Perspektif: Jurnal Ekonomi & Manajemen Universitas Bina Sarana Informatika
Volume 23 No. 2 September 2025
P-ISSN 1411-8637 E-ISSN 2550-1178
DOI: https://doi.org/10.31294/jp.v17i2

War Shocks on Export Lanes: Is World Trade Performance Slowing Down?

Hotsawadi*[1], Imelda Veronica Gea[2], Nuzulia[3]

[1,2]Development Economics Study Program, Mulawarman University, Indonesia
e-mail: [1]hotsawadi@feb.unmul.ac.id, [2]imeldaveronicagea@feb.unmul.ac.id

[3]Sharia Economics Study Program, Mulawarman University, Indonesia
e-mail: nuzulia@feb.unmul.ac.id

Submit	*Revised*	*Accepted*	*Available Online*
12-03-2025	*20-08-2025*	*01-09-2025*	*03-09-2025*

Abstract - In recent years, geopolitical tensions and armed conflicts have had a significant impact on the global trading order. For this reason, this study aims to analyze the relationship between international armed conflict and estimated export performance using the ARDL Panel Model. The results of the estimation using the ARDL Panel Model show that military conflicts have a significant negative impact on export performance in the long run, reflecting the vulnerability of international trade to geopolitical instability. On the other hand, real GDP, population, and investment exhibit significant positive influences that enhance production capacity, expand markets, and improve export competitiveness in the global market. These findings suggest that domestic factors that support economic growth play a crucial role in maintaining export resilience, despite external challenges such as military conflicts and fluctuations in exchange rates. The real exchange rate has been shown to have a negative impact, suggesting that currency appreciation can erode the competitiveness of export prices. Therefore, exchange rate stability is a crucial factor that must be maintained.

Keywords: Military War, Export, Panel ARDL

INTRODUCTION

In recent years, geopolitical tensions and armed conflicts have had a significant impact on the global trading order. Wars that occur in different parts of the world not only result in direct losses in conflict areas but also have profound effects that impact the export performance of countries worldwide. This impact is manifested through several mechanisms, including global supply chain disruptions that cause delivery delays and increased logistics costs, volatility in commodity prices that affects export value, and a decrease in aggregate demand in conflict-affected countries, which has a ripple effect on their trading partners. (Williams et al., 2023; Anderson & Rainie, 2022; Hameed & Rahman, 2023) . Empirical studies conducted by Hameed & Rahman (2023) Suggests that trade disruptions due to conflict can reduce export volumes by up to 15-20% in the short term, with more potent effects (*pronounced)* in developing countries. The dynamics of global conflicts have shown a consistent upward trend since the end of the Cold War era, which spanned from approximately 1947 to 1991, marked by geopolitical tensions between the two superpowers: the United States (Western Bloc) and the Soviet Union (Eastern Bloc). Data from the Uppsala Conflict Data Program (UCDP) indicate that the number of active armed conflicts increased from 47 in 1989 to 54 in 2019 (Pettersson et al., 2021). A significant increase occurred, especially after 2011, when conflicts in the Middle East and Africa intensified, peaking from 2014 to 2016, with more than 52 active conflicts per year. (Malone, 2024). Reports published by the Institute for Economics & Peace (2023) noted that the 2020-2023 period was marked by an intensification of regional conflicts, including the war in Ukraine, which triggered the most significant global economic shock since World War II. The conflict has resulted in a substantial impact on global export performance through several transmission mechanisms. A military war between Iran and Israel has also recently been declared, which raises global concerns about the security and stability of the Middle East region. This conflict has had a significant impact on global economic uncertainty, especially in terms of trade and exports. Iran is one of the world's major oil producers and has a strategic position in international trade routes through the Strait of Hormuz. Tensions in the region could trigger disruptions to global energy supply and logistics, which in turn would impact rising transportation costs and international trade insurance. Exporting countries are also facing pressure, particularly those that rely heavily on global supply chains and the Middle Eastern market. A global increase in uncertainty also triggers exchange rate fluctuations that can impact the stability of export values, particularly for commodities such as those

based on energy and manufacturing. (Viaene & Vries, 1991). Thus, this war is one of the external factors that can hinder the export performance of developing countries during the post-pandemic global economic recovery. Econometric analysis conducted by Celestin (2025) Identified a 12.5% decline in global trade volumes during periods of intense conflict, with greater effects on developing countries. Guo et al., (2025) Noted that supply chain disruptions due to the conflict have increased average logistics costs by 28% and extended delivery times by up to 45 days. Panel study conducted Chen & Kimura (2018) A study of 85 countries for the period 2000-2023 found that a 1% increase in the intensity of regional conflicts was correlated with a 0.8% decrease in exports for neighboring countries and a 0.3% decrease for non-neighboring countries.

