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Foreign direct investment in European and Eastern European countries in the face of COVID-19 and the Russian-Ukraine War

SUMMARY

The global shocks of COVID-19 and the Ukraine war on FDI inflows in European countries, particularly Eastern Europe, have been subjects of a serious debate among EU policymakers. This study assesses the level of impact of the two global shocks on FDI in 39 European countries (ECs) and 20 Eastern European countries (EECs) from 2020 Q1 to 2022 Q4. For the comparative analysis, a static panel regression is used. Our findings demonstrate that variations in the levels of stringency measures related to COVID-19 in individual countries are significantly associated with increased FDI inflows. This suggests that investors will increase investment in countries with stricter measures to limit crises. While variations in COVID-19 total cases are associated with increased FDI inflows in Europe but with decreased FDI inflows in Eastern Europe, we find that the crisis may have created new opportunities or incentives for foreign investors in Europe compared to Eastern Europe.

Keywords: COVID-19, Russia-Ukraine War, FDI Inflows, ECs, EECs.

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Стране директне инвестиције у европским и источноевропским државама у сусрет пандемији COVID-19 и руско-украјинском рату

САЖЕТАК

Глобални шокови пандемије COVID-19 и украјинског рата на прилив страних директних инвестиција (СДИ) у европским земљама, посебно у Источној Европи, представљали су важну дебату међу креаторима политике ЕУ. Ова студија процењује ниво утицаја два глобална шока на СДИ у тридесет девет европских држава и двадесет држава Источне Европе, од првог квартала 2020. до четвртог квартала 2022. године. За упоредну анализу користи се статичка панел регресија. Наши налази показују да су варијације у нивоима строгах COVID-19 мера у појединачним државама значајно повезане са повећаним приливом СДИ. Ово сугерише да ће инвеститори повећати улагања у државе са строжијим мерама за ограничавање криза. Док су варијације у укупном броју случајева COVID-19 повезане са повећаним приливом СДИ у Европи, али смањеним приливом СДИ у Источној Европи. Проналазимо могућност да је криза створила нове прилике и подстицаје за стране инвеститоре у Европи у поређењу са Источном Европом.

Кључне речи: COVID-19, руско-украјински рат, СДИ, прилив, европске државе, источноевропске државе

Introduction

In recent times, ECs and EECs have encountered significant challenges that have shaken their economic stability and geopolitical landscape. The outbreak of the COVID-19 pandemic and the intensifying of the Russian-Ukraine conflict have posed unique and extra hurdles for investment among nations, particularly in attracting and maintaining foreign direct investment (FDI) assets.

FDI plays a crucial role in boosting economic growth, promoting technological advancement, and creating employment opportunities. However, the unprecedented circumstances brought about by the pandemic and the ongoing conflict have raised concerns about the ability of ECs, especially EECs, to attract and retain foreign investment amidst uncertainty and evolving geopolitical dynamics.

The COVID-19 pandemic has had a profound impact on global economies, disrupting supply chains, trade, and investment flows. At the height of the outbreak of the disease, governments worldwide were forced to implement stringent measures to contain the spread of the virus, leading to economic contractions and significant market volatility (in some places, some of those

measures are still in place, while their consequences are still being felt in most places). These factors have influenced investors' sentiment and decision-making processes, affecting FDI inflows across multiple sectors. At the height of the COVID-19 pandemic in 2020, FDI into Central, East, and Southeast Europe (CESEE) fell by 58% in the first half of 2020 compared to the same period in 2019. This was a more dramatic decline than the global average of 49% but less severe than the decline in developed economies (75%).³

Simultaneously, the long-standing Russian-Ukraine conflict has escalated, with ramifications not only for the involved nations but also for neighbouring countries in EECs and the wider European Union (in fact, the war has been projected to slow down the global economy if peace is not brokered between both countries).⁴ Heightened geopolitical tensions and territorial disputes have raised concerns about political stability, security, and the rule of law. These factors contribute to an uncertain investment climate, potentially deterring foreign investors from committing capital to the region. The uncertainty caused by the Russia-Ukraine war has made recovery from the COVID-19-induced decline in FDI more difficult, which is why these two phenomena should be studied together. Russia has been particularly affected, as 1,260 international companies operating in the country (representing 43 of all international companies in the country) have either stopped operating or withdrawn totally. A further 495 companies have halted investment plans in the country. After a 42% year-on-year high increase in FDI inflows in Q1 2022, Central and Eastern European countries (CEE) experienced a decline of 21%. In Belarus, Kazakhstan, Moldova, and Ukraine, the decline in FDI inflows has been sharper, at 31% year-on-year.⁵

Pandemics and wars are sources of uncertainty as they pertain to FDI flows. Studies such as Ho and Gan (2021), Lee et al. (2022), Zhan (2020), and Okunoye et al. (2023) have shown that pandemics and pandemic uncertainties have significant negative effects on FDI flows in different parts of the world, but especially in developing and emerging countries.⁶ In the

³ Amat Adarov & Hunya Gabor, "Foreign Investments Hit by COVID-19 Pandemic. FDI in Central, East and Southeast Europe", Wiener Institut für Internationale Wirtschaftsvergleiche, <https://wiiw.ac.at/foreign-investments-hit-by-covid-19-pandemic-fdi-in-central-east-and-southeast-europe-dlp-5540.pdf>, 06/06/2023, 5.

⁴ Mohamad Ikhwan Syahtaria, "Strategic review of the impact of the Russia-Ukraine war on Indonesian national economy", *Global Journal of Engineering and Technology Advances*, Vol. 12, No. 3, 2022, 1-8.

⁵ Olga Pindyuk, "Russia's war in Ukraine causes a reversal of FDI trends", Wiener Institut für Internationale Wirtschaftsvergleiche, <https://wiiw.ac.at/russia-s-war-in-ukraine-causes-a-reversal-of-fdi-trends-n-585.html>, 06/02/2023.

⁶ Linh Tu Ho & Christopher Gan, "Foreign direct investment and world pandemic uncertainty index: Do health pandemics matter?", *Journal of Risk and Financial Management*, Vol. 14, No. 3, 2021, 107; Lianne MQ. Lee, I-Chieh Michelle Yang & Motoki Watabe, "FDI in the Era of the Pandemic: Public Health as a New Country Risk Measure", In: Andrei

same way, several studies have documented the impact of war on FDI. The results from the studies vary; in Li et al. (2017), while the primary sector FDI of developing countries did not suffer negative consequences due to wars, the secondary and tertiary sectors were significantly weakened by wars.⁷ Other studies, such as Witte et al. (2017), found that investment flows of greenfield FDI to resource-rich sectors were not negatively affected by political violence, unlike the negative effect on nonrecourse sectors.⁸

In this context, it becomes crucial to examine the impact of the COVID-19 pandemic and the Russian-Ukraine conflict on FDI in ECs and EECs. Understanding the challenges faced and identifying potential opportunities can inform policy decisions and strategies aimed at attracting and retaining foreign investment, thereby contributing to economic recovery and stability.

