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Foreign Direct Investment Resilience During Times of Crisis: A Comparative Analysis Between Selected Eastern European and African Countries

SUMMARY

Times of crisis provide the opportunity to question the behaviour of socioeconomic agents and specific phenomena around economic growth's resilience. Hence, this paper relies on econometrics to analyse the data compiled from secondary sources mainly available within the World Development Indicators to comparatively examine foreign investors' behavioural shifts in Eastern Europe and Africa during significant crises that the world faced during the last two decades. The aim is to identify, through their impacts, the above behavioural shifts and thereby assist policymakers in advancing policies strengthening and nurturing foreign direct investments' "FDI" resilience and maintenance during and post-crises.

It was uncovered that foreign investors appear to reduce their exposure during crises in Eastern Europe and Africa. The decrease in inflows seems to be higher in Eastern Europe than in Africa. However, the change in net FDI effects on infrastructure, trade openness, and economic growth is more significant in African economies. It is therefore believed that, to nurture FDI

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resilience or maintenance post-crisis, lawmakers should infer policies supporting the reduction of FDI outflows, the development of infrastructure, the improvement of trade openness, and ultimately advancing a sustainable FDI agenda.

Through an empirical analysis of the effects that crisis periods have on FDI in Eastern Europe and Africa, the paper gives suggestions regarding policies that encourage fostering FDI resilience and maintenance in these regions. However, while future research may build on the above, there is a need to particularly investigate how sustainable instruments may support FDI resilience during crises.

Keywords: FDI, resilience, crisis, economic growth, Eastern Europe, Africa.

Отпорност страних директних улагања у кризним временима: компаративна анализа између одабраних источноевропских и афричких држава

САЖЕТАК

Кризна времена пружају прилику проблематизовања социоекономских агенаса и специфичних феномена отпорности економског раста. Овај рад ослања се на економетрију у анализи података прикупљених из секундарних извора, углавном доступних у Индикаторима светског развоја (*World Development Indicators*), како би се компаративно испитале промене понашања страних инвеститора у Источној Европи и Африци током значајних криза с којима се свет суочио у протекле две деценије. Кроз њихове утицаје циљ је да се идентификују горе наведене промене у понашању, и да се на тај начин помогне креаторима политике у унапређењу политике јачања и неговања отпорности и одржавања страних директних инвестиција (СДИ) током и након кризе. Откривено је да страни инвеститори умањују своју изложеност током криза у Источној Европи и Африци. Чини се да је пад прилива већи у Источној Европи него у Африци. Међутим, промена у нето ефектима СДИ на инфраструктуру, отвореност трговине и економски раст значајнија је за афричке економије. Стога се верује да би, за неговање отпорности СДИ или њихово одржавања након кризе, законодавци требало да спроводе политике које подржавају смањење одлива СДИ, развој инфраструктуре, побољшање трговинске отворености и, коначно, унапређење одрживе агенде СДИ.

Емпиријском анализом о ефектима које кризни периоди имају на СДИ у Источној Европи и Африци, овај рад пружа сугестије о политикама које подстичу отпорност и одржавање СДИ у овим регионима. Међутим, иако се будућа истраживања могу надовезати на горе

наведено, постоји потреба да се посебно истражи како одрживи инструменти могу подржати отпорност СДИ током криза.

Кључне речи: стране директне инвестиције, отпорност, криза, економски раст, Источна Европа, Африка

Introduction

The observed fluctuations of foreign direct investment (FDI) flows that the last 30 years' continuous reports of the United Nations Conference on Trade and Development (UNCTAD) display allow us to presume specific behavioural patterns of foreign investors during a particular period. Indeed, despite showing net growth of FDI flows during the last three decades, e.g., FDI data from 1990 [\$204 K. million] until 2022 [\$1,294 K. million], a detailed investigation of the last twenty years yearly flows during the same period allows presuming that in times of crisis, foreign investors focus on save-heavens and attempt to reduce business exposures in regions they perceive as riskier or unstable.³

The above conclusion is confirmed by the observed decreasing trends of FDI in times of crisis, e.g., during the time of the Argentine economic crisis [\$1,356K million to \$549K million]; in the time of the global financial crisis [\$1,906K million to \$1,173K million]; during the first Russian-Ukrainian crisis [\$2,056K million to \$1,375K million]; and during the pandemic of COVID-19, from 2019-2020 [\$1,707K million to \$961K million].⁴ Although during crises, foreign investors display abnormal trading behaviour and seem to mainly disinvest, researchers argue that new opportunities may also arise during such periods.⁵ There is a need to go beyond the FDI perspective of risk and explore the factors that may support FDI's maintenance even during

³ "World Investment Report 2023", United Nations Publications, <https://unctad.org/publication/world-investment-report-2023>, 05/10/2023.

⁴ Ibid.

⁵ Anya Khanthavit, "Foreign Investors' Abnormal Trading Behavior in the Time of COVID-19", *The Journal of Asian Finance, Economics and Business*, Vol. 7, No. 9, 2020, 63; Emad Alchikh Saleh, "The effects of economic and financial crises on FDI: A literature review", *Journal of Business Research*, Vol. 161, 2023; World Investment Report 2023"; "World Investment Report 2021: Investing in Sustainable Recovery Investing, United Nations Conference on Trade and Development", United Nations Publications, https://unctad.org/system/files/official-document/wir2021_en.pdf, 06/28/2023; Imad A. Moosa, & Ebrahim Merza, "The effect of COVID-19 on foreign direct investment infows: stylised facts and some explanations", *Future Business Journal*, Vol. 8, No. 20, 2022, 3; Megan Tobias Neely & Donna Carmichael, "Profiting on Crisis: How Predatory Financial Investors Have Worsened Inequality in the Coronavirus Crisis", *American Behavioral Scientist*, Vol. 65, No. 12, 2021, 1655; Jacques Yana Mbena, "The Status Quo of Research in Sustainable FDI: exploring the theoretical agenda and policy inferences in West and Central Africa", *Future Business Journal*, Vol. 8, No. 46, 2022, 7.

crises.⁶ The authors believe that focusing on regions that have faced multiple crises, such as Europe and Africa, provides the best opportunity to examine the behaviour of foreign economic agents during crises.

Compared to Africa, which remains at the bottom of FDI reports, Europe as a marketplace has been perceived for a decade as a relative safe-heaven for foreign investors.⁷ Interestingly, while Africa remains a region facing multiple crises, few crises resulting from political instabilities or war have been observed in Eastern Europe in the last decades. Examples are the Serbian-Kosovo crisis, the Crimea crisis, and the latest Russian-Ukrainian crisis. Examining FDI development between these regions during global and regional crises may add value to the academic discussion around FDI resilience.

