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# Invisible Markets, Visible Weaknesses

## The Institutional Roots of Informal Economy in Southeast Europe

Esat A. Durguti,<sup>\*</sup> Nexhat Kryeziu,<sup>\*\*</sup>  
Anatolijs Krivins,<sup>\*\*\*</sup> Carolina Suárez Agudelo<sup>\*\*\*\*</sup>

\* Full Professor, Banking, Finance and Accounting, Faculty of Economics, University Isa Boletini, Mitrovica, Kosovo, e-mail: [esat.durguti@umib.net](mailto:esat.durguti@umib.net)

\*\* Assistant Professor, Management, Business and Economics, University for Business and Technology, Prishtina, Kosovo, e-mail: [nexhat.kryeziu@ubt-uni.edu](mailto:nexhat.kryeziu@ubt-uni.edu)

\*\*\* Associate Professor, Department of Law, Management Science and Economics, Daugavpils University, Daugavpils, Latvia, e-mail: [anatolijs.krivins@du.lv](mailto:anatolijs.krivins@du.lv)

\*\*\*\* DBA Candidate, Business Studies, University of East London, London, U.K., e-mail: [u2614673@uel.ac.uk](mailto:u2614673@uel.ac.uk)

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**Abstract:** The informal economy has been a consistent threat to development policy, particularly in Southeastern Europe, where institutional vulnerability and macroeconomic fluctuations are common. This paper examines institutional and macroeconomic factors behind informality across 2012–2024, denoting control of corruption, effectiveness of anti-money laundering, inflation, unemployment, contract enforcement, and economic freedom. Employing panel data from well-regarded international sources, the paper estimates the econometric result using the Arellano–Bover and Blundell–Bond System GMM estimator, which incorporates the endogeneity, unobserved heterogeneity, and the dynamic effects. Results reveal strong path dependence, as lagged informal activity is statistically significant. Corruption control and the enforcement of contracts lead to lesser informality, whereas AML controls, surprisingly, enhance informality; hence, there are gaps in institution implementation. Inflation and unemployment heighten the informal behaviour, whereas economic freedom checks such behaviour. The research gap discussed is the lack of a combination of institutional and macroeconomic approaches to informality in the post-transition economy. The results presented provide practical implications for strengthening and formalising institutions.

**Keywords:** informality, institutional quality, macroeconomic indicators

## 1. Introduction

The informal economy (IE) is a phenomenon that has existed steadily in most developing economies worldwide, and it also exists in Southeastern Europe (SEE), where institutional weaknesses and unequal economic transitions have developed a parallel economic system that operates freely beyond official regulations. The institutional sources of the informal economy are challenging in the context of SEE, which has recently undergone an increase in the speed of digitalisation and fintech growth. As SEE countries continue to face the dual pressures of socio-economic transformation and institutional reforms, the informal economy plays a critical role in shaping individual livelihoods and state capacity (Buitrago et al. 2024; Barra & Papaccio, 2024; Deléchat & Medina, 2021). General interplay of institutional quality and informality has been well-established in existing research works (see e.g. Krivins et al. 2025), but specific channels through which corruption control, policies on anti-money laundering (Durguti et al. 2023), inflation, unemployment, and measures on contract enforcement, and the specific channels through which economic freedom exerts its influence have not yet been fully explored in the SEE region (Alidemaj et al. 2025).

SEE is a good example to investigate these trends because this region is highly informal, politically and economically unstable due to the post-communist transition process, and has fundamental problems that concern corruption and low effectiveness of the judiciary (World Bank, 2025). Saha et al. (2021) demonstrated that the reasons are particularly related to corruption, which discourages reliance on formal institutions and strengthens the use of the informal sector and facilitates shadow financial transactions. Meanwhile, the capability of anti-money laundering (AML) rules to successfully integrate the financial technologies (FinTech) into the formal regulatory circles plays a decisive role in preventing illegal financial flows and promotes transparency as a specific phenomenon of the financial system (Usman et al. 2025). What is more, inflation and unemployment, which remain constant economic issues in the region, are push variables that drive people towards the informal sectors to gain a source of income in cases of fluctuating monetary conditions.

According to Maiti and Bhattacharyya (2020), the main institutional forces that make a difference in shaping a market relationship are contract enforcement and economic freedom. Ineffective contract enforcement minimises predictability and weakens official agreements, hence encouraging ineligible arrangements. Furthermore, the low economic freedom levels resulting from inefficient bureaucratic processes and government restrictions encourage the expansion of informal markets by requiring entrepreneurial activity within legal boundaries. Such relations indicate a complex interplay whereby the inefficiencies in institutions and economic pressures reinforce each other to preserve the existence of a large informal sector in SEE.

