Does Informality Deter Investment? An Empirical Analysis of FDI and the Informal Economy in EU and Candidate Countries

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This study examines the relationship between the size of the informal economy and foreign direct investment (FDI) flows in EU member states and EU candidate countries in the Western Balkans, as part of the wider Mediterranean region. The analysis' central hypothesis is that informality deters FDI, owing to factors ranging from institutional quality to unfair competition. Using data for the period 1996–2020 and employing Ordinary Least Squares (OLS) and Fixed Effects (FE) estimations, our results indicate that a larger informal economy significantly reduces FDI inflows and outflows only in non-EU countries, with no statistically significant relationship found for EU member states. This finding persists even after controlling for institutional quality, suggesting that the documented impact of the informal economy on FDI is not mainly through institutional weakness but rather through other underlying market distortions that prevail in highly informal markets. These insights underline the need for future research to examine more closely how informality affects market conditions and investment behaviour.

Key Words: Informal economy, foreign direct investment, EU membership, EU candidate countries

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INTRODUCTION

The informal economy is believed to have existed for as long as humanity has sought to regulate economic activity. However, it started to gain the dedicated attention from policymakers and academics only in the late 20th century, especially after being recognized as an issue by the International Labour Organization in 1972. As the developed world moved towards an era of globalisation, and more rigorous economic

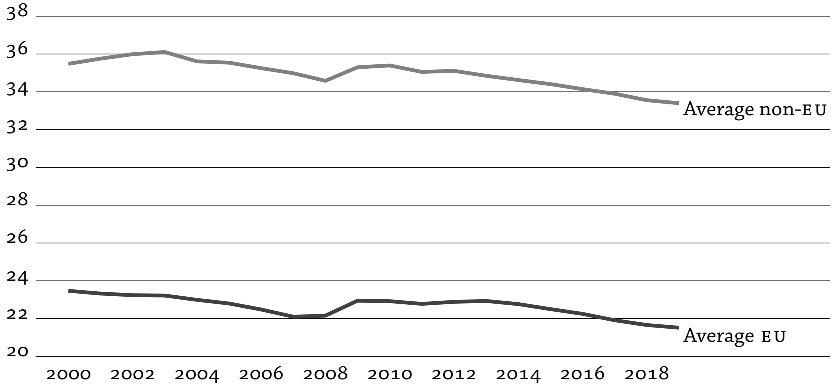

FIGURE 1 Average Historical Levels of the Informal Economy in EU and Non-EU Countries (estimates of informal output in % of official GDP)

regulation was implemented to manage rapid economic growth, governments came to realise that certain segments of the economy consistently evaded regulation, forming the so-called 'informal economy.' Today, the issue persists and remains an important topic that continues to generate conflicting perspectives and scientific evidence in efforts to understand and address it. This enduring attention is justified by the substantial impact that the informal economy has on various aspects of economic life.

Broad agreement exists that the informal economy serves as the primary source of employment in developing countries and plays a crucial role in providing jobs and income to marginalised groups in developed economies (Dell'Anno 2021). This is further illustrated in fugure 1, which shows that, on average, the size of the informal economy, as measured by the MIMIC estimator, is significantly higher in the Western Balkan countries – referred to hereafter as 'non-EU countries' (Albania, North Macedonia, Montenegro, Serbia, and Bosnia and Herzegovina) – compared to European Union member states.

Frey and Schneider (2000) argue that the informal sector may stimulate the creation of new markets, enhance entrepreneurship and financial resources, and reshape legal, social, and economic institutions. Such multifaceted interference with a country's economy may allow the informal sector to play a major role in determining how attractive a country is to foreign direct investments (hereafter 'FDI'). One important concern related to the informal sector is the unfair competition it imposes against the formal sector (Mathias et al. 2014). Another related concern is that weak legal and regulatory enforcement in the informal sector – where the size of the informal economy is often used as a proxy for institutional quality – signals poor protection of intellectual property rights (IPR), which is deemed crucial for the inflow of FDI (Lee et al. 2018).