This paper focuses on Eastern European FDI's change during crises and compares its regional FDI settings against those of African economies from an outcomes perspective. The aim is to capture the behavioural differences of foreign investors during crises and start a discussion on which specific areas lawmakers shall focus while inferring policy aiming at supporting regional FDI resilience and maintenance during and after times of crisis.

Ahrend and Schweltnus (2013) found that investors disproportionately shed assets of distant countries during global financial crises as distance appears to influence investors' perceived uncertainty.⁸ From a regional and risk perspective, compared to Africa, Eastern Europe seems closer to the leading global investors headquartered in Western countries.⁹ Consequently, the authors advance the following assumptions: (A1) There are more variations in FDI flows in Africa compared to Eastern Europe during global crises; (A2) Crises have significant negative direct impacts on FDI in Africa compared to Eastern Europe. Therefore, (A3) African economies display less FDI resilience during crises.

In order to achieve the above endeavour and verify the advanced assumptions, the paper revisits past research on regional FDI and foreign investors' perspectives on risk during crises. It analyses available data compiled by international organisations to capture the effect of the change

⁶ Barbara Abou Tanos & Sonia Jimenez-Garcès, "Foreign investments during financial crises: Institutional investors' informational skills create value when familiarity does not", *Journal of International Financial Markets, Institutions and Money*, Vol. 79, 2022.

⁷ "World Investment Report 2023".

⁸ Rudiger Ahrend & Cyrille Schweltnus, "Do investors disproportionately shed assets of distant countries during global financial crises? The role of increased uncertainty", *OECD Journal: Economic Studies*, Vol. 2012, No. 1, 2012, 178.

⁹ "World Investment Report 2021: Investing in Sustainable Recovery Investing, United Nations Conference on Trade and Development"; Jacques Yana Mbena, Susanne Durst, Sascha Kraus & Céline Viala, "Investigating the impact of the dynamics of entrepreneurial intentions on ventures' formalization. *Journal of Entrepreneurship in Emerging Economies*", *Journal of Entrepreneurship in Emerging Economies*, 2023, 1–28.

in FDI behaviour during crises and to explore which dimensions policymakers can rely upon for inferring supportive policies that may help the maintenance of FDI flows even in times of crisis and alleviate the indirect effects of crises on regional FDI settings.

Existing research and stylized facts

Foreign investors' investment risk policies are believed to fluctuate when socioeconomic, political, sanitary, or business conditions change over time within their operating markets. This behaviour may be linked to the underlying rationales they may have relied upon while deciding to move abroad in the first place. Scholars argue that the decision to purchase foreign ventures' assets appears to be mainly based on perceived business opportunities or the need to address home market imbalances.¹⁰ Such imbalances and, in some cases, abnormal decision-making are also observed in crisis periods and may foster the reduction of FDI inflows and an increase of FDI outflows.¹¹ However, crises may also provide few opportunities to invest in specific sectors or develop international entrepreneurial projects. There is a need to explore within the paper's select regions the perspective that past research uncovered on FDI phenomena during crises and the picture that existing data enable us to draw in such circumstances.

Research on Foreign Investors' Behaviour During Crises

Crises create uncertainty for decision-makers at home and abroad. The multiplicity of causes or origins that crises may have, e.g., war, climate change, health, financial mismanagement, regional or global challenges, etc., does not make it easy for economic agents to cultivate resilient behaviour, while it also leads to diversified effects on economic settings.¹² Especially

¹⁰ Charles P. Kindleberger, "The Theory of Direct Investment", In: *American Business Abroad*, Charles P. Kindleberger (ed.), Yale University Press, New Haven, 1969.

¹¹ Anya Khanthavit, "Foreign Investors' Abnormal Trading Behavior in the Time of COVID-19".

¹² Cesar Calderon & Tatiana Didier, "Will FDI be Resilient in this Crisis?", *Latin America and the Caribbean Region (LCR) Crisis Briefs*, <https://openknowledge.worldbank.org/server/api/core/bitstreams/258f30af-e6e4-53ef-a968-a67cc9ac9745/content>, 06/25/2023, 3; Sergey Filippov & Kalman Kalotay, "Foreign Direct Investment in Times of Global Economic Crisis: Spotlight on New Europe", *MERIT Working Papers 2009-021*, 2009, 9–17; Meltem Ucal, Kivilcim Metin Özcan, Mehmet Huseyin Bilgin & Julius Mungo, "Relationship between financial crisis and foreign direct investment in developing countries using semiparametric regression approach", *Journal of Business Economics and Management*, Vol. 11, No. 1, 2010, 26–28; Jacques Yana Mbena, "The Status Quo of Research in Sustainable FDI: exploring the theoretical agenda and policy inferences in West and Central Africa", 8.

foreign investors whose decisions seem sensible to shockwaves and market imbalances may, in such circumstances, take mitigated decisions.¹³

How foreign investors react to regional and global crises has been well documented in past research. While analysing the *macro/direct and micro/indirect level* effects that crises have on FDI, Saleh (2023) found that foreign investors either escape, defend, or engage in risky behaviour.¹⁴ In a more microeconomic perspective, Alfaro and Chen (2012) observed a “heterogeneity” role of FDI during crises through multinational constructs that, through inflows, may enhance performance or ventures’ economic outcomes compared to local venture settings.¹⁵ Arundale and Mason (2020), on the other side, detected that investors appear to cancel or postpone ongoing deals, extend due diligence, and, in some cases, stricter rules are advanced on foreign acquisitions in specific industries.¹⁶ As for Bernstein et al. (2019), during the financial crisis, “PE [Private Equity]-backed companies decreased investments less than did their peers and experienced greater equity and debt inflows, higher asset growth, and increased market share”.¹⁷ It is believed that all these specific behaviours can be well aggregated and observed throughout the change in FDI flows and the main macroeconomic rationales.

Figure 1 and Figure 2 show the evolution of economic growth and foreign direct investment (inflows and outflows) in developing and developed countries. Over the last two decades, both developing and developed economies have experienced three periods of significant crises. In particular, the internet bubble bursting from 1999 to 2001, the sub-prime financial crisis (2007-2009), and, finally, the COVID-19 health crisis from 2019 to 2021.

¹³ Charles P. Kindleberger, “The Theory of Direct Investment”.

