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**Michael Hedegaard**

Associate Professor of the Department of Engineering Technology and Didactics, Technical University of Denmark, Ballerup, Denmark;  
ORCID: [0000-0001-6771-5893](https://orcid.org/0000-0001-6771-5893)

**Larysa Hrytsenko**

D.Sc. in Economics, Professor, Technical University of Denmark, Ballerup, Denmark;  
Head of the Department of Financial Technologies and Entrepreneurship, Sumy State University, Sumy, Ukraine;  
e-mail: [l.hrytsenko@biem.sumdu.edu.ua](mailto:l.hrytsenko@biem.sumdu.edu.ua)  
ORCID: [0000-0003-3903-6716](https://orcid.org/0000-0003-3903-6716)  
(Corresponding author)

**Liliia Derkach**

Senior Laboratory Assistant of the Department of Financial Technologies and Entrepreneurship, Sumy State University, Sumy, Ukraine;  
ORCID: [0009-0003-6897-4063](https://orcid.org/0009-0003-6897-4063)

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# FOREIGN DIRECT INVESTMENT IN UKRAINE: A PATHWAY TO SUSTAINABILITY

## ABSTRACT

The paper investigates the role of foreign direct investment (FDI) in the economic and infrastructure recovery of Ukraine, offering a comprehensive analysis of its drivers, trends, and future potential. The study identifies FDI as a critical driver for restoring economic stability and fostering sustainable development in Ukraine, particularly in light of the extensive destruction caused by the ongoing war. The aim of the paper is to investigate the role of foreign direct investment in economic recovery and war-affected infrastructure reconstruction in Ukraine for sustainable development.

The methodology involves a multidimensional approach, incorporating quantitative analysis of FDI inflows and outflows from 2013 to 2023 in Ukraine, regulatory framework examination, correlation and regression analyses to identify key factors influencing FDI dynamics, forecasting and others. By analyzing, forecasting and comparing Ukraine's FDI trends with selected European countries, particularly in the context of geopolitical challenges and economic instability, the study provides a thorough understanding of the unique barriers and opportunities Ukraine faces in attracting FDI.

The results reveal that FDI in Ukraine has been significantly influenced by political instability and the ongoing war, with inflows showing notable volatility. Despite these challenges, resilience in the economy has been demonstrated, driven by international financial support and domestic recovery efforts. The originality of this research lies in its focus on the specific context of post-war recovery in Ukraine, offering new insights into how FDI can serve as a catalyst for sustainable development. By identifying strategic areas for investment and addressing current legislative barriers, this study provides valuable contributions to the broader understanding of FDI's role in post-war economic recovery. Further research is required to refine analyses of factors, develop predictive models and explore emerging FDI trends as geopolitical conditions evolve.

**Keywords:** foreign direct investment, investment management, economic recovery, infrastructure development, sustainable development, post-war Ukraine, political instability, macroeconomic stability, sustainable development goals

**JEL Classification:** F21, H54, O19, R11, H54

## INTRODUCTION

Foreign direct investment is a most desirable form of capital investment for developing economies because it allows for the implementation of large projects; in addition, new technologies, new corporate governance practices, and more are introduced into the country [12].

FDI plays a critical role in the economic development of any nation, and Ukraine is no exception. FDI has been extensively studied as a critical factor in promoting sustainable economic development across various nations, especially given the strategic importance of Ukraine, particularly in the context of its transition economy, geopolitical position, and recent focus on sustainable development. However, the ongoing war and military actions in the country have significantly impacted its economy, infrastructure, and foreign investment landscape. The destruction caused by the war has left a pressing need for the reconstruction of key infrastructure, including transport, housing, and energy facilities. This creates both challenges and opportunities for investors willing to contribute to Ukraine's recovery and modernization.

The challenges of attracting FDI into Ukraine have been extensively documented. Political instability, regulatory inconsistencies, and corruption have historically hampered the flow of FDI. However, in recent years, there has been a shift towards improving governance, and transparency and creating more robust legal frameworks to encourage foreign investments. Ukraine's aspiration to join the European Union has further prompted significant reforms in investment legislation and corporate governance. Key challenges include:

- political instability and war;
- lack of investor protection and weak enforcement of property rights;
- corruption and bureaucratic red tape.

Despite these hurdles, foreign investors remain optimistic about Ukraine's long-term economic prospects, particularly in sectors such as IT, renewable energy, and agriculture. Notable trends (last 10 years):

- the 2014 geopolitical crisis (annexation of Crimea and conflict in Eastern Ukraine) and its effects on FDI, where investor confidence was shaken, but some sectors, such as agriculture and IT, still attracted significant foreign capital;
- EU-Ukraine Association Agreement (2014) and the Deep and Comprehensive Free Trade Area (DCFTA) have been instrumental in increasing FDI, particularly from European countries;
- the alignment of FDI with Ukraine's sustainable development goals, including green energy, infrastructure, and public-private partnerships (PPPs), has become a priority. FDI is increasingly evaluated through the lens of its contribution to sustainability goals;
- the COVID-19 pandemic disrupted global FDI flows, but Ukraine managed to attract attention due to its potential for growth in key sectors such as technology and agriculture;
- the ongoing war with Russia since 2022 has highlighted the role of FDI in the post-war rebuilding process. Investors are focusing on reconstruction efforts, energy independence, and technological resilience.

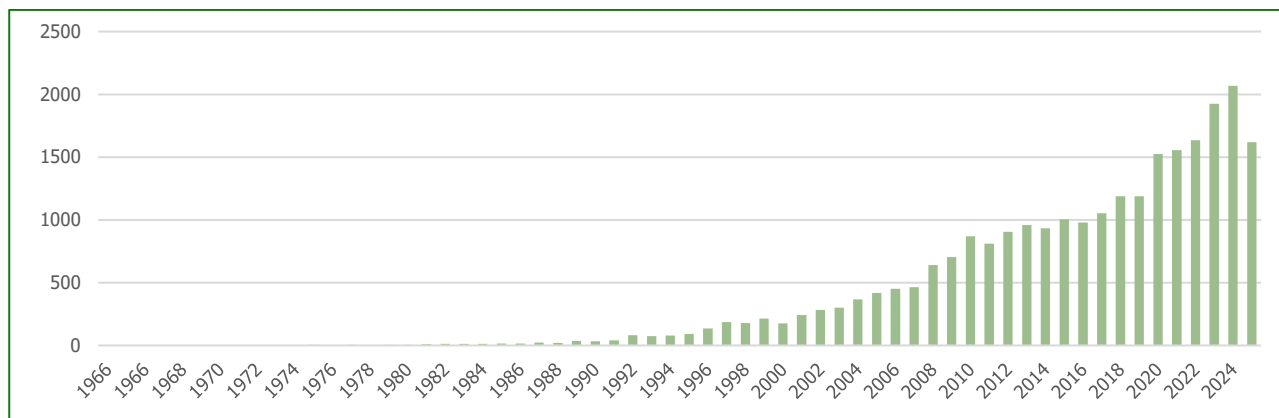
Currently, the energy sector is one of the most urgent areas for investment. Ukraine, traditionally reliant on a mix of fossil fuels and nuclear energy, faces the dual challenges of rebuilding its damaged energy infrastructure and transitioning to more sustainable and eco-friendly energy sources. FDI can accelerate this process by bringing in not only financial resources but also advanced technological innovations that are critical for the development of renewable energy and energy efficiency projects.

Moreover, ecological concerns have taken on new importance in the context of post-war recovery. The environmental damage caused by military actions must be addressed, and FDI in green technologies and sustainable development projects can help mitigate these effects. Ukrainian policymakers and foreign investors must work together to integrate environmental considerations into the rebuilding process to ensure a more sustainable and resilient future.

The advancement of technological innovations will be pivotal in Ukraine's recovery. Investing in digital infrastructure, modernized manufacturing, and research and development will allow Ukraine to rebuild not only stronger but also smarter, positioning the country for future economic growth and competitiveness in the global market.

## LITERATURE REVIEW

The analysis of publications on "Foreign Direct Investment" based on data from Scopus (1966-2024) reveals distinct trends in research output over time and 25,556 documents found overall (Figure 1). The academic literature on FDI began to gain momentum in 1966. The initial period (1966-1980) shows minimal academic interest in the field, with many years producing fewer than 10 papers, focusing on the general impact of foreign investment in emerging markets. The number of publications began to increase slowly from the late 1970s onward, indicating that FDI was becoming a topic of gradual academic interest, likely in response to the globalization of the world economy. The 1980s show a steady rise in publication activity, starting at 12 in 1981 and growing to 42 by 1990. In the early 1990s, there is a dramatic surge in FDI research, with the number of publications almost doubling each year, reaching 242 by 2000. This reflects the global expansion of FDI in post-Soviet countries, and developing nations, and the liberalization of trade and investment policies globally.