SEE is characterised by a unique combination of post-socialist legacies, EU integration pressures, and fragmented state capacities, making it an ideal instance for studying informal economic dynamics. Although some countries like Slovenia and Croatia have already achieved substantial progress to bring their practices in line with those observed in the EU standards, others, such as Albania, Kosovo, Bosnia and Herzegovina,

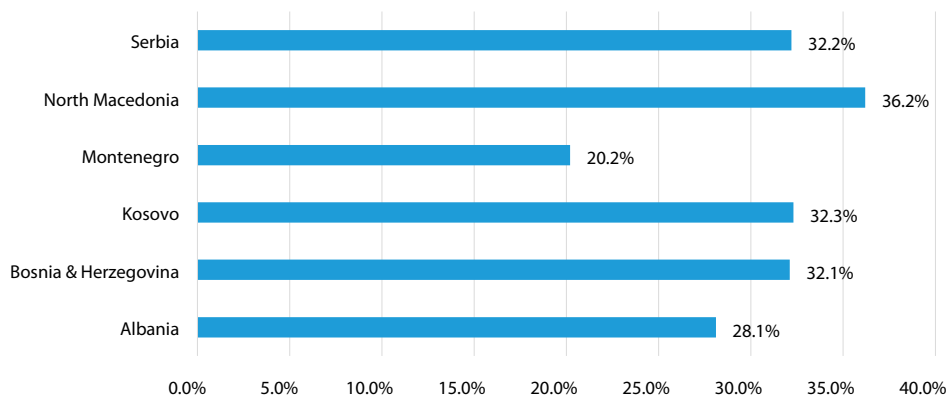


Figure 1

*Informal economy tendencies**Source: World Economics 2025*

Montenegro, North Macedonia, or Serbia, are still struggling with their institutional underdevelopment and the high rate of informality. As such, due to the comparatively lower levels of informality and better institutional structure, Slovenia and Croatia are excluded from the present analysis, and subsequently, we are focusing only on six SEE countries, namely: Albania, Kosovo, Bosnia and Herzegovina, Montenegro, North Macedonia, and Serbia.

This variation gives the possibility to compare countries and find the best practices. Given the heterogeneity across these six SEE countries in terms of institutional quality and macroeconomic performance, a regional perspective is crucial for understanding informal dynamics. Such a variation can serve as a fruitful ground for the comparative empirical analysis and the determination of best practices in the region. The visualisation of the dynamics of the informal economy is represented in Figure 1.

Based on the publication of the World Economic Forum 2025, North Macedonia reached the highest value in terms of the informal economy, at 36.2%, and the lowest value recorded was 20.2% in Montenegro.

This research aims to empirically address the institutional and macroeconomic factors that determine the informal economy in SEE, focusing on the degree of corruption control, anti-money laundering effectiveness, inflation, unemployment, contract enforcement and economic freedom. The dependent variable is the informal economy, which is the informal economic activity covering all activities that are not registered and/or regulated in accordance with the government. By inspecting this interplay via panel data analysis from SEE countries, the research seeks to provide a more nuanced and thoughtful examination of the interplay across institutional quality, economic stability and informality. The research is guided by the following questions:

RQ1: In what way do institutional quality (control of corruption, AML, contract enforcement and economic freedom) influence the prevalence of the informal economy in SEE?

RQ2: What are the effects of inflation and unemployment on the informal economic activities in SEE?

RQ3: How does the interaction between institutional capacity and macroeconomic stability shape the development of informal markets amid digital transformation?

The novelty of the research lies in its integrated, interdisciplinary approach toward bridging macroeconomic and institutional variables in a fintech-enabled environment. Unlike other studies that are closer to treating the informal economy as an opposite construct to formality, this research takes into account the grey areas where formal and informal interactions take place through the emergence of digital platforms and the new financial technologies. It also helps in evaluating the institutional performance in combination with macroeconomic instability, which would not otherwise have been done. Moreover, regional individualities of SEE that are being considered in the analysis include the post-transition institutional background, the socio-political diversity of the region and the international implications of the region as a part of European integration. In this regard, it provides contextual and inclusive knowledge to other areas in the same situation of structural and institutional restrictions. As such, this research makes a contribution to existing arguments in institutional economics, development economics, and many other related areas by offering policy agendas that could be used to achieve better governance and macroeconomic management in order to tackle informality.

## 2. Theoretical background

The informal economy remains a persistent and complex challenge across SEE countries. In the repercussions of socialism, countries in the region have experienced difficult transitions, marked by institutional weaknesses and macroeconomic instability factors that have driven the growth of economic activities

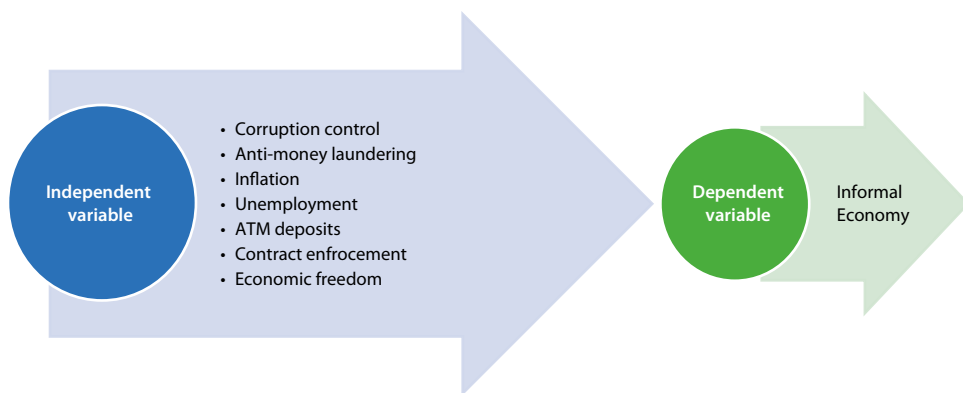


Figure 2  
*Conceptual framework*

Source: Compiled by the authors.

outside formal state regulation. Understanding the primary drivers and dynamics of informality in this politically fragile region is crucial for developing effective policy responses. The coordination of the actions at the regional and international levels plays a major role in enhancing economic formalisation, fostering sustainable development and enhancing institutional flexibility. Instead of literature evaluation, we are sketching out the conceptual framework that drives this research, subsequently aligning it with the research structure.