More specifically, this study is crucial for the following reasons:

1. Economic Recovery and Resilience: FDI plays a critical role in economic growth, job creation, and technological advancement. Understanding the impact of the pandemic and the conflict on FDI can help countries identify strategies to attract and retain investment, thereby contributing to their economic recovery and building resilience in the face of external shocks.
2. Investment Climate and Competitiveness: The ability to attract FDI is often seen as a measure of a country's attractiveness as an investment destination. Analysing the challenges and opportunities surrounding FDI in the current circumstances can provide insights into the overall investment climate and the competitiveness of ECs and EECs. This knowledge can inform policy decisions aimed at improving the business environment and enhancing the countries' attractiveness to foreign investors.
3. Geopolitical Implications: The Russian-Ukraine conflict has geopolitical implications beyond the two countries involved. It has the potential to impact neighbouring countries and the wider European Union. Understanding the effects of the conflict on FDI can help assess the

O. J. Kwok, Motoki Watabe, Sharon G.M. Koh (eds), *COVID-19 and the Evolving Business Environment in Asia: The Hidden Impact on the Economy, Business and Society*, Singapore: Springer Nature Singapore, 2022, 77-95; James X. Zhan, "Covid-19 and investment-an UNCTAD research round-up of the international pandemic's effect on FDI flows and policy", *Transnational corporations*, Vol. 27, No. 1, 2020, 1-3; Ismaila Adeleye Okunoye, Emeka O. Akpa, Bamidele Boluwatife & Maxwell Jimmy, "Does Global Economic Uncertainty Affect Foreign Direct Investment? Evidence From Asian Emerging Markets", *Asian Economics Letters*, Vol. 4, 2023.

⁷ Chengchun Li, Syed Mansoob Murshed & Sailesh Tanna, "The impact of civil war on foreign direct investment flows to developing countries", *The Journal of International Trade & Economic Development*, Vol. 26, No. 4, 2017, 488-507.

⁸ Caroline T. Witte, Martijn J. Burger, Elena I. Ianchovichinana & Enrico Pennings. "Dodging bullets: The heterogeneous effect of political violence on greenfield FDI", *Journal of International Business Studies*, Vol. 48, 2017, 862-892.

broader geopolitical landscape and inform strategies to mitigate risks and maintain stability.

4. Policy Formulation: Governments and policymakers need accurate and up-to-date information to formulate effective policies and measures to promote FDI. By studying FDI trends and drivers amidst the pandemic and conflict, policymakers can make informed decisions to attract investment, create a conducive business environment, and address any barriers or challenges faced by investors.
5. Risk Assessment and Mitigation: The COVID-19 pandemic and the Russian-Ukraine conflict have introduced new risks and uncertainties for investors. Analysing FDI in this context can help identify potential risks and vulnerabilities, allowing businesses and investors to make informed decisions and develop risk mitigation strategies.
6. International Collaboration: FDI is often influenced by international cooperation and collaboration. Studying FDI in the face of the pandemic and the conflict can help identify opportunities for collaboration among ECs and EECs, as well as with other global actors. Cooperation in areas such as investment promotion, trade facilitation, and policy coordination can contribute to fostering economic stability and growth.

This paper aims to analyse the trends, drivers, and challenges associated with FDI in ECs and EECs amidst the COVID-19 pandemic and the Russian-Ukraine conflict. By examining the economic and geopolitical factors influencing FDI flows, we can gain valuable insights into the strategies that countries can employ to foster investment resilience, enhance competitiveness, and mitigate risks.

Literature Review

Theory

The study by Denisia (2010) has a comprehensive review of the relevant theories in FDI.⁹ Of most importance to this study is the Eclectic Theory of Foreign Direct Investment (FDI) Determination, also known as the OLI framework, which was proposed by John Dunning (1977, 1979).¹⁰ It seeks to explain why MNEs engage in FDI by considering three main factors:

⁹ Vintila Denisia, "Foreign direct investment theories: An overview of the main FDI theories", *European journal of interdisciplinary studies*, Vol. 2, No. 2, 2010, 104-110.

¹⁰ John H. Dunning, "Trade, location of economic activity and the MNE: A search for an eclectic approach", In: Bertil Ohlin, Per-Ove Hesselborn, Per Magnus Wijkman (eds), *The international allocation of economic activity: proceedings of a Nobel Symposium held at Stockholm*, London: Palgrave Macmillan UK, 1977, 395-418; John H. Dunning, "Explaining changing patterns of international production: in defence of the eclectic theory," *Oxford bulletin of economics and statistics*, Vol. 41, No. 4, 1979, 269-295.

ownership advantages, location advantages, and internalisation advantages. While uncertainties play a crucial role in FDI decisions, they are not explicitly addressed within the Eclectic Theory. However, we can discuss how uncertainties may be relevant to each component of the OLI framework.

1. Ownership Advantages: Ownership advantages refer to the unique assets, capabilities, or competitive advantages that a firm possesses. Uncertainties can arise in terms of protecting and exploiting these advantages in foreign markets. For instance, a firm may face uncertainties related to intellectual property protection, legal and regulatory frameworks, and the ability to transfer and utilise their knowledge in a foreign setting.
2. Location Advantages: Location advantages consider the benefits of operating in a particular country or region. Uncertainties regarding the host country's political stability, economic conditions, infrastructure, cultural differences, and market demand can influence a firm's decision to undertake FDI. The level of uncertainty may impact the perceived attractiveness and viability of investing in a specific location. The four FDI motives for considering location advantages are: market seeking, resource seeking, efficiency seeking, and strategic asset seeking.
3. Internalisation Advantages: Internalisation advantages refer to the benefits a firm can gain by controlling and coordinating its activities within its own organisational boundaries rather than relying on market transactions. Uncertainties arise in terms of the costs and risks associated with alternative modes of market entry, such as licencing, franchising, or joint ventures. Firms may choose FDI as a way to reduce uncertainties related to transaction costs, protect intellectual property, maintain quality control, and safeguard proprietary knowledge.