Thus, this study hypothesises that the scale of the informal economy sector is a determinant of FDI inflows in a country. To test this hypothesis, we examine the potential causal relationship between informality and FDI in Western Balkan countries (Albania, Montenegro, Kosovo, North Macedonia, Serbia, and Bosnia and Herzegovina), using data for the period 1996 to 2020. These countries are part of the broader Mediterranean region and share historical, cultural, and economic ties, despite differing degrees of direct access to the Mediterranean Sea. For comparison, the analysis also includes European Union member states. Our results indicate that a larger informal economy significantly discourages both FDI inflows and outflows in non-EU countries. By contrast, we do not find a statistically significant relationship between the size of the informal economy and FDI activity in EU member states.

This study contributes to the literature for several reasons. First, the prevalence of the informal economy in Western Balkans countries has long been identified as a challenge, and empirical evidence on this topic remains inconclusive (Cvetičanin et al. 2019). Second, globalisation has emphasized the importance of FDI for economic growth, as it also facilitates technology transfer from developed to developing nations (Chenaf-Nicet and Rougier 2015; Sabir et al. 2019). Thus, understanding the role of the informal economy in attracting FDI to Western Balkans countries is crucial for their economic growth. Third, given that most Western Balkans countries aspire to join the European Union, insights from this study can support the alignment of economic policies and conditions with EU standards.

This paper is structured as follows: The following section provides a literature review that summarizes key issues regarding the definition, measurement, effects, and causes of the informal economy, and its connection with foreign direct investment. In the third section, we outline the methodology and econometric techniques employed to address potential sources of bias. The fourth section offers an overview of the data utilised in the analysis. The fifth section focuses on the interpretation of the results. Finally, the sixth section presents the conclusions.

Literature Review

Defining Informal Economy

Traditionally, the informal economy is defined as 'economic activities and transactions that are sufficiently hidden so that they are unmeasured or untaxed, and it is presumed that economic agents are at least passively aware that bringing these activities to the attention of authorities would imply tax or other legal consequences' (Andrews et al. 2011). There are many terms used to refer to the informal economy (such as the shadow, underground, undeclared, or hidden economy); however, one distinction must be made clear: for the purposes of this paper, informal activities do not include illegal activities or household production. This principle is also followed by Elgin et al. (2021), whose MIMIC estimators are used in our analysis. Frey and Schneider (2000) note two considerations when defining the informal economy: first, household activities are not considered part of the informal economy, as they are generally excluded from GNP calculation; and second, tax evasion does not fall within the definition of the informal economy, as it is not value-adding but rather redistributional. Dell'Anno (2021) explains that part of the confusion in defining the informal economy stems from the divergence of research purposes attempting to study it, whether statistical (e.g., non-observed economy (NOE), underground production) or economic (e.g., shadow, unofficial, hidden, black, or underground economy).

Measuring Informal Economy

It is widely accepted in the existing literature that estimating the level of the informal economy is both empirically and theoretically challenging. According to Andrews et al. (2011), three main approaches to measuring the informal economy can be identified:

- *Direct approach* – includes techniques such as conducting surveys among the suppliers and demanders of informal activities (Perry et al. 2007; Dabla-Norris and Inchauste 2008).
- *Indirect approach* – involves examining discrepancies between the amount of currency in circulation and the aggregate demand for money, known as the currency demand method, as used by Schneider (1997) and Johnson et al. (1998). Another method is the total demand approach, which observes discrepancies between total income and total expenditure, as mentioned by Frey

and Schneider (2000). Finally, the energy consumption method examines discrepancies between changes in energy consumption and GDP (Kaufmann and Kaliberda 1996; Schneider and Enste 1999).

- *Multiple Indicators Multiple Causes (MIMIC) method* – models the causes and consequences of the informal economy and calculates its size as a latent variable (Feld and Schneider 2010). Common triggers include taxation as an incentive to exit the formal market, legal penalties as a disincentive to leave, and the moral costs associated with participation in informal markets. Consequences of the informal economy may include changes in electricity consumption, tax revenue fluctuations, and alternations in money demand, among others. In order for the model to generate estimates, it needs an initial exogenous estimate, typically derived from other approaches such as the currency demand method.

Although a variety of methods are available for estimating the size of the informal economy, researchers remain uncertain about their accuracy. Survey data may be biased due to social stigma or fear of repercussions. Estimations based on market data discrepancies may capture factors unrelated to the informal economy. Lastly, the MIMIC and other model-based approaches rely heavily on assumptions that may be subjective and not fully reflective of real-world conditions.