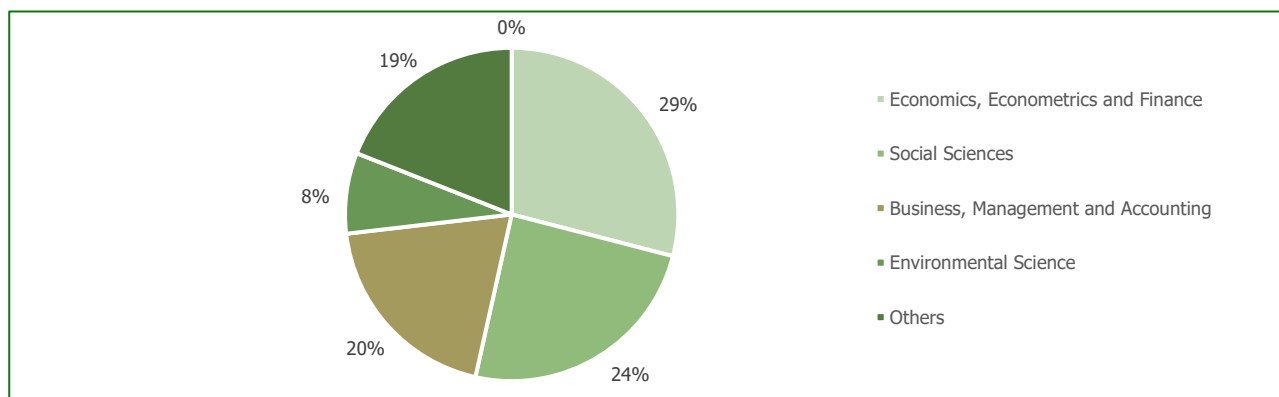
**Figure 1. Documents by Year on "Foreign Direct Investment" as of 08.09.2024. (Source: Scopus)**

The 2000s Boom experienced rapid growth, with a peak in 2009 (870 publications). This period corresponds to increasing global integration, financial market expansions, and a higher focus on FDI as a tool for international development and economic growth. Since the early 2000s, the role of FDI in promoting sustainable economic development has become a central theme. The focus has shifted from mere economic growth to examining how FDI can contribute to long-term sustainability, including environmental, social, and governance (ESG) considerations.

The period from 2010 to 2019 shows a relatively stable increase in FDI-related publications, with numbers exceeding 1500 by 2019. This stability can be attributed to the maturation of the field and ongoing global economic developments, including the role of FDI in sustainable development and international trade relations. During this period, the diversification of research into areas such as the environmental impact of FDI, its role in developing economies, and its relationship with public-private partnerships and innovation can be inferred from the steady growth.

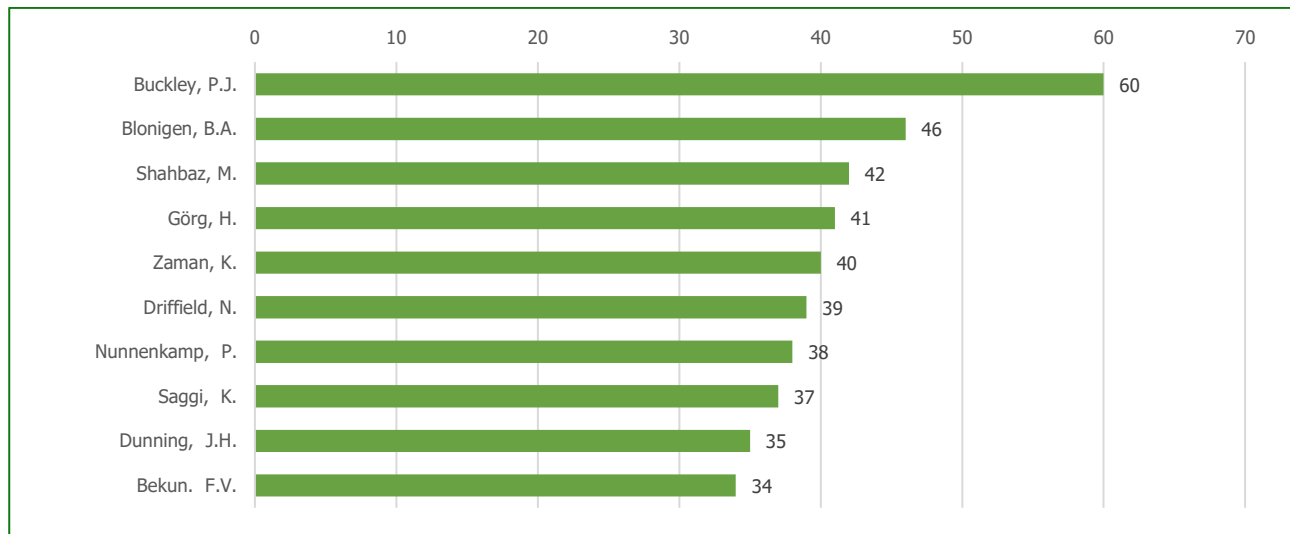
The number of publications reached a peak of 2067 in 2023, showing sustained interest despite global challenges such as the COVID-19 pandemic. This increase reflects the evolving nature of FDI as countries reassess their investment strategies in a post-pandemic world, and researchers examine new dimensions of FDI, including technological shifts and digitalization. The number of publications in 2024 shows a slight decline to 1620, due to incomplete data for the full year. Recent trends likely reflect a growing emphasis on sustainable development and technological innovation, with FDI being examined as a tool for achieving long-term economic goals, particularly in developing regions. The increase in FDI publications closely mirrors periods of major global economic developments, including the expansion of international trade and multinational corporations in the late 20th century.

As of September 8, 2024, research on "Foreign Direct Investment" spans a variety of academic fields (Figure 2), with Economics, Econometrics, and Finance leading at 29.03%, followed closely by Social Sciences at 24.46%, and Business, Management, and Accounting at 19.66%. These top three areas dominate the FDI discourse, reflecting the economic, social, and business implications of FDI. Other notable fields include Environmental Science (7.84%), Energy (3.50%), and Engineering (3.41%), highlighting the growing intersection of FDI with sustainability and technology. Minor contributions come from Computer Science (2.56%), Arts and Humanities (1.79%), and Earth and Planetary Sciences (1.71%), while Decision Sciences account for 1.51%, reflecting a multidisciplinary approach to understanding FDI.



**Figure 2. Documents by Subject area on "Foreign Direct Investment" as of 08.09.2024. (Source: Scopus)**





**Figure 4. Documents by authors on "Foreign Direct Investment" as of 08.09.2024 (top-10).** (Source: Scopus)

The next step is a review of publications on FDI. To facilitate this, we refer to Table 1.

**Table 1. Key research on FDI.**

Category	Article	Main Contribution	Potential Use in Ukraine
FDI and Environment	Shahbaz, M., Nasir, M. A., Roubaud, D. [23]	Explores FDI's negative environmental impact and supports the pollution-haven hypothesis in France.	Ukraine can be cautious about FDI's potential environmental degradation and may promote cleaner technologies.
	Naz, S., Sultan, R., et al. [19]	Investigates the effect of FDI and renewable energy on CO2 emissions in Pakistan. Shows that REC reduces emissions.	Can promote renewable energy investment with FDI to mitigate environmental risks.
	Sarkodie, S. A., Strezov, V. [1]	Explores the effect of FDI, economic development, and energy consumption on greenhouse gas emissions in developing countries. Confirms pollution haven and environmental Kuznets curve hypothesis.	Ukraine can adopt clean technological transfer in FDI to mitigate environmental impacts.
	Zafar, M. W., et al. [28]	Analyzes how FDI, natural resources, and human capital affect the ecological footprint in the U.S. Suggests FDI helps in reducing the ecological footprint.	Ukraine can enhance FDI attraction policies focusing on environmental technologies and human capital development.
	Hao, Y., et al. [14]	Investigates the impact of China's outward FDI (OFDI) on domestic environmental pollution, revealing both positive and negative environmental effects.	Ukraine can encourage outward FDI with a focus on improving technology transfer and reducing pollution.
	Shahbaz, M., et al. [22]	Decomposes the environmental Kuznets curve with focus on FDI, trade openness, and carbon emissions in the U.S., highlighting FDI's adverse environmental effects.	Ukraine can create policies that promote green FDI's and limit investments that increase carbon emissions.
	Afzal, A., Rasoulinezhad, E., Malik, Z. [2]	Discusses the relationship between green finance, FDI, and environmental sustainability in Europe.	Ukraine can develop green finance policies to attract sustainable FDI.
	Contractor, F. J., et al. [7]	Examines how regulatory factors and business environments affect FDI inflows, highlighting the importance of efficient trade regulations and contract enforcement.	Ukraine should focus on improving regulatory environments and enforcing contracts to attract more FDI.
	Canh, N. P. et al. [6]	Analyzes the effects of domestic and global economic policy uncertainty on FDI, revealing that higher global uncertainty can attract more FDI.	Ukraine could use global economic conditions as an opportunity to attract FDI by offering stability amidst uncertainty.
Determinants of FDI	Blonigen, B. A., Piger, J. [3]	Identifies gravity variables, cultural distance, and trade agreements as key FDI determinants.	Ukraine can use similar variables (trade agreements, cultural proximity) to attract FDI.
	Donaubauer, J., Meyer, B., Nunnenkamp, P. [8]	Highlights the role of aid and infrastructure in attracting FDI in developing countries.	Focus on infrastructure improvement to attract FDI. Aid programs can complement FDI inflows.
	Driffield, N., Karoglou, M. [9]	Evaluates the impact of Brexit on FDI through macroeconomic volatility and uncertainty.	Ukraine should mitigate political risks and economic volatility to sustain FDI inflows.
	Girma, S., Gong, Y., et al. [13]	Examines FDI's direct and indirect effects on local firm productivity in a cluster.	Use policies to maximize FDI spillovers in technology transfer and productivity improvements.