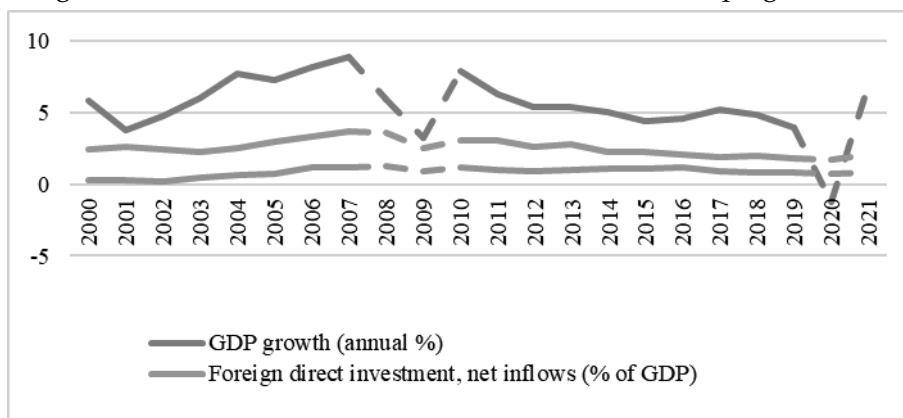
¹⁴ Emad Alchikh Saleh, “The effects of economic and financial crises on FDI: A literature review”.

¹⁵ Laura Alfaro & Maggie Xiaoyang Chen, “Surviving the global financial crisis: Foreign direct investment and establishment performance”, *American Economic Journal: Economic Policy*, Vol. 4 No. 3, 2012, 35.

¹⁶ Keith Arundale & Colin Mason, Private Equity & Venture Capital Riding the COVID-19 Crisis, In: M. Billio, S. Varotto (eds), *A new world post COVID-19: Lessons for business, the finance industry and policy makers*, Venezia Edizioni Ca’ Foscari – Digital Publishing, 2020, 196.

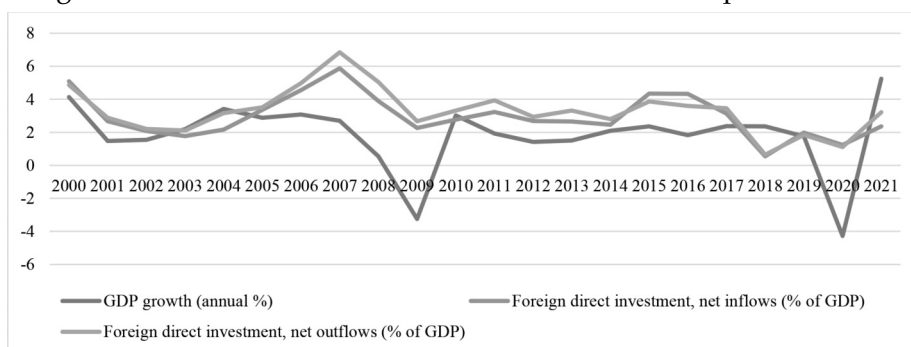
¹⁷ Shai Bernstein, Josh Lerner & Filippo Mezzanotti, “Private Equity and Financial Fragility during the Crisis”, *Review of Financial Studies*, Vol. 32, No. 4, 2018, 1309.

Figure 1: Trends in FDI and Economic Growth in Developing countries



Source: The authors. Based on the data of the World Development Indicators “WDI” 2023.

Figure 2: Trends in FDI and Economic Growth in Developed Countries



Source: The authors. Based on the data of the WDI 2023.

The review of the literature provides the opportunity to distinguish two main avenues wherein scholars navigate while investigating foreign investors’ behavioural change during crises. While academia has mainly observed the tendencies of foreign investors to disinvest during crises, few argue that there are nevertheless some foreign investors investing in the hope of exploiting some opportunities that such periods may offer.¹⁸ Both avenues

¹⁸ Adina Dornean, Vasile Işan & Dumitru-Cristian Oanea, “The impact of the recent global crisis on foreign direct investment. Evidence from central and eastern European countries”, *Procedia Economics and Finance*, Vol. 3, 2012, 1014–1016; Emad Alchikh Saleh, “The effects of economic and financial crises on FDI: A literature review”; Charles P.

were observed during the global financial crisis, the Eurozone crisis, the Brexit crisis, the Argentine economic crisis, the COVID-19 pandemic, the Russian-Ukrainian crisis, and the US-China trade war of 2018.¹⁹ However, as shown in Figures 1 and 2, while similar patterns were observed during crises regarding FDI inflows and outflows for developed and developing countries, apparent differences in the effects on GDP growth can be distinguished. There is a need to explore if regional economic differences can help understand this development.

Regional FDI Changes in Times of Crisis

1) On Selected Countries

The Organisation for Economic Co-operation and Development (OECD) and the European Union (EU) define Central and Eastern European Countries (CEECs) as groups of countries including Albania, Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, the Slovak Republic, and Slovenia. The analysis goes beyond the economic or organisational criteria that the organisation follows to consider geostrategic factors and, therefore, includes the far-east countries of Serbia and Ukraine. Due to the need to limit and delimit the paper's scope, the authors discretely selected the following four Eastern European panel countries: (1) the two new and relatively stable [in terms of war, but market-driven by a few internal political crises] EU countries of Romania and Bulgaria (Anton, 2017);²⁰ and (2) the two countries that have recently experienced crises: Serbia and Ukraine.

Regarding African countries, the authors apply a similar perspective and consider mixed macroeconomy, geography, and stability criteria. Hence, the paper will examine the FDI data of Nigeria [the most robust regional economy, facing few crises in West Africa]; Cameroon [the most robust Central Africa economy, facing few internal crises]; Kenya [a stable East African economy with few internal crises]; and South Africa [the strongest South African economy, experiencing few internal crises].

Figure 3 shows the level of FDI in African and Eastern European countries. It can be seen that FDI remains low, mainly in African countries

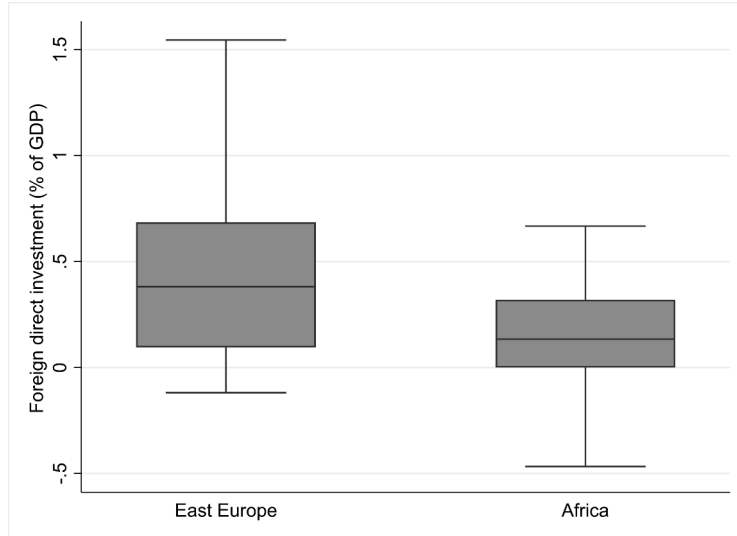
Kindleberger, "The Theory of Direct Investment"; Jacques Yana Mbeni, "The Status Quo of Research in Sustainable FDI: exploring the theoretical agenda and policy inferences in West and Central Africa".

