The impact of COVID-19 and the Russia-Ukraine War on foreign direct investment: A panel quantile regression analysis

Beri, Parfait Bihkongnyuy and Mhonyera, Gabriel and Ho, Sin Yu

Triple Helix Foundation, University of Johannesburg, University of South Africa

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Abstract

This paper examines the effects of the COVID-19 pandemic and the Russo-Ukrainian war on FDI in central and eastern European countries (CEECs) from 2020Q1 to 2022Q2. Using the panel quantile regression, it finds that COVID-19 and the conflict had a detrimental impact on the largest FDI recipient countries but not on those in the lower quantiles. Therefore, CEECs should encourage FDI inflows from several sources to reduce vulnerability to shocks and the consequences they bring, diversify investments, and conduct a thorough analysis to identify sectors most affected, and tailor policies to address the sustainable inflow of FDI from those sectors.

Keywords: FDI, COVID-19, CEECs, Russia, Ukraine, quantile regression

JEL Classification: E22; F21; I18

1. Introduction

From the 1980s onwards, the benefits of FDI in host economies, albeit sometimes contested, are well documented in economic literature. Theories of FDI suggest that this kind of investment is important for promoting growth. By introducing new products or production processes to the domestic market, domestic firms can benefit from foreign firms in the transfer of new technology (see Grossman & Helpman, 1993; and Barro & Sala-i-Martin, 1997). Additionally, FDI provides direct capital financing to the domestic economy, thereby promoting growth (Alfaro et al., 2004). While some researchers raise concerns about dependency, resource drain, wage disparities, and loss of sovereignty from critical sectors of the economies (Taylor & Thrift, 2013), interest and competition for FDI have continued to grow over the years (Koçak & Barış-Tüzemen, 2022; Beri & Nubong, 2021).

Like every other type of business endeavour, FDI is vulnerable to economic, financial, and other shocks. Starting from the 2008 global financial crisis (GFC), through the COVID-19 pandemic and the Russian invasion of Ukraine, the global economy has continued to battle overlapping shocks with detrimental effects on economies over the past two decades. Numerous studies have shown that the GFC and other disasters slowed down the inflow of FDI (Stoddard & Noy, 2015; Anuchitworawong & Thampanishvong, 2015; Dornean, Işan & Oanea, 2012). Financial crises increase the cost of capital for investors due to liquidity constraints, while natural disasters destroy roads and industrial zones and have a negative impact on national and international business (Hayakawa, Lee & Park, 2022).

In December 2019, a new disease caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) was reported in Wuhan, the Peoples Republic of China. COVID-19 rapidly spread throughout the world and as a first response strategy to contain the virus, countries swiftly imposed lockdowns, social distancing measures and entry bans on foreign nationals. The impact of COVID-19 on the global economy was unprecedented as the pandemic is unquestionably one of

the most overwhelming shocks in recent history (Moosa & Merza, 2022; Fu, Alleyne & Mu, 2021). The International Monetary Fund (2020) reported that the global economy had shrunk by 3.2%, while global trade contracted by 8.3%. According to the United Nations Conference on Trade and Development (2021), global FDI nosedived from $1.5 trillion in 2019 to $859 billion in 2020 (a 42% decrease), while FDI into developing and transition economies plummeted by 12% (USD 702 to 616 billion) and 77% (USD 58 to 13 billion) between 2019 and 2020, respectively. A concerning feature of the COVID-19 pandemic was the disruption it imposed on global trade and supply chains. To minimise the impact of these shocks, many firms may attempt to reduce their reliance on foreign companies to avoid future interruptions (Moosa & Merza, 2022), a shift that could potentially reduce global supply chains in future (Carril-Caccia & Pavlova, 2018).

Just before the global economy could recover from the vicissitudes of the COVID-19 pandemic, satellite images started showing a military build-up consisting of thousands of soldiers with heavy military artillery around the Russian-Ukrainian border in November 2021. This was followed by a series of requests from NATO by the Russian ministry of foreign affairs amongst which included the cessation of all military exercises close to its border and former soviet states. These demands were a non-starter for NATO and soon pushed the world into a diplomatic turmoil after a high-level meeting between Russia and the USA ended in stalemate. On 24 February 2022, a few days after recognising the breakaway provinces of Donetsk and Luhansk, Russia started the so-called "special military operation", widely believed to mark an effective declaration of war on another sovereign country.

The effects of these twin crises were conspicuous on commodity prices. Energy prices, and particularly food prices, skyrocketed to an all-time high in modern history. Global supply chains were also terribly disrupted by the Russian blockade of the largest Ukrainian sea port at Odesa. It seems that these interconnected crises that unfolded when countries were hoping to convalesce from the overlapping economic shocks from the 2008 financial crisis and the Euro debt crisis,

have gravely affected efforts at fighting poverty and income inequality over the past three decades in many countries.

The objective of this paper is to retrospectively examine the impact of these overlapping crises on FDI in CEECs. The importance of FDI on economic growth, technology transfer, and employment in these economies cannot be overemphasised. Prior to the outbreak of the COVID-19 pandemic, the inflow of FDI into CEECs was on the path of recovery from the downward trajectory experienced during the 2008 GFC and the 2011-euro debt crisis (for a recent review of FDI in CEECs, see Beri & Mhonyera [2023]). According to estimates from UNCTAD, FDI into Central, East and South-East Europe plummeted by 58% in the first quarter of 2020 compared to the same period in 2019 (Adarov & Hunya, 2020). The twin crises injected risk and uncertainty into the global economy and not many studies have considered its effects on FDI in emerging economies of CEECs.

While Benson (2023), Kwilinski (2023), Adarov and Hunya (2020), and Vasiljeva et al. (2020) have contributed to this growing literature in CEECs, the studies were either descriptive or assumed homogeneity in their estimation strategies. Additionally, CEECs were likely to respond differently to COVID-19 and the war in Ukraine depending on their past inflows. By employing the panel quantile regression, the study uncovers new empirical evidence on the distinctive effects of COVID-19 and the war on FDI across different quantiles. Overall, the study concludes that COVID-19 and the war's negative effects on FDI were more prominent in countries that receive a higher level of FDI (90th quantile and more). These findings were robust to an alternate measure of the pandemic.

The study contributes to the literature on the sensitivity of foreign investment to the changing business environment or emergence of shocks in different countries. The paper is relevant for policymakers in host governments as it provides valuable insights that can enable them to take relevant decisions to circumvent large macroeconomic disruptions in times of distress due to

overreliance on investments from particular countries or multinationals. It also extends the literature on the impact of disasters on FDI in transition economies and its findings can guide future policy interventions to minimise the adverse effects of such disasters.

The rest of the paper is organised as follows: Section 2 documents the politics of FDI; section 3 delves into theory and empirical literature; section 4 presents the data and estimation strategy; while section 5 presents the results; and section 6 concludes the study.

2. The politics of FDI and FDI trends in CEECs

Since the dawn of civilisation, FDI has always been political. Consequently, the economics of FDI cannot be distanced from its political facets (Adsera & Boix, 2002). In fact, FDI draws nations together, and in the process, instigates extensive economic, social, and political inter-relations (Oneal & Russett, 2015). However, it also frequently generates rigidity and tension between diverse nations. For numerous nations, FDI can be perceived as an eased approach towards the creation of income and employment (Krugman, 1993). Accordingly, it is commonly a structural constituent of economic growth and development strategies of both developed and developing countries (Araujo, Teixeira & Soares, 2015). Therefore, in a political economy that has evolved to be global in proclivity, countries are compelled to control FDI activities with the prime goal of exploiting the benefits originating from FDI and restraining FDI-linked costs to their economies (Cali, Ellis & te Velde, 2008).

Within the realm of existing literature, two comprehensive strands of research on the politics of FDI inflows can be identified. The first strand concentrates on the divergences between political regimes (see Jensen, 2003; Li, 2006; Mathur & Singh, 2013), while the second evaluates institutional factors that transcend a regime-type elucidation (see Harms & Ursprung, 2002; Blanton & Blanton, 2007; Moon, 2015). Of interest is the first strand of research comprising the following two contending perspectives (Li, 2009; Huntington, 1968): (i) the view that non-democratic countries can lure advanced levels of FDI largely because their respective leaders are cushioned from societal

coercion and are thus capable to offer foreign investors enhanced gains and incentives relative to democratic countries – in other words, limited institutional barriers inspire leaders to possibly follow policies that have the potential to protect the interests of potential investors – and (ii) the perspective that democratic leaders cannot warrant unrestricted functioning of foreign investors in the host market, particularly if national welfares are expected to be compromised.

Foreign investors also allot considerable weight to political risks when contemplating investment destinations. Such political risks manifest themselves in diverse ways including (Kobrin, 2022): limitations on market entry by foreign direct investors; approaches for regulating FDI inflows; limitations on foreign currency transmissions; government intervention; societal uncertainty; political vehemence; administrative failure; unstable associations with international organisations; an absent obligation to global economic environment and labour regulations; antagonistic insolences of leaders and society towards foreigners and the FDI thereof; and host nations averseness to disclose trustworthy information.

Nonetheless, the day-to-day actions of the government can be viewed as the greatest source of political risk of which the CEECs are not an exception. A conceivable motive for government actions can be theoretically grounded in the notion of rent-seeking clusters as put forward by Krueger (1974). Accordingly, whenever a government regulates economic activities that should otherwise be regulated by market forces, there is an existence of a potential rent. By nature, the manifestation or potential occurrence of rent triggers action by a rent-seeking group, which may possibly act as clusters or as freely coordinated individuals. However, rent-seeking is a supplementary social and economic cost since the activities of rent-seeking clusters add to a greater degree of political uncertainty in a country and, hence, hamper FDI flows (Angelopoulos, Philippopoulos & Vassilatos, 2009).