## 2.1. Institutional quality and informality

Recent studies show that institutional quality in the form of the informal economy is gaining more and more popularity. Asllani and Schneider (2025) state, for instance, that weak governance, complex taxation systems, and corruption are among the most important causes of informality in those six EU economies they analysed. Based on their findings, they claim that institutional confidence and proper enforcement of the law are the two major aspects that can be used to reduce the informal economic activities. Similarly, Littlewood et al. (2018), having the idea of institutional asymmetry introduced for SEE, conclude that a mismatch between official legislature and unofficial norms gives rise to the emergence of such behaviours as those of cash-in-hand payment and tax evasion. They emphasise, therefore, that with a view to reducing informality and to foster compliance with formal economic rules, restoring institutional credibility is a must in such developing economies.

Beyond this, bearing in mind the broader context of regulatory enforcement sustainability, money laundering exerts significant consequences by steering businesses toward tax evasion and informality. In this regard, Khelil et al. (2024) report diverse effects of anti-money laundering (AML) policies, explicitly emphasising that weak enforcement levels increase the firms' propensity to engage in informal activities. Similarly, Andiojaya (2025) presents empirical facts that strong AML practices can significantly lower risks linked to financial offences, which is why the hypothesis that efficient AML practices can discourage crime participants by preventing access to illegal funds is correct.

Additionally, D'Agostino et al. (2023), working with a sample size of 153 economies between 1995 and 2017, explicitly note that there is a negative interplay between economic freedom and informal economy, and especially in case of low-democracy countries, economic freedom has negative effects, but when it comes to highly democratic countries, economic freedom has positive impacts of helping to curb the level of corruption. Similarly, Krivins et al. (2025) explore the nexus of ethics and corruption in the EU and highlight how institutional weaknesses perpetuate informal practices, especially in post-transition economies like those in the Western Balkans. Their research provides evidence on how institutional weaknesses endure informal practices, particularly in post-transition economies, and their results underscore that fragile institutions not only enable informal behaviour, but also discourage efforts toward formalisation and economic transparency.

## 2.2. Mapping macroeconomic instability and informal employment

Macroeconomic instability, particularly inflation and unemployment, has been recognised as a key driver of informal employment. As such, Yao (2024) presents an augmented factor model relating economic downturns to rising informality, exclusively in low-income countries, that identifies these factors as prominent drivers of informal employment. The research underlines how deteriorating economic conditions drive individuals and businesses toward informal practices as a coping mechanism in the absence of stable institutional backing. In a like manner, Maiti and Bhattacharyya (2020) argue that ineffective contract enforcement and low economic freedom encourage informal arrangements. Their findings are particularly relevant for the SEE countries, where bureaucratic inefficiency and government restrictions are commonplace, which underlines that enhancing institutional efficiency and agricultural development are among the solutions to the deterrence of informal activities and the encouragement of formal involvement in the economy.

Finally, the World Bank (2025) notes that inflation and unemployment remain chronic problems in the Western Balkans. Such economic forces usually force people into the informal sector in an attempt to have economic security. The report expresses that without a robust social safety net and policies to include workers in the labour market, informality serves as a survival mechanism for the vulnerable citizens.

## 2.3. Regional perspectives from the Western Balkans and Southern Europe

According to the conclusion of the Altax Institute Report (2025) of the Albanian, Kosovar, and North Macedonian economies, the main factors of informality are corruption, inefficient taxation, and cash-related practices. The level of the challenge is that the informal economy in such countries is estimated to be about 30% to 35% of GDP, which underscores the seriousness of the problem. Additionally, the CREDI (2024) examines economies in the Western Balkans and illustrates how regulatory gaps and low enforcement of contracts allow high levels of informal employment, particularly in temporary work sectors such as food delivery and car-sharing services. The research underscores the necessity for targeted regulatory reforms to address informality in these fast-growing, yet vulnerable sectors of the labour market.

In addition, surveys of informal employment in the economies across the Western Balkan countries highlight how governing gaps and weak enforcement mechanisms contribute to high levels of informality, mainly in temporary work sectors such as food delivery and basic transportation platforms. It demands targeted regulatory reforms, including being in line with the EU directives, to better protect workers and reduce informality in these swiftly growing sectors. Barra and Papaccio (2024) evaluated the levels of institutional quality in SEE and discovered that the increase in the quality of the regulation systems and the governance system has a great impact on reducing informal economic activity. Their analysis gives emphasis on the significance of institutional

capacity and institutional rule of law as a strategic move to reduce informality and to improve formal economic involvement.