The knowledge-based capital model of Markusen, which was described in Markusen and Venables (1998) and further developed in Markusen and Maskus (2001 & 2002), explains multinational enterprises' behaviour within a general equilibrium framework and was tested by Stack et al. (2017).¹¹ Stack et al. further explained the model as an FDI country-motive determinant and emphasised the positive relationship between different country

¹¹ James R. Markusen & Anthony J. Venables. "Multinational firms and the new trade theory", *Journal of international economics*, Vol. 46, No. 2, 1998, 183–203; James R. Markusen & Keith E. Maskus, "Multinational firms: reconciling theory and evidence", In: Magnus Blomstrom & Linda S. Goldberg (eds), *Topics in empirical international economics: A festschrift in honor of Robert E. Lipsey*, University of Chicago Press, 2001, 71–98; James R. Markusen & Keith E. Maskus, "Discriminating among alternative theories of the multinational enterprise", *Review of international economics*, Vol. 10, No. 4, 2002, 694–707; Marie M. Stack, Geetha Ravishankar & Eric Pentecost, "Foreign direct investment in the eastern European countries: Determinants and performance", *Structural Change and Economic Dynamics*, Vol. 41, 2017, 86–97.

characteristics that favour different firm types. This model was used to estimate hybrid (vertically and horizontally integrated) firms based on the simulated predictions of Markusen et al. (1996) and Markusen (1997).¹² The relations state criteria for firms' dominance under the three investment decisions: a country endowed with abundant skilled labour and size, mostly large; a country's relative endowments and low trade costs with similar size; and a country with high foreign investment barriers. This has a similar conclusion to Carr et al.'s (2001) presentation of three investment decisions – transport costs, market size, and economies of scale – of multinational enterprises entering the foreign market.¹³ The model proposes that vertical multinational enterprises (MNEs) enter the market and dominate production where there are low trade costs and relatively different factor endowments, even though firms are similar in size. On the other hand, horizontal MNEs enter the market and dominate production where there is a moderately high trade cost and relatively similar factor endowments, even though firms are similar in size.

From the discussion, the OLI framework laid a solid foundation for FDI placement by firms, stating ownership advantage depends on the investor's behaviour and intention, while the Knowledge Capital Framework digs further into the different firms' (especially MNEs) motivations to predict different country characteristics (factor endowments, trade costs, market size, and level of investment barriers) in making investment decisions by investors. The knowledge capital model framework, an improvement model of the OLI framework, has captured the uncertainties (COVID-19 and the Ukraine war) as investment barriers in the foreign country, whether high or low, that may affect the FDI inflow determinants of either vertically or horizontally oriented MNEs towards internationalisation and globalisation. The knowledge capital framework considered the institutional environment, which can be likened to the total COVID-19 test, vaccinations, and level of restriction imposed (stringency index), to reduce the uncertainty spread and investment barriers that can affect FDI. This study assessed the level of uncertainties (COVID-19 cases, deaths, tests, and the level of restrictions) on the FDI inflows (assets transferred by direct investment enterprises and direct investors into the reporting economy for the reporting period).

¹² James R. Markusen, et.al., "A unified treatment of horizontal direct investment, vertical direct investment, and the pattern of trade in goods and services", National Bureau of Economic Research, <https://core.ac.uk/download/pdf/6606194.pdf>, 06/07/2023; James R. Markusen, "Trade versus investment liberalization", National Bureau of Economic Research, https://www.nber.org/system/files/working_papers/w6231/w6231.pdf, 06/07/2023.

¹³ David L. Carr, James R. Markusen & Keith E. Maskus, "Estimating the knowledge-capital model of the multinational enterprise", *American Economic Review*, Vol. 91, No. 3, 2001, 706.

It is important to note that while uncertainties may influence FDI decisions, the Eclectic Theory does not explicitly incorporate them as a separate component. However, firms consider various uncertainties when assessing the advantages and disadvantages of engaging in FDI, particularly in terms of protecting their assets, adapting to foreign market conditions, and mitigating risks.

Empirically, studies on the effect of both the COVID-19 pandemic and the Russia-Ukraine War on FDI flows in ECs and EECs are very few, as the effects of each shock on FDI inflows and the growth of developing and developed economies are documented in the literature. Yet, it is important to consider how these two phenomena, which represent global uncertainties (which are just about a year apart), are affecting the growth pattern of FDI inflows within ECs, particularly EECs, as well as to foreign countries. The study by Charaia et al. (2022) found that the COVID-19 pandemic and the Russia-Ukraine crisis affect FDI flows into the services sector of Georgia.¹⁴ Additionally, Tank and Ospanova (2022) project that the Russia-Ukraine crisis will lead to a reduction in FDI inflows.¹⁵ On the other hand, Ajeigbe (2023) used the generalised method of moments (GMM) estimation technique to find that the Russia-Ukraine war has led to a decline in trade and FDI relations in outward FDI, from Europe to Asia and Africa.¹⁶ Interestingly, a recent report by FDI Intelligence shows that Europe has been able to withstand the Russian-Ukraine crisis in terms of FDI inflows.

The reviewed empirical studies are very sparse on how the COVID-19 pandemic and the Russia-Ukraine crisis combine to affect FDI flows into Europe and Eastern Europe. This study contributes to the existing literature by filling this gap and shedding light on these sources of current FDI uncertainty in Europe, especially in Eastern Europe.

Data and Methodology

Data Sources

The study employs quarterly data spanning 2020Q1 to 2022Q4. The FDI inflow data is sourced from the IMF Balance of Payment Statistics (millions of US dollars), and the COVID-19 data is sourced from Ourworldindata.org.

¹⁴ Vakhtang Charaia, Mariam Lashkhi & Mariam Lashkhi, "Foreign direct investments during the coronomic crisis and armed conflict in the neighbourhood, Case of Georgia", *Globalization & Business*, Vol. 7, No. 13, 2022, 51–56.

¹⁵ Aashish Tank and Al-Farabi Ospanova, "Economic Impact of Russia-Ukraine War", *International Journal of Innovative Research in Science Engineering and Technology*, Vol. 11, No. 4, 2022, 3345–3349.

¹⁶ Oluwaseun Joshua Ajeigbe, "Offshoring/Nearshoring to New Shore: Central and Eastern Europe", University of Debrecen, <https://dea.lib.unideb.hu/items/a9045fb3-42ce-4f47-927d-c33c694388d5>, 06/08/2023.

