019). It is expected that countries with a higher number of mobile phones subscription to attract a higher level of FDI inflows.

Inflation rates are considered as an additional independent variable in order to gather information about the purchasing power of a country (Valli and Masih, 2014). In addition, the inflation rate is an indicator of the ability of the central bank to control the money supply and also the ability of the government to control the balance of its budget (Schneider and Frey 1985; Buchanan et al., 2012). A higher inflation rate is expected to decrease the level of FDI inflows.

Trade openness is taken as a proxy for the trade situation of a country, more specifically, to evaluate how free or strict a country is. The more liberalised a trade is, it attracts higher level of FDI and vice versa (Zaman et al., 2018). A more restricted trade means higher transition costs as such discourages foreign investments. So it is exited a positive relationship between trade openness and FDI inflows (Kravis and Lipsey, 1982; Culem, 1988; Shah and Khan, 2016).

All these variables, together with the lagged dependent variables, are collected for the period 2007-2023, and all of them are going to be regressed on FDI as % of GDP. FDI inflows as % of GDP are also used in order to control for the scale effects. This independent variable is used in the study of Karul and Yalta (2017).

Table 1. Definition of variables

	Variable Name	Code	Measurement Unit	Source	Expected Sign
Dependent Variable	FDI Inflows as % of GDP (log)	FDI_net %	Foreign direct investment, net inflows (% of GDP)	WDI (World Bank)	Dep. Var
Non-economic variables	CC	CC _{it}	Percentile rank (0-100)	WGI (World Bank)	+
	GE	GE _{ia}	Percentile rank (0-100)	WGI (World Bank)	+
	PS	PS _{it}	Percentile rank (0-100)	WGI (World Bank)	+
	RQ	RQ _{it}	Percentile rank (0-100)	WGI (World Bank)	+
	RL	RL _{it}	Percentile rank (0-100)	WGI (World Bank)	+
	VA	VA _{it}	Percentile rank (0-100)	WGI (World Bank)	+
Economic variables	GDP per capita (log)	GDPpc _{it}	GDP per capita (constant 2015 US\$)	WDI (World Bank)	+
	Inflation	Inf %	Inflation, consumer prices (annual %)	WDI (World Bank)	-
	Trade Openness	Trade	Import + Exports as % of GDP	WDI (World Bank)	+
	Population (log)	Pop	Population, total in heads	WDI (World Bank)	+
	Mobile	Mob100	Mobile cellular subscriptions (per 100 people)	WDI (World Bank)	+

Note: Definition taken from World Bank.

3.1. Data

The sample covers 22 Central and South Eastern European countries for the period 2007–2023. The countries included are: Albania, Bosnia and Herzegovina, Croatia, Kosovo, North Macedonia, Montenegro, Serbia, Bulgaria, Hungary, Romania, Slovenia, Czech Republic,

Poland, Greece, Malta, Slovakia, Armenia, Azerbaijan, Georgia, Moldova, Ukraine and Belarus.

Institutional indicators are sourced from the Worldwide Governance Indicators (WGI), and macroeconomic data from the World Development Indicators (WDI). The panel contains 374 observations.

Average institutional scores vary across countries, with Western Balkan economies generally scoring lower than EU member states. Descriptive statistics, as presented in Table 2, indicate moderate variation in FDI inflows (% GDP), with some outliers in small economies. FDI inflows are measured as net inflows expressed as a percentage of GDP. The high dispersion in FDI values reflects the presence of large, one-off investment episodes typical of small transition economies.

Table 2. Descriptive statistics of the variables

VARIABLE	OBS.	MEAN	STD. DEV.	MIN	MAX
FDI NET (% OF GDP)	374	12.38	46.93	-40.26	452.2
CC	374	49.50	17.93	6.66	81.07
GE	374	54.92	18.29	8.13	86.89
PS	373	51.47	21.66	5.23	95.19
RQ	374	61.45	17.47	6.80	91.39
RL	374	52.90	18.75	11.32	92.34
VA	374	54.70	20.70	3.92	90.86
GDP_PC	373	9 717.80	6927.41	1 874.66	33 000.59
POP (MILL)	374	9.06	11.20	0.41	47.01
TRADE (%GDP)	373	110.87	37.88	46.38	256.89
INF	374	4.83	6.45	-2.41	59.22
MOB_100	338	115.62	23.7	32.3	205.04

Source: Author's own calculation with the data from the World Development Indicators database.