Informal Economy Causes

The informal economy is a phenomenon rooted in the underlying social and economic structures of a country. At its core, every informal activity involves a decision. An employee or employer, buyer or seller, faces a choice when deciding whether to participate in informal markets in one way or another. As a matter of decision-making, understanding the outcome requires analysing the factors influencing the process. The majority of the literature suggests that the most significant incentives for informality are the high costs (taxes) and complex regulations present in formal markets (Loayza 1996; Schneider and Enste 1999).

However, informality can also reflect the degree of trust between the government and its citizens (Aghion et al. 2010; Andrews et al. 2011). Torgler and Schneider (2007) argue that negative perceptions of the government, particularly regarding tax fairness and institutional quality, strongly correlate with the size of the informal economy, as diminished trust in public institutions lowers tax morale and encourages participation in the informal sector. Findings by Friedman et al. (2000) indicate that when individuals perceive government officials as corrupt, they are more likely to engage in informal activities to evade rent-seeking practices.

Informal Economy Consequences

The repercussions of the informal economy are intrinsically tied to its underlying causes, meaning its persistence exacerbates the very issues that initially gave rise to it. In general, the most well-known effects of the informal economy – supported by both statistical and theoretical evidence – include:

- Inaccurate calculation of national accounts and important statistics used for decision-making by policymakers (Frey and Schneider 2000).
- A decline in tax revenue due to a reduction in the tax base. Loayza (1996) demonstrates that higher informality is associated with lower tax revenue, using empirical data from several Latin American countries.
- The inability of regulatory bodies to impose rules and regulations designed to protect the rights of either party in the transaction and limit the possible negative externalities to any third party. Perry et al. (2007) argue that inefficient laws and regulations can lead to the abuse of monopolistic power and impair the state's legitimacy, its capacity to provide public goods, and its ability to enforce the law. Furthermore, according to Frey and Schneider (2000), the informal economy may signal a problematic relationship between citizens and the government, as it may indicate dissatisfaction with the public services they receive.

However, the informal economy is not always associated with negative consequences. Instead, Frey and Schneider (2000) cite that 'the informal sector may offer contributions to the creation of markets, increase financial resources, enhance entrepreneurship, and transform the legal, social, and economic institutions necessary for accumulation.'

Informal Economy and Foreign Direct Investment

Factors which determine FDI inflows have been extensively studied in the existing literature (Asiedu 2002; Cheng and Kwan 2000;

Chakrabarti 2001; Janicki and Wunnava 2004). Nguyen and Cieślik (2020) conclude that the determinants of FDI include not only economic but also cultural, political, and geographical factors. Bevan and Estrin (2004) study the determinants of FDI from 18 Western European economies to 11 Central and Eastern European countries, considered to be in transition at the time of the study. They identify unit labour costs, the size of the host and source economies, and geographical proximity as key determinants of FDI between the two groups of countries. Interestingly, Sun et al. (2002) find that the importance of FDI determinants changes over time.

Many studies have identified a positive relationship between FDI and economic growth (Pegkas 2015; Li and Liu 2005; Pitelis 2009). FDI can promote growth by introducing new technologies to the host countries and enabling potential spillovers to local market participants through the absorption of such technology (Crespo and Fontoura 2007). Such spillovers can mainly occur through imitation by local companies of the newly introduced technology (Das 1987; Wang and Blomström 1992), or through the overall enhancement of human capital as workers employed by foreign companies acquire new skills (Glass and Saggi 2002). In addition, FDI inflows assist physical capital formation (although to a lesser extent than human capital accumulation) in developing countries, especially in the manufacturing sector (Emako et al. 2023).

However, several other studies have shown that the positive effect of FDI on economic growth depends on other factors that may mediate this relationship. Borensztein et al. (1998) find that the level of human capital development enhances the contribution FDI has on growth, as more advanced human capital can absorb the new technology introduced by foreign companies faster. Alfaro et al. (2005) suggest that low institutional quality may impede a country's ability to attract FDI, while Busse and Groizard (2008) further argue that countries need sufficiently strong institutions in order to benefit from FDI.

From a firm's perspective, Dunning (1977; 1993) identifies four types of FDI motives, summarised by Aluko et al. (2024) as follows: market-seeking FDI is mainly focused on expanding revenue sources to foreign markets (Ramasamy et al. 2010); resource-seeking FDI is related to investments aiming at gaining possession of and securing access to natural resources deemed crucial for operational improvement or product development purposes; efficiency-seeking motives aim at minimizing costs; strategic-seeking incentives are future-oriented investments which international companies use as a strategy to improve their competitive position in the global market.