The study period was chosen due to the availability of data on FDI inflows (Asset Direct Investment).

Methodology

We employ the static panel regression model to estimate the effect of the COVID-19 pandemic and the Russia-Ukraine war on FDI inflows into EECs and ECs.

The model to be estimated is specified, thus:

$$FDI_{it} = \beta_0 + \beta_1 COVID-19_{it} + \beta_2 D2_{it} + \vartheta_{it} + \varphi_{it} \quad (1)$$

Where:

FDI_{it} represents foreign direct inflows into Europe for country i at time t .

$COVID-19_{it}$ represents the various COVID-19 measures employed for this study: total COVID-19 cases (TOT_CASES), total COVID-19 deaths (TOT_DEATH), total COVID-19 tests (TOT_TESTS), total COVID-19 vaccinations (TOT_VACC), COVID-19 stringency index (STR_IN), and hospital beds per thousand (HOSPITAL_BEDS/Th)

$D2_{it}$ represents the dummy variable for the Russia-Ukraine war, where it is 0 before the crisis and 1 thereafter.

ϑ_{it} represents the country-fixed effects, while φ_{it} represents the random effects. The Hausman test is used to choose between the fixed effects and the random effects model. The hypothesis to be tested in the Hausman test is:

H_0 : Random effects model is preferred

H_1 : Fixed effects model is preferred

Results

Statistical Properties of Variables

The estimated result for this study is divided into two categories: (1) the full sample, which includes all the European countries sampled for the study, and (2) a sub-sample of Eastern European countries (EECs) drawn from the larger sample of all the countries.

First, the statistical features of the full sample are described in Table 1.

Table 1: Statistical Features of Variables (Full Sample)

	FDI	TOT_C ASES	TOT_ DEATH	TOT_ TESTS	TOT_ VACC	STR_IN	HOSPITAL _BEDS/
Mean	731668.7	170095.5	1395.175	1306646.	860841.4	38.19109	4.927487
Median	52751.00	23022.00	225.3333	75749.83	0.166667	39.89167	4.500000
Maximum	6836957.	5071464.	33868.33	33844172	20844921	88.73333	11.00000
Minimum	64.82000	0.000000	0.000000	0.000000	0.000000	0.000000	1.400000
Std. Dev.	1456362.	471629.9	3282.373	3930434.	2742746.	24.44535	2.091981
Skewness	2.646964	6.089027	4.809322	5.208273	4.481865	0.067450	0.667017
Kurtosis	9.665604	51.20573	34.09642	34.34570	24.36566	1.833101	3.074931
Jarque-Bera	1400.815	48205.91	20660.36	21275.62	10468.38	26.90708	34.81256
Probability	0.000000	0.000000	0.000000	0.000000	0.000000	0.000001	0.000000
Observations	464	468	468	468	468	468	468

Source: Authors' Compilation (2023)

The table provides a comprehensive overview of various variables, shedding light on their statistical characteristics and implications. One notable finding is the wide range of values for Foreign Direct Investment (FDI), indicating substantial variation in investment levels across the observed countries. The positive skewness and higher kurtosis of the FDI distribution suggest that while the average FDI is around 731,668.7, there are instances of extremely high investment values. This implies that certain countries may attract significantly more FDI than others, potentially reflecting differing levels of economic development, investment attractiveness, or specific policies that incentivize foreign investment. In the context of the COVID-19 pandemic, the positively skewed distributions, higher kurtosis, and departures from normality observed in total cases, deaths, tests, and vaccinations imply significant heterogeneity across European countries. This suggests varying levels of COVID-19 impact, testing capacity, and vaccination efforts. Additionally, the data highlights the distribution of the stringency index and hospital beds per capita. The

moderate level of stringency, as indicated by a mean of approximately 38.19109 and a median of 39.89167, suggests that countries in Europe have implemented measures to restrict social and economic activities in response to the pandemic. However, the positive skewness of the stringency index distribution indicates that some countries have implemented more stringent measures compared to others. The distribution of hospital beds per capita, with a mean of approximately 4.927487, shows variation in healthcare infrastructure across countries.

Next, the study considers the statistical features of the variables selected for the Eastern European Countries (EECs) sub-sample. The statistical properties of the variables are presented in Table 2.

Table 2: Statistical Features of Variables (Sub-Sample, EECs)

	FDI	TOT_CASES	TOT_DEATH	TOT_TESTS	TOT_VACC	STR_IN	HOSPITAL_BED/th
Mean	58807.71	80117.84	1325.817	479853.7	454706.9	35.32495	6.029350
Median	8216.560	18655.50	216.0000	19675.17	0.000000	38.88833	6.190000
Maximum	487004.0	2447648.	33868.33	14016588	16447007	88.73333	11.00000
Minimum	133.2100	0.000000	0.000000	0.000000	0.000000	0.000000	2.600000
Std. Dev.	132279.3	206503.8	3574.956	1546322.	1765744.	24.99506	1.979541
Skewness	2.571608	7.331004	5.540666	5.418617	7.109038	0.125854	0.380886
Kurtosis	7.919776	76.07963	40.91123	36.86626	60.20972	1.837985	3.223331
Jarque-Bera	504.4579	55556.07	15600.58	12643.69	34751.06	14.13636	6.301733
Probability	0.000000	0.000000	0.000000	0.000000	0.000000	0.000852	0.042815
Observations	239	240	240	240	240	240	240

Source: Authors' Compilation (2023)

The Table shows that the wide range of FDI values, from a minimum of 133.21 to a maximum of 487,004, suggests significant variation in foreign direct investment across the EECs. This indicates that different countries or regions have varying levels of attractiveness for foreign investors. On

COVID-19-related measures, the positive skewness and kurtosis values for variables such as total COVID-19 cases, total COVID-19 deaths, total COVID-19 tests, and total COVID-19 vaccinations suggest that these variables have distributions skewed towards higher values and have heavier tails. This implies that certain countries might have experienced more extreme values in terms of COVID-19 cases, deaths, testing, and vaccination rates. Furthermore, the relatively symmetrical distribution of the stringency index suggests that countries or regions have implemented a range of measures to respond to the COVID-19 pandemic. However, the positive skew indicates that some countries might have the higher stringency measures compared to the majority. Finally, the relatively symmetrical distribution of hospital beds per thousand suggests that there is a more balanced distribution of hospital beds across the countries. This implies that countries or regions have relatively consistent levels of hospital beds. The Jarque-Bera test results indicate departures from normality for several variables.