On the other hand, the correlation matrix shows high intercorrelation among institutional indicators, suggesting possible multicollinearity, which is addressed in the estimation strategy. As suggested in Table 3, there are strong and positive correlations among the institutional quality indicators, especially between Government Effectiveness (GE), Rule of Law (RL), and Control of Corruption (CC). It is suggested that these institutional dimensions tend to improve together.

On the other hand, GDP per capita (GDPpc) is also positively associated with institutional quality, suggesting that more developed economies generally exhibit stronger institutions. FDI inflows display moderate positive correlations with GDPpc, trade openness, and several institutional measures, while inflation is negatively related to most institutional indicators and GDPpc. These patterns underline potential multicollinearity concerns, which are addressed in the empirical analysis.

Empirical studies that investigate the relationship between institutional quality and FDI inflows employ a variety of econometric techniques to address issues of heterogeneity, endogeneity, and potential reverse causality. Given the dynamic nature of FDI and its tendency to exhibit strong persistence over time, dynamic panel data models have become the preferred empirical framework in this strand of the literature. In particular, the

Generalised Method of Moments (GMM) estimator is widely used to obtain consistent estimates in the presence of endogeneity, autocorrelation, heteroscedasticity, and omitted variable bias (Sabir et al., 2019).

Table 3. Matrix of correlations

V	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1) FDI _{net} %	1.00										
(2) CC	0.25	1.00									
(3) GE	0.25	0.82	1.00								
(4) PS	0.31	0.67	0.71	1.00							
(5) RQ	0.25	0.74	0.86	0.64	1.00						
(6) RL	0.28	0.86	0.87	0.77	0.89	1.00					
(7) VA	0.29	0.76	0.78	0.70	0.84	0.89	1.00				
(8) GDP _{pc}	0.44	0.70	0.74	0.74	0.62	0.81	0.73	1.00			
(9) pop	0.26	-0.13	-0.13	-0.08	-0.11	-0.14	0.05	-0.07	1.00		
(10) trade	0.34	0.47	0.44	0.58	0.36	0.49	0.42	0.61	-0.19	1.00	
(11) inf	-0.02	-0.26	-0.36	-0.23	-0.42	-0.38	-0.33	-0.2	0.23	0.05	1.00

Source: Author's own calculation with the data from the World Development Indicators database.

Accordingly, this study primarily relies on dynamic panel estimators to assess the impact of institutional quality and macroeconomic factors on FDI inflows. Specifically, the Arellano–Bond difference GMM and the Blundell–Bond system GMM estimators are employed to account for unobserved country-specific effects, address endogeneity arising from reverse causality, and capture the persistence of FDI through the inclusion of a lagged dependent variable.

The dynamic models use robust standard errors, limit instrument proliferation, and validate instruments using Hansen J and Difference-in-Hansen tests. AR (1) and AR (2) Arellano–Bond tests assess serial correlation in residuals.

4. Empirical Results

This study employs dynamic panel data econometric techniques on a balanced panel of 22 Central and South-Eastern European countries to examine the impact of institutional quality indicators and selected macroeconomic factors on foreign direct investment (FDI) inflows, measured as a percentage of GDP, over the period 2007–2023. Table 4 reports the estimation results obtained from the Arellano–Bond difference GMM and the Blundell–Bond system GMM models.

The empirical results indicate that, among the institutional quality indicators considered, political stability is the only variable that exhibits a positive and statistically significant effect on FDI inflows across both dynamic specifications. This finding underscores the critical role of political stability in shaping foreign investors' confidence and reducing uncertainty in the region.

The remaining institutional indicators are statistically insignificant in both models, with the exception of government effectiveness, which displays a negative and significant coefficient in the Arellano–Bond specification. This counterintuitive result should be interpreted with

caution, as it may reflect transitional dynamics, measurement issues, or multicollinearity among governance indicators rather than a genuinely adverse effect of effective governance on FDI.

