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THE IMPACT OF EXTERNAL FINANCING DURING WARTIME ON THE ECONOMY OF A COUNTRY IN WAR

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ABSTRACT

This study delves into the effects of external financial support (official development assistance and foreign direct investments) on economic activity and welfare based on data from five nations injured by similar military conflicts from 2006 to 2021. Focusing on Ukraine, the research recommends ways for policymakers to navigate external financing during wartime. The employment rate, GDP per capita, inflation rate, and exports are the foundations for our analysis. The methodological approach employed regression analysis to measure the economic effect of external financing in wartime in these conflict-ridden nations. The findings reveal that increased foreign direct investment during wartime correlates with reduced employment rates, heightened GDP per capita, and increased exports. In addition, the negative impact of official development assistance ODA on employment was found, and it had a positive effect on exports but no significant effects on GDP per capita. A statistically significant impact on the inflation rate was not seen.

Keywords: war; gross domestic product; employment; foreign direct investment; development assistance; inflation, export

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INTRODUCTION

After World War II, the biggest wars seemed to belong to the past, and the global community exercised control over conflicts. From the mid-1990s onward, though, there was a trend toward increasing the number of armed conflicts worldwide. According to the Center for Systemic Peace (2020), 334 armed conflicts were observed from 1945 to 2019, as well as aggravation in military-political conflicts, accompanied by devastating consequences and increasing instability for the occupied countries. Currently, there are 28 such conflicts: 16 in Asia, 9 in Africa, 2 in Latin America, and 1 in Europe (Global Conflict Tracker, 2023); the most common types are civil wars and territorial disputes. The most developed countries (mainly EU members) are exposed to terrorist and political threats (Terrorism & Political Violence Risk Map, 2016). At the same time, official development assistance (ODA) to fragile countries during 2014-2021 increased from 84.6 bn USD to 118 bn USD

annually (more than 840 bn USD overall); foreign direct investments (FDI) to fragile countries reached almost 23 bn USD (OECD Development Assistance Committee, 2021).

The war in Ukraine significantly slowed down its economic and social growth, reduced its welfare, increased the instability of its business environment, and forced companies to relocate (in 2022, the country lost 30-35% of its GDP (Kilfoyle, 2023). However, this negative impact is not localized; according to Liadze et al. (2023), the conflict in Ukraine could reduce the level of global GDP by 1% by 2023 (about $1 trillion) and add up to 3% to global inflation in 2022 (about two percentage points in 2023). The general impact of war is supposed to be multifaceted, including disruptions in trade, infrastructure destruction, debt and fiscal pressures, human capital and infrastructure damage, innovation and technological disruption, political and institutional effects, global economic spillover, etc.

Considering that external financing can be critical in shaping a nation's economic trajectory, this research aims to study the impact of war and external financing (ODA and FDI) on the well-being of a country injured by war. Understanding the nature of such an impact will make it possible to elaborate recommendations for policymakers on external financing during the war and the post-war period for these countries.

The paper contains an introduction that outlines a global overview of existing wars and a range of various war effects on the economy, highlights the importance of a study of these impacts, and describes the study's purpose. The following section describes the general theoretical background, providing a literature review on the economic impact of war, quantitative approaches to its assessment, and the role of ODA and FDI in wartime economic development. An explanation of the study's methodological approach follows. The main section identifies the impact of external financing on the economy during wartime using multiple models for selected countries. The discussion reveals the limitations and further prospects of studying the abovementioned impact for outlining ways of using external financing for economic recovery in the post-war period.

LITERATURE REVIEW

Theoretical Framework

The study's theoretical framework is based on an interdisciplinary approach, mainly conflict economics (Collier and Hoeffler (2002b) largely have contributed to conflict economics), which examines conflicts' direct and indirect economic consequences. In their conflict risk simulation, Collier & Hoeffler (2002a) established an inverse relationship between increased aid and GDP per capita and a direct relationship with commodity exports. Also, Collier (2006) concluded that both military expenditure and war retard development; military spending diverts government resources that could be put into public services, infrastructure, or lower taxes.

Based on its key concepts, conflict economics was selected as a theoretical framework to analyze the impact of ODA and FDI on economic growth due to its ability to provide insights into the complex dynamics of economic changes during conflict.

The economic impact of war

The analysis that was conducted reveals a significant interest in studying the consequences of conflicts, including wars. A broad literature review on the economic consequences of war was carried out by Kang and Meernik (2005), who figured out that the more prolonged and destructive the war, the more significant the negative impact on economic growth. They estimated that war in under-developed (and previously war-ravaged societies) reduces a low level of development and capacity for growth and scares potential investors. Van Raemdonck and Diehl (1989) (cited by Kang and Meernik (2005)) found that the long-term impact of war and the utility of external aid are uncertain. They concluded that the effects of war seemed less intrinsic than conditioned by the policies pursued after the war. Koczan and Chupilkin (2022) discussed the immediate impact of war on the economy, including disruptions in production chains, trade, and FDI, as well as downturns caused by infrastructure destruction, loss of human capital, and a comprehensive uncertainty in the business environment. They also highlighted lasting effects on productivity, mainly explained by short-term destructions and losses, affecting the economy's readiness for efficient production of goods and services (Koczan & Chupilkin, 2022).

At the same time, Miguel and Roland (2011) addressed broader institutional impacts, grounding that war may also affect the quality of institutions, technology, and social outcomes and showing that these institutional effects of war may have negative or positive impacts on long-run economic performance. Rogoff (2022) concluded that the economic shock from wars tends to be long-lasting and affects not only the immediate conflict zone but also neighboring countries and the global economy.

