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Chapter: Perspectives on Trade Dynamics and Structural Shifts in Regional Development Transformation

EXPORT GROWTH DRIVERS IN THE EU

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Annotation. The article addresses the issues of identifying the impact of the independent indicators analyzed (i.e. insurance and financial services, gross capital formation, transport services, foreign direct investment, research and development expenditure, changes in inventories and inflation) at the level of the 22 European economies over a period of 23 years. The evolution of goods and merchandise exports, were considered dependent indicators. According to our findings within the econometric study, higher volume related to the exported goods and merchandise are associated with high levels of insurance, gross capital formation, transport services, FDI, R&D expenditure and inventories. Our analysis confirms that significant increase in prices due to cost-push inflation can negatively impact trade by making exports less competitive in international markets. Conversely, efforts to address trade imbalances through cost reduction measures may result in economic distress. Therefore, maintaining a balanced approach to inflation and trade policies is essential to ensuring overall economic stability. We have identified that clusters of EU countries having lower inflation, like North-Western European countries, tend to have higher trade activity. In the same time, the South Eastern-European countries show lower overall values, which might indicate developing or smaller economies. These results add value to the existing literature, concluding and formulating recommendations for policy support, to contribute and increase exports competitiveness both at the EU level and for South Eastern European.

Keywords: FDI, inflation, cluster of countries, West-East dichotomy, policy mix.

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JEL classification: F21, E31, O57, H5.

Introduction

Export growth depends on a combination of internal (costs, infrastructure, innovation) and external factors (global demand, trade relations). An effective export strategy involves optimizing these factors to enhance competitiveness in international markets. Countries with lower production costs have a competitive advantage in foreign markets. A depreciating local currency can make exports more attractive in international markets. Increased demand for specific products in foreign markets boosts exports while fast and efficient transport reduces costs and increases competitiveness. Beside economic factors, the export growth is influenced by policy and regulatory factors, such as trade agreements and government policies. They are crucial tools for enhancing access to international markets by reducing trade barriers, such as tariffs and import quotas, facilitating economic integration and cooperation between countries and regions. Various multilateral, bilateral and regional agreements have been signed by EU over the last few decades. Free trade agreements promote economic and sustainable growth, gain access to new markets with lower tariffs and commercial barriers, lower consumer prices. They also promote economic cooperation, efficiency and specialization due to foreign direct investments and technology transfer. Free trade agreements pose challenges as well: job displacement, potential trade imbalances between countries and trading partners (inequitable benefits, reduced sovereignty and cultural erosion in favor of global norms), being the reason why some agreements may take many years to negotiate and ratify. In the EU, subsidies, tax breaks and support for exporters are commonly used to stimulate the export activity and enhance the competitiveness of European businesses in global markets. For example, the EU provides export credit insurance through the European Investment Bank (EIB) and the European Investment Fund helps European exporters reduce risks when trading with non-EU countries. These institutions offer financial products and guarantee to protect exporters from political and commercial risks, such as non-payment by foreign buyers or instability in the buyer's country, especially in emerging markets. Some EU member states, like France and Germany, have national Export Credit Agencies (in France BPI and Coface and Euler Hermes in Germany) that offer insurance and financing to support exports.

Political stability and institutional quality have also an essential role in export growth. Alvarez *et al*. (2018) confirm that institutional quality and transport infrastructure positively influence external trade since it is easier to trade with partners with credible institutions. In the EU, stable countries with strong economies, robust institutions, and predictable regulatory environments tend to attract more foreign trade relations. The growing exports competition among regions poses EU countries for a shift to more technology and knowledge intensive exports, mandatory for winning the economic rivalry of EU and other global actors (Braja *et al*., 2020). Technological factors play a crucial role in driving export growth, countries exporting higher technological context in their exports experience greater added value and hence better economic growth, being the reason for firms to improve their tech capacities to reach improved export performance. In the European Union (EU), technological advancements in sectors such as automotive, aerospace, machinery, pharmaceuticals, and electronics have significantly enhanced the competitiveness of EU exports. According to the World Bank, trade has been a powerful driver of economic development and poverty reduction, trading having multiple benefits, exports being the major driver of economic growth and indication of economic success. This is the reason why authorities should do their best to foster a

business-friendly ecosystem to stimulate growth and productivity among exporters and nevertheless to understand the driving forces behind export success, apart from the global / European business cycle.