¹⁹ "World Investment Report 2023"; Badar Alam Iqbal, Nida Rahmanb & Jonathan Elimimian, "The future of global trade in the presence of the Sino-US trade war", *Economic and Political Studies*, Vol. 7, No. 2, 2019, 217-231.

²⁰ Sorin Anton, "Competitiveness and Investment Promotion in Bulgaria and Romania", In: Balázs Szent-Iványi (ed.), *Foreign Direct Investment in Central and Eastern Europe*, Palgrave Macmillan, Cham, 2017, 219-240.

compared with Eastern Europe. The average level of FDI in Eastern Europe is less than 1% of their GDP, while African countries have a level of FDI of less than 0.5% of their GDP. There is a need to explore further intra- and inter-regional FDI settings and crisis impacts.

Figure 3: Comparative FDI levels in Africa and Eastern Europe



Source: Authors. The calculation was based on the data of the WDI (2023).

2) FDI in Eastern Europe during and post-Crises

Several studies have addressed FDI in Eastern Europe in general and during or after crises.²¹ All these works informed on a disinvestment trend in the region during crises and even "...a shift towards higher value-added

²¹ Joel I. Deichmann (ed.), *Foreign Direct Investment in the Successor States of Yugoslavia: A Comparative Economic Geography 25 Years Later*, Springer International Publishing, New York, 2021; Gheorghe H. Popescu, "FDI and Economic Growth in Central and Eastern Europe", *Sustainability*, Vol. 6, No. 11, 2014, 8149–8163; Marco Schito, "The effects of state aid policy trade-offs on FDI openness in Central and Eastern European Countries", *International Review of Public Policy*, Vol. 4, No. 2, 191–218; 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; Amat Adarov & Gábor Hunya, "Foreign Investments Hit by COVID-19 Pandemic", The Vienna Institute for International Economic Studies, <https://wiiw.ac.at/foreign-investments-hit-by-covid-19-pandemic-fdi-in-central-east-and-southeast-europe-dlp-5540.pdf>, 07/04/2023, 3–62; Adina Dornean, Vasile Işan & Dumitru-Cristian Oanea, "The impact of the recent global crisis on foreign direct investment. Evidence from central and eastern European countries"; Balázs Szent-Iványi (ed.), *Foreign Direct Investment in Central and Eastern Europe*, Cham: Palgrave Macmillan, 2017.

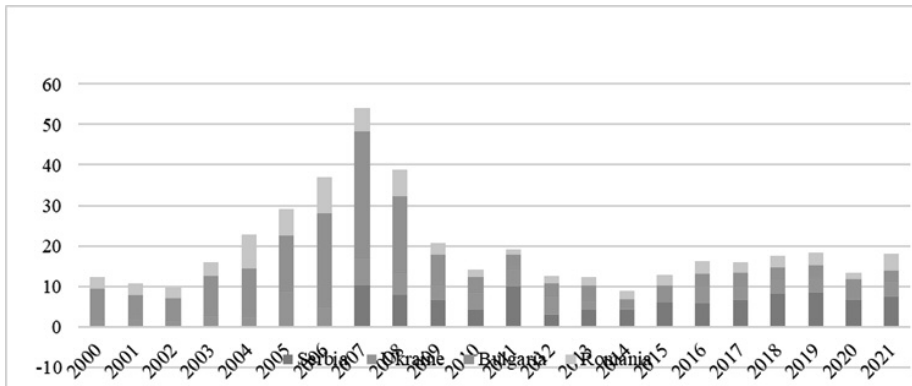
activities and non-financial services...”.²² Figures 4 and 5 show that the available data of the panel countries during crises supports the above observations on macroeconomic rationales.²³ However, few noteworthy notes can be made on FDI and GDP developments during the global financial crisis (2008), the EU debt crisis (2012), the Crimea crisis (2014), and the COVID-19 crisis (2019; 2020) between the selected Eastern European economies.

(1) Serbia appears to have developed resilient FDI inflow settings as their variations during the selected crisis periods (even during the pandemic) are stable, and that is also reflected in the country’s GDP change.

(2) The global crisis and the EU debt crisis have influenced EU countries. These influences are also reflected in their change in GDP.

(3) The Ukrainian economy seems to be very dependent on FDI, which is substantially impacted by all crises (global and regional) and especially during the Crimea crisis and the pandemic, whose effects are disproportionately reflected within its FDI changes.

Figure 4: Percentage of Change in FDI in Selected Eastern European Countries

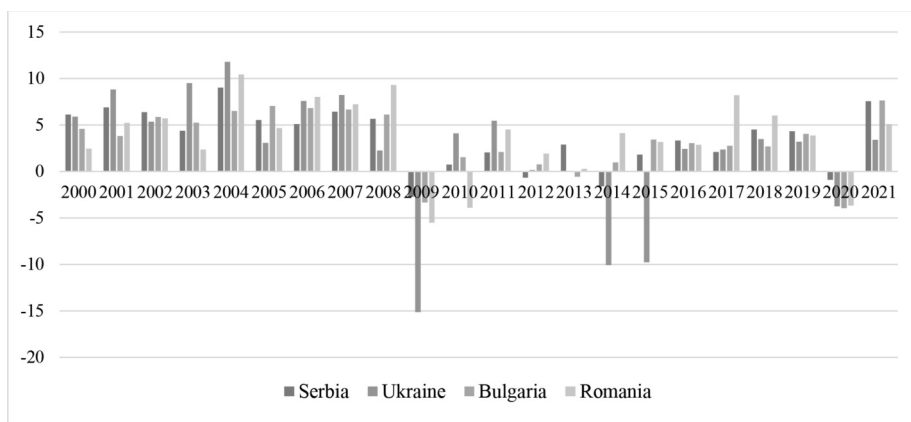


Source: The authors. Based on the data of the WDI (2023).