Correlation Analysis

Tables 3a and 3b contain the correlation analysis to measure the strength of association among the variables with a view to recognising and guarding against potential multicollinearity.

Table 3a: Result of Correlation Analysis (Full Sample [ECs])

Correlation	FDI	TOT_CASE	TOT_DEATH	TOT_TEST	TOT_VAC	STR_IN	HOSPIT_BED
FDI	1.000000						
TOT_CASES	0.194819	1.000000					
TOT_DEATH	0.085890	0.417956	1.000000				
TOT_TESTS	0.157835	0.508157	0.344392	1.000000			
TOT_VACC	0.130908	0.395740	0.516472	0.537849	1.000000		
STR_IN	0.070138	0.007962	0.278740	0.172405	0.167448	1.000000	
HOSPITAL_BEDS/	-0.121254	0.071091	0.182828	-0.119101	0.069663	-0.018899	1.000000

Table 3b: Result of Correlation Analysis (Sub-Sample [EECs])

Correlation	FDI	TOT_CASE	TOT_DEATH	TOT_TEST	TOT_VAC	STR_IN	HOSPIT_BED
FDI	1.000000						
TOT_CASES	0.423162	1.000000					
TOT_DEATH	0.483056	0.756198	1.000000				
TOT_TESTS	0.432617	0.340049	0.414169	1.000000			
TOT_VACC	0.371833	0.525217	0.838377	0.237011	1.000000		
STR_IN	0.088573	0.155711	0.238598	0.209763	0.162240	1.000000	
HOSPIT_BED/1000	0.280803	0.225062	0.251954	0.155091	0.168520	0.059133	1.000000

Source: Authors' Compilation (2023)

The results of the correlation analysis suggest that multicollinearity, which is the presence of strong correlations among predictor variables, may not be a significant concern. The weak to moderate correlations observed among the variables indicate that they are not strongly interrelated. This implies that the variables included in the analysis provide unique and independent information, and there is no strong linear relationship or redundancy among them.

Having examined the correlation of the variables in the full sample, the result of the correlation analysis for the sub-sample (EECs) is presented in Table 4. Like the full sample, there is no sufficient evidence to suggest that the correlation among the variables in the sub-sample is strong enough to cause problems of multicollinearity, given their small and moderate correlation coefficient.

Main Results

In this sub-section, Tables 4 and 5 present the results of the analysis of the effects of the COVID-19 pandemic and the Russian-Ukraine crisis on FDI inflows in Europe. The study starts by discussing the results of the estimation

for the full sample; thereafter, discussion is made of the sub-sample. The fixed effects estimator is chosen for all the empirical analyses in this study based on the statistically significant chi-square of the Hausman test presented in the various Hausman test result tables.

The Result for the Full Sample

In Table 5, the results of the effect of COVID-19 total cases and stringent measures on FDI inflows in Europe are presented.

In this model, the result for total cases suggests a very small increase in FDI as a result, and this relationship is not statistically significant (p -value > 0.05). Therefore, as the number of COVID-19 cases increases, there is a positive but insignificant impact on FDI inflows. Similarly, the coefficient for stringent COVID-19 measures indicates that a one-unit increase in the stringency index is associated with a very small percentage increase in FDI, and this relationship is also not statistically significant (p -value > 0.05). Hence, higher levels of stringency in implementing COVID-19 measures are statistically significantly associated with increased FDI inflows.

The estimated coefficients for FDI indicate that the number of COVID-19 cases and the stringency of containment measures have a limited impact on FDI inflows. While higher COVID-19 case numbers and stricter containment measures may have some influence on FDI, the coefficients are statistically insignificant.

For the analysis on ECs with dummy variables, the study controls for the effect of the Russia-Ukraine war (used as dummy variables) on the FDI inflows effects of COVID-19 in Europe. In Table 4, the estimated coefficients for total cases for the full sample are statistically insignificant (p -value = 0.9386), indicating that the number of COVID-19 cases does not have a significant impact on FDI inflows. On the other hand, the coefficient for stringent measures is statistically significant (p -value = 0.0001), suggesting that a one-unit increase in the stringency index is associated with an increase in FDI. Additionally, the coefficient for the dummy variable indicating the time of Russia's invasion of Ukraine is also statistically significant (p -value = 0.0000), indicating that there is a significant difference in FDI patterns between the two periods represented by the dummy variable. Overall, these findings imply that factors other than COVID-19 cases, such as the stringency of containment measures and temporal differences, may have a more pronounced influence on FDI inflows.

Table 4: Fixed Effects and Hausman Test result of COVID-19 measures- total cases & stringent measures- and Ukraine-Russia war on FDI inflows in ECs and EECs

Dep. Variable: LOG(FDI)	FIXED EFFECTS			
Variable	Coefficient (Std err)	Coefficient (Std err)	Coefficient (Std err)	Coefficient (Std err)
	Full Sample (EC)	Full Sample (EC)	Sub-Sample (EEC)	Sub-Sample (EEC)
C	10.81278*** (0.0092)	10.77422*** (0.012891)	8.990540*** (0.015402)	8.918299*** (0.021260)
TOT_CASES	1.44E-08 (1.12E-08)	8.80E-10 (1.14E-08)	8.14E-09 (3.90E-08)	-4.21E-08 (3.86E-08)
STRINGENT_ INDEX	0.000348* (0.000200)	0.000985*** (0.000248)	5.16E-05 (0.000367)	0.001358*** (0.000447)
D2		0.050406*** (0.012024)		0.095654*** (0.020374)
F-statistic	12449.28	12626.79	3719.588	3905.382
Prob(F-statistic)	0.000000	0.000000	0.000000	0.000000
HAUSMAN TEST				
Test Summary	Chi-Sq. Stat [Prob]	Chi-Sq. Stat [Prob]	Chi-Sq. Stat [Prob]	Chi-Sq. Stat [Prob]
Cross-section random	16.927698 [0.0002]	16.597322 [0.0009]	14.251163 [0.0008]	14.267513[0.002 6]

Robustness Checks

Table 5: Fixed Effects and Hausman Test result of COVID-19 measures- total cases, tests, deaths, vaccinations & stringent measures- and Ukraine-Russia war on FDI inflows