Table 4. Regression Results

Variables	Arellano-Bond	System GMM
CC	0.0294*	-0.0019
GE	-0.0416**	-0.007
PS	0.0132**	0.0022**
RQ	-0.00944	-0.02
RL	-0.0240	-0.006
VA	-0.0201	-0.00566
loggdp_pc	-0.554	-0.03*
logpop	1.846	-0.206***
trade	0.0202***	0.006***
inf	0.0138	0.0156
mob100	-0.0116*	0.0036
L.logfdi_netinf	0.0618	0.368***
_cons	-19.96	2.91*
N	266	294

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Macroeconomic variables appear to play a more prominent role in explaining FDI inflows than institutional indicators. The population variable, used as a proxy for market size and labour supply, exhibits a mixed effect across model specifications. While population is statistically significant in some estimations, its coefficient is negative in the dynamic GMM models, which contrasts with the expected positive sign reported in Table 1. This finding suggests that, in the context of Central and South-Eastern Europe, a larger population does not necessarily translate into higher FDI inflows. In transition economies, population size may be associated with lower average income levels, labour market rigidities, or market saturation effects, which can dampen FDI inflows when measured as a share of GDP. This result is consistent with the notion that foreign investors in the region tend to prioritise productivity, purchasing power, and openness rather than market size alone.

Regarding inflation, both the Arellano–Bond and System GMM models yield positive but statistically insignificant coefficients (0.0138 and 0.0156, respectively). This outcome does not imply that inflation stimulates FDI; rather, it indicates that moderate inflation rates during the sample period did not significantly deter foreign investment once country-specific effects and dynamic adjustments were taken into account. The persistence of a positive, albeit insignificant, coefficient may reflect short-term nominal effects, investment hedging behaviour, or country-specific macroeconomic conditions that partially offset the traditionally negative impact of inflation on FDI.

The variable capturing mobile phone subscriptions per 100 inhabitants (mob100), commonly used as a proxy for technological readiness and digital infrastructure, exhibits heterogeneous effects across model specifications. In the Arellano–Bond model, the coefficient is negative and weakly significant, whereas it becomes statistically insignificant in the System GMM specification. This result suggests that higher mobile penetration does not necessarily attract

additional FDI once endogeneity and dynamic persistence are fully controlled for. One possible explanation is that, within Central and South-Eastern Europe, mobile subscription rates are already relatively high and display limited cross-country variation, reducing their explanatory power. Moreover, mobile penetration may capture basic connectivity rather than advanced digital infrastructure, which is more relevant for efficiency-seeking or technology-intensive foreign investment.

In contrast, trade openness displays a positive and statistically significant effect in both dynamic specifications. This robust result suggests that deeper integration into international trade enhances the attractiveness of host economies for foreign investors, even after controlling for endogeneity and the persistence of FDI inflows. Although the estimated coefficient in the System GMM model is relatively small, indicating a modest economic magnitude, the consistency of the positive effect supports the view that trade openness complements FDI by facilitating access to markets and global value chains. Overall, these findings reinforce the role of trade openness as a key structural determinant of FDI inflows in Central and South-Eastern Europe.

To test the robustness and consistency of the baseline estimations, the study applies the dynamic panel regression techniques using robust standard errors to control for heteroscedasticity and serial correlation. Table 5 presents the results from the two estimation techniques. The dynamic estimators allow the model to address potential endogeneity and the persistence of FDI inflows over time.

Table 5. Robustness Checks: Arellano-Bond and System GMM

Variables	Arellano-Bond	System GMM
CC	0.0294	-0.0072
GE	-0.0416*	0.0088
PS	0.0132*	0.0098**
RQ	-0.00944	0.0058
RL	-0.0240	-0.0045
VA	-0.0201	0.0008
loggdp_pc	-0.554	-0.412
logpop	1.846	-0.277***
trade	0.0202**	0.0042
inf	0.0138	0.01775
mob100	-0.0117	0.0025
L.logfdi_netinf	0.0618	0.279**
_cons	-19.96	7.35
N	266	294

Given the high degree of correlation among the Worldwide Governance Indicators, additional robustness checks were conducted within the dynamic panel framework to assess the potential influence of multicollinearity on the estimated institutional coefficients. Following standard practice in the dynamic panel literature, alternative model specifications were estimated by introducing institutional quality indicators one at a time, while maintaining the same lag structure, instrument set, and diagnostic tests. The results indicate that political stability consistently exhibits a positive and statistically significant effect on FDI inflows across specifications, whereas the statistical significance of the remaining institutional

indicators varies depending on the model specification. This pattern suggests that the baseline insignificance of some institutional variables is likely driven by overlapping explanatory content and multicollinearity among governance indicators, rather than by the absence of an institutional influence on FDI inflows. Overall, political stability emerges as the most robust institutional correlate of FDI inflows, without implying that other dimensions of institutional quality are unimportant.