²² Kalman Kalotay, “Post-crisis crossroads for FDI in CEE”, In: Balázs Szent-Ianyi (ed.), *Foreign Direct Investment in Central and Eastern Europe*, Cham: Palgrave Macmillan, 2017, 23.

²³ “World Investment Report 2023”.

Figure 5: Percentage of Change in GDP Growth in Selected Eastern European Countries



Source: The authors. Based on the data of the WDI (2023).

3) African FDI Flows During Crises

Yana Mbeni (2022) hypothesised that failing to sustain the continent's FDI may lead to a "sustainable development tragedy".²⁴ His conclusion follows the observation that, despite captivating the attention of academia, whose thoughts are to help address the continent's development challenges, Africa appears to have secured its place at the bottom of FDI flows for decades.²⁵ Scholars found multiple arguments explaining this situation, e.g., macroeconomic, governance, fragility, and non-economic arguments such as culture, the image ascribed to the continent, or the perceptions that potential foreign investors have about the continent. The authors believed that times of crisis provide the opportunity to fairly assess the perception of risk by exploring the effects of FDI behavioural changes on the observed economies and also by comparing such phenomena with extra-regional similar experiences to arrive at advancing a few policy avenues.

In times of crisis, the behaviour of foreign investors who went beyond the above-quoted barriers to take their chance by doing business within the

²⁴ Jacques Yana Mbeni, "The Status Quo of Research in Sustainable FDI: exploring the theoretical agenda and policy inferences in West and Central Africa", 7.

²⁵ Oliver E. Ogbonna, Jonathan E Ogbuabor, Charles O. Manasseh & Davidmac O. Ekeocha, "Global uncertainty, economic governance institutions and foreign direct investment inflow in Africa", *Economic Change and Restructuring*, Vol. 55, 2022, 2118; Bruno Emmanuel Ongo Nkoa & Jacques Simon Song, "Does the quality of institutions reduce the volatility of foreign direct investment in Africa?", *Mondes en développement*, Vol. 183, No. 3, 2018, 113-131; Moses Muse Sichei & Godbertha Kinyondo, "Determinants of foreign direct investment in Africa: A panel data analysis", *Global Journal of Management and Business Research*, Vol. 12, No. 18, 2012, 85-97.

African continent has captivated the interest of academia.²⁶ Although interregional comprehensive comparative study seems still lacking, stylized facts can be well used to portray these experiences. Despite its comparatively low volume of FDI flows, Africa appears to benefit from resilient FDI settings. This conclusion was already advanced by Tar et al. (2016), who observed that the continent's FDI was less affected by the financial crisis compared to other regions.²⁷ Yana Mbeni (2022) observed similar patterns during the pandemic of COVID-19.²⁸ There is a need to analyse intracontinental FDI behaviour before investigating inter-regional differences.

As Figures 6 and 7 show, the selected African panel countries display a diversified picture of FDI flows and GDP changes during crises. The following main observations can be highlighted:

(1) The economy receiving FDI the most [South Africa] is more impacted by FDI variations during crises, and its GDP change is equally disproportionately variable.

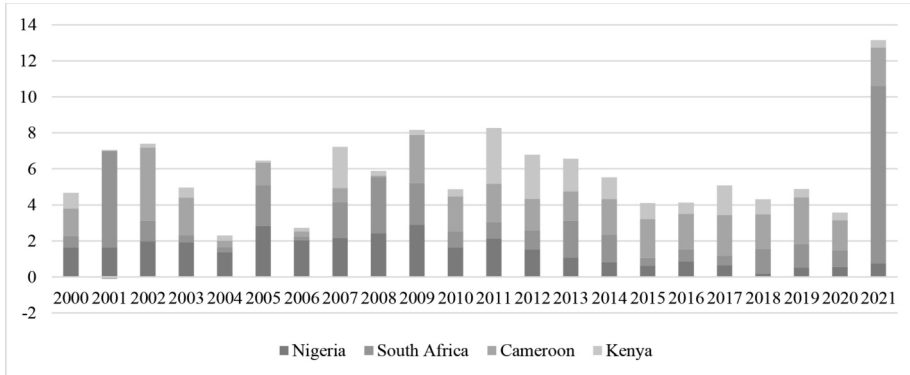
(2) Except for the distinguishing crisis that resulted from the COVID-19 pandemic, the variation in FDI appears to have fair [Kenya] to minor impacts [Cameroon] in the change of GDP for other countries. Cameroon, in particular, displays resilient FDI during all crises post-2008. There is a need to understand the rationales explaining these phenomena.

²⁶ Arup Kumar Chattopadhyay, Debdas Rakshit, Payel Chatterjee & Ananya Paul, "Trends and Determinants of FDI with Implications of COVID-19 in BRICS", *Global Journal of Emerging Market Economies*, Vol. 14, No. 1, 43–59; 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. 107, 1–15; Usman A. Tar Etham B. Mijah, Moses E. U. Tedheke (eds), *Globalization in Africa: Perspectives on Development, Security, and the Environment*, Lexington Books, Lanham, 2016.

²⁷ Ibid.

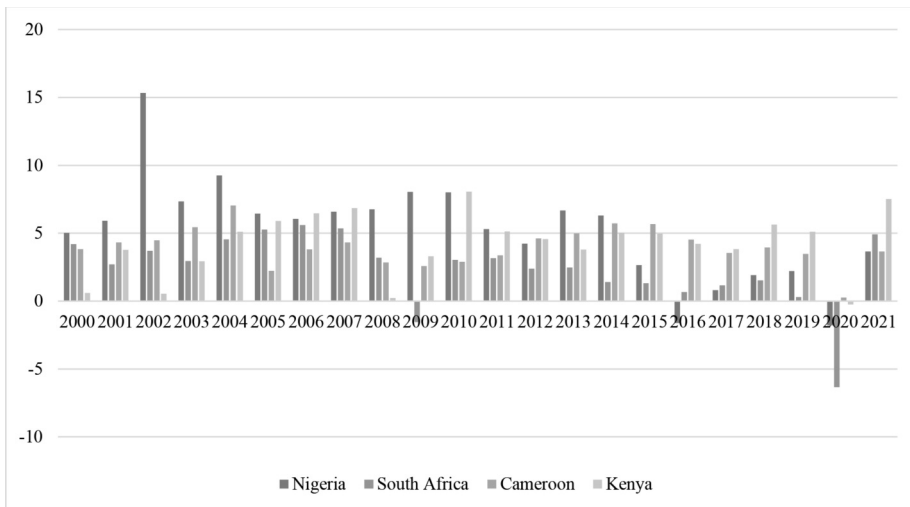
²⁸ Jacques Yana Mbeni, "The Status Quo of Research in Sustainable FDI: exploring the theoretical agenda and policy inferences in West and Central Africa"; "World Investment Report 2021: Investing in Sustainable Recovery Investing, United Nations Conference on Trade and Development".