When faced with an epidemic of any sort, it is the duty of the government to safeguard its citizens from the effects of such a pandemic. In democratic nations, the role of the state during

times of crisis is often enshrined in the constitution. As expected, various governments including those of the CEECs region instituted a range of measures aimed at responding to and curbing the spread of the coronavirus during the COVID-19 era (Paul, 2020). The measures implemented comprised shut-down and lock-down measures which, among other things, inspired supply-chain disruptions mainly resulting from the effects of the implemented measures on global production. This led to diminished FDI flows in the CEECs region and elsewhere. For Central, East and South-East Europe, in particular, FDI flows declined by 58% in the first half of 2020 as the COVID-19 response measures deterred production, mobility and other economic-related activities (Adarov & Hunya, 2020).

Rising geo-political tensions, emanating primarily from the Russo-Ukraine war, have also placed the risks and probable gains and costs of geo-economic fragmentation at the foci of the policy discourse within the CEECs region (Bianchi & Sosa-Padilla, 2023). In fact, rising geo-political rigidities are seen as a fundamental driver of FDI fragmentation, as bilateral FDI becomes progressively clustered among nations that harbour parallel geo-political views or ideologies. Hence, the proportion of bilateral FDI among nations that are geo-politically allied is greater than the proportion destined for nations geographically close, indicating that geo-political inclinations assume a strategic role as a driver of FDI flows (Aiyar et al., 2023). In addition, the significance of a geo-political alliance has sharply amplified over the past years relative to geographic distance, particularly for FDI flows in strategic sectors.

The global political landscape has also significantly transformed. The Russo-Ukraine war, for instance, has widened the ideological gap between the Western and Eastern countries with silent calls for nations around the globe to either pick a side or maintain a neutral stance. Faced with enormous pressure from investors, major global corporations started unwinding their investments from Russia. Russia was also tacitly expelled from major sporting events, such as competing for a place in the 2022 FIFA World Cup in Qatar and the Tokyo Olympics, while UEFA stripped St.

Petersburg of rights to host the Champions League final. Hence, given the level of supportive

exposure ushered in by the Russo-Ukraine war, this for or not for us principle will arguably evolve

to be an influential factor in the fabrication of future alliances amongst nations. The sanctions

imposed on Russia by the West and the ensuing retaliation by Russia in the form of gas and oil

energy embargoes will additionally likely dampen the economic and development prospects within

the CEECs region. All this signals negative impacts on the FDI outlook in the region, which has

largely been suppressed since the 2008 GFC period (see Figure 1).
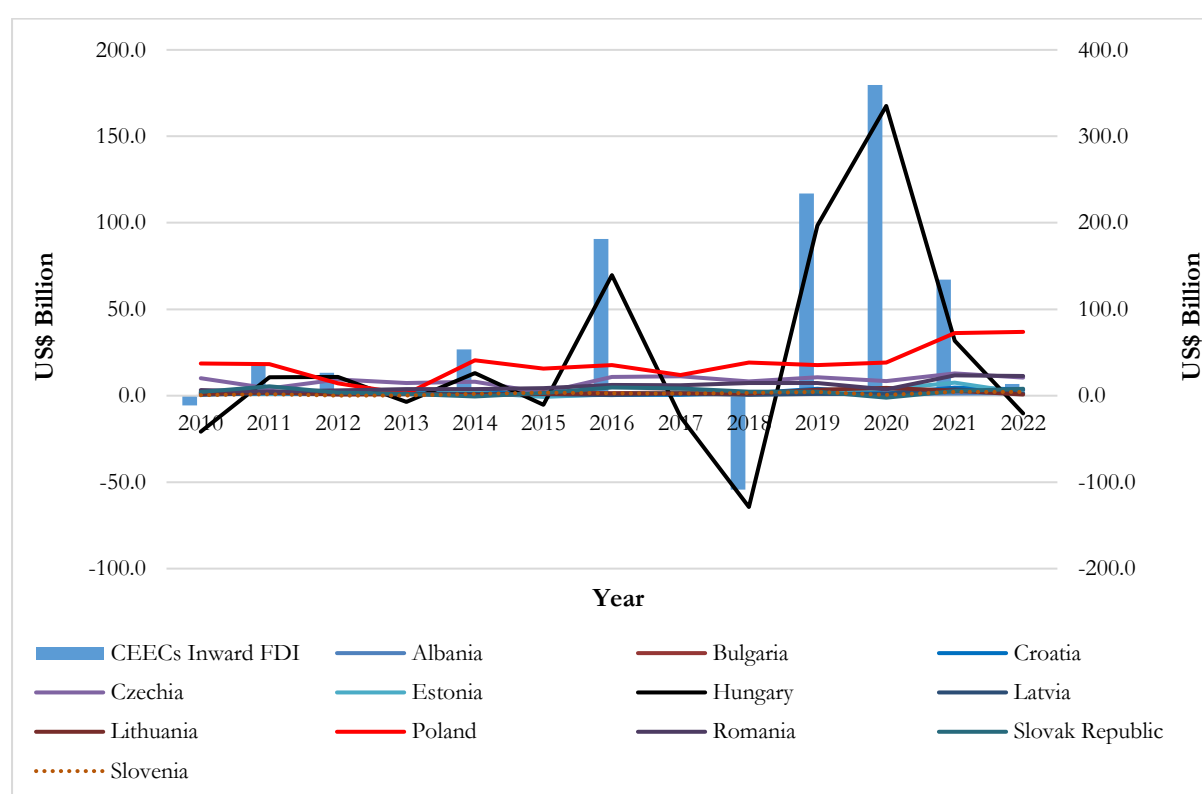
Note: primary axis, line graph; secondary axis, clustered column graph

Source: World Bank (2024) World Development Indicators

Figure 1: Inward FDI trends in CEECs from 2010 to 2022

In 2019 and 2020, the inward FDI trajectory in the CEECs improved with the expansion

largely attributed to the growth in inward FDI in Hungary and Poland. Slovenia had the least

expansion in inward FDI with an average of US$1.2 billion over that period. In the same period,

the FDI trends in the CEECs followed the expanding global trend before declining in 2021 and

further weakening in 2022, probably in response to the adverse effects of the Russo-Ukrainian

war. It is, however, clear in the graph that the expansion in inward FDI of CEECs, which began in 2019, followed a sharp contraction from US$181.4 billion in 2016 to –US$181.4 in 2018. This is partially attributable to the weak relations between the country and the EU due to concerns about democratic backsliding, policy inconsistence, and upholding the rule of law. Such concerns trigger political and economic uncertainties, which are both perceived to be investment deterrents.

3. Theoretical and empirical literature review

3.1 Theoretical review

FDI is not a new phenomenon. In fact, the eminence of FDI as a cradle of growth and development has amplified swiftly over the previous decades. As such, over the years, a number of theories and philosophies were put forward to evaluate and explain the role of FDI in the international economy. In other words, the proposed theories aid in bolstering the understanding of the reasons why commercial establishments invest in foreign territories, why they opt for particular markets, and why they pursue a certain entry strategy (Buckley & Casson, 1985). Accordingly, the theoretical footing of FDI has progressed along with the development of positive economics and research in international business. In this context, the following three clusters of FDI theories can be identified: the host nation advantage theories; the firm advantage-based theories; and the hybrid of host nation and firm advantage theories.

Host nation advantage theories focus on the existing gains offered by the nations hosting the FDI activities (Boddewyn, 1985). They single-out host nation advantages as the crucial constituent in attracting FDI (Andreff & Balcet, 2013). Most notable theories in this cluster include: the springboard approach, which considers outward FDI as a springboard to acquire strategic assets; the linkage, leverage and learning theory, which considers linkage, leverage and learning as vital elements in explaining the expansion of business entities in international markets; and the network model, which emphasises the significance of networks in assisting business entities in obtaining access to resources and/or assets that are critical in expanding competitiveness.

Firm advantage-based theories pay attention to the theories based on firms attaining competitive advantages and initiating the process of participating in the multinationalism course (Denisia, 2010). It must be recognised that it is firms that actually engage in most of the FDI activities. In fact, FDI is a gateway for business entities to obtain access to foreign markets and initiate the internationalisation process (Nikki & Michael, 2015). Hence, the firm advantage-based theories cluster consists of the following four outstanding theories: the Uppsala model, which posits that business entities progressively expand their foreign market commitments over time as they encounter development in market-related knowledge (Johanson & Vahlne, 1977); the innovation-related internationalisation model, which considers the process of multinationalism as an innovation for the business entity; the entrepreneurial approach theory, which identifies the role of leadership as a vital element in the process of multinationalism; and the resource-based theory, which proposes that business entities tend to invest in foreign markets only if they control and/or own strategic resources.

Host nation and firm advantage theories are considered all-inclusive as they amalgamate both firm and host nation advantages (Denisia, 2010). Hence, multinationalism is more likely to be inspired by the necessity to either exploit the business entity's resources (i.e., asset-exploiting FDI) or to gain access to resources not accessible in the home country (i.e., asset-seeking FDI); or a blend of both. This perspective is backed by theoretical frameworks such as the ownership, location, and internalisation (OLI) model, proposed by Dunning (1976). According to this model, multinationalism originates from three major advantages, namely, ownership, location, and internalisation. Ownership advantages are regarded as the key engine for participating in internationalisation activities (Dunning, 1976). Location advantages such as market size and accessibility of economical production factors correlate to the choice of the market where a firm geographically locates its foreign activities (Narula & Santangelo, 2012). Internalisation advantages capture the distinct modes in which business entities may coordinate the establishment and the

utilisation of their core competencies based on the location advantages of diverse markets (Williams, 1997).