The econometric study developed within this paper specifically answers to the fundamental question of the research: which of the external (independent) indicators analyzed at the level of the 22 European economies (insurance and financial services, gross capital formation, transport services, Foreign Direct Investment, Research and Development expenditure, changes in inventories and inflation) over a period of 23 years, have a positive impact relevantly influencing the evolution of goods and merchandise exports? Within the section dedicated to the results and discussions, other questions are drafted in order to provide alternative answers and set new objectives for future research.

1. Review of the Scientific Literature

The scientific literature of export performance at both, country-level and sector / company-level analysis is very extensive. In this section key insights are provided rather than an exhaustive literature overview. Many studies relate company-level export success to drivers like size, tenure, capital provenience, capital intensity and profitability, size and distance of the export destination market. Larger companies tend to have greater export success due to economies of scale, better resource availability and enhanced market reach. However, small companies often succeed by leveraging niche strategies and product differentiation (Silvente, 2001). Companies with longer operational histories accumulate market knowledge and establish stronger networks, improving export performance. This experience helps reduce entry costs and risks in foreign markets (Bagchi-Sen, 1999). According to Wolff and Pett (2000), access to financial resources and higher capital intensity enable companies to invest in innovation, quality improvements and international marketing, which are critical for export success and Sartori & Scholte (2009) consider that profitable companies are better positioned to bear the costs of market entry and sustain export operations, making profitability a key determinant of export performance. The size and distance of export markets significantly influence export success. Larger markets offer higher demand potential, while proximity reduces logistical and cultural barriers, enhancing competitiveness (Rua *et al*., 2018). Moreover, sharing a common language, heritage or even a colonial history could offer an edge for exporting to a particular market (Melitz, 2008; Egger, Toubal 2016). Size related studies suggest that larger companies tend to improve the odds of export succeed due to scale efficiencies, tenure, international experience and diversification opportunities (Hernandez, 2010). Destination market particularities also matter, studies confirming that both trading fractions (transportation costs, infrastructure, the size of the destination market, tariffs and physical barriers) may limit or enhance foreign trade (Kahia, Dean, 2015; Fontagne, Orefice, 2018; Nitescu *et al*., 2024). Narrow and distant markets tend to inhibit foreign trade. The export margins have been studied as well, researchers Chen (2013) found that innovation had a significant effect on both extensive and intensive margins, and the effect is stronger for low-income countries (low base effect) than for high-income countries, the latter countries having greater value added on its exports. Martingus and Carballo (2008) confirm that domestic export promotion agencies may help domestic firms to expand their exports in both terms of markets and products diversification, helping the country to generate a more balanced export expansion path. There are also studies exploring the role of resource endowments, competitive advantages and trade imbalances, some of them focusing on country or region specific cases. Although disparity related to natural resources will not cease to exist, through sound technology transfer and convergence among countries, dissimilarities in export variety between low income and high income economies may be reduced (Parteka, 2020). Van Hove *et al*. (2017) studied the characteristics and determinants of Belgian firm-level manufacturing exports and found that young tenure

firms positively contribute to export performance growth in both intensive margin and in total, stressing the importance of helping young companies to scale up fast and reach out many large foreign markets. Lejpras (2019) found that external knowledge sourcing is more important for service companies than for manufacturing companies. Other studies demonstrate the diversity of export determinants across countries and industries, emphasizing the importance of local context, innovation and strategic orientation for export success.