(continued on next page)

Table 1. Continued.

Category	Article	Main Contribution	Potential Use in Ukraine
FDI and Ukrainian Context	Buckley, P. J., et al. [5]	Explores the role of home country institutions in Chinese outward FDI.	While focused on outward FDI, Ukraine can strengthen institutions to support FDI activities.
	Dykha, M., Dykha, V., Zyma, V. [10]	Analyzes the trends in FDI inflows to Ukraine, identifying sectors attracting the most investment, assessing Ukraine's ease of doing business, and providing strategies to improve the investment climate.	Policy recommendations to improve investment in the climate, including the creation of free economic zones and enhancing anti-money laundering policies.
	Karintseva, O., et al. [17]	Highlights how FDI strengthens national economies and enhances sustainable development and competitiveness. Reviews foreign mechanisms for attracting FDI and their application to Ukraine.	Useful for applying international mechanisms for attracting FDI to Ukraine to boost sustainability and competitiveness.
	Tymots, M., Stakhiv, H. [26]	Explores the impact of war, inflation, and financial instability on FDI inflows. Identifies current priority sectors for investment and highlights the challenges faced during wartime.	Relevant for understanding the effects of war on FDI, highlighting opportunities for attracting investment in key sectors such as industry and agriculture during and post-war.
	Boiarko, I., et al. [4]	Examines the war's effect on the market value of Ukrainian industrial enterprises, emphasizing recovery needs.	Highlights the necessity for investments in the industrial sector for post-war recovery and outlines potential approaches for compensating losses.
	Hrytsenko, L., Boiarko, I. [15]	Highlights the role of PPPs in reconciling state and private interests under economic instability.	Supports PPP as a crucial model for funding large-scale projects during Ukraine's recovery, helping attract foreign investors by ensuring project viability and security.

As a result, the analysis of publication trends in "Foreign Direct Investment" shows a steady and substantial increase in academic interest. The literature on FDI highlights the multifaceted effects of FDI on host economies, emphasizing the importance of context-specific variables. The field's growth corresponds with global economic trends, including trade liberalization, economic crises, and the role of FDI in sustainable development. This reflects the importance of FDI in both theoretical and practical economic frameworks, and the field is expected to continue evolving as new economic and technological challenges emerge. Attracting FDI requires a balanced approach that considers both economic growth and environmental protection. FDI strategies should prioritize green energy, infrastructure upgrades, and institutional stability while fostering the implementation of technological innovations. Investments in critical sectors like energy infrastructure are crucial to sustainable development and minimizing risks such as environmental degradation. Strong institutional frameworks are needed to ensure that foreign investments align with national priorities. Our research focuses on FDI in Ukraine, as it is a key instrument for reconstruction during and after the war, offering potential for economic revitalization, technological progress, and sustainable recovery.

## AIMS AND OBJECTIVES

The aim of this paper is to investigate the role of foreign direct investment in economic recovery and war-affected infrastructure reconstruction in Ukraine for sustainable development. Tasks include:

- to determine the role of FDI in the reconstruction of infrastructure damaged by the war;
- to examine the legislative and regulatory framework in the context of FDI in Ukraine;
- to analyze the sources of FDI formation and its areas of use;
- to analyze FDI indicators, comparing them dynamically and in relation to other countries, particularly in Europe;
- to identify factors influencing FDI in Ukraine;
- to develop a vision for the prospects of FDI development in Ukraine, including in the context of post-war recovery and sustainable development.

## METHODS

This study integrates a variety of analytical methods to investigate FDI dynamics, focusing on Ukraine and EU countries. The primary methods include quantitative analysis of FDI inflows and outflows, correlation and regression analyses, forecasting, bibliometric analysis, and visualization. To ensure a robust foundation of high-quality academic sources, Scopus is utilized for precise academic sourcing, while Google Scholar provides broad access to diverse scientific research.

The main focus is on key FDI indicators as defined by the World Bank Group. These include:

1. FDI, net inflows, that measure the net inflows of investment to acquire a lasting management interest (10% or more of voting stock) in an enterprise operating in an economy other than that of the investor. It shows the total value of inward direct investment made by non-resident investors in the reporting economy. This data is crucial for understanding the amount of foreign investment entering a country, reflecting the attractiveness of the country's economy to foreign investors.
2. FDI, net outflows, that measure the net outflows of investment from the reporting economy to acquire a lasting interest in enterprises operating abroad. It represents the total value of outward direct investment made by the residents of the reporting economy to external economies. Such data provides insights into the investment behaviour of domestic entities abroad, indicating the level of confidence and interest in foreign markets by investors from the reporting country.
3. Net FDI, that is the net difference between FDI inflows and FDI outflows. It essentially represents the net flow of FDI into a country. This net figure helps in understanding whether a country is a net recipient or a net provider of FDI, reflecting its overall position in the global investment landscape.

To identify factors influencing FDI in Ukraine, correlation-regression analysis is employed. This method examines the statistical relationships between different variables and their impact on FDI, providing insights into the degree and direction of influence.

In this part of our study, we propose to analyze net FDI as the dependent variable, while the independent variables would be:

- GDP;
- Unemployment, total (% of total labour force);
- Inflation, consumer prices;
- Current Account Balance;
- Exports of goods and services;
- Imports of goods and services.

In this way, we will test the extent to which net FDI is dependent on the main macroeconomic indicators in Ukraine, which, depending on the results, will provide insights for future decision-making.

It is needed to consider the application of this analysis in more detail.

The first step is Data Collection and Normalization. The formula to normalize a value ( $x$ ) in a dataset to a range of 0 to 1 is:

$$\text{Normalized value} = \frac{x - \min}{\max - \min}, \quad (1)$$

where  $x$  is the data point to normalize;  $\min$  is the minimum value in the dataset;  $\max$  is the maximum value in the dataset.

The next step is construction of the correlation matrix. If there is Multicollinearity it should be mitigated. Multicollinearity arises when two or more independent variables exhibit a linear relationship, which can lead to significant inaccuracies in estimation. Such an effect indicates that these variables may influence each other, complicating the interpretation of their individual impacts on the dependent variable. Typically, a correlation coefficient above 0.7–0.8 signals the presence of multicollinearity, and it is crucial to detect and address this phenomenon. Common methods to reduce multicollinearity include removing or combining highly correlated variables, which enhances the stability and interpretability of the model.

The last step of this part of the analysis is the development of a regression model and evaluation of the model statistical significance.

In such a way we will check hypotheses if net FDI in Ukraine depends on these specific factors. The time period is 2013–2023. The tools used in this paper are Excel and STATISTICA.

## RESULTS

Since the onset of the full-scale military invasion of Ukraine by the Russian Federation in February 2022, the total amount of direct damage to residential and non-residential properties, other infrastructure, vehicles, and goods has exceeded USD

157 billion (in replacement cost) for the period from February 2022 to January 2024, according to the report titled “Report on Direct Infrastructure Damage Due to the Destruction Caused by Russia's Military Aggression Against Ukraine as of Early 2024” by the analytical team of the Kyiv School of Economics (KSE) [20].

In the context of Ukraine's legislative and regulatory framework for FDI, a number of strategic initiatives and legal measures have been introduced to enhance investment conditions and support the country's post-war recovery.

According to the Ministry of Economy of Ukraine [16], Ukraine has set itself the goal of making a leap from a transitional (transit) economy to a developing economy by 2032. To attract foreign investors to the Ukrainian economy, a unique electronic platform Advantage Ukraine [1] has already been created, which contains more than 500 investment projects and opportunities in 10 sectors of the economy.

Ukraine's Recovery Plan and Strategy for Sustainable Development and Digital Transformation of Small and Medium Enterprises (SMEs) serves as a foundational element in fostering economic resilience and modernization. This strategy aligns with broader goals of sustainable development, focusing on rebuilding and transforming the SME sector through technological innovation and digitalization, which are key to boosting overall economic growth. In addition, the European Union (EU) has launched the Ukraine Facility, a new financial instrument valued at USD 50 billion for the 2024–2027 period, as part of the EU's Multiannual Financial Framework for 2024–2027. This facility aims to support Ukraine's reconstruction and sustainable development, with a particular emphasis on driving private sector investment, innovation, and economic stability. To further stimulate the attraction of strategic investors into Ukraine's economy, increase the country's investment appeal, create high-paying jobs, and enhance competitiveness, the Law of Ukraine “On State Support of Investment Projects with Significant Investments in Ukraine” was enacted. This law provides a framework for state support of large-scale investment projects, offering various incentives to attract foreign capital into sectors crucial for economic recovery. Regarding investment insurance mechanisms, the Law of Ukraine “On Amendments to the Law of Ukraine ‘On Financial Mechanisms for Stimulating Export Activities’ Regarding Insurance of Investments in Ukraine from War Risks” (No. 3497–IX, adopted on November 22, 2023) addresses investment protection. This law establishes legal mechanisms to safeguard investments from war-related risks, thereby reducing uncertainty and increasing investor confidence [16].