### 3. Research methodology

#### 3.1. Study sample

This research aims to observe the interplay between the informal economy and a combination of institutional and macroeconomic indicators, by examining their influence in the context of either fostering or curbing economic informality. In this regard, a panel data analysis has been undertaken on econometrics involving the time between 2012 and 2024. The selection of both the time frame and the countries included in the study was guided by the availability of complete and reliable data, thus limiting the sample to only those countries that presented no data gaps throughout the entire period under analysis. As a result, the research emphasises a balanced panel consisting of six SEE countries, namely, Albania, Kosovo, Bosnia and Herzegovina, Montenegro, North Macedonia, and Serbia. The data have been obtained from internationally recognised and reliable sources, providing a solid foundation for econometric analysis. Precisely, data on the informal economy were obtained from the International Monetary Fund, particularly from the World Economic Outlook report, where informality is represented by the share of the informal economy as a percentage of GDP. The control of corruption was retrieved from the World Bank’s database, using the estimated value, which was then converted into a percentage format for comparative purposes. The effectiveness of AML measures is measured through the Basel AML Index, which operates on a risk scale from 0 (low risk) to 10 (high risk). On the other hand, macroeconomic indicators such as inflation and unemployment were obtained from the World Bank and are expressed as percentages. The final two indicators included in the analysis, contract enforcement and economic freedom, were obtained from the Fraser Institute, following the methodology defined by Gwartney et al. (2023, p. 15). A wide-ranging summary of all indicators, including their definitions, data sources, and abbreviations used, is visually presented in Table 1.

Table 1  
*Description of the variables*

Description		Acronyms	Source
Dependent variable	Informal economy	IE	IMF – World Economic Outlook
Independent variables	Corruption control	CC	World Bank
	Anti-money laundering	AML	Basel AML index
	Inflation	INF	World Bank
	Unemployment	UEMP	World Bank
	Contract enforcement	CE	Fraser Institute
	Economic freedom	EF	Fraser Institute

*Source:* Compiled by the authors.

Inspired by the current body of econometric evidence, the research relies on the works that imply that the informal economy can be viewed as an income safety net for marginalised groups of people. On a larger scale, the studies conducted earlier have brought concrete evidence that the developing countries are more likely to be characterised by the existence of a more extensive informality and thus they are more likely to be characterised by higher levels of income inequality (Aspachs et al. 2022). Similarly, according to the findings of Esaku and Mugoda (2025), inflation and unemployment still lie among the most significant factors that force people into participating in the informal economy. Nevertheless, other institutional indicators also play a critical role in shaping the structural conditions that either incentivise or constrain informality in the economy.

### 3.2. Data analysis approach

According to the objective stipulated above, the purpose of the research is to evaluate how institutional quality and macroeconomic parameters are reflected in the informal economy of the Western Balkan countries, and how they influence it. In the academic field, the effect of the enforceability of institutional and macroeconomic indicators as presented in the informal economy plays a central role in reducing the level of informality (Barra & Papaccio, 2024). Considering that the number of observations is not very large, this has been one of the main reasons for applying the GMM system. In such cases, the location of the first difference of the data and the appropriate use of instruments must be taken into account in order to eliminate endogeneity concerns, which are discussed using the Hansen test. Consequently, based on the panel of countries and the time range during which the research is being undertaken, the research uses the GMM methodology, whose origin can be traced back to Arellano and Bond (1991) and has been amended by Blundell and Bond (1998).

The study's approach is based on the instrumental variables used to distinguish the correlation between institutional quality, macroeconomic indicators, and the informal economy. The GMM approach is preferred because the use of the standard Ordinary Least Squares (OLS) method faces serious issues with endogeneity bias. Moreover, in both fixed and random effects models, the lagged dependent variable correlates with the error term, even when errors are not autocorrelated (Blundell & Bond, 1998). The other motivation behind the use of the dynamic approach relates to the interdependence between the number of periods ( $T$ ) and panel units ( $N$ ), where, in the given study,  $T > N$ , therefore requiring GMM to correct such matters (Phillips, 2022; Alvarez & Arellano, 2003).

Endogeneity problems arising from the interaction between independent variables and the informal economy, as well as autocorrelation, unit-specific heteroskedasticity, and omitted variable bias are addressed through the GMM approach. The overall aim of this method is to mitigate possible endogeneity bias (Blundell & Bond, 1998; Hansen, 1982). The GMM approach provides asymptotically unbiased estimates of  $t$ -statistics without requiring heteroskedasticity assumptions in the regression equation and is efficient for



panels with a short time dimension (Arellano & Bond, 1991). The dynamic panel model is parameterised as follows:

$$\gamma_{it} = \alpha Y_{it-1} + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n + \mu_i + \varepsilon_{it}$$

where  $Y_{it}$  represents the informal economy;  $\beta_1 X_1 - \beta_n X_n$  denote vectors such as CC, AML, INF, UMP, CE and EF;  $\mu_i$  are country fixed effects; and  $\varepsilon_{it}$  is the error term, with  $i$  and  $t$  indicating country and time, respectively. In this study, the specific model includes first differences of variables:

$$\Delta IE_{it} = \alpha \Delta IE_{it-1} + \beta_1 \Delta CC_{it} + \beta_2 \Delta AML_{it} + \beta_3 \Delta INF_{it} + \beta_4 \Delta UEMP_{it} + \beta_5 \Delta CE_{it} + \beta_6 \Delta EF_{it} + \Delta \mu_i + \Delta \varepsilon_{it} \quad (2)$$

The consistency of the GMM approach depends on the validity of lagged explanatory variables as instruments, which is tested using specification tests proposed by Arellano and Bond (1991) and Arellano and Bover (1995). The Hansen test evaluates instrument validity through moment conditions (Baum et al. 2003; Hansen, 1982). Failure to reject the null hypothesis supports the model. The diagnostic test for serial correlation examines whether the error term is serially correlated. In the GMM approach, this test validates, in particular, the second order of the serial correlation test of the residuals (Arellano & Bond, 1991). Such an association signifies weak instruments, and it implies that one should employ higher-order delays as instruments. The GMM approach is an equally well-adopted method in the new literature on financial development (Eng & Lim, 2025).