Figure 6: Percentage of Change in FDI in Selected African Countries



Source: The authors. Based on the data of the WDI (2023).

Figure 7: Percentage of Change in GDP Growth in Selected African Countries



Source: The authors. Based on the data of the WDI (2023).

While the review of existing research and the stylized facts enable us to draw few conclusions on the behaviour of foreign investors within Eastern Europe and Africa during the main crisis that the world experienced in the last two decades, the authors believe in the need to go beyond single country experiences to investigate, at a regional level, the aggregated effects that crises may have had on FDI and GDP change more accurately. Uncovering which factors comparatively explain FDI attractiveness during or post-crisis in the respective regions may be especially of interest.

Methodological Strategy

This section presents the data, the empirical model, the estimation technique, and the strategy upon which the paper shall endeavour to learn from and determine probable data limits.²⁹

The Data

As presented in the above-stylized facts, the data for this study come from four Eastern European and four sub-Saharan African countries and cover the period 2000-2021. The sample of countries and the periodicity of variables were limited by data availability. The data come from secondary sources. The variables of interest and control are taken from the World Development Indicators (2023) of the World Bank and are later computed using the software programme Stata17.³⁰

With respect to the conclusion of Moosa and Merza (2022), the FDI effects during crises will be verified against a few macroeconomic rationales.³¹ These effects can be captured through the following indicators:

(1) A country's *economic growth* leads to an increase in foreign investment. In the literature, the relationship between real GDP per capita and FDI is far from unanimous (Asiedu, 2002).³² The argument is that a higher GDP per capita implies better prospects for FDI in the host country.

(2) A *good infrastructure* increases the productivity of investment and, therefore, stimulates FDI flows. As is customary in the literature, the authors use the number of telephones per 100 inhabitants to measure infrastructure development. A good measure of infrastructure development should consider both the availability and reliability of infrastructure. So, the measure the paper uses is outside the study because it only considers the availability aspect of the infrastructure. Infrastructure is of little use if it is unreliable. The authors might, therefore, expect infrastructure reliability (for example, the frequency of telephone cuts) to be more important to foreign investors than infrastructure availability (the number of telephones in a country). As the authors need data on the reliability of telecommunications, the paper utilises

²⁹ Clifford C. Clogg & Gerhard Arminger, "On Strategy For Methodological Analysis", *Sociological Methodology*, Vol. 23, 1993, 57-74.

³⁰ "World Development Indicators (WDI)", Database of indicators of development of World Bank, Available at: <https://databank.worldbank.org/source/world-development-indicators#>, 05/15/2023.

³¹ Imad A. Moosa, & Ebrahim Merza, "The effect of COVID-19 on foreign direct investment infows: stylised facts and some explanations".

³² Elizabeth Asiedu, "On the determinants of foreign direct investment to developing countries: is Africa different?", *World development*, Vol. 30, No, 1, 2002, 107-119.

the number of telephones per 100 inhabitants to measure infrastructure development, albeit imperfectly.

(3) *Trade openness* is often interpreted as a measure of trade restrictions. The impact of openness on FDI depends on the type of investment. When investments are market-seeking, trade restrictions (and therefore less openness) can positively affect FDI. The reason for this stems from the “tariff jumping” hypothesis, according to which foreign companies seeking to serve local markets may decide to set up subsidiaries in the host country if it is difficult to import their products. On the other hand, multinational companies engaged in export-oriented investment may prefer to locate in a more open economy, as the increased imperfections accompanying trade protection generally imply higher transaction costs associated with exporting goods or services.

The summary of the descriptions of the variables and data sources is provided in Table I below.

Table I: Variable description

Variable	Definition	Source
FDI	Foreign direct investment, net outflows (% of GDP)	WDI (2023)
Infrastructure	Mobile cellular subscriptions (per 100 people)	
Trade	Trade (% of GDP)	
Ln(GDPPC)	The logarithm of GDP per capita (constant 2015 US\$)	Authors' calculations are based on WDI (2023)
East Europe	Bulgaria, Romania, Serbia, and Ukraine	
Africa	Cameroon, Kenya, Nigeria, and South Africa	
Main Observed Crisis	2001, 2009 and 2020	

Source: The authors.

Table II presents descriptive statistics between the variables used in this study. To capture regional specificities, the authors created dummy variables. There is little dispersion between the variables used. This is because the values of the standard deviations are below the mean. They take the value 1 for crises and 0 for no crises.

Table II: Descriptive Statistics on the Variables of FDI Effects

Variable	Obs	Mean	Std. Dev.	Min	Max
FDI	169	.341	.584	-2.595	2.188
Infrastructure	172	14.325	13.463	.05	42.666
Trade	176	67.918	28.333	16.352	130.287
Ln(GDPPC)	176	8.081	.694	7.037	9.354
East Europe	176			0	1
Africa	176			0	1
Crisis	176			0	1

Source: The authors. The calculation was based on the data of the WDI (2023).

The Empirical Model

The empirical model is derived from Canh et al. (2020) and Dornean et al. (2012), who adopted specifications that consider foreign direct investment (FDI). In this study, the paper will extend the model, as the authors want to capture the effect of contemporary crises on FDI, and the basic model will therefore be given by the equation (1) below:

$$FDI_{i,t} = \alpha + \beta_1 Crisis_{i,t-1} + \lambda X_{i,t} + \mu_i + v_t + \varepsilon_{it} \quad (1)$$

Wherein FDI represents Foreign Direct Investment for country i at time t , approximated by FDI outflows as a percentage of GDP; $Crisis_{i,t}$ denotes the dummy variable taking 1 for the years 2001, 2009, 2020 and 0 otherwise. α , β , λ are the parameters of the model to be estimated, μ_i and v_t respectively indicate the unobserved individual and temporal effects, and ε_{it} is the error term. In addition, X represents the vector of control variables considering GDP per capita growth, trade openness, and infrastructure.

Estimation Technique

In order to determine the effects of crises on FDI in the panel regions and countries, the paper uses a static model estimated by ordinary least squares (OLS) and applies it as an initial framework in the analyses to give the general trend of the results.³³ This technique, which was developed by

³³ Jacques Simon Song, Georges Ngnouwal Eloundou, Fabrice Bitoto Ewolo & Blaise Ondoua Beyene, "Does Social Media Contribute to Economic Growth?", *Journal of the Knowledge Economy*, 2023, 1-41.