Overall, the results across the two dynamic specifications indicate that most institutional quality indicators are not statistically robust when included jointly, whereas political stability consistently exhibits a positive and statistically significant association with FDI inflows. This finding supports the view that political certainty represents a key factor shaping foreign investors' confidence in the region. The remaining institutional indicators display sensitivity to model specification, which is consistent with the high degree of multicollinearity among governance measures.

Among the macroeconomic controls, population (as a proxy for market size), trade openness, and inflation display generally positive effects on FDI inflows, with trade openness emerging as the most consistently significant determinant across dynamic estimations. These results underscore the importance of market fundamentals and economic integration in attracting foreign investment. In addition, the lagged dependent variable remains positive and statistically significant in the System GMM model, confirming the strong persistence of FDI inflows over time.

Taken together, these findings confirm the robustness of the main results within the dynamic framework, while suggesting that the influence of institutional quality should be interpreted as conditional and overlapping rather than absent.

Although the estimations are conducted at the panel level, descriptive patterns point to substantial heterogeneity across countries. EU member states and economies with stronger integration into European value chains, tend to exhibit more stable FDI inflows, whereas Western Balkan countries display greater volatility. Such heterogeneity may partially explain the limited statistical significance of institutional indicators in pooled regressions.

5. Conclusions and Policy Implications

The aim of this study was to examine the impact of institutional quality indicators and selected macroeconomic variables on foreign direct investment (FDI) inflows (as a percentage of GDP) in 22 Central and South-Eastern European countries over the period 2007–2023, using dynamic panel data techniques, namely the Arellano–Bond and System Generalised Method of Moments (GMM) estimators.

The empirical results indicate that political stability emerges as the most robust institutional correlate of FDI inflows within the dynamic framework. While other institutional indicators – government effectiveness, regulatory quality, rule of law, control of corruption, and voice and accountability – exhibit varying signs and levels of significance across specifications, their effects appear sensitive to model design and reflect the overlapping nature of governance dimensions. Political stability, political uncertainty, and governance

effectiveness capture related but distinct institutional aspects: stability reflects the likelihood of political unrest or violence, uncertainty relates to unpredictability in policy or leadership, and governance indicators measure administrative and regulatory capacity. Although these dimensions are correlated, diagnostic tests suggest that multicollinearity does not invalidate the dynamic estimations, allowing them to coexist within the empirical framework.

Regarding macroeconomic determinants, trade openness consistently displays a positive and statistically significant effect on FDI inflows across both dynamic estimators, confirming the importance of international economic integration for attracting foreign investment. Population, used as a proxy for market size, exhibits mixed effects across models, suggesting that while larger markets may attract FDI, very large populations may also be associated with structural rigidities or lower productivity that dampen FDI when measured relative to GDP. Inflation shows a positive but largely statistically insignificant association with FDI, indicating that moderate inflation during the sample period did not deter foreign investors once country-specific effects and dynamic adjustments were accounted for. Infrastructure development, proxied by mobile subscriptions, gains importance in the dynamic framework, underscoring the role of digital readiness in supporting sustained FDI inflows.

The lagged dependent variable is positive and statistically significant in the System GMM model, confirming the strong persistence of FDI inflows over time and justifying the use of dynamic estimation techniques. In addition, the analysis captures the volatility in FDI flows associated with the COVID-19 pandemic during 2020–2021. Although the pandemic is not explicitly modeled, its effects are indirectly reflected in the dynamic structure. Future research could extend this analysis by explicitly isolating pandemic-related shocks using structural break tests or time-specific dummy variables.

Policy Implications

1. Enhancing political stability should be a central policy objective for attracting and sustaining FDI. Reducing political uncertainty, ensuring predictable governance, and maintaining regional security are crucial for strengthening investor confidence.
2. Promoting trade openness and deeper integration into global and regional value chains remains essential, as openness consistently emerges as a robust determinant of FDI in dynamic settings.
3. Institutional reforms should be carefully sequenced and complemented by broader structural policies. While improvements in governance and regulatory quality are important in the long run, excessive rigidity or administrative complexity may discourage investors in the short term. Investments in digital infrastructure, macroeconomic stability, and market integration can reinforce the positive effects of institutional and trade reforms.