### 3.3. Research limitations

It should be noted, though, that there exist certain underlying limitations to this research, which is constrained by a relatively small sample size of only 78 observations and the incorporation of multiple variables associated with digitalisation. Nonetheless, these restrictions cannot in any way affect or impede the upward trend of the results presented. In this context, the econometric approach has been modified according to the quantity of observations, addressing uncertainties regarding these constraints.

## 4. Results and discussion

### 4.1. Descriptive statistics

In Table 2, the narrative statistics of the crucial variables employed during the analysis can now be seen, which gives an idea about their distribution and magnitude as compared to each other. The informal economy has a mean of 0.3062 with moderate variation in the measures (standard deviation = 0.0538), which shows that 30% of the

Table 2  
*Descriptive statistics*

Variables	Obs	Mean	SD	Min.	Max.
Informal economy	78	0.3062	0.0538	0.2420	0.4400
Corruption perception	78	3.6554	0.1016	3.4339	3.8286
Anti-money laundering	78	4.7228	1.0467	2.0700	6.3300
Inflation	78	0.0292	0.0361	-0.0158	0.1420
Unemployment	78	0.1811	0.0692	0.0739	0.3526
Contract enforcement	78	3.4048	0.3194	2.8500	4.0600
Economic freedom	78	7.2164	0.3668	6.5600	7.7300

*Source:* Compiled by the authors.

total economy is brought about due to informal actions of agents that do not operate within formal regulatory backgrounds. This reveals organisational failure within governance and enforcement in accordance with what has been discovered to be in transition economies, where informality continues to be a stumbling block.

Corruption control is relatively low and averages 3.6554 (SD = 0.1016). This means that perceptions of corruption are not very dispersed, which suggests that they are quite comparable across the cases that are observed. The slight range (3.4339) indicates the systemic, rather than localised problems with governance, and supports the interpretation that the quality of the institutions is quite homogenous but, at the same time, problematic to a moderate degree. The effectiveness of anti-money laundering (AML) has an extreme variability scenario with a range of 2.07 to 6.33, indicating relatively weak (2.07) to relatively strong (6.33) levels of enforcement. This difference indicates a lack of even institutional capacity within the countries under investigation, as presented in the unfairness in regard to adhering to international financial integrity rules and standards.

The inflation rate is modest (0.0292 on average) with little and positive dispersion (SD = 0.0361), indicating persistent stable movement of prices. Nonetheless, the maximum of its value (0.1420) suggests that there are some occasional inflationary pressures that threaten to destabilise the monetary situation and affect informality by facilitating diminished purchasing power. The unemployment level is on average 18.11% (SD = 0.0692), and there is a significant range (7.4% to 35.3%). High unemployment has also been found to coincide with a higher informal activity as people move to other alternative sources of income besides formal employment, thus supporting the dual-sector economic theory. Contract enforcement is 3.4048 (SD = 0.3194), which means the moderate efficiency of the judicial system with a certain cross-country dispersion. Improved enforcement mechanisms tend to discourage informality by increasing the cost of non-compliance, an aspect that may show the significance of institutional changes. Lastly, economic freedom is quite high with a mean value of 7.2164 and a standard deviation of 0.3668. This implies that despite the liberalised markets in most economies, regulatory inconsistencies still exist, which may impact both the formal businesses and the shadow market induction.

## 4.2. Multicollinearity analysis

The validation behind the examination of Variance Inflation Factors (VIF) is given in the response, which is provided by Table 3 indicating the evaluation of the diagnosis of the occurrence of multicollinearity between the independent variables.

Table 3  
*Variance inflation factor*

Variables	VIF	1/VIF
Contract enforcement	3.49	0.286386
Anti-money laundering	2.14	0.466471
Economic freedom	2.13	0.470307
Unemployment	1.40	0.712863
Inflation	1.28	0.783991
Corruption perception	1.04	0.965452
<b>Mean VIF</b>	<b>1.91</b>	

*Source:* Compiled by the authors.

In econometric terms, serious multicollinearity emerges when VIF is greater than the critical value of 10, while values above 5 are considered a warning sign (Gujarati & Porter, 2009). At this point, its largest value is related to the contract enforcement (VIF = 3.49), which remains below the critical threshold value and states the absence of such critical multicollinearity. The results of the rest of the parameters covered in the study investigation are presented individually in respective statistics, which is an indication of the relative independence of such variables. The coefficient of VIF (1.91) is very modest, implying the econometric models used are not associated with extreme overlap of information through the explanatory variables. This makes coefficient estimates stable and interpretations reliable, consequently boosting the statistical validity as well as the consistency of the estimation method (Wooldridge, 2016).