To understand the link between the informal economy and FDI, it is necessary to consider how a large informal sector can conflict with these incentives. First, a strong and healthy economy must appear so in its official statistics, yet the informal economy distorts national accounts and thereby weakens a country's attractiveness to market-seeking FDI (Frey and Schneider 2000). Second, resource-seeking FDI heavily depends on the enforcement of property rights. However, it is found that countries with large informal sectors tend to have weaker institutional quality (Torgler and Schneider 2009), reducing confidence in property rights enforcement and discouraging resource-oriented foreign investment. Third, efficiency-seeking multinational enterprises may be deterred by bribery, which is estimated to impose higher transaction costs than taxes due to its secrecy and unpredictability (Svensson 2005). Fourth, strategy-seeking FDI may also be discouraged from investing in countries with low-quality institutions, as the influential Acemoglu et al. (2004) conclude that a country's prosperity depends on its economic institutions.

Policies against Informality in Candidate Countries

In light of recent technological advancements and increased access to computers and the internet, Albania, Montenegro, Bosnia and Herzegovina, and Serbia have recently launched the so-called fiscalization programmes. These programmes aim at increasing tax compliance and transparency by requiring businesses to record and report all transactions electronically using government-approved digital devices or software to issue receipts and transmit transaction data directly to tax authorities in real time. According to Pires et al. (2023), fiscalization, among other effects, discourages taxpayers from not reporting business transactions. While these programmes remain a work in progress, their implementation has already begun to yield results. For instance, Cani et al. (2023) indicate that the fiscalization platform has led to more businesses registering for a Unique Taxpayer Identification Number, helping many of them formalise their activity. Croatia introduced its Tax Fiscalisation programme in 2012, and a comparison of tax administration data from 2010 to 2013 shows that the relevant group of taxpayers substantially increased their declared turnover and income – particularly in the catering sector, where daily turnover increased by

82% (Awasthi and Engelschalk 2018). Rather than undertaking comprehensive reforms such as fiscalization, North Macedonia implemented the 'MyVAT' program in 2019, which reimburses a percentage of the VAT paid to individuals who submit consumption invoices to the tax authority.

Several EU countries, including Austria, Denmark, Germany, and Greece, have implemented policies to fight informality. According to Schneider and Asllani (2022), depending on the country, these measures include establishing enforcement bodies, improving cross-checking and detection capabilities, modifying tax laws, introducing punitive measures, reforming unemployment insurance benefits system, and adjusting rules related to social pensions and labour income. In principle, taxing the informal economy could provide a significant revenue source for the government (Schneider and Klinglmair 2004). However, Joshi et al. (2014) note that taxing the informal sector may not be as lucrative as anticipated, given that most income in this sector falls within the lower income quartiles.

METHODOLOGY

Econometric Techniques

The first and most important methodological issue in our study concerns the selection of the estimation technique for determining the magnitude of the informal economy. As stated above, there is no consensus in the literature on which is the ideal method for measuring the size of the informal economy, as all existing methods have shortcomings that may undermine the reliability of empirical results. In this study, we choose to employ the MIMIC model in order to take advantage of its two key features, also mentioned by Elgin et al. (2021). First, it explicitly takes into consideration various potential drivers of informal activity while accounting for several outcome indicators – a feature that other measurement methods lack, which confine all aspects of informal activity to a single dimension (money demand in the case of the currency-demand approach, or energy use in the case of the energy-demand method). Second, it is readily applicable for estimating informal activity across different countries and over time.