Quantitative approaches to assessing economic consequences of war

The main considerable consequence of the war is human death. Despite the relative obviousness of the approach to measuring such consequences, there are many issues regarding which deaths should be counted: whether the death of soldiers and civilians who died during armed attacks (Lacina & Gleditsch, 2005) or whether all deaths caused by violence and other long-term consequences of conflicts (e.g., epidemics and starvation, which are considered a direct consequence of war that affects the quality and duration of life) (Hoeffler, 2017). Rogoff (2022) noted that wars can lead to a loss of human capital through casualties, migration, and displacement. Koczan and Chupilkin (2022) also examined the human cost of war, focusing on losing lives, skills, and education, which contribute to the reduction of society's total human capital, affecting its economic potential in the long term.

Regression models are broadly used to measure war's consequences. Using this method, Venieris and Dipak (1986) analyzed cases from 49 countries and found the effect of socio-political instability on savings. Alesina and Perotti (1996) examined 71 countries, determining the influence of war on the volume of investments. Time series methods based on GDP per capita, bilateral international trade flows, and tourism revenues were used by Enders and Sandler (1996), who studied the effect of terrorism on FDI in Spain in 1975-1991, and by Eckstein and Tsiddon (2004) who assessed the impact of terrorism on GDP, FDI, and exports in Israel in 1980-2003. Collier (1999) used a fixed-effect, dummy-variable approach to assess the impact of the war on growth rates across 78 countries' cases from 1960-1989. Caplan (2002) studied the effect of wars on inflation rates, the volume of government expenditures, and the tax revenues of 66 countries from 1953–1992.

The role of ODA and FDI in wartime economic development

ODA, often provided by international organizations, governments, or non-governmental entities, aims to address immediate humanitarian needs, rebuild infrastructure, and promote stability. Gitaru (2015) investigated the effect of ODA on economic growth in Kenya and found that international aid had a positive impact on Kenya's economy. Hansen and Tarp (2001) performed a 56-country study of the relationship between ODA and growth in GDP. A study by Yiew and Lau (2018) investigated the impact of ODA on the economic development of 95 developing countries by controlling estimates against foreign direct investment and population. Çevik and Amanat (2020) analyzed the effect of net ODA on the GDP of Afghanistan from 1984 to 2017.

FDI brings foreign capital, technology, and expertise (Dupasquier. & Osakwe, 2006) into an injured country. It is supposed to catalyze economic growth (Kang & Meernik (2005); Burnside & Dollar (2000); Clemens et al. (2012); Galiani, Knack, Xu & Zou (2017)) and to drive structural transformations (Harding and Javorcik, 2012). Also, the impact of the creation of employment opportunities and income distribution for individuals' incentive to participate in civil conflict was explored by Burnside and Dollar (2000), Collier and Hoeffler (2002), Dimico (2013), and Hansen and Tarp (2001).

Limitations of Existing Research

At the same time, part of the existing research has been focused on civil wars (Collier and Hoeffler (2002a, 2002b); Murdoch and Sandler (2004); Fearon (2005); Kang and Meernik (2005); Bove, Elia and Smith (2017)), justifying it with the assumption that these wars take place precisely on the country's territory. It excludes interstate military conflicts, which, unfortunately, are an essential factor of economic decline in developing countries (Collier and Hoeffler, 2002a).

Moreover, existing studies have considered war presence to be a factor influencing economic indicators. However, considering the amount of international support allocated to countries

affected by wars, the impact of external financial support and FDI in the country cannot be ignored.

The mentioned research gap has determined the direction of the present study and the following research question: How do ODA and FDI in wartime shape a country's economic activity and welfare? Therefore, four indicators have been chosen to measure economic activity and well-being, and their changes during wartime have been studied: employment rate, GDP per capita, inflation rate, and export.

METHODOLOGY

The research methodology covered the following steps.

1. Formulating assumptions for the following analysis.

The authors proceeded from the assumption that external financing during the war aims to overcome the war's negative consequences for the country's economy, stimulate economic activity, and support welfare.

2. Formulating hypotheses of the study.

According to the research question and the assumption described above, the hypotheses for this research are:

H1: ODA and FDI during wartime increase the employment rate.

H2: ODA and FDI during wartime increase a country's GDP per capita.

H3: ODA and FDI during wartime decrease the inflation rate.

H4: Oda and FDI during wartime increase exports.

3. Selecting indicators for further analysis.

The study utilized a set of indicators sourced from the World Bank, which is detailed in Table 1, to test these hypotheses.

Table 1. Description of variables included in the study

Variable	Abbreviation and variables type	Source	Description and anticipated impact of the variable
Net ODA received (million US$)	Dev_as (independent variable)	World Bank (n.d.-f)	Financial support received. It is expected to have a positive impact on economic development.
FDI, net inflows (BoP, million US$)	FDI (independent variable)	World Bank (n.d.-c)	Net inflows of FDI. It is expected to have a positive impact on economic development.
War presence	War (dummy variable)	Gleditsch et al. (2002), Davies et al. (2022)	Presence of war (0 = no war, 1 = war), allowing analysis of its impact on the variables mentioned below
Employment to population ratio, 15+, total (%) (modelled ILO estimate)	Empl (dependent variable)	World Bank (n.d.-a)	The percentage of the employed working-age population indicates overall economic activity and well-being.
Exports of goods and services (million US$)	Exp (dependent variable)	World Bank (n.d.-b)	Value of goods and services exported, which influences trade balance and economic performance.
Inflation, consumer prices (annual %)	Infl (dependent variable)	World Bank (n.d.-e)	The rate of price increase influences economic stability and purchasing power.
GDP per capita (current US$)	GDPcap (dependent variable)	World Bank (n.d.-d)	Economic output per person, which indicates a standard of living and economic development.