COVID-19 is theoretically linked to FDI activities through the understanding that pandemics affect both the supply- and demand-side of an economy (Hayakawa & Mukunoki, 2021). On the supply-side, measures that were instituted by various countries to curb the spread of COVID-19 (e.g., lock-down and shut-down measures) affected the mobility of people and merchandises domestically and across international boundaries. This, together with COVID-19-associated mortalities and ailments, ushered in adverse impacts on production activities culminating in the deceleration or withdrawal, in some instances, of FDI activities. On the demand side, the pandemic had an adverse effect on aggregate demand negatively impacting commercial entities through the loss of revenue, retrenchment of workers and closure, in extreme scenarios. The decline in production and aggregate demand alike should be viewed in light of industrial heterogeneity. In terms of production, supply shocks were higher in industries producing non-essential merchandises comparative to those producing essential merchandises. Similarly, adverse demand shocks conceivably diminish expenditure on durable goods relative to expenditure on non-durable goods since the demand for durable goods is postponable (Baldwin & Tomiura, 2020).

In the context of the demand and supply factors above, host nation and firm advantage FDI theories postulate how certain nations or firms may benefit or suffer from intrinsic advantages or disadvantages during pandemics. Factors such as healthcare infrastructure, technology capabilities, supply chain resilience, government policies, and market dynamics shape FDI flows during pandemics, underscoring the significance of strategic planning and adaptation for both foreign investors and host countries. Supply chain resilience, for instance, prompted firms to reevaluate their supply chain strategies and consider localisation or diversification of production facilities.

The theoretical link between war and FDI can be derived from the classical liberal theory, which states that the existence of free trade regimes moderates the probability of conflict

(Bussmann, 2010). This entails that economically integrated nations are hesitant to engross in militarised engagements owing to the consequential effects of such confrontations on foreign trade and FDI. This liberal ideology is grounded on the assumption that war diminishes economic interactions. The proximity of CEECs to both Russia and Ukraine provides enough grounds for FDI to weaken as there were fears of the conflict escalating beyond the belligerents into a global conflict.

The connection between war and FDI is typified by a complex interplay of economic, political, and security factors. While wars can create both opportunities and challenges for foreign investment, the impact on FDI flows is contingent on features such as the availability of resources, market dynamics, risk perceptions, uncertainty, the regulatory environment, political stability, and corporate responsibility considerations. Understanding these theoretical links can assist policymakers, investors, and academics in evaluating the implications of conflicts on investment decisions and economic development trajectories.

3.2 Empirical review

It is not a secret that FDI has emerged to be a structural part of economic growth and development in both developed and developing countries alike (Razafimahefa & Hamori, 2007). In fact, FDI has inspired and continues to inspire various economic growth and developmental areas, such as employment, capital formation, market structures, technology and skills, political culture, and social issues (UNCTAD, 1999; Beri & Nubong, 2021; Koçak & Barış-Tüzemen, 2022). The value of FDI in growth and development activities has been contentious. In fact, arguments for and against FDI have always been in existence and are well-documented in FDI literature. In this regard, two strands of literature with diverging views emerge. The first strand advocates for FDI by contending that FDI stimulates productivity and leads to economic growth and development (Baldwin, 2003; Carbonell & Werner, 2018; Nikki & Michael, 2015; Kurtishi-Kastrati, 2013; Olorogun, Salami & Bekun, 2022). The second strand opposes FDI by arguing that

it reduces the ecological footprint (Sun et al., 2022), weakens domestic competences (Zhou, Li & David, 2002) and does not compensate poor nations when extracting natural resources (Karimi & Yusop, 2009; Buur et al., 2013).

Nevertheless, a number of scholars have reached consensus that FDI benefits both the home and the host nation (Razafimahefa & Hamori, 2007; Sadni-Jallab, Gbakou & Sandretto, 2008; Doytch, 2021; Sauvant, 2021). For instance, FDI is viewed as a catalyst for restructuring, modernisation and growth within the CEECs. It must also be submitted that the benefits of FDI should be viewed in the contexts of its political facets. In this regard, an examination of the FDI inflows in the CEECs by scholars such as Carstensen and Toubal (2004), Günther and Kristalova (2016), and Dorożyński, Dobrowolska and Kuna-Marszałek (2020) isolated factors like country risk and privatisation of enterprises as significant in facilitating the inflows of FDI into the CEECs. Similarly, the findings of Beri and Mhonyera (2023) robustly propose gross capital formation, macroeconomic stability, and trade openness as significant determinants of FDI in CEECs.

The COVID-19 pandemic emerged at a time when the FDI positions of many countries, the CEECs included, were still recovering from the aftermath of the 2008 GFC along with the 2011 Euro-debt crisis. In fact, existing literature (e.g., Adarov & Hunya, 2020; Papadamou et al., 2021; Fang, Collins & Yao, 2021; Kalotay & Sass, 2021; Giofré, 2022; Kwilinski, 2023) widely documents the negative impacts of COVID-19 on FDI. Within the CEECs, in particular, Adarov and Hunya (2020) document that FDI inflows in European Union-CEECs declined by 35% in the first half of 2020, a trend that had continued from 2019, halting a three-year growth period commencing in 2016.

For developing countries, scholars like Papadamou et al. (2021), *inter alia*, identify episodes of "flight to quality" in which investors rebalanced their portfolios in favour of safer assets in economies presenting a higher degree of perceived quality (e.g., the G7 and Euro-zone countries). Fang, Collins and Yao (2021) found the number of new COVID-19 confirmed cases, deaths, and

cumulative confirmed cases to have a significant adverse effect on FDI in OECD countries, BRICS countries and Singapore, with an average elasticity of 0.7%.

Foreign investors generally avoid investing in countries characterised by and subjected to war. For instance, the level of FDI inflows in the Balkans were insignificant during the 1990s as a consequence of war in the region (Bjelić, Jaćimović & Tašić, 2013). A study by Suliman and Mollick (2009) also revealed that war environments affect FDI inflows relative to non-war environments. Even historical relations typified by a war usher in significant explanatory power for FDI decisions. This can be evidenced by the findings of Gao, Wang and Che (2018) that demonstrate deterring effects exerted by civilian casualties of the Sino-Japanese war on Japanese FDI location choices.

In the context of the current war between Russia and Ukraine, the findings of Benson (2023) revealed that the war has increased military expenditure, which has caused a significant setback to FDI and trade relations. This has served to undermine both bilateral and multilateral trade relations and disrupts supply chains, markets, and value chains that have long existed before the crisis amongst countries globally. Hosen et al. (2024) also conclude that microeconomic factors in Europe and developing countries in Asia affected the growth of the gross domestic product (GDP), and inflation, interest rates, and the exchange rate fluctuated with inward FDI, which mostly shocked during COVID-19 and the Russo-Ukraine war. The conclusions, in other words, indicated that investment growth in Europe and Asian developing countries experienced a decline in inward FDI when domestic policy uncertainty exists.

Although it was widely expected that the COVID-19 pandemic will instigate a contraction of growth and investment, a paucity of real empirical evidence regarding the impact of COVID-19 on FDI in the CEECs remains uncertain. Similarly, actual empirical confirmation concerning the impact of the Russo-Ukrainian war on FDI in the region is yet to be publicised. This paper, therefore, fills this gap by examining the impact of the COVID-19 pandemic and the Russo-

Ukraine war on FDI in CEECs utilising quarterly data of CEECs from 2020 to 2022 to inform the empirical analysis.

In the context of the above, while a number of studies (e.g., Adarov & Hunya, 2020; Vasiljeva et al., 2020; Benson, 2023; and Kwilinski, 2023) have contributed to this growing body of literature in the CEECs, the studies were either descriptive or assumed homogeneity in their estimation strategies. Moreover, CEECs were likely to respond heterogeneously to COVID-19 and the Russo-Ukraine war contingent on their past FDI inflows. Further, by employing the quantile regression method, the study reveals novel empirical evidence on the idiosyncratic effects of COVID-19 and the Russo-Ukraine war on FDI across different quantiles, while simultaneously accounting for unobserved heterogeneity and eliminating the effects of outliers; thereby warranting that the coefficients of the estimated parameters are robust.

4. Data and estimation strategy

4.1 Data

This study examines the effects of the COVID-19 pandemic and the Russo-Ukrainian war on FDI in selected CEECs (Albania, Bulgaria, Croatia, Czechia, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, the Slovak Republic, and Slovenia) using quarterly data over 2020Q1 to 2022Q4. The study measures COVID-19 with two main indicators, that is, the total number of cumulative cases and the total number of cumulative deaths as reported by host countries (Fu, Alleyne & Mu, 2021; Giofré, 2022). The dataset on COVID-19 cases and deaths originates from Mathieu et al. (2022).

Apart from these measures of the pandemic, we also control for economic development (GDP per capita), inflation, and exchange rates to address issues related to omitted variable bias. According to the market size theory and the eclectic paradigm (Moosa & Merza, 2022; Dunning, 1976), an increase in GDP per capita indicates that the economy is performing well and provides

opportunities for investors and economic agents to make a profit. Additionally, high inflation reduces the value of foreign assets denominated in local currencies and can be off-putting to foreign investors. Therefore, we expect a negative relationship between inflation and FDI and a positive gradient of GDP.

In addition, exchange rates can have varying effects on FDI. Firstly, countries having a currency depreciation experience a decrease in the wage bill and total cost of production, which enhances their locational advantages and attractiveness to FDI. However, an unstable currency makes uncertain potential benefits from FDI, which deters FDI (Polat & Payaslıoğlu, 2015).

Table 1 presents the list of variables and their definitions. Since FDI data contains negative values, we employed the hyperbolic sine transformation function[1] to log transform our variables (Beri & Nubong, 2021; 2023). FDI and all control variables were transformed from annual to quarterly observations, while the COVID-19 cases and deaths per millions of inhabitants were transformed from monthly to quarterly observations using EViews.