Dep. Variable: LOG(FDI)		FIXED EFFECTS				
Variable	Coefficient (Std err)	Coefficient (Std err)	Coefficient (Std err)	Coefficient (Std err)	Coefficient (Std err)	Coefficient (Std err)
	Full Sample (EC)	Full Sample (EC)	Full Sample (EC)	Sub- Sample (EEC)	Sub- Sample (EEC)	Sub- Sample (EEC)
C	10.77189*** (0.012792)	10.77464*** (0.012846)	10.76921*** (0.012749)	8.917826*** (0.021270)	8.918265*** (0.021150)	8.916074*** (0.021304)
TOT_ CASES			-1.98E-08* (1.29E-08)			
TOT_ TESTS	4.18E-09*** (1.47E-09)		3.66E-09** (1.81E-09)	5.74E-09 (4.88E-09)		4.37E-09 (4.96E-09)
TOT_ DEATHS		3.15E-06* (1.80E-06)	2.32E-06 (1.94E-06)		4.72E-06* (2.76E-06)	3.15E-06 (3.74E-06)
TOT_ VACC			4.47E-09** (2.17E-09)			2.45E-09 (5.01E-09)
STRINGENT _INDEX	0.000901*** (0.000246)	0.000866*** (0.000256)	0.000829*** (0.000254)	0.001173*** (0.000439)	0.001086*** (0.000443)	0.001065*** (0.000451)
D2	0.050599*** (0.011420)	0.049668*** (0.011503)	0.057676*** (0.011945)	0.090498*** (0.019585)	0.089466*** (0.019495)	0.091128*** (0.019630)
F-statistic	12875.15	12720.19	12180.06	3909.101	3938.080	3580.909
Prob (F-stat)	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
HAUSMAN TEST						
Test Summary	Chi-Sq. Stat [Prob]	Chi-Sq. Stat [Prob]	Chi-Sq. Stat [Prob]	Chi-Sq. Stat [Prob]		Chi-Sq. Stat [Prob]
Cross-section random	12.801550 [0.0051]	11.111411 [0.0111]	16.918111 [0.0096]	11.063875 [0.0114]	14.285093	
[0.0025]	13.015416 [0.0232]					

Note: Standard errors in bracket and probability values in parenthesis. ***, **, and * indicate significance at 1%, 5% and 10%. EC implies European countries; EEC implies Eastern European countries.

For ECs, the estimated coefficient for total COVID-19 cases is statistically insignificant without controlling for the Russia-Ukraine war. This implies that the number of COVID-19 cases alone may not have a significant impact on FDI inflows in Europe during the studied period unless the war is controlled for. On the other hand, the coefficient, which captures the stringency of containment measures, is statistically significant. This suggests that stricter containment measures may have a positive effect on FDI inflows in Europe. Additionally, the coefficient for the dummy variable indicates that FDI inflows increased during or after the crisis compared to the period before the crisis. This could imply that the crisis created new opportunities or incentives for foreign investors in Europe, such as favourable investment conditions, market realignments, or increased demand for certain goods or services.

Robustness Checks for the Full Sample

For robustness, different COVID-19 measures are adopted in the analysis, apart from total cases (TOT_CASES) and stringent measures (STRINGENT_INDEX). They include total COVID-19 tests (TOT_TESTS), total COVID-19 deaths (TOT_DEATHS), and total COVID-19 vaccination (TOT_VACC).

In Table 5, the results of the effect of total COVID-19 tests, stringent measures, and the Russian-Ukraine war are presented. The estimated model shows that the coefficient for COVID tests is 4.18E-09. This suggests that there is a positive but very small relationship between the number of COVID-19 tests conducted and FDI. However, the coefficient is also significant (t-Statistic = 2.843185, Prob. = 0.0047), indicating that the relationship is unlikely to be due to chance alone.

The coefficient for stringent COVID-19 measures is 0.000901. This implies that an increase in the stringency index is associated with a positive change in FDI. The coefficient is statistically significant (t-Statistic = 3.656505, Prob. = 0.0003), indicating a meaningful relationship between stringency measures and FDI.

The coefficient for the dummy variable suggests that this condition or event has a positive effect on FDI. The coefficient is statistically significant (t-Statistic = 4.430906, Prob. = 0.0000), indicating that the dummy variable is an important factor in explaining the variation in FDI.

There are implications for these findings. First, the positive and significant coefficient for the stringency index implies that higher levels of stringency measures, possibly related to COVID-19 restrictions, are associated with increased FDI inflows. This suggests that investors may perceive countries with stricter measures as more stable and better equipped to handle crises, making them attractive destinations for foreign investment.

Second, the positive and significant coefficient for the dummy variable indicates (as before) that the FDI into Europe may have arisen during or after the Russia-Ukraine war.

Lastly, the small and positive coefficient for the number of COVID-19 tests conducted suggests a weak association between testing efforts and FDI inflows. While the relationship is statistically significant, the magnitude of the coefficient indicates that the impact of testing on FDI is relatively small in comparison to other factors.

In Table 5, the results of the effect of total COVID-19 deaths, stringent measures, and the Russian-Ukraine war for the full sample are presented. From the result displayed in Table 5, it is observed that the coefficient for total COVID-19 deaths is 3.15E-06 with a standard error of 1.80E-06. The t-statistic of 1.744643 suggests that the coefficient is not statistically significant at conventional levels (p -value = 0.0818). This implies that the number of deaths due to COVID-19 does not have a significant impact on FDI. Additionally, the coefficient for stringent COVID-19 measures is 0.000866, with a standard error of 0.000256. The t-statistic of 3.388413 indicates that the coefficient is statistically significant. This suggests that higher levels of the stringency index, which may reflect stricter regulations or policies, have a positive and significant impact on FDI. This implies that countries with more stringent measures attract higher levels of foreign investment.

Finally, the coefficient for the dummy variable, which measures the effects of the Russian-Ukraine war on FDI flows into Europe, is 0.049668, with a standard error of 0.011503. The t-statistic of 4.317752 indicates that the coefficient is statistically significant. Like previous findings, the war may have affected FDI flows.

This result implies that the coefficient for total deaths, although not statistically significant at conventional levels, suggests a positive relationship between the number of deaths and FDI inflows. One possible explanation behind this finding could be that higher mortality rates, possibly associated with adverse health conditions or crises, may lead to changes in investment patterns. For example, it could be that certain industries or sectors, such as healthcare or pharmaceuticals, experience increased investment due to the demand for medical services or products during periods of high mortality rates occasioned by COVID-19 deaths. Additionally, the significant coefficient for the stringency index suggests that stricter regulations or policies implemented by countries to prevent the spread of the pandemic positively attracted foreign direct investment (FDI) into Europe. Stringency in regulations may signal a stable and conducive business environment, providing confidence to foreign investors. Finally, the significant coefficient for the dummy variable further suggests that the occurrence of the Russian-Ukraine war has attracted increased FDI inflows.