The impact of military conflict on export performance can be analyzed through various approaches, one of which is the use of the ARDL Panel method. This method enables the observation of the short-term and long-term relationships between military conflicts and cross-border export dynamics. Findings from various studies indicate a significant negative impact of armed conflict on export performance, particularly in the high-tech sector. In the short term, armed conflicts such as the Georgian-Russian war in 2008 have proven to hurt exports, sales, and employment for affected companies. (Petracco & Schweiger, 2012). Although the conflict is temporary, trade disruptions remain significant, especially for young companies that often experience long-term scarring effects that can lead to premature business closures. (Petracco & Schweiger, 2012). In the long term, economic sanctions imposed in response to military actions, such as those against Russia following the invasion of Ukraine, led to a one-third decline in total exports to Russia, severely affecting the high-tech sector. (Mancini et al., 2022). The ARDL panel approach can effectively capture these dynamics, uncovering the long-term relationship between military conflict and export performance. These findings underscore the importance of countries adjusting their trade strategies in response to disputes and geopolitical events, particularly military wars. (Mancini et al., 2022). Conflicts generally hamper export performance, but some argue that arms exports can provide economic benefits by encouraging countries to shift their military capabilities to sectors that drive economic growth. (Ramadhoni et al., 2024). This duality suggests that the overall impact of military warfare on exports can vary depending on the context and specific conditions of each conflict. The impact of military wars on a country's export performance varies greatly depending on the country's income level. Low, middle, and high-income countries experience different consequences. Research Töngür & Elveren (2018) It shows that the war disrupts trade and causes significant economic losses, especially for low-income countries that tend to lack the financial resilience to recover from such shocks. In low-income countries, war has the potential to hamper export performance. Civil conflicts are recorded to reduce annual growth by 0.01 to 0.13 percentage points, while high-intensity disputes can cause a decrease of up to 0.18–2.77 percentage points. (Polachek & Sevastianova, 2014). These countries are also more vulnerable to severe trade disruptions due to their lack of economic diversification and dependence on a small number of export commodities. (Glick & Taylor, 2005). Studies conducted by Schedvin & Townsend (2016) It also mentions that low-income countries exhibit higher vulnerability to these shocks, as evidenced by their export elasticity to conflict, which is 1.5 times higher than that of middle-income countries. Gopinath et al., (2024) Identified three main factors contributing to this vulnerability, namely high dependence on primary commodity exports of 70% of total exports, limited market diversification, and weak fiscal capacity to provide stimulus to the export sector during crisis periods. Meanwhile, middle-income countries experienced a more moderate impact.

This is because they tend to have a more diverse economic structure than low-income countries. However, conflict can still cause significant trade disruptions, as evidenced by the long-lasting impact of war on bilateral trade. (Glick & Taylor, 2005). As a counterbalance, some argue that international trade can serve as a stabilizing force by reducing the likelihood of conflict between countries with strong economic ties. These findings suggest that although wars disrupt trade, the existence of strong trade relations can prevent military conflicts from the start. (Chatagnier & Kavakli, 2015). However, on the other hand, trade can also be a catalyst for conflict. Economic competition, particularly between countries that produce the same commodity, can increase tensions despite having close trade relations. This suggests that competition in the global market can also lead to military disputes between countries. (Chatagnier & Kavakli, 2015). This study aims to analyze the relationship between global armed conflict and export performance. Through a comprehensive analysis of the relationship between armed conflict and export performance, the study aims to identify specific patterns that reveal how countries with varying income levels respond to trade disruptions caused by conflict. A deep understanding of these dynamics is becoming increasingly important, given the growing frequency of regional conflicts and geopolitical tensions that have the potential to impact global economic stability. The results of this study are expected to provide policymakers with insights into designing more effective strategies to protect export performance, particularly in low-income countries that face greater structural challenges.