The econometric study of the article contains two internal dependent variables: goods exports and merchandise exports. First external (independent) variable considered in the econometric study is insurance and financial services. According to Rickards (2019), opening up of financial sectors to international competition, outsourcing of certain financial services and growth of internationally active banks are some of the reasons that have led to a rise in financial and insurance services. Moreover, in their study, Love and Mansury (2009) found that insurance and financial services engage in exporting. Insurance and financial services facilitate cross-border transactions from funding up to secured upfront periodical payments, protect against unfavourable interest and foreign currency movements and enable large-scale export projects like infrastructure and large machinery exports. They also provide a safety net against non-payments, political instability or supply chain disruptions while reducing the transaction costs and speeding them up. Some may provide advisory and market intelligence services to allow exporters find new opportunities, understand foreign markets with their own regulatory requirements and consumer preferences, strengthening the entire export supply chain or ecosystem. Most of scientific research confirms that financial institutions (banking and insurance) are critical enablers of export growth, the more sophisticated and developed institutions a country has, the greater the role in accelerating businesses and sustainable output growth (Caporale *et al*., 2014). Iacovone *et al*. (2019) confirm that during banking crises, exports of sectors dependent on external finance grow less, the crisis effects toping-up to external demand and currency shocks. Fintechs and digital innovations harness the potential of technologies to reduce financial exclusion among population and reduce inequality among countries, primarily among higher income countries (Demir *et al*., 2019).

The second external (independent) variable considered is the gross capital formation, a key economic indicator, used to appraise the investment climate and the prospects of an economy. As Topcu *et al*. (2020) highlighted it, any attempt to increase capital accumulation will stimulate economic growth, while economic growth will drive gross capital formation. Gross capital doubled by increased labor productivity and highly skilled employees have greater impact on long-lasting domestic value added (Olczyk, Kordalska, 2016). Lower interest rates, government subsidies and investment incentives, low inflation, stable currency exchange, accessible funding, predictable political and fiscal environment, substantial global aggregate demand and technological spillovers are some of the most important factors needed for nurturing gross capital formation in economies (Zaman *et al*., 2021). Some studies (Sachs, Warner, 1995; Lederman, Maloney, 2007; Auty, 2001, Van der Ploeg, 2011; Busu *et al*., 2024) highlighted the role of country endowments (rich natural resources countries) in fostering export competitiveness and economic growth, highlighting both the merits and vulnerabilities of sovereign endowments (including Dutch disease dilemma). Sachs and Warner (1995) highlighted the “resource curse” concept, where resource-rich countries often experience slower economic growth due to over-reliance on resource exports, neglect of other sectors and vulnerability to commodity price shocks while Lederman and Maloney (2007) explored how natural resources can be a boon or a curse, depending on governance quality, institutional strength and investment in human capital, emphasizing the conditional factors that determine whether resource

wealth is a blessing or a curse. Auty (2001) examined the resource curse in-depth and strategies for resource-rich countries to avoid its pitfalls, emphasizing the need for diversification and sound fiscal policies to mitigate vulnerabilities. The interplay between resource wealth, macroeconomic stability, and long-term growth was analyzed by Van der Ploeg (2011), who synthesized research on the economic impacts of natural resources underlying the importance of sovereign wealth funds to stabilize economies.

Transport services, the next considered external (independent) variable, is particularly critical in time-sensitive and resource-intensive sectors. Limao and Venables (2001) highlighted the critical role of transport infrastructure in reducing trade costs and enhancing export competitiveness. Poor transport infrastructure increases trade costs and limits export potential. Hummels (2007) discussed the impact of shipping costs on trade, emphasizing that lower transportation costs increase trade volumes, especially for time-sensitive goods. Blinder and Maccini (1991) examined the role of inventory adjustments in production and trade, suggesting that stock variation affects export decisions, particularly in volatile markets, while Kilian and Lewis (2011) have analyzed how oil price shocks influence inventory levels and export behavior, showing that firms adjust stock levels to buffer against price and demand fluctuations.

The fourth considered external variable is Foreign Direct Investment (FDIs). Improved export performance will not only benefit local firs, but also the country and the region as a whole, contributing to higher economic growth and welfare (Van Hove *et al.*, 2017). To support FDI inflows, national authorities should gradually reduce trade frictions and increase the diversification and complexity of quality exports, to compete not only among European countries but as well in the global market. Export diversification may reduce exposure to external shocks (price volatility of commodities), reduce macroeconomic volatility and increase sustainable economic growth. External remittances, land area and infrastructure and relaxation of taxes may boost exports, fostering an environment proper for business development and attracting foreign investors (Kulu *et al.*, 2023).