Table 1: Variable description and source

Variable	Definition	Source
FDI	Foreign direct investment, net inflows (% of GDP)	WB (2023) WDI
GDPC	GDP per capita (current US$)	WB (2023) WDI
INF	Inflation, consumer prices (annual %)	WB (2023) WDI
EXR	Official exchange rate (LCU per US$, period average)	WB (2023) WDI
CUMCASES	Covid-19 total cumulative cases	Mathieu et al. (2022)
CUMDEATHS	Covid-19 total cumulative deaths	Mathieu et al. (2022)
Russo-Ukrainian war	Dummy variable with 1 = wartime	

Notes: WB, World Bank; WDI, World Development Indicators; Covid-19 cases and deaths are retrieved from Mathieu et al. (2022) (https://ourworldindata.org/coronavirus) and from the WHO COVID-19 dashboard (https://covid19.who.int/data); Russo-Ukrainian war: dummy variable that captures the ongoing Russo-Ukrainian war with 0 indicating the period before the war, and 1 indicating war time.

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[1] $(y = \ln[y + \sqrt{(y^2 + 1)})$

4.2 Estimation by panel quantile regression

The paper employs the panel quantile regression (QR) in its empirical strategy to examine the impact of COVID-19 and the Russo-Ukrainian war on FDI. Our model is derived from previous studies, such as Zhu et al. (2016), Machado and Santos (2019), Koçak and Barış-Tüzemen (2022), and Asongu et al. (2024). QR allows us to obtain differential slopes of the effect of COVID-19 at varied quantiles of FDI, which accounts for unobserved heterogeneity (Zhu et al., 2016). In this case, QR helps us to explore the effects of COVID-19 from the least to the largest recipients of FDI through its conditional distribution (Koçak & Barış-Tüzemen, 2022).

QR differs from methods of moments estimations in at least two ways: i) the OLS technique focuses on the mean effects that assign equal weights to all observations and outliers; ii) OLS tend to be inefficient in cases where the error term does not follow a normal distribution, and the mean is affected by outliers in the dataset. However, QR does not adhere to these "strict" assumptions (Koenker & Bassett, 1978), which is an advantage over the OLS technique. Since the method allows for different weights for different values in the conditional distribution (Koçak & Barış-Tüzemen, 2022), its regression eliminates the effects of outliers and ensures that the coefficients of estimated parameters are robust. It also facilitates the precise identification of the structural quantile function (Asongu et al., 2024). In the panel QR, conditional quantiles of FDI whose distribution is conditional on a vector k of covariates (COVID-19, GDPC, INFL, and EXR) belong to location scale variant models (Koçak & Barış-Tüzemen, 2022). The quantile conditional function for the regression can be defined as in equation (1):

$$Q_{FDI_{it}}(\tau|\gamma_i, \delta_t, X_{i,t}) = \gamma_i + \delta_t + \alpha_{1,\tau}COVID_{i,t} + \alpha_{2,\tau}GDPC_{i,t} + \alpha_{3,\tau}P_{i,t} + \alpha_{4,\tau}EXR_{i,t} + \mu_{it} \quad (1)$$

From equation (1), τ represents the different quantiles (10th, 25th, 50th, 90th, etc), α, γ, δ are unkwnon parameters to be estimated, i is the different cross-sections (CEECS), t is the different periods, and FDI is the dependent variable. According to Machado and Silva (2019), μ_{it} is uncorrelated (orthogonal) to the covariates. Additionally, we estimate a model for the impact of the Russia-Ukraine war on FDI in CEECs. The model is given in this form:

$$Q_{FDI_{it}}(\tau|\gamma_i, \delta_t, X_{i,t}) = \gamma_i + \delta_t + \alpha_{1,\tau}War_{i,t} + \alpha_{2,\tau}GDPC_{i,t} + \alpha_{3,\tau}P_{i,t} + \alpha_{4,\tau}EXR_{i,t} + \mu_{it} \quad (2)$$

Where war is a dummy variable with 1 equal to the period corresponding to the first quarter of 2022 when Russia launched its "special military operation" in Ukraine and onwards. Prior to the econometric analysis, we tested for normality using the Shapiro-Wilk test, cross-section dependence, unit root, and slope homogeneity.

5. Results and discussions

This section presents results from our analysis. Table 2 shows the summary statistics, including the mean, standard deviations, minimum and maximum values, and the Shapiro-Wilk test for normality. All variables are in log form. The results from the Shapiro-Wilk test show that all series are not normally distributed.

Table 2: Descriptive statistics

Variable	Obs	Mean	Std Dev	Min	Max	Shapiro-Wilk Test
Foreign direct investment	192	1.994	1.547	-5.053	5.362	8.558***
War (dummy)						
0 Before the war	192	.75	.434	0	1	
1 During the war	192	.25	.434	0	1	
GDP per capita	192	10.789	2.331	9.277	26.473	10.750***
Consumer price index	192	1.842	1.229	-2.284	3.674	6.150***
Exchange rate	192	2.232	1.932	.564	6.614	7.465***
Total cases of COVID-19	144	12.589	2.66	5.063	16.36	5.413***
Total deaths from COVID-19	143	8.625	2.641	.717	12.376	5.413***

Figure 2 shows the distance of the kernel density estimate of foreign direct investment from the overlaid normal density function. It lends credence to the Shapiro-Wilk test that the dataset is not normally distributed.
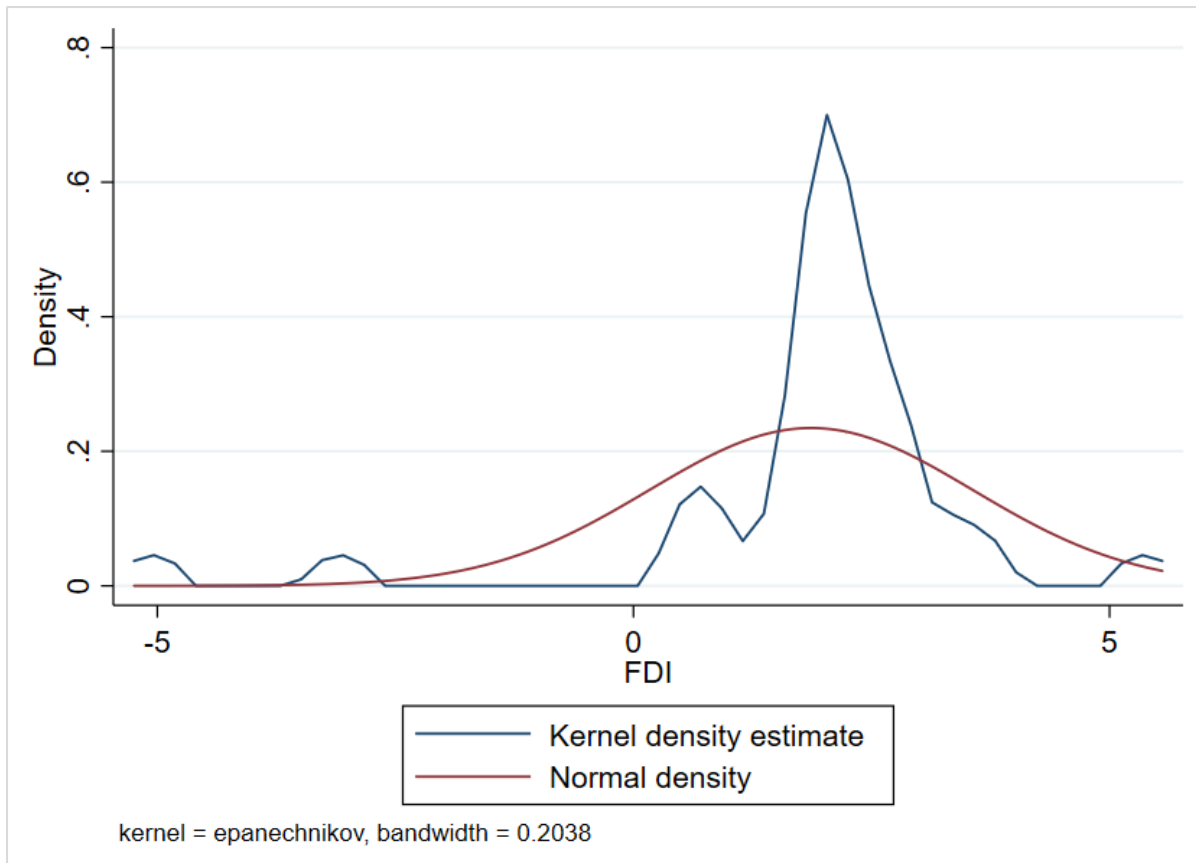
Figure 2: Kernel density plot of foreign direct investment