RESEARCH METHODS

1. Data Types and Sources

The data used in this study are secondary. Secondary data for the study were obtained from the Uppsala Conflict Data Program, the World Development Indicator, research journals, and other related literature. To assess the performance of world exports in the shadow of the war, data on exports, the number of conflicts, population, investment, consumption, and inflation from 2004 to 2023 were utilized. To analyze and identify the influence of Military Conflict (war) on export performance. The description of the population used in this study encompasses all countries worldwide. Specifically, *samples* are selected based on *purposive sampling* with the following criteria:

a. Countries representing each category of low- and lower-middle, upper-middle, and high-income countries consist of 170 countries according to data published by the Uppsala Conflict Data Program in 2025.
b. Countries that have complete data according to the scope of the research used. In this case, out of 170 countries, 102 countries meet the criteria as a research sample, and the cumulative data available meet the complete criteria for the interval from 2004 to 2023.

Based on the classification of income categories in Table 1, the total number of countries used in this study amounted to 102. Of these, 26 countries are categorized as low- and lower-middle-income countries. Meanwhile, as many as 31 countries are classified as upper-middle-income. The last category is high-income countries, which includes 45 countries from the total sample. The countries that fall into each category are as follows.

Table 1. Research Sample

Angola	Bangladesh	Benin	Cambodia	Cameroon	Honduras	India	Jordan
Kenya	Lebanon	Morocco	Pakistan	Philippines	Senegal	Solomon Islands	Tunisia
Vanuatu	Vietnam	Burkina Faso	Guinea-Bissau	Madagascar	Mali	Niger	Togo
Albania	Algeria	Armenia	Azerbaijan	Belarus	Belize	Bosnia and Herzegovina	Botswana
Brazil	China	Colombia	Costa Rica	Dominican Republic	El Salvador	Fiji	Georgia
Guatemala	Indonesia	Iraq	Kazakhstan	Libya	Malaysia	Mauritius	Mexico
Moldova	Namibia	North Macedonia	Paraguay	South Africa	Thailand	Ukraine	
Australia	Austria	Bahrain	Belgium	Bulgaria	Canada	Chile	Croatia
Cyprus	Czechia	Denmark	Estonia	Finland	France	Germany	Greece
Hungary	Iceland	Ireland	Israel	Italy	Japan	Kuwait	Latvia
Lithuania	Luxembourg	Malta	Netherlands	New Zealand	Norway	Oman	Panama
Poland	Portugal	Qatar	Romania	Saudi Arabia	Seychelles	Slovenia	Spain
Sweden	Switzerland	United Arab Emirates	United Kingdom	United States		Uruguay	

Source: Uppsala Conflict Data Program, & World Development Indicator (2025)

The variables used in this study were also adopted and modified from various previous studies that identified factors influencing exports in international markets. (Gea & Hotsawadi, 2025; Ezeoha et al., 2018); Harahap & Widyastutik, 2020; Agiomirgianakis & Sfakianakis, 2016; Lee & Pyun, 2016). Studies conducted by Gea & Hotsawadi (2025This study examines the competitiveness and export determinants of the tourism sector in the global market using panel data regression. The variables used in the study are the value of tourism exports as a dependent variable while Real GDP, population number, exchange rate and RCA index as independent variables (*independent variable*). Meanwhile, Harahap & Widyastutik (2020) The study uses the variables of real GDP, exchange rate,

investment, economic distance, and population to identify factors that affect Indonesia's non-oil and gas exports in non-traditional markets. Agiomirgianakis & Sfakianakis (2016To identify factors affecting the export performance of 51 developing countries in the global market. The dependent variable in this study is the value of the country's exports (in U.S. dollars). The independent variables include *price competitiveness*, measured by the real effective exchange rate, and foreign direct investment (FDI), expressed as a percentage of GDP. Meanwhile, Ezeoha et al., (2018) and Lee & Pyun (2016) Examine the impact of military conflicts on export performance using a panel data regression analysis approach. Based on the description above, the bound and independent variables used in this study are listed in Table 2 below.