These measures collectively represent Ukraine's commitment to fostering a more secure and competitive environment for FDI, crucial for the country's post-war reconstruction and long-term economic sustainability.

The National Report “Sustainable Development Goals: Ukraine” provides a vision of the benchmarks for Ukraine to achieve the Sustainable Development Goals (SDGs), which were adopted at the UN Sustainable Development Summit in 2015. Among them is Goal 17 – Partnership for Sustainable Development. By comparing the tasks and indicators related to partnerships for sustainable development (Table 2) with the Voluntary National Review provided by the Ministry of Finance of Ukraine as of 2019 (Table 3), we see that the plan concerning the ratio of private remittances from abroad to GDP has been fulfilled, but the task regarding the net inflow of FDI has not been met.

**Table 2. Partnership for Sustainable Development (Tasks and Indicators).** (Source: [24])

Task	Indicator	2015	2020	2025	2030
17.1. Mobilize additional financial resources by encouraging investments from foreign and domestic investors	17.1.1. Ratio of private remittances from abroad to GDP (%)	5.8	6.0	6.0	6.0
	17.1.2. Net inflow of FDI (according to the balance of payments data), USD billion	3.0	10.0	16.0	17.5

**Table 3. Partnership for Sustainable Development (Voluntary National Review).** (Source: [25])

Task	Indicator	2015	2016	2017	2018	2019	2020	2025	2030
17.1. Mobilize additional financial resources by encouraging investments from foreign and domestic investors	17.1.1. Ratio of private remittances from abroad to GDP (%)	7.6	8.1	8.2	8.5	7.8	6.0	6.0	6.0
	17.1.2. Net inflow of FDI (according to the balance of payments data), USD billion	3.0	3.3	2.6	2.4	2.4	10.0	16.0	17.5

As a rule, governments use these indicators to design policies that attract more FDI inflows and manage FDI outflows. Understanding the net FDI can help in assessing the effectiveness of these policies. Economists and researchers analyze these indicators to study the impact of FDI on economic growth, employment, and technological advancement. Companies

use this data to make strategic decisions about entering or exiting markets, identifying potential investment opportunities, and assessing competitive dynamics.

Table 4 provides data on FDI in Ukraine from 2013 to 2023, offering insights into the country's economic development. Key metrics include FDI net inflows, net outflows, and the FDI balance (net), along with their percentages of GDP.

From 2013 to 2014, Ukraine experienced a sharp decline in FDI net inflows, reflecting the impact of political instability and economic challenges. In 2013, FDI net inflows were USD 4.5 billion (2.37% of GDP), but by 2014, this dropped to USD 847 million (0.63% of GDP). Net outflows remained stable, indicating a significant reduction in investment attractiveness.

**Table 4. Dynamics of foreign direct investment in Ukraine according to World Bank (2013–2023).** (Source: [26])

Year	FDI, net inflows (BoP, current USD, million)	FDI, net outflows (BoP, current USD, million)	FDI, net (BoP, current USD, million)	FDI, net inflows (% of GDP)	FDI, net outflows (% of GDP)
2013	4509	430	-4079	2.37	0.23
2014	847	548	-299	0.63	0.41
2015	-198	38	236	-0.22	0.04
2016	4128	173	-3955	4.42	0.19
2017	3680	234	-3446	3.28	0.21
2018	4975	116	-4859	3.80	0.09
2019	5796	621	-5175	3.77	0.40
2020	304	362	58	0.19	0.23
2021	7954	436	-7518	3.98	0.22
2022	247	34	-213	0.15	0.02
2023	4805	129	-4205	2.69	0.07

The period from 2015 to 2020 shows fluctuations in FDI inflows and outflows. Notably, 2015 witnessed negative net inflows (-USD 198 million), signifying divestment or capital flight. However, inflows rebounded in subsequent years, with peaks in 2018 and 2019, reaching USD 5 billion and USD 5.8 billion, respectively, but the net balance remained negative due to higher outflows.

In 2021, FDI net inflows surged to USD 7.95 billion (3.98% of GDP), reflecting improved investor confidence. However, by 2022, this trend reversed dramatically, with inflows plummeting to USD 247 million (0.15% of GDP) due to the escalation of geopolitical tensions.

Military aggression from Russia and the associated political and economic instability led to a significant decrease in investment inflows into the country. According to data provided by the Ministry of Finance of Ukraine, the main factors hindering the inflow of FDI into Ukraine, besides the ongoing military actions on Ukrainian territory due to Russian aggression, also include [25]:

- the slowdown of privatization;
- investor distrust in the judicial system;
- and imperfections in legislation regarding the protection of investor and creditor rights.

Overall, the table highlights fluctuating FDI trends in Ukraine from 2013 to 2023, reflecting significant economic challenges and external factors, such as political instability and war. Net FDI inflows (% of GDP) peaked in 2016 and 2021 at 4.42% and 3.98%, respectively, driven by increased foreign interest and recovery attempts but consistently showed a negative net balance, indicating that outflows and returns on previous investments likely overshadowed new inflows. The sharp declines in net inflows during 2014 (start of the war), 2015, 2020 (Covid-19), and 2022 (full-scale war), particularly the negative net inflows in 2014, stagnation in 2020 and decline in 2022 correlate with geopolitical tensions and crises as we can see. So, the data underscores Ukraine's volatile FDI landscape, heavily influenced by external factors such as political instability, instability in recent years, active hostilities and the start of the full-scale war in 2022, as well as global economic conditions, which pose challenges to sustainable economic development.

Still, despite ongoing challenges, 2023 saw a substantial increase in net FDI inflows indicating that investors are adapting to the new conditions and that economic activity is partially recovering. This can stimulate economic growth, create new jobs, and develop infrastructure. However, there are also risks associated with the rise in net outflows. The increase in net

outflows may suggest that investors are seeking new opportunities outside the country or that there is a decrease in confidence in domestic economic conditions. This can be a signal for policymakers to address issues that may lead to a loss of investments. In particular, it is important to work on resolving the war. Overall, the data reflects a positive trend in net FDI inflows, but the rising net outflows require careful monitoring to ensure balanced and sustainable economic growth.

To ensure a comprehensive analysis, we present the data in Table 5, derived from MinFinMedia, alongside the World Bank data in Table 4. The data presented in Table 5, sourced from MinFinMedia, a popular Ukrainian internal statistical agency, contrasts with Table 4, which is based on official global data from the World Bank. Both tables aim to capture FDI in Ukraine; however, they show differences in figures and methodologies. Table 5, with data starting from 2014, excludes figures from occupied territories (Crimea, Sevastopol, and parts of Donbas), while Table 4 vaguely notes an exclusion of territories for Ukraine without specifying details. Additionally, in Table 5 we show chain deviation and increment percentages to track year-over-year changes.

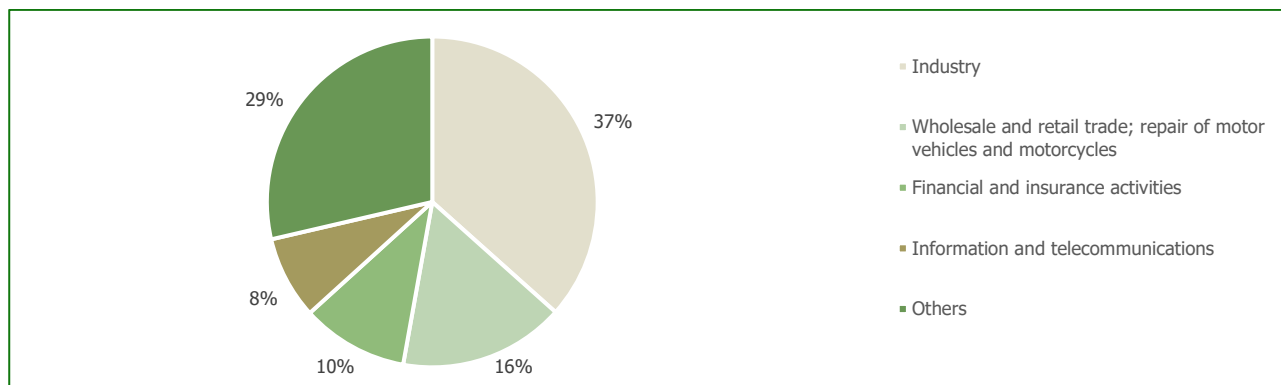
So, while Table 4 provides an internationally recognized perspective, Table 5 offers a detailed view based on popular national statistics, which accounts for regional exclusions and uses metrics that resonate with local analytical practices. This dual presentation allows for a nuanced comparison, especially given the differing approaches to FDI calculation between the two sources. Specifically, Table 4 reports FDI, net as the difference between outflows and inflows according to World Bank methodology, yielding a net FDI figure, while Table 5 reports this as a 'balance,' calculated based on the difference between inflows and outflows. For instance, in 2013, Table 4 recorded a net FDI of -USD 4079 million, while Table 5 shows a positive balance of USD 4079 million, underscoring the reversed approach in methodology. Table 5 also introduces chain deviation and incremental percentages, enhancing the understanding of annual shifts, which are not included in the global framework of Table 4. This comprehensive inclusion of both perspectives provides additional insights into the FDI dynamics in Ukraine. Thus, Table 5 allows us to observe a relative increase in investment by balance over time that reflects national dynamics, showing an upward trend. This portrayal contrasts with Table 4's net FDI.