Figure 3 shows plots of the relationship between COVID-19 (reported cases and deaths) and foreign direct investment in CEECs. The negative gradients of the relationships are uncovered in the fitted plots and the regressions. The descriptive statistics point to the fact that COVID-19 had a negative effect on FDI in CEECS. However, the lack of uniformity in the distribution of FDI could imply that countries are affected differently, which requires further scrutiny.
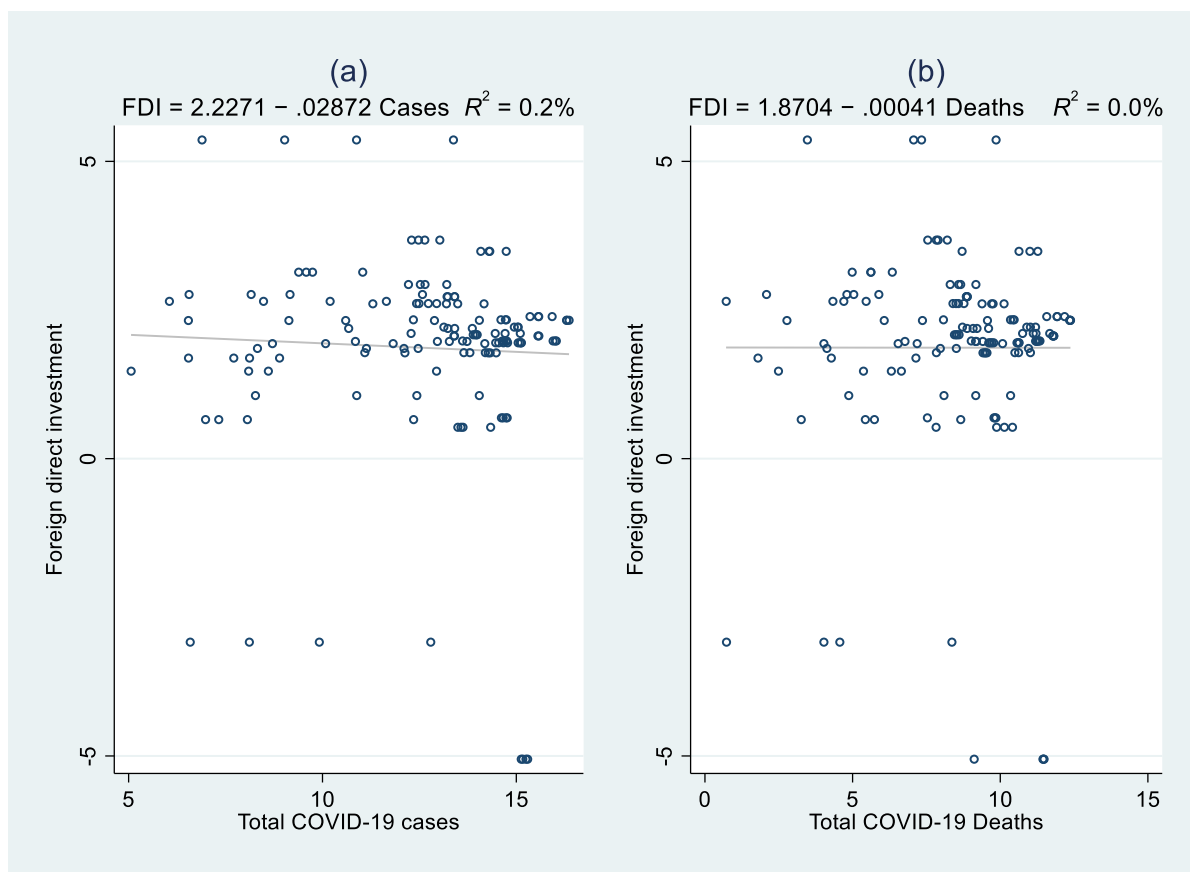
Figure 3: Two-way fitted plot: Panel (a): FDI and total cumulative cases of COVID-19; Panel (b): FDI and cumulative COVID deaths

In addition, we tested for cross-sectional dependence in our panels. There are many reasons to suspect that there will be cross-sectional dependence (CD). Firstly, CEECs are exposed to similar global and regional shocks (for instance, COVID-19 and the Russia-Ukraine war), which affect these economies simultaneously. Secondly, an increase in FDI in one country can easily have spillover effects in neighbouring countries since they share close geographical proximity. Thirdly, the economies are closely integrated (economically and politically), in such a way that any shock in one country can easily spread to others. Finally, CEECs have similar economic structures and demographic patterns. Therefore, these are reasonable grounds to suspect the existence of CD in our study. Results based on Pesaran's test statistic (5.504***) and Friedman's test statistic (32.705***) showed evidence of CD.

We also run the slope homogeneity test using the biased adjusted LM test of error cross-section independence by Pesaran, Ullah and Yamagata (2008). It is important to run this test

because variables in our models may have different effects across cross-sectional units. Additionally, CEECs may have different policies related to FDI or might have responded differently to the COVID-19 pandemic or the Russia-Ukraine war, which can lead to slope heterogeneity. Failing to identify and account for potential slope heterogeneity might bias the econometric results. Our results (adj. Delta: -3.447***) reject the null of slope homogeneity in favour of heterogeneity. The existence of heterogenous slopes provides good grounds to employ quantile regression in our econometric analysis (Koçak & Barış-Tüzemen, 2022). Finally, we used the first-generation unit root test for the stationarity of our variables. Based on the Levin-Lin-Chu procedure that included a trend parameter, we found that all variables were stationary at level, that is, I (0). In the next paragraphs, we address the question of whether our explanatory variables, particularly COVID-19, had differential effects on the conditional quantiles of FDI during the global pandemic.

Table 3 presents the empirical results from quantile regression. The relationship between COVID-19 and FDI is examined through the conditional distribution of FDI. It follows that FDI in a country increases as one moves from the 10th to the 90th quantile. In this study, countries that attract low FDI correspond to the 10th and 25th percentile, while those that attract a medium level of FDI correspond to those in the 50th percentile (median). Finally, countries that fall in the 75th percentile and higher are those whose conditional distribution of FDI is high. Our task in this section, therefore, is to determine if COVID-19 had differential effects on FDI across these quantiles and what quantiles were likely to be more affected by the twin crises and in what ways.

Table 3 presents results on the effect of the cumulative number of COVID-19 cases on FDI in CEECS. It shows that increases in COVID-19 were associated with differences in foreign direct investment across the different quantiles. However, the effect of COVID-19 was only negative and statistically significant in countries who's conditional FDI distribution was very high (90th percentile). The estimated coefficient in column (5) shows that for every percentage increase

in COVID-19 cases, FDI decreased by 0.231 percent for countries in the 90th percentile. Therefore, we conclude that COVID-19 reduced foreign direct investment exclusively for countries that were in the 90th quantile (highest recipients) of FDI inflow or higher. This conclusion is supported by results from interquantile regression in Table 1A in the appendix, which also shows that increases in COVID-19 cases and deaths corresponded significantly to decreases in FDI variability. However, the latter results conceal underlying variations across different quantiles, and therefore, are sensitive to differences across countries.

COVID-19 was a grave and unprecedented economic shock in terms of scale, spread, and global policy responses to mitigate its consequences. During the pandemic, there was a rapid decrease in demand due to international restrictions, which decreased investment in high FDI host countries. The negative effect of COVID-19 on FDI inflow in this study is in line with those previously discussed in the theoretical and empirical studies (Ho & Gan, 2021; Giofré, 2022; Koçak & Barış-Tüzemen, 2022; Moosa & Merza, 2022). In a sense, FDI was highly sensitive to COVID-19, particularly in economies at the higher end of the distribution.

A possible explanation for this sensitivity can be found in the risk-aversion theory which states that investors tend to be risk averse at higher levels of investments. In the context of FDI into CEECs, economies in the 90th quantile – for instance, Hungary and Poland – likely attract larger volumes of FDI and thus represent a greater investment risk. A noticeable decline in FDI during periods of greater uncertainty, such as a pandemic or war, may result from investors pulling out of these high-risk economies. Another theory that can explain this negative relationship is the market size theory. Accordingly, larger economies (which are likely to be those in the 90th quantile) attract more FDI due to their larger market size. In a similar way, these larger economies may suffer greater losses, leading to a larger negative impact on FDI during pandemics and wars.

Empirically, Fu, Alleyne and Mu (2021) uncovered evidence that the effect of COVID-19 varied strongly across sectors, especially in host countries where the mortality rate was higher than

source countries. Although Giofré (2021) found that quarterly index stringency measures did not affect inward FDI, he also argued that within a country, the measures did. Giofré (2022) further attributed the decline in FDI to the flight to advanced economies as they seem to have been less hit in terms of their foreign liabilities.

The coefficients of our control variables also vary significantly across the different quantiles. For instance, the coefficient of GDP is negative and significant at the 5% level in countries that attract low FDI, but positive and significant in countries that attract high FDI. Similarly, the coefficient of the consumer price index is only negative and highly statistically significant in countries within the 75th percentile, while the coefficients of the exchange rate are positive and significant in medium and high FDI host countries. The corresponding quantile regression diagram of the results in Table 3 is presented in Figure 4. It shows the coefficients of all independent variables across all quantiles and their corresponding 95% confidence interval.

Table 3: Effect of cumulative COVID-19 cases on FDI in CEECS

Variables	(1) q10	(2) q25	(3) q50	(4) q75	(5) q90
GDP per capita	-3.214**	-0.478	0.0133	0.492*	1.514***
	(1.267)	(0.375)	(0.240)	(0.252)	(0.505)
Consumer price index	-0.225	0.161	-0.0524	-0.177***	0.0595
	(0.265)	(0.136)	(0.122)	(0.0673)	(0.159)
Exchange rate	-0.963	0.129	0.154**	0.240***	0.358***
	(0.619)	(0.224)	(0.0776)	(0.0652)	(0.110)
Cumulative cases	0.0331	0.000	0.0513	-0.0247	-0.231**
	(0.286)	(0.0670)	(0.0416)	(0.0422)	(0.101)
Constant	35.37**	6.156	1.100	-2.470	-10.68**
	(14.17)	(4.369)	(2.469)	(2.421)	(4.929)
Observations	144	144	144	144	144