Table 2. Research Variables

No	Variabel	Code	Definition	Reference	Source
			Variable Dependency		
1	Ekspor	Exp	The total exports of each country from the accumulated goods and services denominated in USD	Gea & Hotsawadi (2025); Harahap & Widyastutik (2020))	World Bank
			Independent Variables		
2	Real GDP	GDPR	The Real GDP of each country is denoted in USD	Gea & Hotsawadi (2025); Harahap & Widyastutik (2020))	World Bank
3	Total Population	HCMC	The total population of each service country is noted in the person	Gea & Hotsawadi (2025); Harahap & Widyastutik (2020)); Agiomirgianakis & Sfakianakis (2016)	World Bank
4	Investment	INV	The total value of each country's foreign investment denominated in USD	Gea & Hotsawadi (2025); Harahap & Widyastutik (2020)); Agiomirgianakis & Sfakianakis (2016)	World Bank
5	Number of Military Conflicts	ACI	The intensity of the armed conflict that occurred in each country is denoted by the number of	Ezeoha et al. (2018); Lee & Pyun (2016)	Uppsala Conflict Data Program
6	Exchange rate	RER	The real exchange rate of each country's currency against the currency of another country that has been adjusted for the difference in price levels or inflation, denoted in index units	Gea & Hotsawadi (2025); Harahap & Widyastutik (2020)); Agiomirgianakis & Sfakianakis (2016)	World Bank
7	Inflation	INFL	Inflation of each country is denoted in index units	Gea & Hotsawadi (2025); Harahap & Widyastutik (2020))	World Bank

2. Regression Panel ARDL

An *autoregressive distributed lag* (ARDL panel is one of the econometric analysis methods used to analyze the short-term and long-term relationships between variables in the panel data. (Pesaran et al., 1999). In this case, the ARDL panel method is an econometric tool that combines the ARDL approach with panel data, enabling dynamic analysis that considers heterogeneity across individuals. Im et al., (2003) In addition, it is mentioned that one of the advantages of using the ARDL Panel model is its ability to capture long-term relationships without having to ensure that all variables have the same level of integration, i.e., it can be used for variables with the first level or derivative integration, but not for the second derivative. The ARDL panel is also considered capable of overcoming problems related to endogeneity. This is because the model is assumed to have included delays from independent and dependent variables as regressors, thereby reducing simultaneity bias in estimations. (Nkoro & Uko, 2016). This method is also considered realistic for use with small samples and short periods. Econometric analysis methods, including the ARDL Panel regression approach, do not require a large number of observations to provide consistent estimation results compared to other methods, such as VAR or VECM. (Blackburne & Frank, 2007). The model approach becomes interesting compared to other dynamic panel models, such as IV (*Instrument Variable*), GMM (*Generalized Method of Moments*), and FEM (*Fixed Effect Model*), because it can produce a more stable average estimated value through PMG simulation (*Pooled Mean Group*) or MG (*Mean Group*) (E. Anderson et al., 2006). Therefore, this method is often used in economic and financial research, including the study of energy consumption, investment, international trade relations, as well as the impact of fiscal policy on economic indicators.

Mathematically, the timing of the ARDL Panel model is written as follows (Pesaran et al., 1999):

$$\Delta Y_{i,t} = \emptyset i\left(Y_{i,t-1} - \emptyset_{i0} - \sum_{j=1}^{p} \emptyset_{ij} x_{ijt}\right) + \sum_{p=1}^{pi-1} \lambda_{ip} \Delta Y_{i,t-p} + \sum_{q=0}^{Q1-0} \sum_{j=1}^{k} \delta_{ijq} \Delta x_{ijt-q} + \gamma_i + \varepsilon_{it} \cdot (1)$$

The description of each model is as follows:

- Yit: Dependent variables for individual ii at time t
- Iij: Vector of the independent variable of j for individual ii at time t
- Fi: *The Error Correction Term* (ECT) coefficient for individual i
- θi0: Long-term interception for individuals i
- θij: Long-term parameter coefficient of variable xj for individual i
- LIP: The short-term parameter coefficient of the p-length lag of the dependent variable y
- δijq: The short-term parameter coefficient of lag to qq of the independent variable xj
- Mi: Effect for Individuals i
- Eit: *The term* or residue for individual ii at time t