To calculate the role of the size of the informal economy in foreign direct investment inflows, we employ the following equations:

$$\mathrm{FDI}\mathit{inflow}_{i,t} = \beta_0 + \beta_1 \mathrm{MIMIC}_{i,t} + \sum_{k=3}^{2} \beta_k X_{k_{i,t}} + \varepsilon_{i,t} \tag{1}$$

$$\text{FDI}\mathit{inflow}_{i,t} = \beta_0 + \beta_1\text{MIMIC}_{i,t} + \beta_2\mathit{Institutions}_{i,t} + \sum_{k=3}^{2}\beta_k X_{k_{i,t}} + \varepsilon_{i,t} \tag{2}$$

$$\text{FDI}\mathit{outflow}_{i,t} = \beta_0 + \beta_1\text{MIMIC}_{i,t} + \sum_{k=3}^{2}\beta_k X_{k_{i,t}} + \varepsilon_{i,t} \tag{3}$$

$$\text{FDI}\mathit{outflow}_{i,t} = \beta_0 + \beta_1\text{MIMIC}_{i,t} + \beta_2\mathit{Institutions}_{i,t} + \sum_{k=3}^{2}\beta_k X_{k_{i,t}} + \varepsilon_{i,t} \tag{4}$$

In this econometric framework, $\text{FDI}\mathit{inflow}_{i,t}$ represents the net foreign direct investment inflow in country i at time t, while $\text{FDI}\mathit{outflow}_{i,t}$ denotes the corresponding outflow. $\text{MIMIC}_{i,t}$ refers to the estimate of informal output (as a percentage of official GDP) generated using the Multiple Indicators Multiple Causes (MIMIC) model for country i at time t. $\mathit{Institutions}_{i,t}$ is the standardized average score of the Worldwide Governance Indicators (WGI) for the respective country and year.

We conduct several tests to ensure that our sample is fit for purpose and that the estimated coefficients remain unbiased. First, because our panel data includes countries of different sizes and characteristics, we face the risk of heterogeneity, as the interaction between the informal economy and public debt may vary given the underlying structural features of each country. For this reason, we perform the Hausman test, and the test results indicate that the fixed effects model is the most appropriate for regression on equations (1) and (2) for EU countries, while random effects is the most appropriate for regression on equations (3) and (4) for EU countries. For non-EU countries, fixed effects are applied to all equations, as the number of observations and countries is insufficient to justify the use of random effects.

We apply the Augmented Dickey-Fuller test to check for non-stationary data, as non-stationary variables would exhibit variances and covariances that change over time, potentially biasing the estimated coefficients. According to the results, all our data series are stationary at the 1% significance level, with the sole exception of trade openness, which is stationary at the 5% significance level.

The CD-test proposed by Pesaran (2004) is used to assess cross-sectional dependence, since, according to De Hoyos and Sarafidis (2006), panel data models often show significant cross-sectional dependence in the errors due to common shocks and unobserved factors that affect multiple units and are captured in the error term. The test results show the presence of cross-sectional dependence in all four regressions – equations (1), (2), (3), and (4) – for non-EU countries. To mitigate the bias arising from cross-sectional dependence, the regressions include both country- and time-specific effects, which help control for time-invariant heterogeneity across countries and for common time shocks that may drive contemporaneous correlation in the error terms.

Data

The data employed in this study includes a range of reputable sources. Interest rates, inflation, real GDP growth, and the investment rate are sourced from the Economist Intelligence Unit (EIU). Almost all MIMIC data are taken from the work of Elgin et al. (2021), available on the World Bank website, except for Serbia and Montenegro, for which data were unavailable and therefore sourced from the International Monetary Fund (2021). Trade openness, unemployment, real GDP per capita, population growth, GDP (PPP), the price level ratio, and FDI inflow and outflow data are derived from World Bank national accounts and OECD national accounts data files. Human capital is proxied using the aver-

TABLE 1 Descriptive statistics

Variable	Reference	(1)	(2)	(3)	(4)
Foreign direct investment, net inflows (% of GDP)	FDI inflow	16.08	0.50	0.00	452.22
Foreign direct investment, net outflows (% of GDP)	FDI outflow	10.93	0.49	(382.69)	453.16
MIMIC estimator	MIMIC	24.05	0.08	9.31	38.50
Real GDP (% change pa)	Real GDP growth	3.58	0.03	0.01	22.34
Population growth (annual %)	Population growth	0.63	0.01	0.00	3.93
Real GDP per Capita	Real GDP per Capita	25,927	20,683	2,522	112,418
Natural log of GDP, PPP (current international $)	lnGDP	25.87	1.50	22.68	29.23
Trade (% of GDP)	Trade openness	114.69	0.60	37.50	382.35
Consumer prices (% change pa; av)	Inflation rate	3.10	0.06	0.00	121.61
Tax revenue (% of GDP)	Tax burden	21.01	0.07	0.22	62.50
Lending interest rate (%)	Interest rate	6.66	0.12	0.57	291.06
Total gross investment (% of GDP)	Investment rate	22.42	0.05	4.45	53.30
Average score of Worldwide Governance Indicators	Instiutitons quality	3.39	0.58	2.00	4.41
Mean years of schooling (years)	Human capital	11.25	1.50	6.15	14.26
Unemployment, total (% of total labor force) (modeled ILO estimate)	Unemployment rate	9.98	0.06	2.02	37.32
Price level ratio of PPP conversion factor (GDP) to market exchange rate	Price level	0.77	0.28	0.21	1.56