Legendre (1805) and Gauss (1809), allows regressions to be run on cross-sectional data and highlights the effects of crises on FDI.³⁴ However, it minimises the impact of measurement errors by not considering the heterogeneity problem and assuming that the countries in the sample are perfectly homogeneous.

In contrast to previous work analysing the determinants of FDI, which postulates either a static or dynamic analysis, this paper uses ordinary least squares in cross-section to make a significant contribution by considering not only the form of the link but also, and, above all, the efficiency of the estimators selected. Based on a cross-sectional perspective, preliminary results for the coefficient of interest γ are obtained with the OLS estimator. The authors also introduce some control variables into the regression to limit the omitted variables' bias. Subsequently, the robustness of the results is assessed by including control variables.

Results and Discussion

The paper presents and discusses, within this section, the results of the basic model and its robustness.

Basic Findings

Table III shows the direct and indirect role that crises played on FDI. The authors note that the crisis periods appear to have reduced factors for FDI in Eastern European countries. Column 1 shows the marginal effect of crises on FDI. Column 2 takes into account a more complete version of the model. Columns 3 to 5 show the effect of the interaction between the factors explaining FDI and major contemporary crises. It can be posited that the overall significance of the paper-applied model is excellent, as it explains the evolution of FDI in Eastern European countries at a level above 0.4.

³⁴ Adrien-Marie Legendre, "On Least Squares" (Translated from the French by Professor Henry A Ruger and Professor Helen M Walker, Teachers College, Columbia University, New York City), <https://www.york.ac.uk/depts/maths/histstat/legendre.pdf>, 06/10/2023, 1-4; Carl Friedrich Gauss, "Theoria motus corporum coelestium in sectionibus conicis solem ambientium", Perthes and Besser, (Translated by C. H. Davis as Theory of the Motion of the Heavenly Bodies Moving about the Sun in Conic Sections), (Reprinted by Dover), 06/10/2023.

Table III: Basic Results in Eastern European Countries

Variables	Dependent variable: Foreign Direct Investment outflows				
	Technical estimate: Robust OLS				
	(1)	(2)	(3)	(4)	(5)
Infrastructure		0.00179**	0.00222***	0.00177**	0.00191***
		(0.000729)	(0.000826)	(0.000754)	(0.000692)
Trade openness		0.0106***	0.0104***	0.0109***	0.0105***
		(0.00276)	(0.00279)	(0.00308)	(0.00276)
ln (GDPPC)		0.284***	0.285***	0.284***	0.319***
		(0.0647)	(0.0654)	(0.0651)	(0.0702)
Crisis	-0.327***	-0.167**	-0.190*	-0.172**	-0.162**
	(0.0943)	(0.0779)	(0.0798)	(0.0784)	(0.0755)
Infra*Crisis			-0.00195*		
			(0.00108)		
Trade*Crisis				-0.00219**	
				(0.00418)	
ln(GDPPC) *Crisis					-0.245***
					(0.0924)
Constant	0.521***	-3.083***	-3.112***	-3.103***	-3.383***
	(0.0622)	(0.662)	(0.667)	(0.683)	(0.701)
Observations	81	81	81	81	81
R-squared	0.050	0.406	0.410	0.407	0.415
F-stat	12.00	16.31	17.18	14.24	13.95

Notes: Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Source: The authors. The calculation was based on the data of the WDI (2023)

The results show that crises have significantly negatively impacted FDI outflows in Eastern European countries. In other words, the occurrence of a crisis reduces outward FDI from Eastern European countries by between 0.162 and 0.190 points. This is because, during a crisis, foreign companies may be less inclined to invest in countries with economic instability or cancel or delay their investment projects because of economic uncertainty and reduced domestic demand during the crisis. In addition, during economic crises, currencies can depreciate rapidly. This can make investments more expensive for foreign investors, as they must spend more in the local currency to obtain

the same returns. This can lead to a reduction in FDI flows to Eastern European countries. This result is supported by Dornean et al. (2012).³⁵

Concerning the control variables, infrastructure, trade openness, and economic growth, these seem to increase the productivity of investments and, therefore, stimulate FDI flows in Eastern European countries. In other words, a 1-point increase in infrastructure increases FDI by 0.001 to 0.002 points. Improving infrastructure boosts economic productivity and increases the capital available to residents to invest abroad. When trade openness increases by 1 point, it leads to a 0.01-point increase in foreign direct investment. Trade openness creates opportunities for residents to invest abroad. Economic growth increases FDI in Eastern European countries by 0.02 to 0.03 points when economic growth increases by one unit. The interaction between the crisis and the control variables has a negative impact on FDI in Eastern European countries.

Table IV shows the specific features of each crisis, and in particular, the results show that the effect remains the same regardless of the crisis. However, it can be seen that the 2001 crisis had a more significant negative effect on Eastern European economies than the 2020 COVID-19 crisis. This points to the negative importance of crises in the constitution of FDI in Eastern European countries.

Table IV: Considering the Effects of Different Crises

VARIABLES	Dep var: FDI		
	Robust OLS		
	(1)	(2)	(3)
Crisis_2001	-0.465*** (0.064)		
Crisis_2009		-0.264* (0.150)	
Crisis_2020			-0.198* (0.118)
Constant	0.494*** (0.057)	0.489*** (0.058)	0.486*** (0.059)
Observations	81	81	81
R-squared	0.031	0.013	0.007
F-stat	52.43	3.097	2.831

Notes: Robust standard errors are in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Source: The authors. The calculation was based on the data of the WDI (2023).

³⁵ Adina Dornean, Vasile Işan & Dumitru-Cristian Oanea, "The impact of the recent global crisis on foreign direct investment. Evidence from central and eastern European countries".

Table V shows the effects of crises on foreign direct investment in the economies of Eastern Europe and Africa. The results remain robust when other regional specificities are considered. Most of the selected explanatory variables have a more significant effect in African countries than in Eastern Europe.