Source: compiled by the authors

4. Providing correlation analysis.

A correlation matrix was created (Table A1) to check for auto-correlation in various employed indicators.

5. Conducting regression models for each hypothesis.

While the abovementioned indicators are the basis for assessing a country's economic activity and welfare, the following regression models were considered for testing the study's hypotheses:

Model 1: $Empl = f(Dev\_as, FDI, War)$ (1)
Model 2: $GDPcap = f(Dev\_as, FDI, War)$ (2)
Model 3: $Infl = f(Dev\_as, FDI, War)$ (3)
Model 4: $Export = f(Dev\_as, FDI, War)$ (4)

6. Selecting the sample for the study.

The critical war consequences case selected for the study was Ukraine as a country injured by war. As noted by Gleditsch et al. (2002) and Davies et al. (2022), military conflicts have been ongoing on Ukrainian territory since 2014 (table A.2). At the same time, the Government of Russia (Soviet Union) was named a party involved in the conflict against Ukraine. Therefore, for conducting the analysis, countries with the same conflict type and period were studied. The list of fragile and conflict-affected situations (FCS) released annually by the World Bank Group was used as an initial sample.

In creating the sample, Gleditsch et al.'s (2002) and Davies et al.'s (2022) classification of war based on the characteristics of the conflict in Ukraine was used. Ukraine was not listed until 2022; however, it appeared in the 2023 list with 16 other countries. Drawing on the data on these countries given by Gleditsch et al. (2002) and Davies et al. (2022), the typology and subject of the conflict (Table B.1) was analyzed. Based on the characteristics of the conflict recorded in Ukraine, nine countries were selected for further research. However, some of these countries had to be excluded due to fragmentation and the lack of data (Table 2).

Table 2. Sample of countries with war conflict

Country of conflict location	Years (pre-wartime)	Years (wartime)
Cameroon	2006–2014	2015–2021
Mali	2006–2012	2012–2021
Niger	2006–2014	2015–2021
Nigeria	2006–2010	2011–2021
Ukraine	2006–2013	2014–2021

Source: based on Tables A.2 and B.1

Consequently, this study's sample comprises five countries with the same type of war conflict from 2006–2021 (5 countries, 15 years, n=75). This sample enables the assessment of the similarity of the economic situation and the military damage to the economy in other countries where military conflicts occur and to understand Ukraine's potential scenarios and the spectrum of economic recovery needs.

Gretl software was used to form the table with the initial data, which was also used for regression calculations.

RESULTS

In this study, regression analysis was used to examine the relationship between various economic indicators and three key variables: received ODA (Dev_as), inflowed FDI (FDI), and war (dummy variable).

According to **Hypothesis 1**, Model 1 examines the relationship between received ODA, inflowed FDI, and war and the employment rate in a country.

Table 3. Model 1: OLS (n=75). Dependent variable: Empl

	Coefficient	Std. Error	t-ratio	p-value	
const	74.6231	1.5389	48.49	<0.0001	***
War	−6.4872	1.6880	−3.843	0.0003	***
Dev_as	−0.0013	0.0006	−2.054	0.0437	**
FDI	−0.0024	0.0003	−8.035	<0.0001	***
R-squared	0.5451				

Source: Authors' calculations based on World Bank (n.d.-a, n.d.-c, n.d.-f), Gleditsch et al. (2002), Davies et al. (2022)

The R-squared value of 0.5451 indicates that the independent variables explain 54.51% of the model's employment variation. The regression analysis results show a statistically significant relationship between received ODA, FDI inflows, war presence, and the employment rate. The war dummies variable coefficient of -6.49 suggests that the employment rate is expected to decrease by 6.49% during wartime. The FDI coefficient of -0.0024 indicates that for every 1% increase in FDI, the employment rate is expected to decrease by 0.0024%. The received ODA coefficient of -0.0013 suggests that for every 1% increase in received ODA, the employment rate is expected to decrease by 0.0013%. The negative coefficients of FDI and ODA oppose the general understanding of their role in boosting economic activity. However, it should be noted that during wartime, companies might engage FDI in capital-intensive industries or fields (with fewer jobs created compared to labor-intensive ones), mainly in assets and capacity recovery. Similarly, receiving ODA may not directly contribute to job creation. Thus, a studied impact could be more nuanced, and further research into ODA types and efficiency may make additional insights available.

According to **Hypothesis 2**, Model 2 examines the relationship between the same variables and the GDP per capita in a country.

Table 4. Model 2: OLS (n=75). Dependent variable: GDPcap

	Coefficient	Std. Error	t-ratio	p-value	
const	791.593	154.054	5.138	<0.0001	***
War	383.319	168.971	2.269	0.0263	**
Dev_as	−0.0107	0.0616	−0.1733	0.8629	
FDI	0.2870	0.0294	9.766	<0.0001	***
R-squared	0.5794				

Source: Authors' calculations based on World Bank (n.d.-d, n.d.-c, n.d.-f), Gleditsch et al. (2002), Davies et al. (2022)

The results of this regression analysis demonstrate that the model used can explain 57.9% of the variation in the dependent variable (GDP per capita) using the independent variables provided. The coefficient for received ODA is -0.0107, which means that for every 1 unit increase in received ODA, there is a decrease of 0.0107 units in GDP per capita, which confirms the dependence detected by Collier and Hoeffler (2002a). The p-value (0.8629), however, indicates insufficient evidence of the coefficient's statistical significance. Thus, ODA was eliminated from the model, and recalculated a regression was recalculated.