NOTES Column headings are as follows: (1) mean, (2) standard deviation, (3) minimum, (4) maximum.

age years of schooling per country, derived from the United Nations Development Programme and used as a component for computing its Human Development Index.

Corruption, regulatory quality, voice and accountability, political stability, and rule of law indicators are drawn from the Worldwide Governance Indicators provided by the World Bank. The tax burden is sourced from the World Development Indicators, with supplementary data obtained from the Ministry of Finance for Albania and the Statistical Office of Montenegro for Montenegro.

The final dataset comprises thirty-two countries, including all EU member states as of April 2025, as well as Albania, Bosnia and Herzegovina, Montenegro, North Macedonia, and Serbia, with observations spanning from 1996 to 2020 and totalling 646 observations. From this full dataset, two subsets are created based on EU membership: one with 577 observations for EU countries and another with 69 observations for non-EU countries, both covering the period from 1996 to 2020. Table 1 displays the descriptive statistics of the sample.

RESULTS AND DISCUSSION

We conduct regression analyses utilizing two distinct datasets: one comprising EU member countries and the other comprising non-EU member countries in the wider Mediterranean region of the Balkans. The dependent variable is calculated as direct investment equity flows into the reporting economy as a percentage of GDP for a given country each year. In line with the preceding discussion, we implement two regression frameworks: OLS and fixed effects regression. For each framework, we run two regressions: the first does not control for institutional quality, while the second does. The rationale for this approach is to determine whether the informal economy affects FDI flows primarily through its association with low-quality institutions or through other underlying phenomena linked to informality, such as unfair competition (Mathias et al. 2014) or market failures arising from labour-market anomalies (Bosch and Maloney 2008).

Table 2 displays the results from our panel data estimations for equations (1) and (2) across EU and non-EU member countries in the sample. We employ two estimation methods, Ordinary Least Squares (OLS) and Fixed Effects (FE), to assess the robustness of the results and determine whether they hold after controlling for unobserved, time-invariant, country-specific heterogeneity.

TABLE 2 FDI Inflow and the Size of the Informal Sector

Item	EU countries				Non-EU countries			
	OLS		Fixed effects		OLS		Fixed effects	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
MIMIC	0.848*	0.892	3.616	2.645	−1.101*	−1.098*	−2.533**	−2.643**
	(0.464)	(0.558)	(4.739)	(4.488)	(0.641)	(0.594)	(1.150)	(1.111)
Real GDP growth	1.457*	1.458*	1.004	0.949	1.102***	1.169***	0.343	0.417
	(0.821)	(0.821)	(0.951)	(0.964)	(0.398)	(0.370)	(0.240)	(0.302)
Trade openness	0.313***	0.313***	−0.057	−0.071	−0.037	−0.057	−0.032	−0.082
	(0.045)	(0.045)	(0.311)	(0.322)	(0.043)	(0.040)	(0.069)	(0.082)
lnGDP	0.009	0.01	0.04	0.039	−0.032*	−0.019	−0.058	−0.089
	(0.022)	(0.023)	(0.198)	(0.196)	(0.019)	(0.018)	(0.042)	(0.062)
Human capital	−0.011	−0.012	0.141	0.133	0.021***	0.008	−0.008	−0.005
	(0.015)	(0.015)	(0.127)	(0.124)	(0.007)	(0.007)	(0.009)	(0.008)
Price level	0.025	0.015	−0.045	−0.02	0.334**	0.267**	0.211***	0.153**
	(0.106)	(0.126)	(0.141)	(0.135)	(0.141)	(0.132)	(0.031)	(0.065)
Tax burden	1.862***	1.852***	0.514	0.495	−0.183	−0.21	0.673	0.644
	(0.382)	(0.388)	(3.403)	(3.430)	(0.235)	(0.218)	(0.476)	(0.580)
Interest rate	−0.082	−0.081	0.18	0.158	0.630*	0.556	−0.01	0.013
	(0.158)	(0.158)	(0.215)	(0.213)	(0.373)	(0.346)	(0.159)	(0.130)
Investment rate	−0.864*	−0.867*	0.788	0.759	−0.244	−0.103	−0.135	−0.012
	(0.451)	(0.452)	(0.749)	(0.746)	(0.171)	(0.164)	(0.138)	(0.136)
Institutions quality		0.012		−0.145		0.161***		0.118
		(0.086)		(0.115)		(0.049)		(0.087)
Constant	(0.772)	(0.827)			0.901*	0.368		
	(0.778)	(0.869)			(0.473)	(0.468)		