In Table 5, the results of the effect of all the COVID-19-related measures – total cases, total deaths, total tests, total vaccination, stringent measures, and the Russian-Ukraine war – on FDI inflows into Europe (the full sample) are presented. The estimated model in Table 5 shows that the coefficient for total COVID-19 cases exerts a negative but statistically insignificant effect on FDI inflows. This means that an increase in COVID-19 cases is not significantly associated with a decrease in FDI inflows. On the other hand, the coefficient for total COVID-19 deaths indicates a positive but statistically insignificant relationship with FDI inflows, suggesting that the impact of COVID-19 deaths on FDI inflows may be positive but not statistically significant.

Meanwhile, the coefficients for total tests and total vaccinated indicate a positive and statistically significant relationship with FDI inflows. This suggests that higher levels of COVID-19 testing and vaccination efforts are associated with increased FDI inflows into Europe. The coefficient for stringent COVID-19 measures is also positive and statistically significant, indicating that stricter containment measures and restrictions implemented during the COVID-19 pandemic are associated with higher FDI inflows. Finally, the coefficient for the dummy variable representing Russia's invasion of Ukraine is positive and statistically significant, indicating that there is a significant difference in FDI inflows during and after Russia's invasion of Ukraine.

The findings suggest that the number of COVID-19 cases and deaths may not have a significant impact on FDI inflows. This implies that investors may not be significantly deterred by the overall level of COVID-19 cases or deaths when making investment decisions in Europe. On the other hand, the positive and significant relationship between FDI inflows and the number of COVID-19 tests and vaccinations indicates that investors may be more inclined to invest in an environment that has robust testing and vaccination efforts. This suggests that countries with effective public health measures and control of the pandemic may attract higher levels of FDI. Furthermore, the positive and significant coefficient for the stringency index implies that stricter containment measures implemented during the COVID-19 pandemic are associated with higher FDI inflows in Europe. This suggests that countries that effectively manage the spread of the virus and ensure business continuity through well-implemented containment measures may be more attractive to foreign investors. Finally, the invasion of Ukraine by Russia seems not to deter potential investors in Europe.

Results for the Sub-sample

After examining the effect of COVID-19 measures and the Russian-Ukraine crisis on FDI inflows in Europe, the study turns to examine the aforementioned in 19 selected EECs as well. The results of the analysis are presented as follows:

The fixed effects estimator is chosen for all the empirical analyses of the sub-sample based on the statistically significant chi-square of the Hausman tests presented in Tables 4 and 5.

In Table 4, the results of the effect of COVID-19 total cases and stringent measures on FDI inflows in EECs are presented. In this regression analysis, the coefficient for total COVID-19 cases is 8.14E-09. This value is very close to zero, and the coefficient is not statistically significant (t-Statistic = 0.208986, Prob. = 0.8347). This suggests that the total number of COVID-19 cases does not have a significant impact on FDI inflows in this regression model. This is similar to the result found in the full sample. Furthermore, the coefficient for the stringency index is 5.16E-05. Similar to the total COVID-19 cases, this coefficient is very close to zero, and it is not statistically significant (t-Statistic = 0.140538, Prob. = 0.8884). Therefore, the stringency index also does not have a significant impact on FDI inflows in this model.

This result is generally similar to what was obtained in the full sample, although the coefficient for the stringency index is larger in the full sample than in the sub-sample.

The result of the analysis suggests that, in the context of the specified time period and sample, the level of COVID-19 cases does not strongly influence foreign investors' decisions to invest in the EECs. Other factors may play a more significant role in attracting FDI inflows. Similarly, the coefficient for the stringency index is not statistically significant, indicating that the level of stringency in response to the COVID-19 pandemic does not have a significant impact on FDI inflows. This implies that the strictness of COVID-19 containment measures, such as lockdowns or travel restrictions, may not be the primary determinant of foreign investors' decisions to invest in EECs.

For the analysis of EECs with dummy variables, the study controls for the effect of the Russia-Ukraine war on the FDI inflow effects of COVID-19 in EECs. In the estimated model (which controls for the Russia-Ukraine crisis) presented in Table 4, the coefficient for total COVID-19 cases is -4.21E-08. This negative coefficient suggests that an increase in the number of COVID-19 cases is associated with a decrease in FDI inflows, although the coefficient is not statistically significant (t-Statistic = -1.089792, Prob. = 0.2771). This indicates that the number of COVID-19 cases may not have a significant impact on FDI inflows in the specified time period in EECs, despite the negative effect. On the other hand, the coefficient for the stringency index is 0.001358. This positive coefficient suggests that a higher stringency index, representing more stringent COVID-19 containment measures, is associated with increased FDI inflows. The coefficient is statistically significant (t-Statistic = 3.040068, Prob. = 0.0027), indicating that the stringency index has a significant impact on FDI inflows. The value of the coefficient for the stringent index for the EECs is higher than that for all of Europe. Finally, the coefficient for the dummy for the Russia-Ukraine war is 0.095654, and it is statistically

significant (t-Statistic = 4.695021, Prob. = 0.0000). This positive coefficient suggests that the period during the Russian invasion of Ukraine is associated with increased FDI inflows compared to the period before the invasion. It indicates that there is a significant and positive impact of the Russia-Ukraine conflict on FDI inflows during the specified time period and sample.

These findings have several implications. The positive and statistically significant coefficient for the Stringency Index suggests that more stringent COVID-19 containment measures are associated with increased FDI inflows. This implies that investors may perceive EECs with stricter measures as having better control over the pandemic, leading to a more favourable investment environment. Furthermore, the positive and statistically significant coefficient for the dummy variable, which represents the period during the Russian invasion of Ukraine, suggests that this geopolitical event has had a positive impact on FDI inflows. The conflict (the Russia-Ukraine war) may have created new investment opportunities, such as infrastructure rebuilding or market shifts that attract foreign investors. Finally, the coefficient for total COVID-19 cases is not statistically significant, implying that the number of COVID-19 cases does not have a significant impact on FDI inflows in EECs during the specified time period. This suggests that foreign investors may be considering factors other than the number of COVID-19 cases when making investment decisions.

Robustness Checks for the Sub-Sample

For robustness, other COVID-19 measures are adopted in the analysis apart from total cases and stringent measures. They include total COVID-19 tests and total COVID-19 deaths.