Table 5. Model 2: OLS (n=75). Dependent variable: GDPcap (Dev_as is eliminated)

	Coefficient	Std. Error	t-ratio	p-value	
const	781.052	140.586	5.556	<0.0001	***
War	377.432	164.403	2.296	0.0246	**
FDI	0.2861	0.0288	9.927	<0.0001	***
R-squared	0.5792				

Source: Authors' calculations based on World Bank (n.d.-d, n.d.-c), Gleditsch et al. (2002), Davies et al. (2022)

The R-squared value (0.5792) suggests that independent variables explain about 57.92% of the variation in GDP per capita. The coefficient for FDI indicates its positive impact on GDP per capita, aligning with the notion that FDI leads to inflows in capital, technology, and expertise and contributes positively to economic growth. The coefficient for the war dummy variable is 377.432, indicating that the presence of war is associated with an increase in GDP per capita.

This suggests that war positively impacts GDP per capita, and though this effect could be considered questionable, the same effect was described by Thies and Baum (2020). They

concluded that while wars are destructive of physical and human capital, the impact of war on GDP per capita could be explained by "the way national income accounting deals with killing people and destroying things during the war." Previously, Sevastianova (2009) found no straightforward relationship between war and economic well-being, declaring that since war need not decrease GDP, it might raise it. Investigating the effect of international war on the economy, she also highlighted that GDP per capita in Egypt, Iran, and Uganda decreased during wartime. Still, GDP per capita grew in Israel, Syria, and China during the war. This might be explained by factors such as increased government spending during wartime (Cerra & Saxena, 2008) and reconstruction efforts to boost economic activity.

The above highlights the complexity of economic systems. Therefore, additionally, it is essential to consider other factors that may affect GDP per capita but were not included in the model, such as government policies, cultural aspects, and external shocks. They may also significantly shape GDP, particularly GDP per capita.

According to **Hypothesis 3**, Model 3 examines the relationship between these variables and the inflation rate in a country.

Table 6. Model 3: OLS (n=75). Dependent variable: Infl

	Coefficient	Std. Error	t-ratio	p-value	
const	1.4508	1.4893	0.9741	0.3333	
War	2.1654	1.6335	1.326	0.1892	
Dev_as	0.0005	0.0006	0.8714	0.3865	
FDI	0.0011	0.0003	4.008	0.0001	***
R-squared	0.5451				

Source: Authors' calculations based on World Bank (n.d.-e, n.d.-c, n.d.-f), Gleditsch et al. (2002), Davies et al. (2022)

The results of this regression analysis suggest that the model used can explain 54.5% of the variation in the inflation rate. However, p-values for the constant, war dummy variable, and received ODA are greater than the commonly used threshold of 0.05, suggesting that the relationships between the independent variables and inflation are not statistically significant. Therefore, it could be necessary to consider using a different modeling technique.

According to **Hypothesis 4**, Model 4 examines the relationship between these variables and the export rate in a country.

Table 7. Model 4: OLS (n=75). Dependent variable: Exp

	Coefficient	Std. Error	t-ratio	p-value	
const	−7360.86	4012.61	−1.834	0.0708	*
War	13158.0	4401.16	2.990	0.0038	***
Dev_as	4.4645	1.6057	2.781	0.0069	***
FDI	10.5922	0.7653	13.84	<0.0001	***
R-squared	0.7547				

Source: Authors' calculations based on World Bank (n.d.-b, n.d.-c, n.d.-f), Gleditsch et al. (2002), Davies et al. (2022)

The high R-squared indicates that the model can predict export levels accurately; approximately 75.47% of the export variations are explained by ODA and FDI changes. Positive coefficients for the war dummy variable, received ODA, and FDI imply that war is associated with a substantial increase in exports, and mentioned financial inflows also positively impact exports, which confirms the dependence detected by Collier and Hoeffler (2002a) and could be related to changes in trade patterns, as well as changes due to the ODA and FDI

facilitating economic development and trade capacity.

DISCUSSION

This results are consistent with theoretical findings about the interaction between the world economy and the economic consequences of war, showing that conflicts can have spillover effects on international trade, FDI, and economic stability (Thies & Baum, 2020). Along with this, the results of the study are partially consistent with the thesis that war has a significant impact on the economic indicators and human capital of a country (Lucas (1988), Mankiw et al. (1992) and Romer (2006)). To further discuss the obtained results, we explored relationships between studied indicators and FDI and ODA separately, analyzing for pre-war and wartime periods with a focus on Ukraine (Appendix C).