Based on the above equation, the ARDL panel regression research model employed in this study is similar to those used in studies conducted by Ezeoha et al. and Karam & Zaki (2016). Research conducted by Ezeoha et al. (2018) aims to analyze the impact of armed conflict on intra-regional trade in Africa, particularly in the Economic Community of West African States (ECOWAS) and Common Market for Eastern and Southern Africa (COMESA) regions, with a quantitative approach using the data panel regression method. Meanwhile, a study by Karam & Zaki (2016) Focusing on the Middle East and North Africa (MENA) region, to measure the impact of war on international trade, especially exports, using an econometric approach with a trade gravity model (*gravity model*). Both studies provide empirical evidence that the sustainability of armed conflict is a significant obstacle to regional trade growth and integration, with policy implications highlighting the importance of political stability and conflict resolution as prerequisites for regional economic growth. Based on the description above, this study generally aims to investigate the relationship between global armed conflict and export performance.

Mathematically, the timing of the ARDL Panel model used in this study is written as follows:

$$\Delta \text{Exp}_{i,t} = \alpha i + \sum_{j=1}^{p-1} \beta_{ij} \Delta Exp_{i,t-j} + \sum_{k=1}^{q-1} \beta_{ij_{ip}} \Delta Jkon_{i,t-1} + \sum_{l=1}^{r-1} \beta_{ij_{ip}} \Delta GDPR_{i,t-1} + \sum_{m=1}^{S-1} \beta_{ij_{ip}} \Delta CPI_{i,t-1} + \sum_{n=1}^{t-1} \beta_{ij_{ip}} \Delta JP_{i,t-1} + \sum_{o=1}^{s-1} \beta_{ij_{ip}} \Delta Invest_{i,t-1} + + \sum_{p=1}^{t-1} \beta_{ij_{ip}} \Delta Reer_{i,t-1} + \delta 1 Expi, t-1 + \delta 2 Jkoni, t-1 + \delta 3 GDPRi, t-1 + \delta 4 CPIi, t-1 + \delta 5 JPi, t-1 + \delta 6 Investi, t-1 + \delta 7 Reeri, t-1 + \varepsilon i, t \ldots . (2)$$

The description of each model is as follows:

GDPit	:	The GDP variable for each country in the world at time t
São Paulo	:	Number or intensity of Conflict in each country j in the world at time t
Exports	:	The variable of the total export value of each country j in the world at time t
CPIit	:	Inflation rate variables in each country j in the world at time t
JPit	:	The population variables in each country j in the world at time t
Invests	:	The variable of the total value of the investment in each country j in the world at time t
Reerit	:	The real exchange rate variable in each country j in the world at time t
ai	:	Intercept of a specific country
Biography	:	The coefficient of the long-term parameter of each variable
ΔIJQ	:	The short-term parameter coefficient of each variable
mi	:	Effect for Individuals i
i	:	Individual effects of each country
t	:	Time series effects
eit	:	*The term* or residue for individual ii at time t

In the application of the ARDL Panel model, the crucial initial stage is to test the stationarity of each variable used in the model. This is done to ensure that the variables are not stationary at the level but become stationary at *the first difference*. This test is important because the presence of variables that are not permanently stationary can cause the regression results to become biased (*spurious regression*), so that the estimation results cannot be trusted. Once stationarity is confirmed, the next step is to determine the optimal lag. Precise lag determination is important because excessive lag selection can reduce

the degrees of freedom and increase the likelihood of overfitting. In contrast, insufficient lag can overlook important dynamics between theoretically and empirically relevant variables. Once the lag is determined, the model estimation is carried out using one of three main approaches, namely PMG, MG, and DFE. (Anderson & Hsiao, 1982). The PMG approach is a popular method because it combines the advantages of MG and DFE, assuming that the long-term parameters are homogeneous between the panel units but that the short-term parameters may vary. In contrast, MG allows all parameters, both short-term and long-term, to be heterogeneous, making them suitable for data with a high degree of diversity between units. Meanwhile, the DFE approach assumes that all parameters are homogeneous, both in the short term and long term; however, this approach is considered less flexible when applied to panels with diverse or numerous units. (Pesaran et al., 1999). To determine the most suitable model, the Hausman Test was performed, which aimed to test the validity of the assumption of long-term parameter homogeneity. If the test results indicate that homogeneity is unacceptable, then the MG model is more suitable for use. Conversely, if homogeneity is acceptable, then PMG is considered a more efficient approach. Once the model is selected, a panel cointegration test, such as the Pedroni or Westerlund test, is conducted to verify the stability of the long-term relationship between the variables in the panel. (Pesaran et al., 1999). This test is important because, in the absence of cointegration, the model cannot be interpreted as reflecting a long-term equilibrium relationship.