## 4.3. Unit root analysis

Based on the nature of the data applied in our specific case and the need to further advance the analysis to evaluate whether the data are stationary, it is an additional advantage to perform the Levin–Lin–Chu unit root analysis. Although within the GMM framework, non-stationarity is not considered a permanent problem, since the GMM procedure is applied to a short time panel where  $N > T$  and all variables are automatically transformed into first differences, we still conducted a unit root test to verify their stationarity.

Table 4  
*Levin–Lin–Chu unit root*

Variable	At level		1 <sup>st</sup> difference	
	<i>Statistic</i>	<i>p-value</i>	<i>Statistic</i>	<i>p-value</i>
Informal economy	0.8305	0.7969	–7.7531	0.0000
Corruption perception	–1.1375	0.1277	–3.3198	0.0003
Anti-money laundering	–2.0660	0.0194	–3.5592	0.0002
Inflation	–3.8545	0.0001	–4.7337	0.0000
Unemployment	–3.6418	0.0001	–6.4434	0.0000
Contract enforcement	–0.6160	0.2690	–5.7225	0.0000
Economic freedom	–2.0796	0.0188	–6.0711	0.0000

*Source:* Compiled by the authors.

The results are presented in Table 4. The findings indicate that most variables are non-stationary at the level, as their p-values exceed  $\alpha > 0.05$ , except for inflation and economic freedom. Nevertheless, after transforming them into first differences, in line with the rule of thumb  $I(1)$ , they completely became stationary. This modification from  $I(0)$  to  $I(1)$  is common in macroeconomic panel data, justifying the use of the GMM method to avoid spurious results due to non-stationarity (Levin et al. 2002; Roodman, 2009). Based on the determination of the model stability beyond the unit root analysis, it becomes imperative to determine whether the variables within the model constitute a long-run relationship. This is to address the deficiencies of spurious regressions in panel analysis and to theoretically support the use of dynamic models.

Table 5  
*Westerlund test*

	<b>Statistic</b>	<b>p-value</b>
Variance ratio	3.6668	0.0001

*Source:* Compiled by the authors.

For this reason, the Westerlund cointegration test was applied, yielding a statistic of 3.6668 and a p-value of 0.0001, thereby rejecting the null hypothesis of no cointegration. The outcome directs that the variables have a long-run equilibrium and validates the use of the Arellano–Bover and Blundell–Bond method for dynamic estimation. Confirming cointegration strengthens the model specification and ensures that the GMM estimates are reliable, effectively addressing both endogeneity and heterogeneity within the macroeconomic panel context (Westerlund, 2007).

#### 4.4. Validation of the estimated model

As a result, before interpreting the coefficients of the Arellano–Bover and Blundell–Bond GMM approach, it is essential to evaluate its adequacy and robustness through diagnostic tests recommended by the econometric landscape. The results presented below indicate that the model is constructed in accordance with methodological standards. The initial diagnostic test in our case is the Wald chi<sup>2</sup> test ( $p$ -value = 0.0000), which shows that the overall model is statistically significant and that institutional and macroeconomic factors contribute to explaining the informal economy. In addition, a robust version of the estimation was applied to perform the AR<sub>(1)</sub> and AR<sub>(2)</sub> tests, which assess first- and second-order autocorrelation. The results obtained for AR<sub>(1)</sub> with a  $p$ -value = 0.052 are slightly above the standard level of the 0.05 threshold, representing a possible but not critical presence of first-order autocorrelation, a conclusion usually accepted in the literature since first differences are expected to exhibit AR<sub>(1)</sub>. In the meantime, AR<sub>(2)</sub> with a  $p$ -value = 0.152 is statistically insignificant, suggesting the absence of second-order autocorrelation and satisfying one of the fundamental requirements of GMM. Lastly, the Hansen-J test ( $p$ -value = 0.340) confirms that the instruments used are valid and there is no evidence of overidentification, meaning that the instruments are neither corrupted nor invalid (Hansen, 1982). As an overall conclusion, the application of these tests and the results obtained imply that the model is correctly specified and that the selected instruments are appropriate for the analysis, providing a solid basis for interpreting the coefficients and drawing reliable econometric conclusions.

Table 6  
*Econometric estimation*

	Arellano–Bover and Blundell–Bond		Arellano–Bover and Blundell–Bond (Robust)	
	B	$\rho \geq [z]$	$\beta$	$\rho \geq [z]$
Informal economy	0.9676	0.0000	0.9676	0.0000
Corruption perception	−0.0008	0.0170	−0.0008	0.0170
Anti-money laundering	0.0001	0.0030	0.0001	0.0030
Inflation	0.0012	0.0090	0.0012	0.0090
Unemployment	0.0077	0.0000	0.0078	0.0000
Contract enforcement	−0.0010	0.0000	−0.0011	0.0000
Economic freedom	−0.0088	0.0000	−0.0088	0.0000
Constant	0.0178	0.0000	0.0178	0.0000
Diagnostic test for model adequacy				
Wald chi2	3.4601	0.0000	3.4516	0.0000
AR(1)	1.8600			0.0520
AR(2)	1.4300			0.1520
Hansen-J test	2.9200			0.3400

*Source:* Compiled by the authors.