Employing the findings from the regression analysis, we cannot validate **Hypothesis 1**. It could be supposed that FDI during a war will not significantly affect employment because of other negative factors, e.g., forced migration, structural unemployment, and civilian involvement in the armed forces. According to Dupasquier and Osakwe (2006), when foreign investment is embedded in the local economy, it can support the development of SMEs, promote skills development, and generate employment resulting in higher growth. While the employment rate in Ukraine experienced a decline during times of war (employment decreased by two percentage points in 2014 due to the occupation of part of the territory), based on Figures C1 and C2, we can see that ODA could slightly decrease employment, and FDI could stimulate it only during a pre-war time. At the same time, in reverse, the population has a positive and statistically significant impact on FDI, suggesting that primary sector FDI is determined mainly by the strength of the potential workforce available for MNEs in host countries (Li, Murshed & Tanna, 2017). Harding and Javorcik (2012) considered FDI a powerful mechanism for driving structural transformation by increasing productivity and linking the local economy to global production chains. Therefore, we can conclude that a need for targeted ODA programs addresses the challenges injured countries face (i.e., rebuilding infrastructure, supporting local industries, and thus creating employment opportunities).

The results partially support **Hypothesis 2**, which states that FDI during war increases a country's GDP per capita. Burnside and Dollar (2000) found that a percentage increase in the aid/GDP ratio will increase the GDP per capita growth rate by 0.47; Hansen and Tarp (2001) stated one percentage point of the same increase. Galiani et al. (2017) confirmed growth by 0.35 percentage points. At the same time, Clemens et al. (2012) related an increase in aid/GDP with a 0.3-0.5 percentage-point increase in investment/GDP and a 0.1-0.2 percentage-point increase in the GDP/capita. Çevik and Amanat (2020) stated that ODA has a positive and long-run impact on the GDP of Afghanistan (0.32% increase). Kang and Meernik (2005) said that foreign aid increases economic growth at first. However, the marginal effect of foreign aid levels out, and economic growth tends downward even if increasingly large amounts of aid are given, as can be seen with the negative sign of the coefficient for the squared aid variable (Kang & Meernik, 2005).

Empirical research conducted by Bluszcz and Valente (2022) showed that from 2013–2017, the loss of GDP per capita in Ukraine due to the war was 15.1%, and 47% for the Donetsk and Luhansk regions. According to Figures C3 and C4, FDI slightly increased GDP per capita, although ODA positively impacted this indicator only in the pre-war period. This is consistent with research by Yiew and Lau (2018), who demonstrated that ODA has a U-shape effect on GDP (a short-term negative impact on the GDP but after some time switches to positive in developing countries). The trend of changes in Ukraine's GDP per capita in the studied periods is consistent with the nominal GDP slowdown in 2014-2015. Research conducted by Thies and Baum (2020) supports the view that the destruction of physical capital, production disruption, and loss of human capital contribute to a decline in overall economic output.

Confirmation of **Hypothesis 3** that ODA and FDI decrease the inflation rate was not found because there was no significant relationship between the variables included in the model. At the same time, since 2014, the inflation rate has increased significantly (from -0.2 in 2013 to 12.1 in 2014 and 48.7 in 2015), and despite gradually decreasing since 2016, the 2021 COVID-19 pandemic caused the increased inflation rate to return. However, war generally decreases

employment and reduces purchasing power, leading to a slight decline in inflation. Collier (2009) suggested the best strategy would be a package involving low taxation, high aid, intense scrutiny of public spending, and low inflation.

The results obtained for Hypothesis 4 provide information that can justify fluctuations in the country's export rates concerning FDI and ODA during a war. Dreher and Langlotz (2020) found a negative effect on net exports, explained by the impact of currency inflow. The dynamics of Ukraine's foreign trade show a significant acceleration in 2006-2008 (mainly in the export of agricultural, chemical, and metallurgical products). The global financial crisis of 2008 also affected Ukraine's foreign trade turnover, and from 2010 to 2013, exports grew. The 2014-2015 escalation of military conflict, however, destroyed industrial infrastructure facilities and reduced industrial capacities, leading to a sharp decline in Ukraine's exports. In 2016, a growth phase replaced the decline phase, and an increase in Ukrainian exports and imports of goods and services was observed until 2021. According to Collier and Hoeffler (2002), foreign aid can be beneficial in stabilizing countries by reducing the recipient state's dependence on primary commodity exports and improving economic conditions.

Overall, based on Miguel and Roland (2011), foreign aid could be a sufficient source of capital in the post-war economy, and the central government could selectively redistribute this capital towards poorer districts, which would generally prevent a national poverty trap from occurring. Regarding state response policies, Becker et al. (2022) concluded that external aid may be more effective for providing support in the critical early years of the post-war period, when a recipient country's resources may be limited.

Yiew and Lau (2018) expressed that FDI and population play a vital role in ODA's high or low results. To attract FDI, a need for a secure and stable environment may arise. The creation of employment opportunities and more even income distribution would give less incentive for individuals to join rebel groups and participate in civil conflict (Burnside & Dollar, 2000; Collier & Hoeffler, 2002; Dimico, 2013; Hansen & Tarp, 2001). Rogoff (2022) noted that governments may prioritize defense spending during and after conflict, leading to a shift in budget allocations away from social programs and development projects, which will also affect GDP. Besides general economic declines, warring countries can also be important exporters of some commodities or products that they can no longer produce or export due to the war (Ohlsson, 2022).

CONCLUSION AND RECOMMENDATION

This study has explored how ODA and FDI shape a country's economic activity and welfare in wartime, employing economic indicators such as the employment rate, GDP per capita, the inflation rate, and exports. The results add to the knowledge of the impact of ODA and FDI during wartime on employment, GDP per capita, and exports. The negative impact of ODA, FDI, and war on employment was mainly found, and at the same time, research findings suggest that all of the abovementioned factors positively affect exports. The results also show that FDI during war increases a country's GDP per capita, while ODA does not significantly impact it. No remarkable impact of ODA and FDA during wartime on the inflation rate was found.