In Table 5, the results of the effect of total COVID-19 tests, stringent measures, and the Russian-Ukraine war are presented. From the estimated result, the positive coefficient suggests a positive relationship between the number of COVID-19 tests conducted and FDI inflows, although it is not statistically significant at the conventional significance level ($p > 0.05$). This means that the number of tests conducted does not have a significant impact on FDI inflows in the given sample. This is unlike the full sample, where COVID-19 testing exerted a significant positive effect on FDI inflows. Thus, it suggests that the ability of Europe to attract FDI due to COVID-19 testing is enhanced more by the efforts of countries in Western Europe. Furthermore, the coefficient for the stringency index is 0.001173. This positive and statistically significant coefficient implies that a one-unit increase in the stringency index, which measures the strictness of COVID-19 containment measures, is associated with a 0.001173 unit increase in FDI inflows into EECs. This suggests that stricter containment measures may have a positive impact on attracting foreign investment. Finally, the coefficient for the Russia-Ukraine conflict further suggests that the conflict may have created

new investment opportunities or changed market dynamics, leading to increased FDI inflows.

The coefficient for total COVID-19 tests, although not statistically significant, suggests a positive relationship between the number of COVID-19 tests conducted and FDI inflows into EECs. This implies increased investor confidence and a more stable business environment during the pandemic. The coefficient for stringency indicates that stricter COVID-19 containment measures are associated with higher FDI inflows. This suggests that countries or regions that implemented stricter measures to control the spread of the virus may have been perceived as more attractive investment destinations due to their perceived stability and lower health risks.

Table 5 presents the results of the effect of total COVID-19 deaths, stringent measures, and the Russian-Ukraine war on the sub-sample. The estimated result shows that the coefficient of $4.72E-06$ suggests that a one-unit increase in the total number of deaths due to COVID-19 is associated with a $4.72E-06\%$ increase in FDI inflows. However, this coefficient is not statistically significant (p-value of 0.0896), indicating that the relationship between COVID-19 deaths and FDI inflows may not be robust in this model. At the same time, the coefficient of 0.001086 indicates that a one-unit increase in the stringency index is associated with a 0.001086% increase in FDI inflows. This coefficient is statistically significant (p-value of 0.0152), suggesting that ECS with stricter containment measures may attract higher FDI inflows. A positive coefficient for the Russia-Ukraine war dummy suggests that the post-conflict period is associated with higher FDI inflows compared to the pre-conflict period. This coefficient is statistically significant (p-value of 0.0000), indicating that the post-conflict period has a significant impact on FDI inflows.

The coefficient for the total COVID-19 deaths, although not statistically significant, suggests a positive relationship between the number of total deaths due to COVID-19 and FDI inflows. However, since the p-value is relatively high (0.0896), the significance of this relationship is uncertain. It is possible that higher COVID-19 mortality rates may negatively affect investor confidence and create economic uncertainty, leading to lower FDI inflows.

Still in Table 5, the results of the effect of all the COVID-19-related measures – total cases, total deaths, total tests, total vaccination, stringent measures, and the Russian-Ukraine war – on FDI inflows into EECs are presented. From the results, the coefficient of $3.15E-06$ suggests that a one-unit increase in the total number of deaths due to COVID-19 is associated with a $3.15E-06\%$ increase in FDI inflows into EECs. However, this coefficient is not statistically significant (p-value of 0.4008), indicating that the relationship between COVID-19 deaths and FDI inflows may not be robust in this model. This is similar to the findings for total deaths that were found earlier.

On the other hand, the coefficient of $4.37E-09$ indicates that a one-unit increase in the total number of COVID-19 tests conducted is associated with

a 4.37E-09% increase in FDI inflows into EECs. However, this coefficient is not statistically significant (p-value of 0.3792), suggesting that the number of COVID-19 tests may not have a significant impact on FDI inflows, consistent with previous findings but not consistent with the full sample where a significant positive relationship is found.

Furthermore, the coefficient of 2.45E-09 suggests that a one-unit increase in the total number of COVID-19 vaccinations is associated with a 2.45E-09% increase in FDI inflows. This coefficient is also not statistically significant (p-value of 0.6259), indicating that the number of COVID-19 vaccinations may not significantly affect FDI inflows into EECs. Again, this result is not in line with that of the full sample, where vaccination efforts in Europe as a whole lead to a significant increase in FDI inflows.

The coefficient of 0.001065 indicates that a one-unit increase in the stringency index, which measures the strictness of COVID-19 containment measures, is associated with a 0.001065% increase in FDI inflows into EECs. This coefficient is statistically significant (p-value of 0.0191), suggesting that measures may attract higher FDI inflows.

Again, the coefficient of the Russia-Ukraine dummy further indicates that the post-conflict period has a significant impact on FDI inflows.

Conclusion

This study examined the effects of the COVID-19 pandemic and the Russia-Ukraine war on FDI inflows into ECs and EECs. The study was performed by analysing a full sample of the 39 countries in Europe considered and 19 sub-samples representing countries in Eastern Europe.

The findings from the study suggest, overall, that the COVID-19 pandemic may not have been a major hindrance to FDI inflows into Europe. Furthermore, findings from the study suggest that the Russia-Ukraine war has not stopped FDI inflows into ECs and EECs. This claim was confirmed by FDI Intelligence (2022).

However, it is observed that the EECs did not perform as well as the whole of Europe in some measures of the COVID-19 pandemic. For example, the effect of COVID-19 tests on FDI inflows is more significant in Europe as a whole than in the EECs. Furthermore, it is also observed that in the full sample representing all the ECs in the study, the positive effect on FDI inflows of total COVID-19 vaccinations is more significant than in the EECs sample.

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Appendix

Albania^{EE}, Belarus^{EE}, Belgium, Bulgaria^{EE}, Croatia^{EE}, Cyprus, Czech Republic^{EE}, Denmark, France, Georgia^{EE}, Germany, Greece, Hungary^{EE}, Iceland, Ireland, Italy, Latvia^{EE}, Lithuania^{EE}, Luxembourg, Malta, Moldova^{EE}, Montenegro^{EE}, Netherland, North-Macedonia^{EE}, Norway, Poland^{EE}, Portugal, Romania^{EE}, Russia^{EE}, Slovakia^{EE}, Slovenia^{EE}, Solomon-Island, Sweden, Switzerland, Kazakhstan^{EE}, Turkey, Ukraine^{EE}, UK, Uzbekistan^{EE}.