Given the high coefficient of the lagged dependent variable (0.9676), the model suggests strong persistence in informality levels. The long-run multipliers were computed as  $\beta/(1-\alpha)$ , indicating that the long-term effects of explanatory variables are substantially larger than their short-term impacts. This reflects the structural nature of informality and its slow adjustment over time. This provides important insights for policymakers, highlighting that changes in determinants such as regulatory quality, the rule of law, or economic variables will affect informality gradually but continuously over time, and therefore, policy interventions need to take these accumulated effects into account to achieve meaningful and sustainable results.

#### 4.5. Findings and interpretation

This section proceeds with a detailed examination of the empirical results, aligning them with the research questions expressed in the introduction. In this regard, particular emphasis is placed on addressing RQ1; the findings indicate that institutional quality, measured by control of corruption, anti-money laundering (AML), contract enforcement and economic freedom variables, has a nuanced impact on the informal economy in the SEE region. This is exposed by a slight decrease in the informal economy due to an increase in control of corruption ( $\beta = -0.0008$ ,  $p\text{-value} = 0.0170$ ), suggesting a counterintuitive finding. Explicitly, the demonstrated results show that for every unit decrease in control of corruption, it is reflected in a decrease in the informality rate of 0.0008 units. From an economic perspective, the presented result implies that improvements in corruption control are in their initial stages, and this dynamic may encourage greater formalisation within the economy. Therefore, in this view, by influencing the strengthening of institutional credibility and reducing the opportunities for profit-making or informal transactions, undertaking better anti-corruption actions or measures creates an environment where businesses and individuals are more likely to operate within the formal sector.

As stated by Momot et al. (2023), corruption in the public sector is the reason why corruption in the field of business also increases, which allows the growth of the informal economy or the shadow economy. This is stressed by Dreher and Schneider (2010) who argue that the informal economy widens the corruption level in low-income economies and narrows the level of corruption in high-income economies, which creates a diverse internalisation of corruption perception within the SEE economies. Their argument is also supported by some recent findings, suggesting that the relationship between corruption and the shadow economy is bidirectional and depends on a country's institutional environment (see e.g. Nguyen & Liu, 2023).

Conversely, an IMF (2023) audit of the fund's anti-money laundering and combating the financing of terrorism strategy has examined the adverse effect of over-regulated AML policies. Despite being well-intentioned, these regulations can lead central banks to de-risking practices, which push individuals and small businesses into unregulated channels, hindering financial inclusion. This idea supports the slight increase in the informal economy in the SEE region by stronger AML measures ( $\beta = 0.0001$ ,  $p\text{-value} = 0.0030$ ).

Conversely, higher contract enforcement ( $\beta = -0.0010$ ,  $p\text{-value} = 0.0000$ ) and economic freedom ( $\beta = -0.0088$ ,  $p\text{-value} = 0.0000$ ) display a more substantial reduction in the informal economy in the SEE region, which is supported by the scholarly literature. As such, Jahan et al. (2020) argue that ensuring contract enforcement decreases transaction costs and uncertainty in efficient institutions, making the formal economy more reliable and profitable. And the reason relies on the benefits brought by operating within the formal system, such as legal protection, larger markets and access to credit, which outweigh the incurred costs. Additionally, when transaction costs are high because of a lack of economic freedom (Wang, 2022), the incentive for the informal economy to surge increases.

Consequently, the offered coefficients and their statistical significance are not only supported by economic theories but also reflect the particular institutional and economic dynamics within the context of the SEE economies. The SEE region is in a transitional phase from centrally planned economies to market-based systems, where legal and institutional frameworks are weak (Boguslavsky et al. 2025). A transition policy 'recipe' might not be effective for each country of the transitional economies, as suggested by Round (2009) and restated by the IMF (2021) and the World Bank (2025). Instead, to overcome the flaws in the process from communist regimes to capitalism, two approaches to economic reform are prominent.

The first is the so-called 'shock therapy', a radical approach that has been proven successful in Poland's market transition (Piatkowski, 2018; Ptak, 2025). Or, second, gradualism, which is a more sequenced approach, with China as its leading example (Chen & Zha, 2023). Based on a gradual approach, building formal institutions to establish a robust market economy allows policymakers in the SEE region to address the difficulties of liberalisation measures while enhancing policies to diminish the informal economy.

Regarding RQ2, the results suggest that macroeconomic factors, measured by inflation and unemployment variables, have a significant impact on the informal economy in the SEE region. A constructive and significant inflation coefficient ( $\beta = 0.0012$ ,  $p\text{-value} = 0.0090$ ) indicates that a rise in inflation inflates the informal economy. This is a common finding supported by the literature. The argument is based on real wages and savings erosion because of the high volatility of inflation, especially in the low-income countries where people have less access to financial instruments. As stated by Ohnsorge and Yu (2021), the escalation of inflation encourages people to engage in cash-in-hand and informal payments, where the price can be changed swiftly to prevent people from losing their purchasing power due to the maintenance of their money in formal bank accounts, where they are often locked at fixed prices or not fast to respond to inflation. Since a significant portion of the SEE region may be financially excluded, inflation's effects make them more vulnerable.