Several limitations should be noted. First, the countries' territories can be affected by wars differently. That means a different degree of destruction and an additional availability and efficiency of resources that could be used for growth. Second, the study selected developing countries affected by wars as a sample. Therefore, the impact identified for these countries may be different for countries with other economic development levels, economic structure, population density, and state policies, which could shape figures on countries' economic activities and growth. Finally, data used in the study were gathered approximately at the same period to avoid data incompatibility. Different outcomes can be obtained for other periods considering specific global economic trends and crises, volatility on global markets, etc.

Despite these limitations, this study's outcomes provide policymakers with valuable information on the impact of wartime external financing on an economy, which could be used as follows:

- To explore ways FDI attraction and facilitation could be used to enhance people's well-being, particularly boosting FDI into export-oriented

industries. The aim is to increase employment, especially by strengthening the country's export capabilities through targeted support. War reallocates resources from non-military to military sectors, improving productivity and competitiveness in the military industry, which can lead to higher exports of military goods and services and the development of new technologies and innovations that can be commercialized and exported. However, this reallocation of resources can also increase imbalances in industrial development and cause deformations in supply chains;

- To reallocate and utilize ODA during wartime, focusing on areas directly contributing to economic growth (e.g., infrastructure development, education, etc.). Usually, war causes increased government spending on public projects and can also generate employment and boost demand for goods and services. At the same time, ODA could be widely used to overcome a decrease in people's welfare and ensure a sustainable development path in countervailing the war's negative consequences.
- To reevaluate employment strategies, including a plan for job creation fields, reskilling programs, and alternative job creation initiatives. During the war, the military sector can be an essential source of employment, generating demand for goods and services and resulting in higher economic output and high GDP per capita. Engaging policies of more comprehensive job creation in diverse areas, however, will increase the economy's efficiency and make it more competitive.

This research has several possible extensions, including a study of ODA's and FDI's influence on wartime economic performance in specific sectors and economic development in post-conflict scenarios.

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APPENDIX A

Table A1. Correlation coefficients, using the observations 1 - 75
5% critical value (two-tailed) = 0.2272 for n = 75

GDPcap	Infl	Exp	Empl	Dev_as	FDI%	FDI	
1.0000	0.4776	0.8331	-0.7623	0.1137	-0.2355	0.7405	GDPcap
	1.0000	0.5255	-0.5921	0.1736	-0.2237	0.4217	Infl
		1.0000	-0.7589	0.3036	-0.2208	0.8262	Exp
			1.0000	-0.3072	0.2562	-0.6301	Empl
				1.0000	-0.2948	0.1237	Dev_as
					1.0000	0.0905	FDI%
						1.0000	FDI

Year	The opposite side of a conflict (name from the source)	Type of conflict	Incompatibility
2014	Maidan	Intrastate	Governmen
	Donetsk People's Republic (DPR)	Internationalised intrastate	Territory
	Luhansk People's Republic (LPR)	Internationalised intrastate	Territory
	United Armed Forces of Novorossiya	Internationalised intrastate	Territory
2015	DPR, LPR, United Armed Forces of Novorossiya	Internationalised intrastate	Territory
2016	DPR, LPR	Internationalised intrastate	Territory
2017	DPR, LPR	Internationalised intrastate	Territory
2018	DPR, LPR	Internationalised intrastate	Territory
2019	DPR, LPR	Internationalised intrastate	Territory
2020	DPR, LPR	Internationalised intrastate	Territory
2021	DPR, LPR	Internationalised intrastate	Territory

Source: own elaboration based on Gleditsch et al. (2002) and Davies et al. (2022);'

APPENDIX B

Table B1. Type and incompatibility of conflict

Country of conflict location	Years	Type of conflict				Incompatibility		
		ES	InterS	IntraS	IIS	T	G	GT
Afghanistan	1978–1979			+			+	
	1980–1989				+		+	
	1990–2002			+			+	
	2003–2014				+		+	
	2015–2021				+	+	+	
Iraq	1958–1989			+		+	+	
	1990–1996		+	+		+	+	
	2004–2011				+		+	
	2012–2013			+			+	
	2014–2021				+		+	
Myanmar	1948–1965			+		+		
	1954–1988			+			+	
	1961–2021			+		+		
	1964–1972			+		+		
	1976–2021			+		+		
	1990–1994			+			+	
	1996–2010			+		+		
Syrian Arab Republic	1979–1982			+			+	
	2011–2014			+			+	
	2012–2014			+		+	+	
	2015–2021			+	+	+	+	+
Republic of Yemen	1962–1970				+		+	
	1979–1982			+			+	
	2009–2018				+		+	
	2015–2020			+		+		
	2019–2021				+		+	
Burkina Faso	1985–1987		+	+		+		
	2018–2021				+	+	+	
Cameroon	1957–1961	+				+		
	2015–2021			+	+	+	+	
Central African Republic	2009–2011			+			+	
	2013–2021				+		+	
Congo	1993–1999			+	+		+	
	2002–2016			+	+		+	
Democratic Republic of Ethiopia	1960–1976		+	+		+	+	
	1977–1983		+	+	+	+	+	
	1984–1991			+		+	+	
	1992–2019			+		+		
	2020–2021				+		+	