RESULTS AND DISCUSSION

1. Selection of the Best Model of the ARDL Panel

As a first step in building the Autoregressive Distributed Lag *(*ARDL) Panel model, the stationary properties of the variables were tested using the Levin, Lin, and Chu (LLC) and Im, Pesaran, and Shin (IPS) approaches. This test aims to determine the level of integration of each variable to ensure the suitability of the ARDL model, which requires that the variables used are stationary at or after the first differentiation. The test results shown in Table 3 show that all variables, namely exports, consumption, gross domestic product, population, investment, real effective exchange rate (REER), and consumer price index (CPI), have a probability value (*p-value*) of 0.0000 in both deterministic specifications, namely by intercept alone and by interception and trend. This applies both to testing at the level and after the first differentiation is performed. It can be concluded that the equation of the ARDL panel model in this study has met the assumption of stationarity.

Table 3. The Results of the Variable Stationarity Test At the Level and First Difference

Variabel	Test	Level		First Difference	
		Intercept	Intercept and Trend	Intercept	Intercept and Trend
Exp	LLC	0.0000*	0.0000**	0.0000**	0.0000**
	IPS	0.0000*	0.0000**	0.0000**	0.0000**
GDPR	LLC	0.0000*	0.0000**	0.0000**	0.0000**
	IPS	0.0000*	0.0000**	0.0000**	0.0000**
HCMC	LLC	0.0000*	0.0000**	0.0000**	0.0000**
	IPS	0.0000*	0.0000**	0.0000**	0.0000**
INV	LLC	0.0000*	0.0000**	0.0000**	0.0000**
	IPS	0.0000*	0.0000**	0.0000**	0.0000**
ACI	LLC	0.0000*	0.0000**	0.0000**	0.0000**
	IPS	0.0000*	0.0000**	0.0000**	0.0000**
RER	LLC	0.0000*	0.0000**	0.0000**	0.0000**
	IPS	0.0000*	0.0000**	0.0000**	0.0000**
INFL	LLC	0.0000*	0.0000**	0.0000**	0.0000**
	IPS	0.0000*	0.0000**	0.0000**	0.0000**

Description: *significant at the level of 1%

The implications of these findings indicate that the ARDL Panel model can be used to estimate the relationship between these variables. However, before estimating, it is necessary to carry out panel cointegration testing, such as the Kao (1999) or test Pedroni (2004) To identify the existence of long-term relationships between variables. If a cointegration relationship is detected, then the ARDL Panel model can be estimated using one of the estimator approaches, i.e., *Pooled Mean Group* (PMG), *Mean Group* (MG), or *Dynamic Fixed Effects* (DFE), as proposed by (Im et al., 2003). All three approaches allow for a clear separation between short-term and long-term effects, resulting in an error correction model (ECM) that describes the dynamics of adjustment to long-term equilibrium in the context of heterogeneous panel data.

Table 4. Multicollinearity Test Results

	ACI	GDPR	CPI	HCMC	INV	RES
ACI	1.000	-	-	-	-	-
GDPR	0.440	1.000	-	-	-	-
CPI	0.105	0.259	1.000	-	-	-
HCMC	0.515	0.951	0.193	1.000	-	-
INV	0.233	0.733	0.205	0.670	1.000	-
RES	-0.010	-0.026	0.042	0.091	0.048	1.000

Source: Stata S.E. 17 (processed)

The results of the Pedroni cointegration test revealed a significant long-term relationship between export variables, consumption amount, gross domestic product, population, investment, real effective exchange rate (REER), and consumer price index (CPI), using panel data comprising 20 cross-section units and 101 observations per unit, on average. This is demonstrated by the statistical values of the ADF Panel test (-25.88) and the Group ADF (-27.82), both of which are significantly smaller than the critical value at a 1% significance level. In addition, other statistical values, such as the rho-stat panel (-27.53), the t-stat panel (-32.87), as well as the rho-stat group (-28.66) and the t-stat group (-37.76), also indicate rejection of the null hypothesis, namely the absence of cointegration. Very small P-values (< 0.01) in all tests provided strong support for the findings. Thus, it can be concluded that a long-term relationship exists between the variables in the ARDL Panel model. These findings align with the approach developed by Pedroni (1999, 2004), which states that the presence of cointegration in panel data can be identified through a combination of within-dimension and between-dimension tests in long-term residual regression.