**Table 5. Dynamics of foreign direct investment in Ukraine according to the MinFin of Ukraine (2013–2024).** (Source: [12])

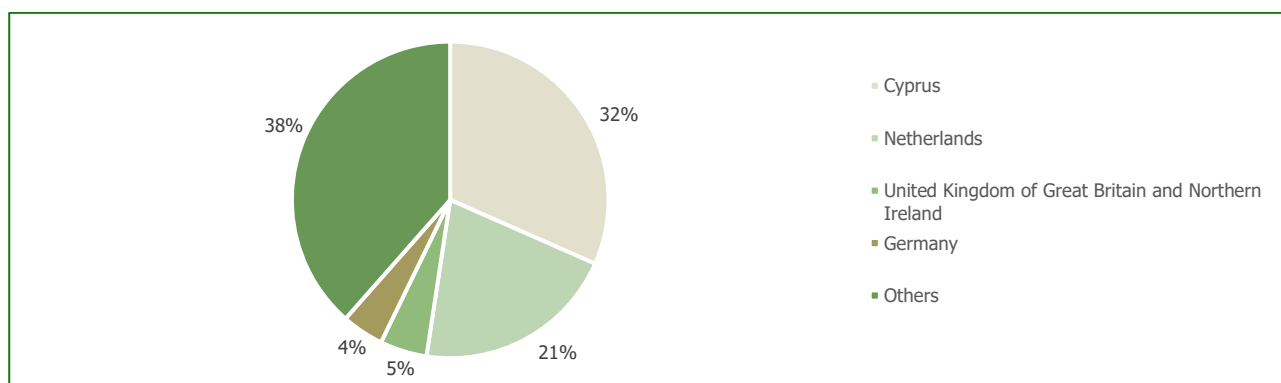
Year	FDI into Ukraine		FDI from Ukraine		Balance	
	USD million	Chain deviation, USD million	USD million	Chain deviation, USD million	USD million	Increment, %
2013	4499	-3902	420	-786	4079	-43.3
2014	410	-4089	111	-309	299	-92.7
2015	-458	-868	-51	-162	-407	-236.1
2016	3810	4268	16	67	3794	1032.2
2017	3692	-118	8	-8	3684	-2.9
2018	4455	763	-5	-13	4460	21.1
2019	5860	1405	648	653	5212	16.9
2020	-868	-6728	82	-566	-950	-118.2
2021	6687	7555	-198	-280	6885	824.7
2022	1152	-5535	529	727	623	-91.0
2023	4247	3095	42	-487	4205	575.0
2024	1838	-2409	-87	-129	1925	-54.2

According to the MinFin of Ukraine, the Ukrainian economy has demonstrated resilience, largely due to the successes of the Armed Forces of Ukraine, the speed of domestic services in restoring damaged or destroyed critical infrastructure, and the systematic financial support from international partners. These factors have helped maintain stability on the economic front. Over 90% of businesses have resumed operations since the onset of the war, contributing to the country's economic resilience.

As reported by the National Bank of Ukraine, the total volume of FDI in Ukraine's economy (equity instruments and debt instruments) amounted to USD 55786.6 million as of March 31, 2024 [16]. These investments have primarily been directed towards already well-established sectors of economic activity, in particular industry 37% (Processing industry 20%, Supply of electricity, gas, steam and air conditioning 5%) and Wholesale and retail trade; repair of motor vehicles and motorcycles 16% (Figure 5). The main investing countries are shown in Figure 6.

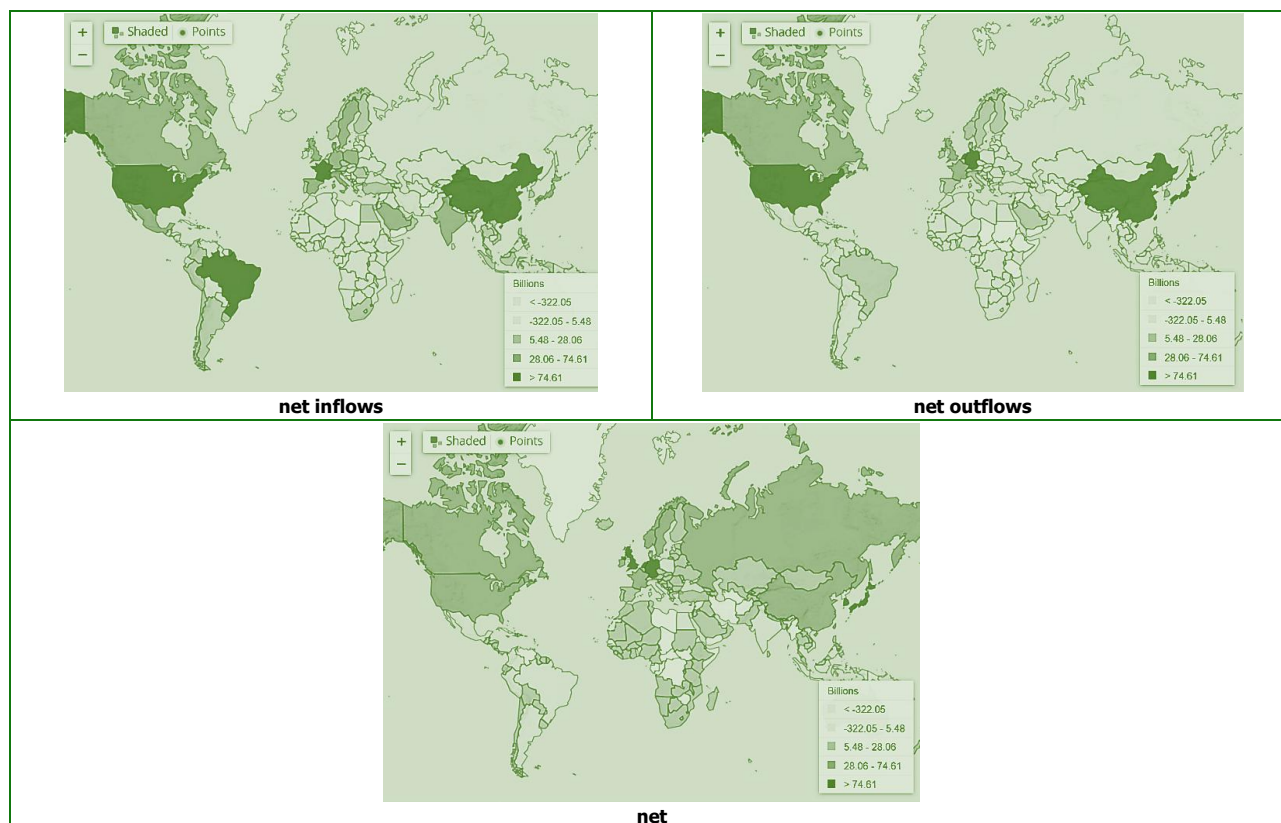


**Figure 5. Direct investment in Ukraine (equity instruments): balances by economic activity group, 31.03.2024.** (Source: Authors' visualization according to [1])



**Figure 6. Direct investment in Ukraine: balances by country, 31.03.2024.** (Source: Authors' visualization according to [1])

In Figure 7 you can see the world map of FDI showing the strengths of investments in each country.



**Figure 7. World map of foreign direct investment in 2022, BoP, current USD.** (Source: The World Bank Group)

Table 6 presents a comparison of FDI inflows in Ukraine and several European countries – Poland (POL), Germany (DEU), France (FRA), and Denmark (DNK) – from 2013 to 2023. The data is divided into two main categories: net FDI inflows in current USD and FDI inflows as a percentage of GDP. This provides insight into the relative importance and volume of FDI in each country.

**Table 6. Comparison of FDI in Ukraine with some of the European countries.** (Source: [27])

Year	UKR		POL		DEU		FRA		DNK	
	FDI, net inflows (BoP, current USD million)	FDI, net inflows (% of GDP)	FDI, net inflows (BoP, current USD million)	FDI, net inflows (% of GDP)	FDI, net inflows (BoP, current USD million)	FDI, net inflows (% of GDP)	FDI, net inflows (BoP, current USD million)	FDI, net inflows (% of GDP)	FDI, net inflows (BoP, current USD million)	FDI, net inflows (% of GDP)
2013	4509.00	2.37	1029.00	0.20	67199.69	1.80	33461.59	1.12	680.34	0.20
2014	847.00	0.63	20455.00	3.79	19532.08	0.50	5063.65	0.20	6577.35	1.86
2015	-198.00	-0.22	15598.00	3.27	62475.58	1.86	43133.33	1.76	1842.99	0.61
2016	4128.00	4.42	17750.00	3.78	64744.24	1.87	35623.36	1.33	7804.02	2.49
2017	3680.00	3.28	11999.00	2.29	109485.97	2.97	43733.25	1.38	3607.28	1.09
2018	4975.00	3.80	19204.00	3.26	166915.56	4.20	77493.10	2.78	8764.02	2.46
2019	5796.00	3.77	17619.00	2.96	73974.46	1.90	53499.34	1.96	-3801.73	-1.10
2020	304.00	0.19	19151.00	3.19	176867.34	4.55	19368.83	0.73	1294.05	-0.07
2021	7954.00	3.98	36172.00	5.31	102155.43	2.39	98012.55	3.24	16997.29	4.30
2022	247.00	0.15	36900.00	5.35	62729.00	1.54	109574.90	3.79	34213.23	8.55
2023	4805.00	2.69	31576.00	0.37	16289.40	0.37	8803.38	0.29	6754.26	1.67