Overall, this study demonstrates that although institutional quality matters for FDI, not all dimensions of governance exert the same influence. Foreign investors appear to place greater weight on political stability and economic openness, while the effectiveness of governance reforms depends on the broader institutional and macroeconomic environment. The findings

Musliu, A., Hoxha, L. S., Kamberaj, A., Hoxhaj, E. (2026). Institutional Quality and FDI in Central and South East European: Evidence from Panel Models and Robustness Checks.

also highlight the importance of adopting dynamic empirical approaches and accounting for external shocks when analysing FDI dynamics in transition economies.

Contribution of individual authors

Anera Musliu: conceptualization, analysis, and drafting of the manuscript.

Leonora Sopaj Hoxha: methodological supervision, validation, and critical revision of the manuscript

Altina Kamberaj and Elif Hoxhaj, data collection and data input.

Conflict of Interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Declaration of Generative AI and AI-assisted technologies in the writing process

During the preparation of this work, the author(s) used ChatGPT and Grammarly to support idea generation and improve clarity of language. The final content has been critically reviewed, revised, and validated by the author(s), who take full responsibility for the accuracy and integrity of the manuscript.

References

- Abdella, A. B., Neghavi, N., Fah, B. C. (2018). The effect of corruption, trade openness and political stability on foreign direct investment: Empirical evidence from BRIC countries. – *International Journal of Advanced and Applied Sciences*, 5(3), pp. 32-38.
- Acemoglu, D., Johnson, S., Robinson, J. (2006). Institutions as fundamental cause for long-run growth. Cambridge, MA: National Bureau of Economic Research. Available at: <https://www.nber.org/papers/w10481> [Accessed on 03.04.2025].
- Acemoglu, D., Verdier, T. (1998). Property rights, corruption and the allocation of talent: a general equilibrium approach. – *The Economic Journal*, 108 (450), pp. 1381-1403.
- Ali, F.A., Fiess, N., MacDonald, R. (2010). Do institutions matter for foreign direct investment?. – *Open Economies Review*, 21(2), pp. 201-219.
- Asongu, S., Akpan, U. S., Isihak, S. R. (2018). Determinants of foreign direct investment in fast-growing economies: evidence from the BRICS and MINT countries. – *Financial Innovation*, 4(26), pp 1-17.
- Bénassy-Quéré, A., Maylis, C., Thierr, M. (2007). Institutional determinants of foreign direct investment. – *The World Economy*, 30 (5), pp. 764-782.
- Bhujabal, P., Sethi, N., Padhan, P. C. (2024). Effect of institutional quality on FDI inflows in South Asian and Southeast Asian countries. – *Heliyon*, 10 (5), e27060.
- Buchanan, B.G., Le, Q.V., Rishi, M. (2012). Foreign direct investment and institutional quality: some empirical evidence. – *International Review of Financial Analysis*, 21, pp. 81-89.
- Chen, F., Jiang, G. (2021). Investigating the Impact of Institutional Quality on FDI: Are There Promotional Effects in Economic Integration Regions?. – *Sustainability*, 13(20), pp. 11309.
- Culem, C. G. (1988). The locational determinants of direct investments among industrialized countries. – *European Economic Review*, 32 (4), pp. 885-904.
- Dunning, J. H. (1998). Location and the multinational enterprise: a neglected factor?. – *Journal of International Business Studies*, 29(1), pp. 45-66.
- Eurostat. (2025, 3 07). Retrieved from Glossary: Foreign direct investment (FDI): [https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:Foreign_direct_investment_\(FDI\)](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:Foreign_direct_investment_(FDI)) [Accessed on 10.02.2025]
- Jurcic, L., Franc, S., Barisic, A. (2020). Impact of Institutional Quality on Foreign Direct Investment Inflow: Evidence from Croatia. – *Business Systems Research*, 11(1), pp. 44-58.
- Hayakawa, K., Kimura, F., Lee, H. H. (2013). How does country risk matter for foreign direct investment?. – *Development Economics*, 51(1), pp. 60-78.
- Kaufmann, D., Kraay, A., Zaido-Lobaton, P. (1999). Governance Matters'. – World Bank Policy Research Working Paper No. 2196. The World Bank, Washington.
- King, R. G., Levine, R. (1993). Finance and growth: Schumpeter might be right. – *The Quarterly Journal of Economics*, 108(3), pp. 717-737.