Table V: Robustness and regional specificities of crises

Variables	Dependent variable: FDI					
	Ln(gdppc)		Trade		Infrastructure	
	East Europe	Africa	East Europe	Africa	East Europe	Africa
Infrastructure	0.00822	-0.0355	0.00817	-0.0380	0.0107*	-0.00927
	(0.00511)	(0.0329)	(0.00520)	(0.0364)	(0.00606)	(0.0290)
Trade	0.0119***	0.00417	0.0123***	0.0102	0.0119***	0.00420
	(0.00251)	(0.00510)	(0.00278)	(0.00653)	(0.00252)	(0.00502)
ln(gdppc)	0.359***	0.601***	0.325***	0.479***	0.326***	0.470***
	(0.0677)	(0.192)	(0.0616)	(0.172)	(0.0613)	(0.168)
Crisis	-0.659*	-0.649*	-0.0695	-0.903*	-0.188	-0.104
	(0.681)	(0.689)	(0.351)	(0.527)	(0.223)	(0.185)
ln(gdppc)*Crisis	-0.215*	-0.926*				
	(0.116)	(0.504)				
Trade*Crisis			-0.00269	-0.0311*		
			(0.00422)	(0.0163)		
Infrastructure*Crisis					-0.0138	-0.188*
					(0.00885)	(0.106)
Constant	-3.872***	-4.433***	-3.610***	-3.763**	-3.657***	-3.502**
	(0.682)	(1.549)	(0.650)	(1.450)	(0.638)	(1.401)
Observations	81	88	81	88	81	88
R-squared	0.418	0.283	0.412	0.226	0.420	0.313
F	9.639	3.984	10.45	3.203	10.26	4.335

Notes: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Source: The authors. The calculation was based on the data of the WDI (2023).

Table VI shows that the effects of the selected control variables are reduced within African economies and amplified within Eastern European economies. This leads to the conclusion that, compared to African economies, Eastern European economies have specificities that favour the effects of the different mobilised variables.

Table VI: Considering Geographical Specificity

Variables	Dependent variable: Foreign Direct Investment						
	Total	East Europe	Africa	East Europe	Africa	East Europe	Africa
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Infras- tructure	-0.00698 (0.00495)	0.00479 (0.00546)	0.00479 (0.00546)	0.00572 (0.00556)	0.00572 (0.00556)	-0.0334 (0.0305)	0.00843 (0.00529)
Trade	0.00622*** (0.00203)	0.0104*** (0.00221)	0.0104*** (0.00221)	0.00227 (0.00446)	0.0125*** (0.00242)	0.0114*** (0.00224)	0.0114*** (0.00224)
ln(gdppc)	0.282*** (0.0796)	0.295** (0.142)	0.326*** (0.0595)	0.322*** (0.0806)	0.322*** (0.0806)	0.401*** (0.0743)	0.401*** (0.0743)
East Europe		-0.840 (1.149)		-1.186*** (0.277)		-0.918*** (0.201)	
Africa			0.840 (1.149)		1.186*** (0.277)		0.918*** (0.201)
ln(gdppc)* East Europe		0.0309 (0.153)					
ln(gdppc)* Africa			-0.0309 (0.153)				
Trade*East Europe				0.0102** (0.00499)			
Trade*Africa					-0.0102** (0.00499)		

Variables	Dependent variable: Foreign Direct Investment						
	Total	East Europe	Africa	East Europe	Africa	East Europe	Africa
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Infra*East Europe						0.0418	
						(0.0308)	
Infra* Africa							-0.0418
							(0.0308)
Constant	-2.264***	-2.539**	-3.379***	-2.382***	-3.567***	-3.287***	-4.205***
	(0.578)	(1.074)	(0.587)	(0.711)	(0.775)	(0.594)	(0.739)
Observations	169	169	169	169	169	169	169
R-squared	0.200	0.243	0.243	0.256	0.256	0.261	0.261
F	17.68	12.18	12.18	12.40	12.40	11.93	11.93

Note: Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Source: The authors. The calculation was based on the data of the WDI (2023).

Limitations

Despite its endeavour to present an investigation out of critiques, this work, like most academic discussions, has a few limitations. The authors would like to emphasise three main aspects that may dilute the value of the paper's findings.

(1) *The selected panel countries*: Despite providing few criteria that have driven the authors' discretionary selection of panel countries, it is believed that if future research explores different intra-regional panel countries and even a more extensive selection, their results may lead to different conclusions;

(2) *The selected instruments*: As discussed above, due to the paper's need for delimitation and data availability, the instrument used for measuring the indicator of FDI's effect on infrastructure that the paper selected [the number of telephones per 100 inhabitants] may lead to less accurate results than other instruments [e.g., infrastructure reliability such as the frequency of telephone cuts];

(3) *The level of analysis*: The paper relies on macroeconomic data and rationales to draw its conclusions; however, academia argues that micro-

level analysis of FDI is also relevant to economic growth; the hope is that future research will take over such investigations.

In a broader perspective, the authors hope that future research may help address the above-acknowledged limits through more resources and fewer delimitations.

Conclusions and Implications

The paper confirms that, like in other regions of the world, foreign investors appear to reduce their exposure during crises in Eastern Europe and Africa. Observations of the stylized facts on the selected countries contradict the paper-defined assumption (A1) for the panel countries as the reduction of inflows is higher in Eastern Europe than in Africa, and inverted, *but not equal in volume*, are observed as far as the outflows are concerned. Moreover, despite the major impacts that were observed on GDP rationales against FDI due to crises in a few countries, (A2) appears to be confirmed. This is due to the apparent observation that, compared to Eastern European economies, the variations in net FDI's effects on infrastructure, trade openness, and economic growth are more significant in selected African economies. Also, the continent seems to be more impacted by crises despite its apparent FDI inflow resilience. The findings related to (A3) are, however, mitigated, as FDI resilience during a crisis seems to depend on the country's specific economic settings.

It was remarkably perceived that a few selected Eastern European and African countries [e.g., Serbia; Cameroon] display resilient capabilities with respect to FDI flows and change in GDP while suffering less from behavioural change during major economic meltdowns.

Furthermore, the following observations are of interest: (1) Independent of the region, some selected economies appear to attract FDI post-crisis more than others; (2) Few economies [Ukraine and South Africa] show a clear dependence on FDI whose outflows during crises are very high and reflected in change in GDP; and (3) The assumption that distance affects foreign investors' behaviour during crises cannot be verified for a few countries that displayed stable and resilient FDI settings even during crises [Cameroon and Serbia].

These findings support the argument for the need to pursue the theoretical discussion on ways to nurture resilience and FDI continuity post-crisis. The conclusions also advocate for policymakers to infer policies supporting the reduction of FDI outflows, the development of infrastructure, the improvement of trade openness, and ultimately, advancing sustainable FDI. In addition, it may be worthwhile for academia to investigate the FDI and GDP settings of Serbia and Cameroon since both economies present

resilient and fair variations of the FDI and the change in GDP rationales during crises.

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