Throughout the period, Ukraine experienced significant volatility in net inflows of FDI. Although there were positive inflows in most of the years, Ukraine had negative FDI in years like 2015 and 2021, indicative of the country's economic challenges, including political instability and war. The fluctuations highlight Ukraine's vulnerability to external shocks and internal crises, impacting its ability to attract steady foreign investments. Poland displayed a more stable pattern with generally positive FDI net inflows across most years. There were, however, periods where the FDI as a percentage of GDP was relatively modest, suggesting room for improvement in investment attractiveness. Poland's FDI performance, while not extraordinary, demonstrates resilience compared to Ukraine, likely reflecting a stronger economic environment and more favourable investment conditions. Germany showed high but fluctuating FDI inflows. The sharp decline in 2019 may be attributed to the pandemic, but Germany managed to recover by next year. So, a significant rise occurred in 2020 with USD 176.87 billion (4.55% of GDP), likely due to pandemic-related adjustments and corporate restructuring. Germany remains a top investment hub, though 2023 saw a drastic drop to USD 16.29 billion (0.37% of GDP). France showed considerable fluctuations in FDI inflows, with a notable peak in 2022. Despite these fluctuations, France maintained positive FDI inflows, demonstrating resilience and continued investor confidence. Denmark had a relatively mixed FDI performance. While it experienced positive net inflows FDI in most years, 2019 showed negative inflows, reflecting challenges in maintaining consistent investment levels in time of COVID-19 as well as most countries. Then Denmark displayed significant growth in FDI, with an exceptional peak in 2022 at USD 34.21 billion (8.55% of GDP – highest point among all countries), suggesting increased investor confidence and potentially attractive investment incentives. So, the data shows volatility but generally positive trends, with a dip in 2023 to USD 6.75 billion. Overall, the table highlights the varying ability of these countries to attract and maintain FDI, influenced by factors such as economic stability, policy environments, and global economic conditions. While Ukraine and Denmark faced significant challenges, particularly with negative FDI net inflows in several years, Germany, France, and Poland demonstrated more resilience, with Germany leading in absolute terms of FDI inflows. The impact of global events, such as the COVID-19 pandemic, is evident across the data in 2019 and 2020.

To understand the prospects of development of FDI trends in Ukraine it may be relevant to analyze factors which may affect FDI. For this, we propose to conduct a correlation and regression analysis of factors influencing FDI in Ukraine. In Table 7 we present input data for this part of the study. In Table 8 we present the normalized data. As a result, we present a correlation matrix in Table 9. The correlation matrix shows the relationships between FDI and six key economic indicators: GDP, unemployment, inflation, current account balance (CAB), exports, and imports.

**Table 7. Input data.** (Source: The World Bank Group)

Year	FDI net (BoP, current USD million)	GDP (current USD million)	Unemployment, total (% of the total labour force) (modelled ILO estimate)	Inflation, consumer prices (annual %)	Current Account Balance (CAB) (BoP, current USD million)	Exports of goods and services (current USD million)	Imports of goods and services (current USD million)
2013	-4079	190499	7.17	-0.24	-16518	81719	97353
2014	-299	133504	9.27	12.07	-4596	64873	69554
2015	236	91031	9.14	48.70	5035	47880	50257
2016	-3955	93356	9.35	13.91	-1866	46023	52487
2017	-3446	112091	9.5	14.44	-3473	53943	62670
2018	-4859	130891	8.799	10.95	-6432	59209	70635
2019	-5175	153883	8.194	7.89	-4124	63449	75833
2020	58	156618	9.475	2.73	5267	60801	63171
2021	-7518	199766	9.834	9.36	-3882	81281	83921
2022	-213	16199	21.1	20.18	7972	57417	84156
2023	-4805	178757	18.3	12.85	-9209	51000	88506

**Table 8. Normalized input statistical data.**

Year	FDI	GDP	Unemployment	Inflation	CAB	Exports	Imports
2013	0.44	0.91	0	0	0	1	1
2014	0.93	0.39	0.15	0.25	0.49	0.53	0.41
2015	1	0	0.14	1	0.88	0.05	0
2016	0.46	0.02	0.16	0.29	0.6	0	0.05
2017	0.53	0.19	0.17	0.3	0.53	0.22	0.26
2018	0.34	0.37	0.12	0.23	0.41	0.37	0.43
2019	0.3	0.58	0.07	0.17	0.51	0.49	0.54
2020	0.98	0.6	0.17	0.06	0.89	0.41	0.27
2021	0	1	0.19	0.2	0.52	0.99	0.71
2022	0.94	0.65	1	0.42	1	0.32	0.72
2023	0.36	0.81	0.8	0.27	0.3	0.14	0.81

**Table 9. The correlation matrix.** (Source: Authors' calculations by STATISTICA software)

Variable	Correlations (Spreadsheet1) Marked correlations are significant at $p < .05000$ N=11 (Casewise deletion of missing data)						
	FDI	GDP	Unemployment	Inflation	CAB	Exports	Imports
FDI	1	-0.409512	0.225702	0.436119	0.613106	-0.423084	-0.397025
GDP	-0.409512	1	0.256409	-0.593407	-0.387652	0.762104	0.906144
Unemployment	0.225702	0.256409	1	0.164194	0.331141	-0.306796	0.343268
Inflation	0.436119	-0.593407	0.164194	1	0.529508	-0.568886	-0.532653
CAB	0.613106	-0.387652	0.331141	0.529508	1	-0.477404	-0.555361
Exports	-0.423084	0.762104	-0.306796	-0.568886	-0.477404	1	0.676054
Imports	-0.397025	0.906144	0.343268	-0.532653	-0.555361	0.676054	1

FDI and GDP ( $r = -0.4095$ ) have a negative, weak-to-moderate correlation, which indicates that as FDI decreases, GDP tends to increase, and vice versa. However, the relationship is not very strong, suggesting that FDI is not a major determinant of GDP within this dataset. FDI and Unemployment indicators ( $r = 0.2257$ ) have a positive, weak correlation. There is a slight tendency for FDI to increase with unemployment, though the relationship is weak. This suggests FDI inflows or outflows may have a limited direct impact on employment levels in this case. FDI and Inflation ( $r = 0.4361$ ) can be described as positive, moderate correlation. As FDI increases, inflation also tends to rise. This could suggest that FDI flows may be associated with inflationary pressures in the economy. FDI and Current Account Balance correlation ( $r = 0.6131$ ) is positive and strong. As FDI increases, the current account balance improves, indicating FDI inflows may help stabilize the external balance. FDI and Exports correlation ( $r = -0.4231$ ) is negative moderate. So, FDI appears to be inversely related to exports. This could mean that increases in FDI may not necessarily drive export growth, possibly due to other factors like FDI being directed towards domestic markets. FDI and Imports ( $r = -0.3970$ ) have a negative, weak-to-moderate correlation, suggesting that FDI inflows may not strongly correlate with increased import activity.

To sum up, the strongest correlation is between FDI and the Current Account Balance, indicating a relatively strong positive relationship. FDI has a moderate positive correlation with Inflation, suggesting some inflationary impact. Negative correlations exist between FDI and GDP, Exports, and Imports, but these are not particularly strong, suggesting the limited direct influence of these indicators on FDI in this context.

The values in Table 9 show that there is a fairly strong linear relationship between these variables. Therefore, we conclude that there is multicollinearity in the model.

To eliminate multicollinearity, it is recommended to gradually exclude the independent variable that causes it – GDP (Table 10).

**Table 10. The correlation matrix without multicollinearity.** (Source: Authors' calculations by STATISTICA software)

Variable	Correlations (Spreadsheet1) Marked correlations are significant at $p < .05000$ N=11 (Casewise deletion of missing data)					
	FDI	Unemployment	Inflation	CAB	Exports	Imports
FDI	1	0.225702	0.436119	0.613106	-0.423084	-0.397025
Unemployment	0.225702	1	0.164194	0.331141	-0.306796	0.343268
Inflation	0.436119	0.164194	1	0.529508	-0.568886	-0.532653
CAB	0.613106	0.331141	0.529508	1	-0.474704	-0.555361
Exports	-0.423084	-0.306796	-0.568886	-0.474704	1	0.676054
Imports	-0.397025	0.343268	-0.532653	-0.555361	0.676054	1