Besides, a strong and positive unemployment coefficient ( $\beta = 0.0077$ ,  $p\text{-value} = 0.0000$ ) indicates that individuals choose the informal sector for work and survival, which increases the informal economy. This finding is intuitive and supported by the dual labour market theory (Doeringer & Piore, 1971), which conceptualises two segments in the economy. The formal sector, characterised by high wages and benefits, and the informal sector by low pay, job insecurity and easy entry. When the formal sector jobs are scarce, the supply of

labour in the informal sector increases. Some more recent research has supported these claims, e.g. the one conducted by Deléchat and Medina (2021), who discuss the role of the informal economy as a 'buffer' or safety net for individuals excluded from the formal economy.

Therefore, the findings of this study suggest that macroeconomic instability is a robust driver of informal activities in the SEE region. To counteract these effects, transformative policies for financial inclusion strategies to foster economic resilience and growth (see e.g. Demirguc-Kunt et al. 2022) might be implemented by policymakers. The benefits of such policies and strategies reverberate throughout the argument against the safety net of the informal economy, which becomes a 'safety trap' that offers low productivity, low wages and a lack of social protection, preventing long-term economic development (Colombo et al. 2019).

Moreover, recent regular economic reports in the Western Balkans (World Bank, 2022; World Bank, 2024) suggest that tightening monetary policies by increasing interest rates prevent the SEE region from becoming de-anchored or having difficulties in overcoming long periods of inflation. Since the SEE region has experienced shocks in consumption demand compelled by Russia's invasion of Ukraine, structural labour market reforms such as reducing labour market rigidities and bureaucratic burdens can lower the cost of formality, pulling out businesses and individuals from the informal sector.

With reference to RQ3, a synthesis of the results will be used to provide an interpretation. Nguyen and Liu (2023) and Ricci et al. (2025) argue that digital transformation is not a direct entry to the formalisation of the economy. When existing institutional frameworks are weak, digital technologies such as FinTech create more efficient, but informal digital sectors. This could be translated into difficulties for countries to increase tax revenue and enhance the legal protection for individuals. Within the context of low-income countries, the informality of the digital sector exacerbates the informal economy. Reports from Clark et al. (2025) and Klapper et al. (2025) state that, although digital transformation might support financial inclusion in developing countries and assist with the reduction of informality in digital payments due to the traceability of transactions, it can only be achieved when accompanied by strong legal regulatory frameworks.

In contrast, strong legal regulatory frameworks could also hinder the very workers that labour policies intend to protect. Dolado et al. (2025) discuss that well-intended policies to regulate digital platform workers, such as delivery riders, reduce employment opportunities, wages, and flexibility if not carefully designed and established. They conclude that addressing employee status misclassification while expanding demand for regular employment through fiscal incentives for compliance can protect workers without eroding the benefits of digital platform work. Therefore, the interaction between institutional capacity and macroeconomic stability influences the development of informal markets within the digital transformation process. Within the context of the SEE region, a well-rounded and gradual regulatory framework transformation might be the key element to contribute to the effort in reducing the informal economy while benefiting from the digital transformation path. This argument is supported by the learn-by-doing method and regulatory 'sandbox' approach (Ricci et al. 2025; Jeník & Duff, 2020), which



states that a gradualist testing strategy is essential for adopting policies to fast-evolving digital innovations that build paths to formalisation instead of creating barriers.

## 5. Conclusion

The study's findings shed some light on the complex network of interconnections in SEE's informal economy, which includes institutional behaviours, macroeconomic conditions, and magnitude. Our findings are reinforced by empirical evidence and can withstand challenges such as endogeneity, heteroscedasticity, and autocorrelation because we employed a dynamic panel and the GMM approach. The findings confirm both theoretical expectations and some counterintuitive effects typical of transition economies. These are as follows.

First, institutional variables have a multidirectional effect on the informal economy. Conversely to popular belief, corruption control and anti-money laundering (AML) measures do not always reduce informality. In certain cases, disproportionate regulation or the perception of anti-corruption measures can provoke de-risking, financial exclusion, and the movement of businesses into the shadow economy. On the contrary, factors such as contract enforcement efficiency and the level of economic freedom demonstrate a persistent and statistically significant negative impact on the volume of the informal economy, confirming the importance of the rule of law, reduced transaction costs, and institutional predictability.

Second, macroeconomic factors also turn out to be key determinants of informal activity. Inflation and unemployment are positively and statistically significantly associated with the growth of the informal economy, which is consistent with the classical theory of labour market segmentation. Price instability and high unemployment limit the population's access to the formal labour market, which pushes them to alternative survival strategies, often outside the legal field. This strengthens informality as a structural element of the economic system, especially in conditions of weak social protection.

And third, digital transformation in the region, contrary to optimistic expectations, is not a universal means of formalisation. With a weak regulatory framework, digital technologies can not only fail to reduce but also strengthen informal processes, creating "digital informality", a segment that bypasses the classical regulatory framework. At the same time, with a flexible, gradually adaptable institutional environment (e.g. through regulation in the form of "regulatory sandboxes"), digitalisation can become a catalyst for the transition to greater transparency, financial inclusion, and formal employment.

Consequently, the study confirms that the struggle against the informal economy does not need universal solutions but multiple, adapted strategies that are sensitive to the reality of regional institutions and macroeconomics. Rather than a narrow emphasis on tightening controls, the emphasis needs to be on building an attractive formal space, one with open access to finance, equal dispensation of justice, and proper social protection. Additionally, the synergy between economic stability, institutional maturity, and inclusive digital transformation enables the sustainable reduction of the informal economy in the countries of SEE.

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