Table B1. Continued

Mali	1990–1994			+		+		
	2007–2009			+		+	+	
	2012–2021			+	+	+	+	
Mozambique	1964–1974	+				+		
	1977–1984			+			+	
	1985–1992			+	+		+	
	2013–2021			+		+	+	
Niger	1991–1997			+		+	+	
	2007–2008			+			+	
	2015–2021				+	+		
Nigeria	1966–1970			+		+	+	
	2004–2009			+		+	+	
	2011–2021				+	+	+	
Somalia	1982–2002			+			+	
	2006–2021				+	+	+	
South Sudan	2011–2021		+	+	+	+	+	

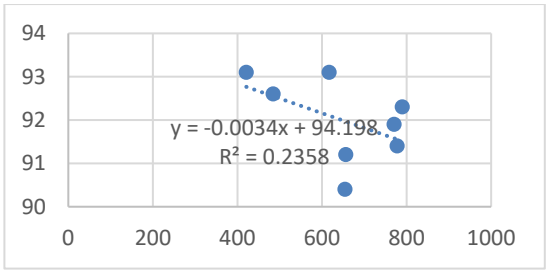
Source: Gleditsch et al. (2002) and Davies et al. (2022)

Notes:

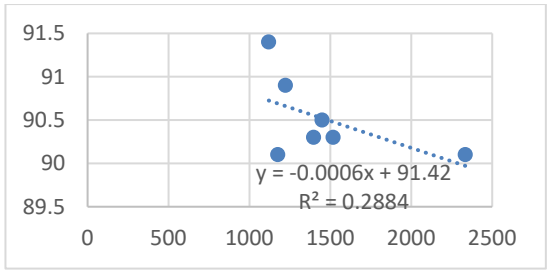
1) according to Gleditsch et al. (2002) and Davies et al. (2022), the type of conflict is defined as: ES – extrasystemic (between a state and a non-state group outside its territory, where the government side is fighting to retain control of a territory outside the state system); InterS – Interstate (both sides are states in the Gleditsch and Ward membership system); IntraS – Intrastate (side A is always a government; side B is always one or more rebel groups; there is no involvement of foreign governments with troops); IIS – Internationalised intrastate (side A is always a government; side B is always one or more rebel groups; there is the involvement of foreign governments with troops).

2) according to Gleditsch et al. (2002) and Davies et al. (2022) incompatibility is defined as: Incompatibility: T (incompatibility about territory); G (incompatibility about government); GT (incompatibility about government AND territory)

APPENDIX C

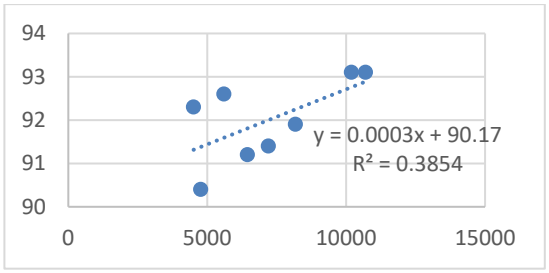


a) pre-war

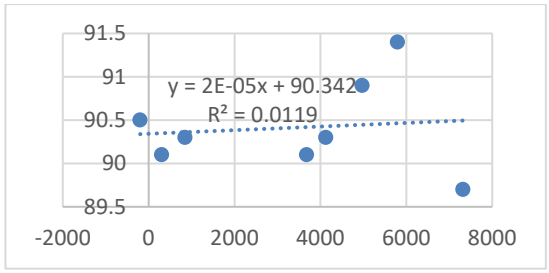


b) wartime

Figure C1. Employment Dynamics in Relation to ODA Received Volume
Source: Authors' calculations based on World Bank (n.d.-a, n.d.-f)

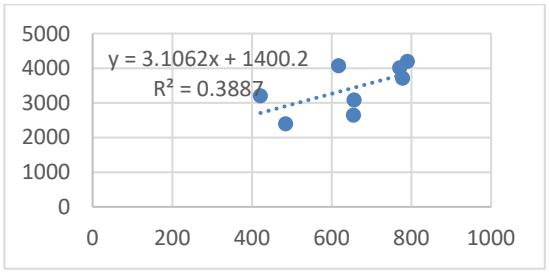


a) pre-war

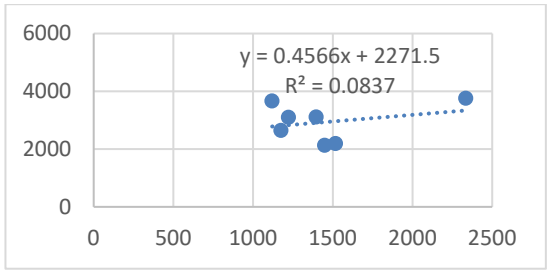


b) wartime

Figure C2. Employment Dynamics in Relation to FDI Volume
Source: Authors' calculations based on World Bank (n.d.-a, n.d.-c)

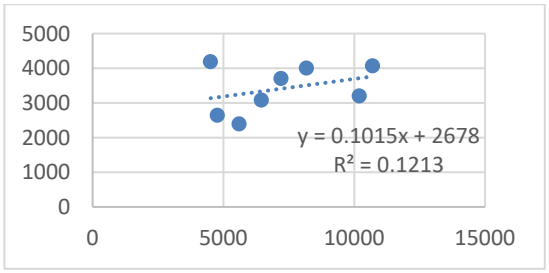


a) pre-war

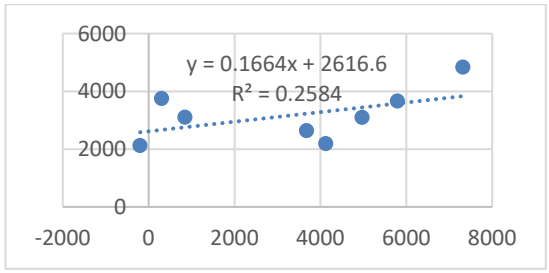


b) wartime

Figure C3. GDP per capita Dynamics in Relation to ODA Received Volume
Source: Authors' calculations based on World Bank (n.d.-d, n.d.-e, n.d.-f)