Standard errors in parentheses
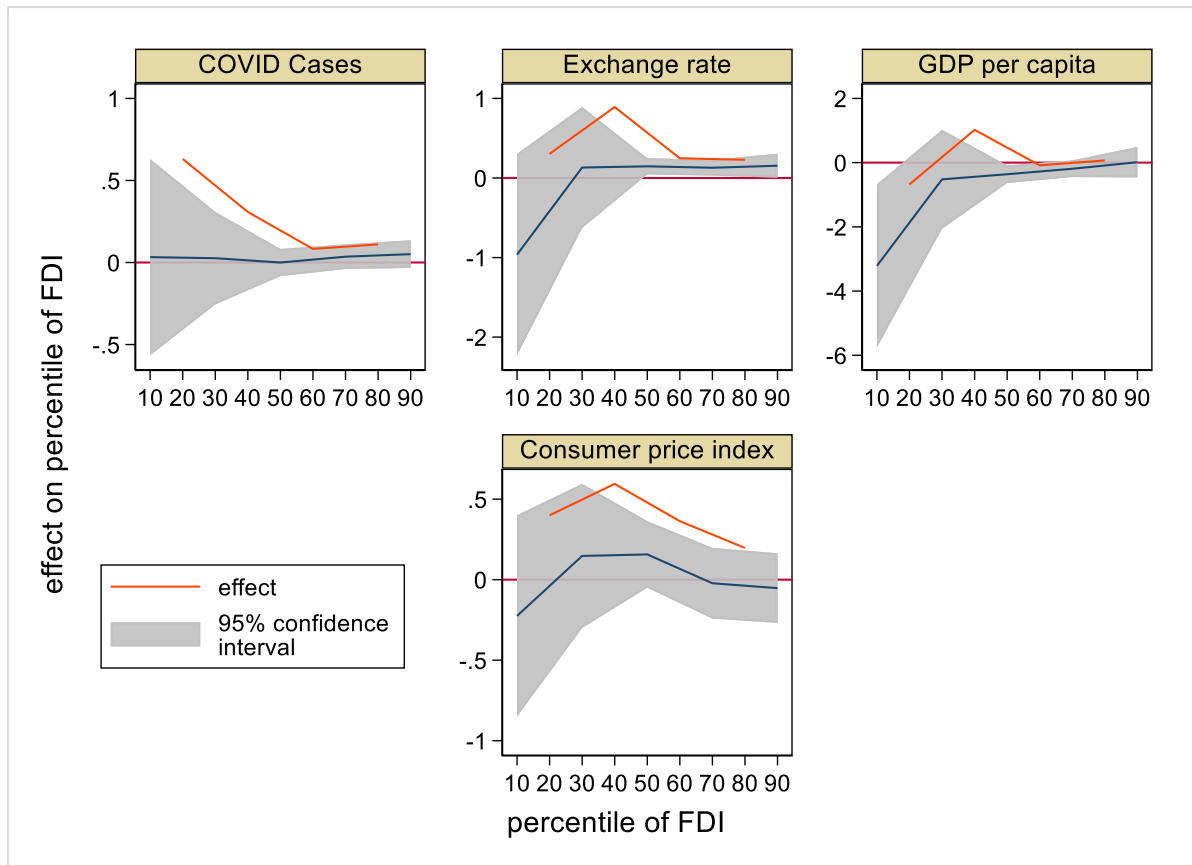*** p<0.01, ** p<0.05, * p<0.10

Figure 4: The dynamics of panel quantile regressions coefficients

The results on the effects of cumulative deaths from COVID-19 on FDI in CEECS in Table 4 provide supportive evidence for the robustness of our results. A close examination of the coefficients uncovers that they follow a similar pattern as in the previous results, except for the differences in magnitudes. Therefore, we can conclude that COVID-19 significantly reduced the inflow of FDI into CEECS at the 90th quantile. The corresponding quantile regression diagram are shown in Figure 5.

Table 4: Effects of cumulative deaths from COVID-19 on FDI

Variables	(1) q10	(2) q25	(3) q50	(4) q75	(5) q90
GDP per capita	-3.073**	-0.480	0.134	0.470**	1.450**
	(1.243)	(0.421)	(0.239)	(0.232)	(0.563)
Consumer price index	-0.196	0.151	0.0588	-0.186***	0.0138
	(0.248)	(0.135)	(0.108)	(0.0480)	(0.147)
Exchange rate	-0.965	0.134	0.202**	0.235***	0.318***
	(0.619)	(0.215)	(0.0809)	(0.0848)	(0.116)
Cumulative deaths	0.0375	0.00803	-0.00805	-0.0166	-0.203**
	(0.263)	(0.0814)	(0.0264)	(0.0383)	(0.0867)
Constant	33.97**	6.107	0.252	-2.390	-11.03*
	(14.37)	(4.591)	(2.631)	(2.389)	(5.858)
Observations	143	143	143	143	143

Standard errors in parentheses
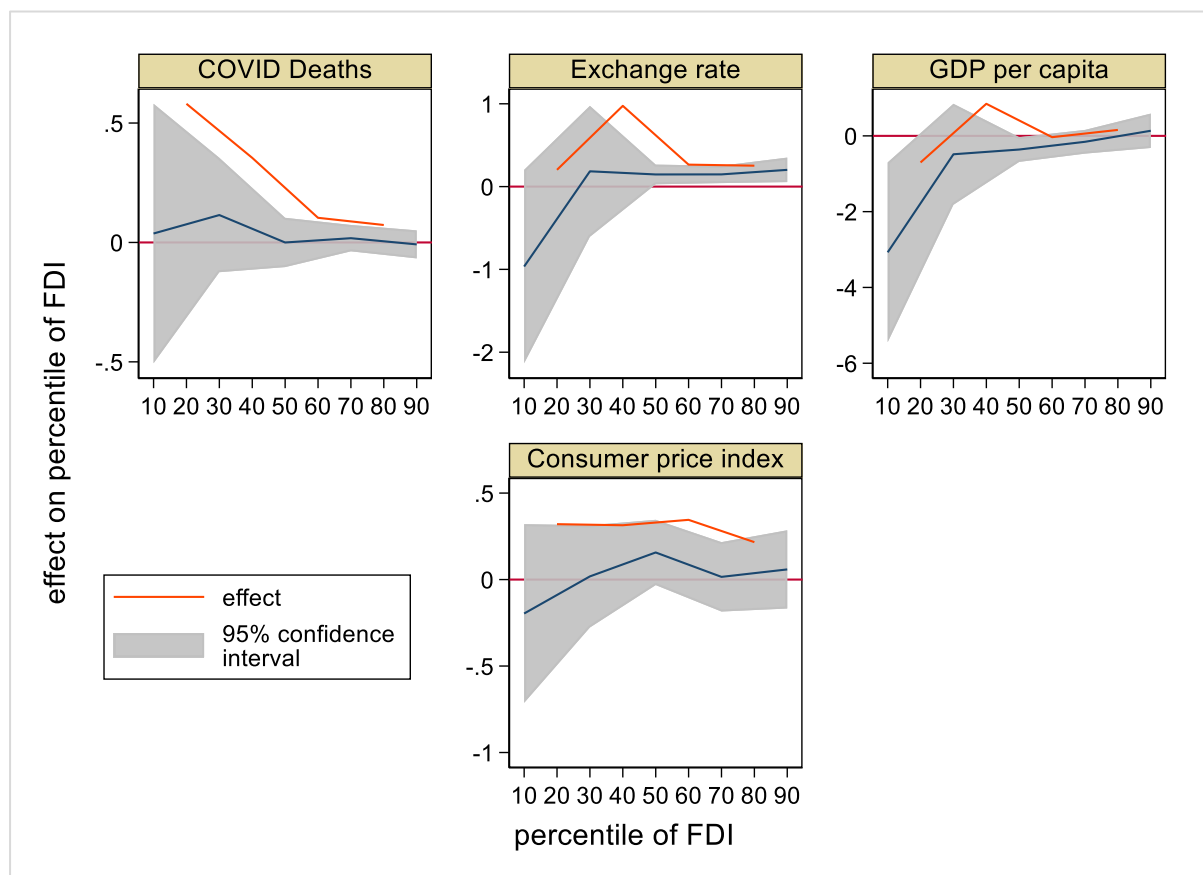*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Figure 5: Quantile regression coefficients

Finally, we present results on the effects of the Russo-Ukrainian war on foreign direct investment in CEECS. As earlier indicated, the outbreak of the war was captured with a dummy variable. The results in Table 4 show a negative impact of the war on FDI but its coefficient was

only significant in countries that fall in the 90th quantile of FDI inflow. The coefficients of GDP per capita and consumer price index is statistically insignificant in all quantiles. However, the effect of the exchange rate on FDI was positive and statistically significant at the 25th, 50th, 75th, and 90th quantiles. Like COVID-19, the Russo-Ukrainian war mainly affected FDI in CEECS because heightened tensions created uncertainty about the possibility of the war spreading to neighbouring countries in the region. Again, the findings are consistent with the risk-aversion and market size theories discussed above.

Table 4: Effect of the Russia-Ukraine war on FDI

Variables	(1) q10	(2) q25	(3) q50	(4) q75	(5) q90
War (dummy)	-1.335	-0.471	0.0659	-0.398	-0.964**
	(2.666)	(0.369)	(0.326)	(0.367)	(0.411)
GDP per capita	0.0109	0.000219	-0.0239	-0.0636	-0.105
	(0.294)	(0.0456)	(0.0615)	(0.221)	(0.380)
Consumer price index	0.272	0.183	-0.0849	-0.110	-0.0432
	(0.178)	(0.124)	(0.183)	(0.180)	(0.186)
Exchange rate	0.130	0.180***	0.129***	0.180**	0.311***
	(0.445)	(0.0588)	(0.0306)	(0.0739)	(0.0904)
Constant	0.818	1.133**	2.277***	3.263	3.979
	(3.294)	(0.526)	(0.759)	(2.350)	(4.102)
Observations	192	192	192	192	192

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

6. Concluding remarks

This paper sought to investigate the impact of the COVID-19 outbreak and the Russian-Ukraine war on foreign direct investment in central and eastern European countries. Amidst the general decline in foreign investment, we discovered that COVID-19 and the Russo-Ukrainian war had differing effects on FDI inflows to CEECs. Based on the predictive capacity of panel quantile regression, we discovered that their effects were more significant in nations falling under the 90th quantile of the FDI conditional distribution. Our findings on decreased FDI during COVID-19

and the conflict in Ukraine are typical of distressed times. Unlike CEECs, some research found a general "flight" of FDI to advanced economies (Giofré, 2021).