Table 5. The Results of the Pedroni Cointegration Test

Test Statistic	Panel Value	P-value	Group Value	P-value
Panel v-statistic	**4.166**	**0.000031***	**.**	**.**
Panel rho-stat	**-27.53**	**0.000000***	**-28.66**	**0.000000***
Panel t-stat	**-32.87**	**0.000000***	**-37.76**	**0.000000***
Panel ADF-stat	-25.88	0.000000*	-27.82	0.000000*

Source: Stata S.E. 17 (processed)
Description: *significant at the level of 1%

Based on the results of the Hausman test shown in Table 6, it can be concluded that the best model for estimation is the Pooled Mean Group (PMG) compared to the Mean Group (MG) and the Dynamic Fixed Effect (DFE). This is demonstrated by the results of the PMG-MG test, which yielded a Chi-square value of 10.08 with a p-value of 0.0999, indicating significance at a 10% confidence level. Thus, the PMG model is more appropriate because it can capture the long-term balance between variables better than the MG (Pesaran, Shin, & Smith, 1999). Meanwhile, the PMG-DFE test showed a probability of 0.2864, indicating no significant difference between PMG and DFE, which still supports the use of PMG as the best model. In contrast, the MG-DFE test yielded a probability of 0.9719, which was insignificant; therefore, the MG was chosen as the best model between the two. However, since the main PMG with MG test indicated that the PMG model proved to be more suitable, this study employed the PMG model to estimate the long-term and short-term relationships within the framework of the ARDL Panel. The selection of this model aligns with the literature, which confirms that PMG offers flexibility by accounting for short-term heterogeneity among cross-sectional units while maintaining consistent long-term homogeneity (Blackburne & Frank, 2007).

Table 6. Results of Selecting the Best Model with the *Hausman Test Approach*

Hausman Test	Chi-square	Probability	Conclusion
PMG - MG	10.08	0.0989**	Best Model PMG
PMG - DFE	2.86	0.8264	Best Model PMG
MG - DFE	1.30	0.9719	MG Best Models

Source: Stata S.E. 17 (processed)
Description: **significant at 10%

2. The Influence of Military Conflict (War) on Export Performance in the Global Market

Based on the estimated results in Table 7, using the ARDL Panel Model, it is evident that military conflict (ACI) has a significant negative long-term impact on export performance in the global market, with a coefficient of 0.052 and significance at the 1% level. This suggests that the increasing intensity of the conflict has consistently lowered the export performance of the sample countries. These findings are consistent with research. Necklace (1999) and Abadie & Gardeazabal (1999) This asserts that armed conflict disrupts political stability, damages trade infrastructure, and increases logistics costs and investment risks, ultimately suppressing export competitiveness. Meanwhile, real GDP (GDP) showed a significant positive influence, with a coefficient of 0.287, indicating that domestic economic growth can strengthen production capacity and increase export competitiveness. These results are consistent with research. Frankel & Romer (1997) This emphasizes that larger and stronger economies have a higher ability to be integrated into global trade. Furthermore, the inflation variable (CPI) also had a significant positive effect, albeit relatively small, at 0.001. It can be interpreted that the increase in domestic prices encourages manufacturers to shift products to the international market in order to obtain higher profits. This mechanism aligns with the argument. Bahmani-oskooee & Kara (2006) This suggests that domestic price fluctuations are closely related to market-determining strategies employed by manufacturers, where price stability and price competitiveness are the primary factors influencing trading behavior. Thus, these two variables underscore the importance of macroeconomic stability and domestic price management in supporting export competitiveness, particularly in the context of increasing global integration and heightened international competition among countries.