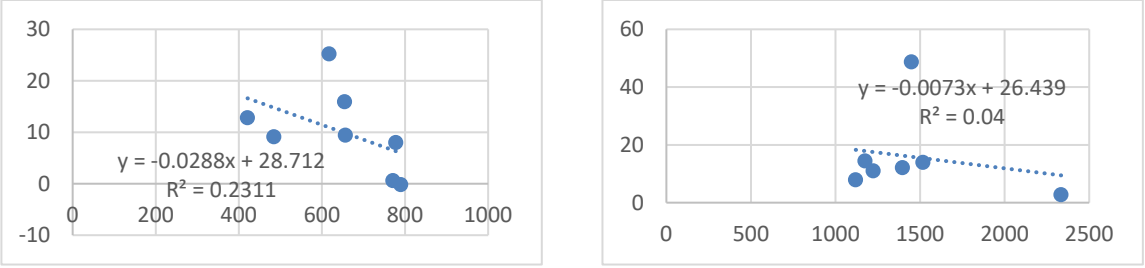


a) pre-war



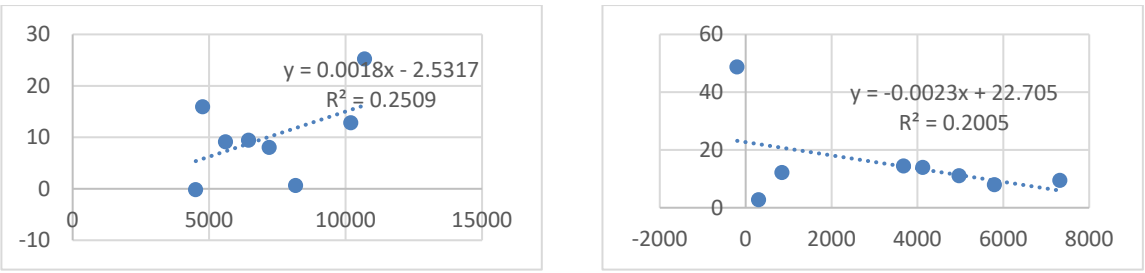
b) wartime

Figure C4. GDP per capita Dynamics in Relation to FDI Volume
Source: Authors' calculations based on World Bank (n.d.-c, n.d.-d)



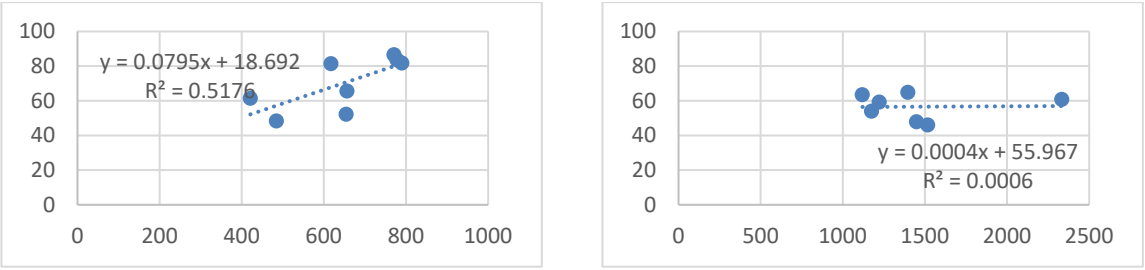
a) pre-war b) wartime

Figure C5. Inflation rate Dynamics in Relation to ODA Received Volume
Source: Authors' calculations based on World Bank (n.d.-e, n.d.-f)



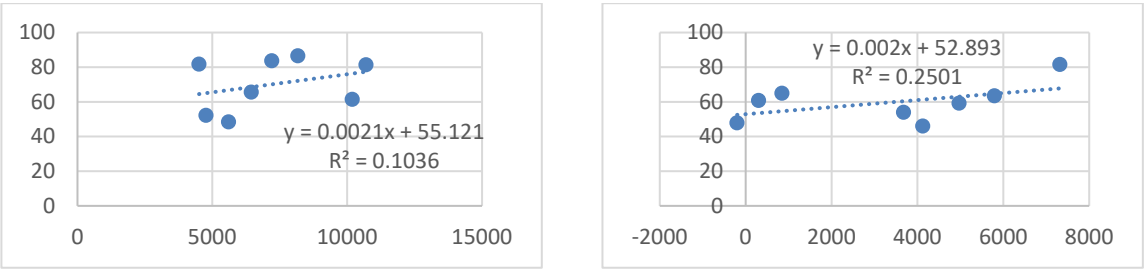
a) pre-war b) wartime

Figure C6. Inflation rate Dynamics in Relation to FDI Volume
Source: Authors' calculations based on World Bank (n.d.-c, n.d.-e)



a) pre-war b) wartime

Figure C7. Export Dynamics in Relation to ODA Received Volume
Source: Authors' calculations based on World Bank (n.d.-b, n.d.-f)



a) pre-war b) wartime

Figure C8. Export Dynamics in Relation to FDI Volume
Source: Authors' calculations based on World Bank (n.d.-b, n.d.-c)