Based on these results, policymakers should encourage the inflow of FDI from several sources to mitigate vulnerability to shocks from such events. It is also important to promote diversification of investments so as to reduce overreliance on specific countries or sectors. Additionally, researchers should identify sectors severely hit by the pandemic and the war and tailor policies to address challenges in those sectors. Finally, governments in CEECs should engage in bilateral and multilateral cooperation to facilitate investment, stabilise the region, and promote a swift recovery. Collecting and making sectoral FDI data available should stimulate future research to identify sectors severely hit by the overlapping events and source countries that account for a larger share of investments in CEECs.

References

Adarov, A. & Hunya, G. (2020). Foreign Investments Hit by COVID-19 Pandemic. FDI in Central, East and Southeast Europe. https://library.wiiw.ac.at/cgi-bin/koha/opac-detail.pl?biblionumber=8908&shelfbrowse_itemnumber=9426 Date of Access: 06 Aug. 2023.

Adsera, A., & Boix, C. (2002). Trade, democracy, and the size of the public sector: the political underpinnings of openness. *International Organization, 56*(2):229-262. https://doi.org/10.1162/002081802320005478

Aiyar, M.S., Chen, M.J., Ebeke, M.C.H., Garcia-Saltos, M.R., Gudmundsson, T., Ilyina, M.A., Kangur, M.A., Kunaratskul, T., Rodriguez, M.S.L., Ruta, M. & Schulze, T. (2023). Geo-economic fragmentation and the future of multilateralism. International Monetary Fund. https://doi.org/10.5089/9798400229046.006

Alfaro, L., Chanda, A., Kalemli-Ozcan, S., & Sayek, S. (2004). FDI and economic growth: the role of local financial markets. *Journal of International Economics, 64*(1):89-112.

and economic consequences of multinational corporations. Abingdon-on-Thames: Routledge.

Andreff, W., & Balcet, G. (2013). Emerging countries multinational companies investing in developed countries: At odds with the HOS paradigm. *The European Journal of Comparative Economics, 10*(1):3-26.

Angelopoulos, K., Philippopoulos, A. & Vassilatos, V. (2009). The social cost of rent seeking in Europe. *European Journal of Political Economy, 25*(3):280-299. https://doi.org/10.1016/j.ejpoleco.2009.06.001

Anuchitworawong, C., & Thampanishvong, K. (2015). Determinants of foreign direct investment in Thailand: Does natural disaster matter? *International Journal of Disaster Risk Reduction, 14*:312-321. https://doi.org/10.1016/j.ijdrr.2014.09.001

Araujo, R.A., Teixeira, J.R. and Soares, C., 2015. Export-led growth vs growth-led exports: what matters for the Brazilian growth experience after trade liberalization? *Review of Keynesian Economics, 3*(1):108-128. https://doi.org/10.4337/roke.2015.01.08

Asongu, S. A., Ndour, C. T., & Ngoungou, J. C. (2024). The effects of gender political inclusion and democracy on environmental performance: evidence from the method of moments by quantile regression. *Politics & Policy.* https://doi.org/10.1111/polp.12576

Baldwin, R. & Tomiura, E. 2020. Thinking ahead about the trade impact of COVID-19. (In Baldwin, R. & di Mauro, B.W. ed. Economics in the time of COVID-19. London: CEPR Press. pp. 59-72).

Baldwin, R. E. (2003). Openness and Growth: What's the Empirical Evidence? *NBER Working Paper*, (9578):149-157. https://doi.org/10.3386/w9578

Barro, R.J., Sala-i-Martin, X. (1997). Technological diffusion, convergence, and growth. *Journal of Economic Growth, 2*, 1–26. https://doi.org/10.1023/A:1009746629269

Benson, K. B. (2023). Does the Russia-Ukraine war affect trade relations and foreign Direct investment flows from Europe into Asia and Africa? *International Journal of Research in Business and Social Science, 12*(2), 287-300. https://doi.org/10.20525/ijrbs.v12i2.2403

Beri, P. B., & Nubong, G. F. (2021). Impact of bilateral investment treaties on foreign direct investment in Africa. *African Development Review, 33*(3):439-451. https://doi.org/10.1111/1467-8268.12583

Beri, P. B., & Nubong, G. F. (2023). The impact of the investment climate on foreign direct investment in Africa. *African Review of Economics and Finance, 15*(1):1-17. https://journals.co.za/toc/aref/15/1

Beri, P.B. & Mhonyera, G. (2023). Macroeconomic drivers, governance, and foreign direct investment in Central and Eastern European Countries (CEECs). *Economic and Business Review, 25*(3):131-145. https://doi.org/10.15458/2335-4216.1323

Bianchi, J. & Sosa-Padilla, C. (2023). The macroeconomic consequences of international financial sanctions. In *AEA Papers and ProCEECsdings* (Vol. 113, pp. 29-32). 2014 Broadway, Suite 305, Nashville, TN 37203: American Economic Association. https://doi.org/10.1257/pandp.20231042

Bjelić, P., Jaćimović, D. & Tašić, I. (2013). Effects of the world economic crisis on exports in the CEECSC: focus on the Western Balkans. *Economic Annals, 58*(196):71-98. https://doi.org/10.2298/EKA1396071B

Blanton, S.L. & Blanton, R.G. (2007). What attracts foreign investors? An examination of human rights and foreign direct investment. *The Journal of Politics, 69*(1):143-155. https://doi.org/10.1111/j.1468-2508.2007.00500.x

Boddewyn, J.J., (1985). Theories of foreign direct investment and divestment: A classificatory note. *Management International Review 25*(1):57-65.

Buckley, P.J. & Casson, M. (1985). The economic theory of the multinational enterprise, Springer, Berlin. https://doi.org/10.1007/978-1-349-05242-4

Bussmann, M. (2010). Foreign direct investment and militarized international conflict. *Journal of Peace Research, 47*(2):143-153. https://doi.org/10.1177/0022343309354143

Buur, L., Therkildsen, O., Hansen, M.W. & Kjær, M., (2013). Extractive natural resource development: Governance, linkages and aid, viewed 26 September 2023, from https://www.diis.dk/files/media/publications/import/extra/diis-rp-2013-28_extractive-dev_lbu-mfl_web_1.pdf

Cali, M., Ellis, K. & te Velde, D.W. (2008). The contribution of services to development: the role of regulation and trade liberalisation. London: Overseas Development Institute.

Carbonell, J.B. & Werner, R.A. (2018). Does foreign direct investment generate economic growth? A new empirical approach applied to Spain, *Economic Geography, 94*(4):425-456. https://doi.org/10.1080/00130095.2017.1393312

Carril-Caccia, F., & Pavlova, E. (2018). Foreign direct investment and its drivers: a global and EU perspective. *Economic Bulletin Articles, 4*. https://ideas.repec.org/a/ecb/ecbart/201800041.html

Carstensen, K., & Toubal, F. (2004). Foreign direct investment in Central and Eastern European countries: a dynamic panel analysis. *Journal of comparative economics, 32*(1):3-22. https://doi.org/10.1016/j.jce.2003.11.001

Denisia, V. (2010). Foreign direct investment theories: An overview of the main FDI theories. *European Journal of Interdisciplinary Studies, 2*(2):53-59.

Dornean, A., Işan, V., & Oanea, D. C. (2012). The impact of the recent global crisis on foreign direct investment. Evidence from central and eastern European countries. *Procedia Economics and Finance, 3*:1012-1017. https://doi.org/10.1016/S2212-5671(12)00266-3

Dorożyński, T., Dobrowolska, B. & Kuna-Marszałek, A. (2020). Institutional Quality in Central and East European Countries and Its Impact on FDI Inflow. *Entrepreneurial Business & Economics Review, 8*(1). https://doi.org/10.15678/EBER.2020.080105

Doytch, N. (2021). Who gains from services FDI-Host or home economies? An analysis of disaggregated services FDI inflows and outflows of 24 European economies. *Foreign Trade Review, 56*(3):257-288. https://doi.org/10.1177/00157325211010230

Dunning, J., (1976). Trade, location of economic activity and the multinational enterprise: A search for an eclectic approach, Macmillan, London. https://doi.org/10.1007/978-1-349-03196-2_38

Fang, J., Collins, A. & Yao, S. (2021). On the global COVID-19 pandemic and China's FDI. *Journal of Asian Economics, 74*:101300. https://doi.org/10.1016/j.asieco.2021.101300

Fu, Y., Alleyne, A., & Mu, Y. (2021). Does lockdown bring shutdown? Impact of the COVID-19 pandemic on foreign direct investment. *Emerging Markets Finance and Trade, 57*(10):2792-2811. https://doi.org/10.1080/1540496X.2020.1865150

Gao, G. Y., Wang, D. T. & Che, Y. (2018). Impact of historical conflict on FDI location and performance: Japanese investment in China. *Journal of International Business Studies, 49*, 1060-1080. https://doi.org/10.1057/s41267-016-0048-6

Giofré, M. (2021). COVID-19 stringency measures and foreign investment: an early assessment. The *North American Journal of Economics and Finance, 58*:101536. https://doi.org/10.1016/j.najef.2021.101536

Giofré, M. (2022). Foreign investment in times of COVID-19: How strong is the flight to advanced economies? *Journal of Multinational Financial Management, 64*, 100735. https://doi.org/10.1016/j.mulfin.2022.100735

Grossman, G. M., & Helpman, E. (1993). Innovation and Growth in the Global Economy. The MIT Press.