Table 7. Results of Analysis of the Influence of Military War on Export Performance with the PMG Model Approach of the ARDL Panel

Long Run						
Variabel	Coef	Std. Err	with	P>z	95% Conf	Interval
L1. ACI	-0.052	0.006	-8.040	0.000**	-0.065	-0.039
L.1 GDPR	0.287	0.027	10.690	0.000**	0.235	0.340
L.1 IPC	-0.001	0.001	-1.200	0.230	-0.003	0.001
L.1 TP	0.890	0.010	92.060	0.000**	0.871	0.909
L.1 INV	0.239	0.006	43.350	0.000**	0.228	0.250
L.1 RRSP	-0.118	0.005	-25.820	0.000**	-0.127	-0.109
Short Run						
Ec	-1.002	0.017	-58.280	0.000**	-1.036	-0.968
D1. ACI	-0.026	0.005	-5.420	0.000**	-0.035	-0.017
D.1 GDPR	0.325	0.021	15.280	0.000**	0.284	0.367
D.1 IPC	-0.001	0.001	-0.770	0.441	-0.002	0.001
D.1 TP	0.848	0.006	153.320	0.000**	0.837	0.858
D.1 INV	0.220	0.003	69.850	0.000**	0.214	0.226
D.1 RERR	-1.057	0.003	-31.080	0.000**	-1.122	-0.990
Constanta						

Source: Stata S.E. 17 (processed)
Description: **significant at the level of 5%

The number of people (TP) showed a significant positive influence, with a coefficient of 0.089, confirming that population growth encourages an increase in labor capacity, productivity, and a broader market potential for domestic products to compete in the export market. With the increase in population, the country has the potential to expand its production base and increase economies of scale in international trade. These results are consistent with development theory, which posits that demographic dynamics can be a significant asset in enhancing the competitiveness of the global economy (Bloom, Canning, & Sevilla, 2003). In contrast, the real exchange rate (RER) showed a significant negative influence, with a coefficient of -0.118, indicating that the appreciation of the domestic currency weakens the competitiveness of export prices. These results are consistent with Marshall-Lerner's theory, which posits that currency depreciation can enhance the trade balance's performance. Bahmani-oskooee & Kara (2006). Furthermore, the coefficient error correction term (ECT) of -1.002, which is significant at the 1% level, indicates the existence of a powerful adjustment mechanism toward long-term equilibrium. Economic policies that focus on macroeconomic stability, increase trade infrastructure, and diversify export markets are crucial in mitigating the negative impact of military conflicts on global markets. Macro-economic stability will create certainty for investors and maintain market confidence, thereby strengthening the domestic economy's fundamentals amid global uncertainty. (Fischer, 1993). Improving trade infrastructure, both in terms of logistics and

technology, will facilitate the flow of goods and reduce transaction costs, thereby increasing the competitiveness of national products. (Noureen & Mahmood, 2022). Meanwhile, diversification of export markets can reduce dependence on a single region, making the economy more resilient in the face of external shocks, such as trade wars or military conflicts. (Krugman et al., 2018). By combining these strategies, the government can enhance national economic resilience and promote sustainable growth in an era of uncertainty.

CONCLUSION

Based on the results of the estimation using the ARDL Panel Model, it can be concluded that military conflicts have a significant negative long-term impact on export performance, reflecting the vulnerability of international trade to geopolitical instability. On the other hand, real GDP, population, and investment exhibit significant positive influences that enhance production capacity, expand markets, and improve export competitiveness in the global market. These findings suggest that domestic factors that support economic growth play a crucial role in maintaining export resilience, despite external challenges such as military conflicts and fluctuations in exchange rates. The real exchange rate has been shown to have a negative impact, suggesting that currency appreciation can erode the competitiveness of export prices. Therefore, exchange rate stability is a crucial factor that must be maintained. In addition, the mechanism of short-term adjustment through a *significant error correction term* indicates a strong convergence process towards the long-term equilibrium. Thus, it can be emphasized that economic policies oriented towards macroeconomic stability, improving trade efficiency, and diversifying export markets play a crucial role in maintaining a country's economic resilience. Macroeconomic stability provides a strong foundation for growth, while trade efficiency enables more optimal resource allocation and higher competitiveness in global markets. In addition, export market diversification serves as a risk mitigation strategy to reduce dependence on specific markets, ensuring the economy remains resilient amid uncertainty and turmoil triggered by global conflicts. With an integrated approach, national economic resilience can not only be strengthened in the short term but can also be maintained sustainably in the long term.

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