NOTES Equations: (1), (2). *$p < 0.1$, **$p < 0.05$, **$p < 0.01$.

Based on the results, our hypothesis that the size of the informal economy negatively affects FDI inflows in the host country holds only for the non-EU countries in the wider Mediterranean region of the Balkans. The coefficients before MIMIC are statistically insignificant for the EU countries once we control for unobserved time- and country-specific characteristics. By contrast, for the non-EU countries, the MIMIC coefficients are not only statistically significant in both the OLS and FE models, but they also become economically significant once these unobserved characteristics are accounted for. Moreover, focusing on regressions (1) and (2) for non-EU countries under FE, we observe that when institutional quality is introduced as a control variable, the effect of MIMIC on FDI inflows remains relatively unchanged. These results indicate that the channel through which the informal economy impairs FDI inflows in the host country is not institutional quality, but rather the underlying market characteristics associated with high-informality environments.

Although a high price level typically implies increased costs for factors of production, which could discourage foreign direct investment (FDI), the fixed effects regression results for non-EU countries reveal a statistically significant and positive association between the price

level and FDI inflows. Referring back to Dunning (1977; 1993), market-seeking FDIS aim to increase their revenue by investing in new markets. In general, higher price levels are associated with more developed countries. Murphy (2013) states that, according to a new theoretical explanation, 'a high (and inelastic) demand in rich countries [arises] from high consumption of goods and services that complement demand for tradable goods.'

With respect to other control variables included in the model, we observe that real GDP growth, GDP (PPP), human capital, tax burden, and institutional quality show statistical significance only under the OLS model, but lose significance under the fixed effects specification. These results again indicate that the initial significance is mainly driven by between-country variation, and that once country- and time-specific factors are controlled for, the variance disappears. Our findings therefore diverge from those in the existing literature discussed earlier.

Table 3 displays the results of regressions run on equations (3) and (4), where the independent variable is FDI outflow. In this case, we apply random effects to control for country- and time-specific variations, as suggested by the Hausman test. When examining the relationship between the informal economy and FDI outflows, we reach conclusions similar to those for FDI inflows. Most notably, the MIMIC estimators show a negative and statistically significant effect on FDI outflows for non-EU countries, while the effect is statistically insignificant for EU countries. The relationship between the informal economy and FDI outflows is not impacted even when controlling for institutional quality.

Regarding the control variables in these regressions, we see that the price level is positively related to FDI outflows at a statistically significant level in the non-EU countries. These results align with the view that countries with higher prices for tradable goods are typically those with high per-capita income (Murphy 2013), which, as a result, will be the ones with the most financial resources to invest abroad. For EU countries, the results indicate that countries with the highest economic growth and the greatest levels of trade openness are more inclined to invest abroad, even after accounting for cross-country variation.