Günther, J., & Kristalova, M. (2016). No risk, no fun? Foreign direct investment in Central and Eastern Europe. *Intereconomics, 51*(2):95-99. https://doi.org/10.1007/s10272-016-0583-1

Harms, P. and Ursprung, H.W. 2002. Do civil and political repression really boost foreign direct investments? *Economic Inquiry, 40*(4):651-663. https://doi.org/10.1093/ei/40.4.651

Hayakawa, K. & Mukunoki, H. (2021). The impact of COVID-19 on international trade: evidence from the first shock. *Journal of the Japanese and International Economies, 60*(2021):101135. https://doi.org/10.1016/j.jjie.2021.101135

Hayakawa, K., Lee, H. H., & Park, C. Y. (2022). The effect of COVID-19 on foreign direct investment. Asian Development Bank Economics Working Paper Series, (653). http://dx.doi.org/10.2139/ssrn.4060417

Ho, L.T. & Gan, C. (2021). Foreign direct investment and world pandemic uncertainty index: do health pandemics matter? *Journal of Risk Finance Management, 14*(107):1-15. https://doi.org/10.3390/jrfm14030107

Hosen, M. S., Hossain, S. M., Mia, M. N., & Chowdhury, M. R. (2024). The Effects of COVID-19 and the Russia-Ukraine War on inward foreign Direct investment. *International Research Journal of Economics and Management Studies, 2*(4): 408-417. 10.56472/25835238/IRJEMS-V2I4P148

Huntington, S.P. (1968). Political Orders in Changing Societies. New York, NY: Yale University Press.

Jensen, N.M. (2004). Crisis, conditions, and capital: The effect of International Monetary Fund agreements on foreign direct investment inflows. *Journal of Conflict Resolution, 48*(2):194-210. https://doi.org/10.1177/0022002703262860

Johanson, J. & Vahlne, J. (1977). The internationalisation process of the firm: A model of knowledge development and increasing foreign market commitments. *Journal of International Business Studies, 8*(1):23-32. https://doi.org/10.1057/palgrave.jibs.8490676

Kalotay, K. & Sass, M. (2021). Foreign direct investment in the storm of the COVID-19 pandemic and the example of Visegrad countries. *Acta Oeconomica, 71*(S1):73-92. https://doi.org/10.1556/032.2021.00030

Karimi, M. S. & Yusop, Z. (2009). FDI and economic growth in Malaysia.

Kobrin, S.J. 2022. Managing political risk assessment: Strategic response to environmental change. California, CA: University of California Press.

Koçak, S., & Barış-Tüzemen, Ö. (2022). Impact of the COVID-19 on foreign direct investment inflows in emerging economies: evidence from panel quantile regression. *Future Business Journal, 8*(1):22. https://doi.org/10.1186/s43093-022-00133-9

Koenker, R., Bassett., G. Jr. (1978). Regression quantiles. *Econom J. Econom Soc, 46*(1): 33-50. https://doi.org/10.2307/1913643

Krueger, A.O. (1974). The political economy of the rent-seeking society. *The American Economic Review, 64*(3):291-303.

Krugman, P.R. (1993). The narrow and broad arguments for free trade. *The American Economic Review, 83*(2):362-366. http://www.jstor.org/stable/2117691

Kurtishi-Kastrati, S. (2013). Impact of FDI on economic growth: An overview of the main theories of FDI and empirical research. *European Scientific Journal, 9*(7):56-77.

Kwilinski, A., Rebilas, R., Lazarenko, D., Stezhko, N., & Dzwigol, H. (2023). The Impact of the COVID-19 pandemic on the evolution of investment markets in central and eastern Europe. *Forum Scientiae* Oeconomia, 11(4):157-186. https://doi.org/10.23762/FSO_VOL11_NO4_8

Li, Q. (2006). Democracy, autocracy, and tax incentives to foreign direct investors: A cross-national analysis. *The Journal of Politics, 68*(1):62-74. https://doi.org/10.1111/j.1468-2508.2006.00370.x

Li, Q. (2009). Democracy, autocracy, and expropriation of foreign direct investment. *Comparative Political Studies, 42*(8):1098-1127. https://doi.org/10.1177/0010414009331723

Machado, J., & Santos, S. (2019). Quantiles via moments. *Journal of Econometrics, 213*(1): 145-73. https://doi.org/10.1016/j.jeconom.2019.04.009

Mathieu, E., Ritchie, H., Rodés-Guirao, L., Appel, C., Giattino, C., Hasell, J., Macdonald, B., Dattani, S., Beltekian, D., Ortiz-Ospina E., & Roser, M. (2022). Coronavirus Pandemic (COVID-19). OurWorldInData.org. https://ourworldindata.org/coronavirus

Mathur, A. & Singh, K. (2013). Foreign direct investment, corruption and democracy. *Applied Economics, 45*(8):991-1002. https://doi.org/10.1080/00036846.2011.613786

Moon, C. (2015). Foreign direct investment, commitment institutions, and time horizon: How some autocrats do better than others. *International Studies Quarterly, 59*(2):344-356. https://doi.org/10.1111/isqu.12182

Moosa, I. A., & Merza, E. (2022). The effect of COVID-19 on foreign direct investment inflows: stylised facts and some explanations. *Future Business Journal, 8*(1):20. https://doi.org/10.1186/s43093-022-00129-5

Narula, R., & Santangelo, G.D. (2012). Location and collocation advantages in international innovation. *Multinational Business Review 20*(1):6-25. https://doi.org/10.1108/15253831211217161

Nikki. H., & Michael, P. (2015). The Political Economy of Foreign Direct Investment to Developing Countries, Handbook of the International Political Economy of Development, David Hudson, editor.

Olorogun, L. A., Salami, M. A. & Bekun, F. V. (2022). Revisiting the Nexus between FDI, financial development and economic growth: Empirical evidence from Nigeria. *Journal of Public Affairs, 22*(3): e2561. https://doi.org/10.1002/pa.2561

Oneal, J.R. & Russett, B.M. (2015). The Kantian peace: the pacific benefits of democracy, interdependence, and international organizations, 1885-1992. (In Russett, B.M. Pioneer in the scientific and normative study of war, peace, and policy. Cham: Springer. p. 74-108). https://doi.org/10.1007/978-3-319-13850-3_5

Papadamou, S., Fassas, A. P., Kenourgios, D., & Dimitriou, D. (2021). Flight-to-quality between global stock and bond markets in the COVID era. *Finance Research Letters, 38*, 101852. https://doi.org/10.1016/j.frl.2020.101852

Paul, R. (2020). Europe's essential workers: Migration and pandemic politics in Central and Eastern Europe during COVID-19. *European Policy Analysis, 6*(2):238-263. https://doi.org/10.1002/epa2.1105

Pesaran, M.H., Ullah, A., & Yamagata, T. (2008). A bias-adjusted LM test of error cross-section independence. *Econom J., 11*(1):105-127. https://doi.org/10.1111/j.1368-423X.2007.00227.x

Polat, B., & Payaslıoğlu, C. (2015). Exchange rate uncertainty and FDI inflows: the case of Turkey. *Asia-Pac J Account Econ.* https://doi.org/10.1080/16081625.2015.1032312

Razafimahefa, I.F. & Hamori, S., (2007). International competitiveness in Africa: Policy implications in the sub-Saharan region, Springer, New York, NY. https://doi.org/10.1007/3-540-68921-4

Sadni-Jallab, M., Gbakou, M., & Sandretto, R. P. (2009). Foreign direct investment, macroeconomic instability and economic growth in MENA countries. https://doi.org/10.2139/ssrn.1170764

Sauvant, K. P. (2021). Improving the distribution of FDI benefits: The need for policy-oriented research, advice, and advocacy. *Journal of International Business Policy, 4*(2):244-261. https://doi.org/10.1057/s42214-021-00109-6

Stoddard, O., & Noy, I. (2015). Fire-sale FDI? The impact of financial crises on foreign direct investment. *Review of Development Economics, 19*(2):387-399. https://doi.org/10.1111/rode.12149

Suliman, A.H. & Mollick, A.V. (2009). Human capital development, war and foreign direct investment in sub-Saharan Africa. *Oxford Development Studies, 37*(1):47-61. https://doi.org/10.1080/13600810802660828

Sun, Y., Guan, W., Mehmood, U., & Yang, X. (2022). Asymmetric impacts of natural resources on ecological footprints: exploring the role of economic growth, FDI and renewable energy in G-11 countries. *Resources Policy, 79*, 103026. https://doi.org/10.1016/j.resourpol.2022.103026

Taylor, M., & Thrift, N. (2013). The geography of multinationals: studies in the spatial development

UNCTAD, (1999). World investment report. Foreign direct investment and the challenge of development, United Nations, Geneva.

Vasiljeva, M., Neskorodieva, I., Ponkratov, V., Kuznetsov, N., Ivlev, V., Ivleva, M., ... & Zekiy, A. (2020). A predictive model for assessing the impact of the COVID-19 pandemic on the economies of some eastern European countries. *Journal of Open Innovation: Technology, Market, and Complexity, 6*(3):92. https://doi.org/10.3390/joitmc6030092

Williams, B., 1(997). Positive theories of multinational banking: Eclectic theory versus internalisation theory. *Journal of Economic Surveys, 11*(1):71-100. https://doi.org/10.1111/1467-6419.00024

World Bank, (2023) World Development Indicators. https://databank.worldbank.org/source/world-development-indicators Date of Access: 06 Aug. 2023.

Zhou, D., Li, S. & David, K. T. (2002). The impact of FDI on the productivity of domestic firms: the case of China. *International Business Review, 11*(4):465-484. https://doi.org/10.1016/S0969-5931(02)00020-3

Zhu, H., Duan, L., Guo, Y. & Yu, K. (2016). The effects of FDI, economic growth and energy consumption on carbon emissions in ASEAN-5: evidence from panel quantile regression. *Econ. Model, 58*: 237-248. https://doi.org/10.1016/j.econmod.2016.05.003

Appendix

Table 1A: Inter-quantile regression (Bootstrap replications [100])

Variables	(1)	(2)
GDP per capita	1.992***	1.930***
	(0.629)	(0.643)
Consumer price index	-0.102	-0.137
	(0.171)	(0.174)
Exchange rate	0.229	0.183
	(0.148)	(0.297)
Cumulative cases	-0.231**	
	(0.0982)	
Cumulative deaths		-0.211*
		(0.118)
Constant	-16.84**	-17.14**
	(6.641)	(6.760)
Observations	144	143

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1