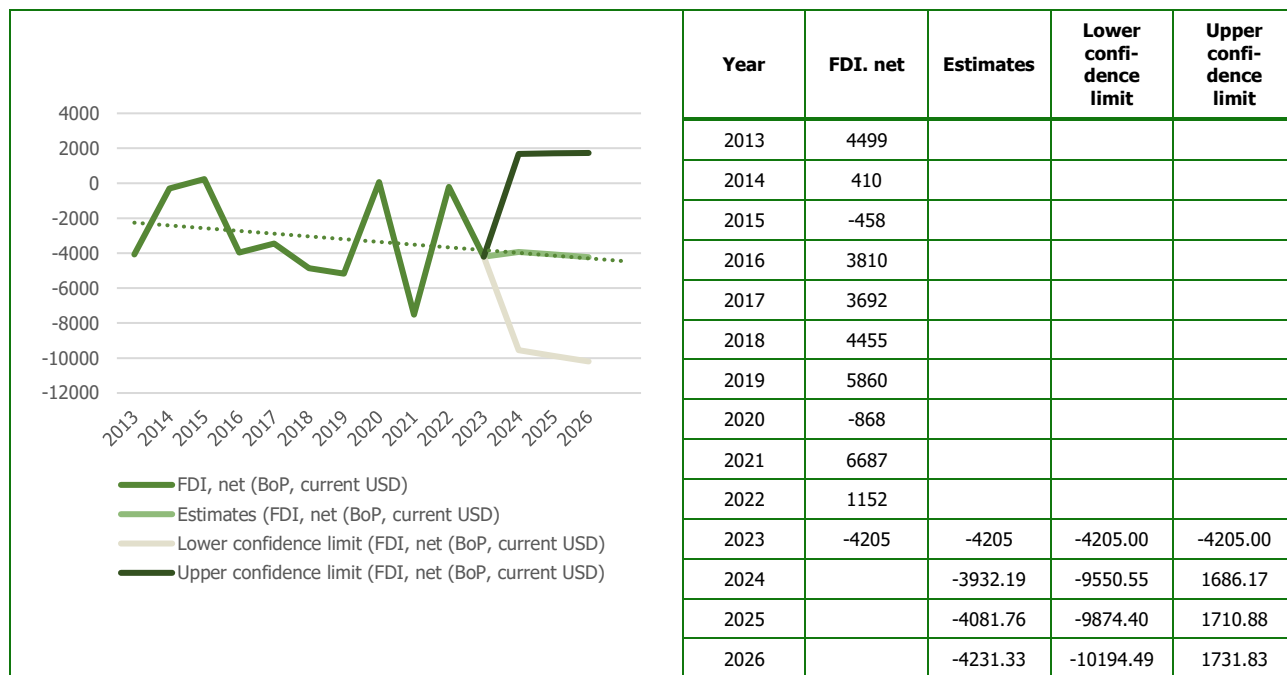
The results obtained after the regression analysis will look like the one shown in Table 11. The regression summary provided offers insight into how various economic variables (unemployment indicator, inflation, current account balance, exports, and imports) influence FDI as the dependent variable.

**Table 11. Results of regression analysis.** (Source: Authors' calculations by STATISTICA software)

Variable	Regression Summary for the Dependent Variable: FDI (Spreadsheet1) R = 0.64111136 R <sup>2</sup> = 0.41102378 Adjusted R <sup>2</sup> = ----- F(5.5) = 69.786 p < 0.64867 Standard Error of Estimate = 0.36319					
	b*	Standard Error of b*	b	Standard Error of b	t(5)	p-value
Intercept			0.1316	0.695063	0.189335	0.857276
Unemployment	-0.275384	1.207255	-0.288686	1.265569	-0.228108	0.828598
Inflation	0.110566	0.45234	0.141244	0.577848	0.244431	0.816611
CAB	0.682007	0.86741	0.796986	1.013647	0.786256	0.472327
Exports	-0.391	1.158858	-0.390674	1.15789	-0.337402	0.749517
Imports	0.399496	1.636786	0.421068	1.725168	0.244074	0.816873

The model explains a moderate portion of the variance in FDI (41,10%), but none of the independent variables are statistically significant, as evidenced by the high p-values. The lack of statistical significance ( $p > 0.05$  for all predictors) suggests that these variables do not strongly explain FDI variation in this dataset. The F-statistic and p-value for the overall model indicate that the model does not significantly improve our ability to predict FDI compared to a simpler model without these predictors. So, while there is some relationship between the variables and FDI, the regression model shows that the independent variables (Unemployment, Inflation, Current Account Balance, Exports, and Imports) only moderately explain FDI, but the relationships are not statistically significant. This suggests that these factors can not really explain variations in FDI.

To understand the prospects for the development of IPE in Ukraine, including in the context of post-war reconstruction, we conduct a forecast of FDI (Figure 8).



**Figure 8. Forecast of foreign direct investment, net (BoP, current USD million), 2024-2026.**

The FDI net inflow estimate for 2023 is significantly negative (-USD 4205 million). The negative values can be attributed to the continued uncertainties from the war and reluctance of foreign investors to enter a high-risk environment.

The estimates show a gradual negative change trend in FDI for Ukraine, with net outflows expected to remain around -USD 3932 to -USD 4231 million. However, the confidence intervals suggest potential improvements, particularly by 2026, if geopolitical and macroeconomic risks are addressed effectively. Lower confidence limits indicate a worst-case scenario, showing extremely negative FDI inflows (-USD 9550 to -USD 10,194 million). This suggests that if the security situation remains fragile and reforms are delayed, foreign investors could remain cautious or withdraw capital. Upper confidence limits, however, present a more optimistic scenario. These positive values (+USD 1686 to +USD 1731 million) reflect the potential for significant recovery if reconstruction efforts progress swiftly and investor confidence is restored through stabilization, legal reforms, and clear investment incentives. However, it should be noted that these forecast results are based on the World Bank database, which determines net FDI by subtracting FDI inflow to the country from investment outflow. Since the World Bank calculates net FDI in this way, the forecast trend for Ukraine may be seen from another perspective, leading to suggesting of growing Ukraine's access to foreign capital needed for development.

A peaceful resolution to the war and stable governance are crucial for improving FDI prospects. The scale of post-war rebuilding, combined with partnerships between international organizations and private investors, will drive the need for capital, boosting FDI inflows.

Ukraine's economic landscape, heavily impacted by war and structural challenges, is on a complex recovery path. Post-war reconstruction presents an unprecedented opportunity for the country's economic resurgence, with International Private Equity (IPE) likely playing a crucial role. IPE in Ukraine's context could involve FDI, venture capital, and private equity financing that may accelerate reconstruction, infrastructure development, and innovative transformation.

Ukraine's rebuilding phase post-war requires an enormous influx of capital, particularly for physical infrastructure, energy, housing, and transportation. A major portion of this investment is expected to come from foreign private investors in conjunction with international aid and governmental efforts. For IPE development, this will likely involve PPPs and blended financing models where risks are shared between the state and private entities.

Ukraine's integration into the European and global markets offers promising opportunities for foreign private investors. However, challenges include:

- risk mitigation, especially in regions directly impacted by war;
- political and legal stability to safeguard investors' interests;
- ensuring transparency and efficiency in governmental processes related to reconstruction.

Sustainable development is a key pillar of Ukraine's vision for long-term growth, aligned with the European Union's Green Deal. Ukraine's reconstruction plans should aim to:

- modernize infrastructure using energy-efficient and environmentally sustainable technologies;
- transition to renewable energy sources, reducing reliance on fossil fuels, and using innovative technologies in agriculture, housing, and transport;
- attract green investments, focusing on sectors such as renewable energy (wind, solar), energy storage, and electric mobility.

For IPE, sustainability creates significant investment opportunities in green technologies, environmental engineering, and energy-efficient infrastructure projects. This transition to a greener economy is likely to be a top investment theme for private equity funds targeting Ukraine.

Deeper integration with the EU, particularly regulatory alignment with the EU Single Market and participation in European financial and development initiatives, will enhance investor confidence. Growth in tech industries, such as IT (information technology) and agritech, will provide opportunities for private equity and venture capital investments, offering higher returns compared to traditional sectors.

The future of Ukraine's economic landscape lies in innovative sectors such as technology, IT, fintech, and agritech. Ukraine is already recognized for its growing IT and software development industries, and further fostering this sector is crucial for its post-war economy. The innovative transformation will focus on:

- leveraging digital technologies to modernize public services and the private sector;
- developing smart cities with modern urban infrastructure, housing, and transportation solutions;
- promoting startups and fostering innovation hubs, particularly in IT, fintech, artificial intelligence, and robotics.

According to the Ministry of Economy of Ukraine, the Government of Ukraine is making difficult choices in prioritizing spending to protect life and well-being and support the economy. Today, our strategic task is to win this war. In this context, the main priorities are to ensure the ability to [16]:

1. finance the basic functions of the state;
2. provide critical services to its citizens;
3. rebuild the country right now in accordance with the key priorities for recovery and reconstruction formed by the RDNA3 [16]:
  - energy, including the restoration and repair of transmission and distribution lines, as well as the restoration and decentralization of generating capacities, including the development of renewable energy sources and protection of the power grid;
  - transport, with a focus on domestic and cross-border connections, including the repair and reconstruction of roads, railways, bridges, ports, border crossing points and postal services;
  - housing and communal services, including current repairs and major reconstruction of housing, as well as reconstruction and rehabilitation of district heating, energy efficiency, water supply and sewerage, and waste management services.
  - social infrastructure and services, including the repair, reconstruction and rehabilitation of schools and healthcare facilities, as well as social and cultural infrastructure and services;

- industry and Services, covering core support to the private sector, including industry and trade, agribusiness, and irrigation, with a focus on reducing risks to investment and trade;
- cross-cutting priorities, including mine action, telecommunications, digital and cybersecurity, emergency response and civil protection, and democracy, justice and human rights.