TABLE 3 FDI Outflow and the Size of the Informal Sector

Item	EU countries				Non-EU countries			
	OLS		Fixed effects		OLS		Fixed effects	
	(3)	(4)	(3)	(4)	(3)	(4)	(3)	(4)
MIMIC	0.285	0.272	0.287	0.337	−0.173	−0.173	−0.527**	−0.515**
	(0.500)	(0.602)	(0.337)	(0.755)	(0.155)	(0.156)	(0.240)	(0.222)
Real GDP growth	1.499*	1.499*	1.541	1.543*	0.088	0.086	−0.007	−0.015
	(0.885)	(0.886)	(0.942)	(0.916)	(0.096)	(0.097)	(0.126)	(0.129)
Trade openness	0.185***	0.185***	0.172**	0.170*	0.011	0.012	−0.01	−0.005
	(0.048)	(0.048)	(0.087)	(0.087)	(0.010)	(0.010)	(0.031)	(0.027)
lnGDP	−0.018	−0.018	−0.011	−0.01	0.001	0.0003	−0.004	−0.0002
	(0.024)	(0.025)	(0.072)	(0.065)	(0.005)	(0.005)	(0.012)	(0.011)
Human capital	−0.004	−0.003	0.022	0.023	0.002	0.002	−0.0003	−0.001
	(0.016)	(0.017)	(0.036)	(0.037)	(0.002)	(0.002)	(0.002)	(0.002)
Price level	0.158	0.161	0.155	0.148	0.05	0.052	0.039	0.045*
	(0.114)	(0.136)	(0.138)	(0.098)	(0.034)	(0.035)	(0.030)	(0.025)
Tax burden	0.708*	0.711*	0.367	0.345	−0.011	−0.01	0.102	0.105
	(0.412)	(0.418)	(1.571)	(1.663)	(0.057)	(0.057)	(0.205)	(0.198)
Interest rate	−0.068	−0.068	0.007	0.011	0.099	0.102	0.085	0.083
	(0.171)	(0.171)	(0.120)	(0.114)	(0.090)	(0.091)	(0.099)	(0.094)
Investment rate	−1.319***	−1.318***	−0.785	−0.768	0.026	0.021	0.058	0.045
	(0.486)	(0.487)	(0.837)	(0.837)	(0.041)	(0.043)	(0.053)	(0.041)
Institutions quality		−0.004		0.013		−0.006		−0.013
		(0.093)		(0.132)		(0.013)		(0.019)
Constant	0.306	0.322	(0.195)	(0.275)	(0.018)	0.001		
	(0.839)	(0.937)	(2.278)	(1.770)	(0.114)	(0.122)		

NOTES Equations: (3), (4). * $p < 0.1$, ** $p < 0.05$, ** $p < 0.01$.

CONCLUSIONS

This study examined the relationship between the size of the informal economy and foreign direct investment in EU member states and candidate countries in the wider Mediterranean region of the Balkans. Drawing on economic and institutional theory and using econometric modelling, we find that the size of the informal economy discourages both FDI inflows and outflows in non-EU countries, while it has no discernible impact in EU countries. In addition, these results hold even after controlling for institutional quality, suggesting that the channel through which the informal economy impairs FDI flows is not institutional quality itself, but rather the underlying market characteristics associated with high-informality contexts.

For non-EU countries in the wider Mediterranean region of the Balkans, policy efforts should prioritise focus on reducing the size of the informal economy to enhance fiscal sustainability and move closer towards EU standards. Governments must adopt holistic approaches to minimize the informal sector, as our research indicates that the informal economy persists through a network of multiple causal mechanisms that need to be addressed simultaneously. While sound tax systems that incentivise individuals to declare their economic activity are essential, governments must also prioritize efforts to raise public awareness of the importance and benefits of tax contributions, such as improved public services and infrastructure. For instance, the E-Invoicing Campaign launched in Greece in 2014 may serve as inspiration, given its success in reducing informality. However, it should be noted that successful reforms require tangible improvements in the rule of law, control of corruption, and regulatory effectiveness. Non-EU governments should also leverage technological advancements and improved access to the internet and computers, and demonstrate commitment to their recently launched fiscalization programmes to ensure effective implementation, as illustrated by Croatia's experience in 2012. In addition, Fabijan et al. (2025) find that 'a weaker global economic climate may offer a better opportunity for deeper economic integration of the Mediterranean basin than a strong one.' Building on this insight, Mediterranean countries should seek to capitalise on such conditions to accelerate the convergence of their economies with Western counterparts.

This study encourages future research to investigate the channels through which the size of the informal sector impacts FDI flows. Understanding how factors prevalent in high-informality environments deter both FDI inflows and outflows is key to effective legislative drafting. In addition, upcoming research could explore how specific policy interventions aimed at reducing informality – such as enhanced contract enforcement, greater regulatory transparency, or simplified tax systems – may help mitigate the negative relationship between the informal economy and FDI activity documented in this study.

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