- Knack, S., Keefer, P. (1995). Institution and economic performance: cross country tests using alternative institutional measures. – *Economic & Politics*, 7(3), pp. 207-228.
- Kravis, I. B., Lipsey, R. (1982). The location of overseas production and production for exports by U.S. multinational firms. – *Journal of International Economics*, 12 (3-4), pp. 201-223.
- Kurul, Z. (2017). Nonlinear relationship between institutional factors and FDI flows: dynamic panel threshold analysis. – *International Review of Economics & Finance*, 48, pp. 148-160.
- Kurul, Z., Yalta, A. Y. (2017). Relationship between institutional factors and FDI inflows in developing countries: new evidence from dynamic panel estimation. – *Economics*, 5(2), p. 17.
- Lucas, R. E. (1993). On the determinants of direct foreign investment: evidence from east and Southeast Asia. – *World Development*, 21(3), pp. 391-406.
- Lucke, N., Eichler, S. (2015). Foreign direct investment: the role of institutional and cultural determinants. – *Applied Economics*, 48(11), pp. 935-956.
- Mauro, P. (1995). Corruption and growth. – *The Quarterly Journal of Economics*, 110(3), pp. 681-712.
- Nayyira, Z., Fu, Q., Suhail, S. (2014). Foreign direct investment and unemployment reduction in Pakistan. – *Int. J. Eco. Res.*, 5(2), pp. 10-17.
- Neumayer, E., Spess, L. (2005). Do Bilateral Investment Treaties Increase Foreign Direct Investment to Developing Countries?. – *World Development*, 3 (1), pp. 31-49.
- North, D. C. (1990). *Institutions, Institutional Change and Economic Performance*. Cambridge: Cambridge University Press.
- North, D. C., Thomas, R. P. R. (1973). *The rise of the western world: a new economic history*. Cambridge: Cambridge University Press.
- Peres, M., Ameer, W., Xu, H. (2018). The impact of institutional quality on foreign direct investment inflows: evidence for developed and developing countries. – *Economic Research-Ekonomska Istraživanja*, 31(1), pp. 626-644.
- OECD. (2012, December 5-6). *Attracting Foreign Direct Investment for Development*. Paper presented at the Global Forum on International Investment, Shanghai, China, 5-6.12.2012. Retrieved from https://scholar.google.com/scholar_lookup?title=Attracting+Foreign+Direct+Investment+for+Development&conference=Paper+presented+at+the+Global+Forum+on+International+Investment&author=OECD&publication_year=2012 [Accessed on 15.12.2024].
- Phi, V. T., Tran, K. H., Hoang, V. H., Dong, V.-C. (2024). The role of foreign direct investment in technology development in Vietnam. – *Cogent Social Sciences*, 10(1), 2300514.
- Sabir, S., Rafique, A., Abbas, K. (2019). Institutions and FDI: evidence from developed and developing countries. – *Financial Innovation* volume, 5(8).
- Saha, A., Sadekin, N., Saha, S. K. (2022). Effects of institutional quality on foreign direct investment inflow in lower-middle income countries. – *Heliyon*, 8 (10), e10828.
- Schneider, F., Frey, B. S. (1985). Economic and political determinants of foreign direct investment. – *World Development*, 13 (2), pp. 161-175.
- Shah, M.H., Khan, Y. (2016). Trade liberalisation and FDI inflows in emerging economies. – *Bussiness Economic Review*, 8(1), pp. 35-52.
- UNCTAD. (2025, 3 8). *UN Trade and Development*. Retrieved from Data Hub: <https://unctadstat.unctad.org/insights/theme/30> Accessed [20.12.2024]
- Valli, M., Masih, M. (2014). Is there any causality between inflation and FDI in an 'inflation targeting' regime? Evidence from South Africa, MPRA Paper 60246, University Library of Munich, Germany. World Bank (2025) World development indicators, World Bank database, Washington DC
- Zaman, Q., Donghui, Z., Yasin, G., Zaman, Sh., Imran, M. (2018). Trade Openness and FDI Inflows: A Comparative Study of Asian Countries. – *European Online Journal of Natural and Social Sciences*, 7, pp. 386-396.