## DISCUSSION

The study reinforces the importance of FDI in Ukraine's reconstruction efforts. However, it also highlights the critical need for political and economic stability as a foundation for sustaining FDI inflows. This is consistent with findings from prior studies, such as Dykha et al. [10], which identified political stability as a key determinant of FDI, and Blonigen and Piger [3], who underscored the importance of stable environments in FDI attraction.

The study's comparative analysis with EU nations, particularly Germany and Poland, highlights Ukraine's vulnerability to external shocks compared to the resilience observed in more stable economies. Contractor et al. [7] also noted that EU countries generally benefit from stable regulatory environments, which Ukraine could aim to emulate to improve FDI resilience.

This study's findings on the sensitivity of FDI to geopolitical factors, particularly in 2014, 2015, 2020, and 2022, echo previous research (e.g., Karintseva et al. [17]), which also highlighted political instability as a detractor. This work adds further evidence that non-economic factors can be as impactful as economic variables in shaping FDI trends.

The identified potential for green FDI aligns with recommendations by studies like Naz et al. [19] and Afzal et al. [2], which found that FDI focused on renewable energy and sustainable practices not only supports economic growth but also enhances environmental protection. Ukraine's alignment with Sustainable Development Goals (SDGs) could therefore prove beneficial for attracting environmentally conscious investments.

As for limitations of the study, the correlation and regression analysis indicated weak predictive power for traditional economic variables. This limitation suggests that other, potentially non-economic, variables may better explain FDI inflows. Future studies could integrate a wider range of indicators, including those reflecting institutional quality, corruption levels, and security conditions. Also, the comparative analysis with European countries, while valuable, is limited by significant contextual differences (e.g., political stability, EU membership). While comparisons offer useful insights, caution must be exercised in drawing direct parallels, as Ukraine's unique geopolitical situation introduces distinct challenges and opportunities.

Future research could benefit from a more comprehensive dataset with additional predictors, such as indices of institutional quality or investor sentiment. Additionally, machine learning models could provide new ways to model complex FDI dynamics with better predictive power. With the reconstruction of Ukraine expected to take center stage, further investigation into FDI in the tech and green sectors could reveal growth areas aligned with global digital and sustainability trends. Emphasizing Ukraine's ongoing digital transformation could be another promising angle for boosting FDI and ensuring future resilience.

## CONCLUSIONS

The role of foreign direct investment in the reconstruction of Ukraine's war-affected infrastructure is pivotal to the country's post-war recovery and long-term sustainable development. Despite the challenges presented by the full-scale war that began in 2022, Ukraine's legislative and regulatory framework has made significant strides in improving conditions for FDI, signalling a commitment to attract foreign capital for reconstruction and modernization.

In this study, we see the complex nature of FDI inflows to Ukraine, particularly in the context of post-war recovery. The fluctuating trends from 2013 to 2023 reveal that while certain periods saw peaks in FDI, the country's ability to consistently attract and maintain investment was hampered by political instability, the outbreak of war, and economic crises. The sharp declines in 2014, 2015, 2020, and 2022 are clear indicators of how external shocks directly impact investor confidence, leading to negative FDI net inflows for several years. This underscores the need for a stable political and economic environment as a precondition for attracting substantial and sustained foreign investments.

The analysis of FDI sources and its areas of application reveals a concentration of investment in well-established sectors, such as industry and trade, as of 2024. While this reflects the traditional focus of FDI on mature sectors with lower risk profiles, it also highlights the need for diversification. Emerging sectors, such as information technology, agritech, and

fintech, hold significant potential for future FDI inflows, especially as Ukraine seeks to transition into a more innovation-driven economy. Given the global trend toward digital transformation and sustainable development, Ukraine's ability to attract investments in these forward-looking sectors will be critical for its economic resilience and competitiveness in the post-war era.

Comparative analysis with other European countries, particularly Poland, Germany, France, and Denmark, further illustrates the disparities in FDI dynamics. While countries like Germany demonstrate resilience in maintaining strong FDI inflows despite global economic disruptions, Ukraine's FDI landscape is far more volatile. This volatility can be attributed to several factors, including the ongoing war, underdeveloped infrastructure, and investor risk aversion. Nonetheless, Ukraine's proximity to the EU and its deeper integration with European markets offer significant opportunities for leveraging European financial and development initiatives to stabilize and increase FDI inflows.

Especially, as we can see, key initiatives, such as aligning with the Sustainable Development Goals (SDGs) and promoting regulatory convergence with the European Union (EU), have enhanced Ukraine's attractiveness to foreign investors. These steps, combined with efforts to secure international financial support and improve domestic governance, are essential for laying the groundwork for increased FDI, especially in the critical sectors of energy, infrastructure, and technological innovation. However, the effectiveness of these measures in attracting sustained FDI will depend on Ukraine's ability to ensure long-term stability and demonstrate transparency in both the regulatory and operational environments.

The results of the correlation and regression analysis show relatively weak statistical significance of traditional economic variables (such as GDP, exports, and imports) in explaining variations in FDI inflows to Ukraine. While some correlations, particularly with the current account balance, suggest that macroeconomic stability plays a role in attracting FDI, the overall predictive power of the model is limited. This indicates that non-economic factors, such as geopolitical stability, investor sentiment, and the quality of domestic governance, may have a more profound impact on FDI trends in Ukraine than purely economic variables. This finding reinforces the importance of addressing not only economic but also institutional and security-related challenges to boost FDI inflows. Still, the regression model lacks predictive power and statistical significance in our case. More relevant predictors or a different model might be needed to better explain FDI inflows. In future research, there is a need to consider more factors to better explain variations in FDI, so the dataset should be wider to detect more significant relationships.

The forecast for FDI from 2024 to 2026 paints a mixed picture. While the current outlook remains pessimistic, with continued net outflows expected due to the war and associated risks, there is room for optimism if key reforms are implemented and the geopolitical situation improves. Investor confidence, particularly from Western markets, will likely hinge on Ukraine's progress in post-war reconstruction, the success of its anti-corruption efforts, and its ability to foster a business-friendly environment. Furthermore, as global economic conditions stabilize and reconstruction efforts gain momentum, there is potential for a gradual improvement in FDI inflows by 2026, especially if Ukraine can capitalize on its strategic location and burgeoning tech sectors.

As a result, FDI plays a critical role in Ukraine's post-war recovery, but the country must navigate a complex array of internal and external challenges to fully unlock its potential. Strengthening the legislative and regulatory environment, enhancing political and economic stability, and fostering innovation in high-growth sectors are essential steps to attract and retain foreign investments.

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## ADDITIONAL INFORMATION

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### AUTHOR CONTRIBUTIONS

*All authors have contributed equally.*

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### CONFLICT OF INTEREST

*The Authors declare that there is no conflict of interest.*

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Хедегаард М., Гриценко Л., Деркач Л.

## ПРЯМІ ІНОЗЕМНІ ІНВЕСТИЦІЇ В УКРАЇНІ: ШЛЯХ ДО СТІЙКОСТІ

У роботі досліджується роль прямих іноземних інвестицій (ПІІ) у відновленні економіки та інфраструктури України, пропонується комплексний аналіз їхніх чинників, тенденцій і потенціалу розвитку. Дослідження визначає ПІІ як важливий фактор відновлення економічної стабільності та сприяння сталому розвитку в Україні, особливо у світлі значних руйнувань, спричинених війною, що триває. Мета роботи – дослідити роль прямих іноземних інвестицій у відновленні економіки та реконструкції пошкодженої війною інфраструктури України для сталого розвитку.

Методологія дослідження передбачає комплексний підхід, що включає кількісний аналіз притоку та відтоку ПІІ з 2013 по 2023 рік в Україні, вивчення нормативно-правової бази, кореляційно-регресійний аналіз для визначення ключових факторів, що впливають на динаміку ПІІ, прогнозування та інші. Аналізуючи, прогнозуючи та порівнюючи тенденції ПІІ в Україні з окремими європейськими країнами, особливо в контексті геополітичних викликів та економічної нестабільності, дослідження дає глибоке розуміння унікальних бар'єрів та можливостей, із якими стикається Україна в залученні ПІІ.

Результати показують, що політична нестабільність та війна, що триває, суттєво впливають на ПІІ в Україні, а притоки інвестицій демонструють значну волатильність. Незважаючи на ці виклики, економіка продемонструвала стійкість завдяки міжнародній фінансовій підтримці та внутрішнім зусиллям із відновлення. Оригінальність дослідження полягає в тому, що воно зосереджене на конкретному контексті післявоєнного відновлення в Україні, пропонуючи нове розуміння того, як ПІІ можуть слугувати каталізатором сталого розвитку. Визначаючи стратегічні сфери для інвестування та усуваючи існуючі законодавчі бар'єри, це дослідження робить цінний внесок у ширше розуміння ролі ПІІ у післявоєнному відновленні економіки. Подальші дослідження необхідні для вдосконалення аналізу факторів, розробки прогнозних моделей і вивчення нових тенденцій ПІІ у зв'язку зі зміною геополітичних умов.

**Ключові слова:** прями іноземні інвестиції, управління інвестиціями, економічне відновлення, розвиток інфраструктури, сталий розвиток, повоєнна Україна, політична нестабільність, макроекономічна стабільність, цілі сталого розвитку

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