R&D expenditures represent another independent variable considered within the study. It plays crucial roles in export and sustainable growth of companies and countries since they enhance innovation and product differentiation, increase productivity and efficiency, improve profit margins and help catching up with global international quality and safety standards (Cintio *et al.*, 2017). Zaman and Tanewski (2024) studied the way the variables interact among multiple company dimensions, identifying significant mediating effects between R&D expenditures and exports, through innovations for large companies only, not for SMEs. Consistent investments foster patents and developing proprietary technology, including effective technology spillovers through the broad economies and stronger presence or even expansion in new markets (Battaglia *et al.*, 2018, Rindasu *et al.*, 2023, Stefan *et al.*, 2025). R&D investments are not enough since the growth process is quite complex, the spillover effects revealed and quality of life depending on many institutional and social factors. As Balcezark *et al.* (2015) stress it, simply increasing R&D investments without state reforms and profound economic and social adjustments, as per every country specificity cannot lead to automatic improvement of people's life quality. Proliferation of recent technologies (big data) and wide access to internet even in low and middle-income countries have boosted innovation, knowledge transfer and spillovers, business productivity and inclusive growth (Paunov, Rollo, 2016) fostering globalization and international trade (Faqin, 2014).

The sixth considered external variable is changes in inventories. This indicator is often linked to business cycles, global output and expectations about future export demand. Zhao and Chen (2020) identified that exporting activities increase firms' inventory stocks. In this respect, it is predicted that the companies

having a global customer bases tend to have higher inventory levels. Inventories dynamics may also reflect how companies in global value chains react to input shortages (Joussier-Lafrogne *et al*., 2022). In order to remain competitive for exports companies need to improve their operational inventory efficiency. The latter implies information sharing with suppliers, developing trust and strong relationship between commercial partners, enhancing IT infrastructure and capability in exporting firms (Yudi *et al*., 2020).

The last considered external (independent) variable is inflation. Higher inflation means above all higher costs of production, higher funding costs, increased uncertainty and business costs, reducing competitiveness, lowering business confidence and export demand. According to Dinu *et al*. (2024), the exchange rate is inversely related to net exports, even if the exchange rate volatility is low. Although a weaker local currency may stimulate export demand, the overall effect could be mixed, depending much on the competitiveness of goods exported. It is difficult for central banks and governments to manage a clear balance between inflation, currency rate and cost of financing so that exporters may provide global trade competitiveness, it is much better to rely on their own capability to deliver greater products and services so that any macroeconomic imbalances may not jeopardize their competitiveness abroad. There is no shortcut for export growth, other than intrinsic competitiveness of every single exporter. The North-South Europe chronic imbalances (in terms of exports, trade balances and competitiveness due to differences in industrial structure, competitiveness gaps, single currency constraints, trade surpluses and deficits) put even higher pressure (Matthijs, McNamara, 2015) for structural reforms, fiscal transfer and policy adjustments, making even harder the efforts for European Central Bank to mitigate inflation and other governmental bodies to ensure better EU coordination and cohesion (Regan, 2017). This article enriches the economic literature concerning the goods and merchandise exports by offering new insights over the determinants that impact the exports.

2. The Research Methodology

The data were collected for 2001-2023 period, the source of the data being the World Bank site. Our panel consists in data for 22 European countries being visible in the maps presented in the Results part. The countries are Austria, Belgium, Bulgaria, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Hungary, Italy, Lithuania, Luxembourg, Netherlands, Norway, Poland, Romania, Slovak Republic, Slovenia, Sweden and United Kingdom. To address the objective of the study, the following variables were used: Goods exports, Merchandise exports, Insurance and financial services, Gross capital formation, Transport services, Foreign Direct Investment, net inflows, Changes in inventories and Inflation. Following the standard data curation procedures, all variables used in monetary units were transformed using the natural logarithm. The main dependent variable is LExp_goods. To account for the robustness of our results, we replace this variable with LExp_merchandise. Both goods and merchandise exports are dependent variables relevant for our study because they ensure a comprehensive analysis of export dynamics, helping researchers and policymakers understand the specific drivers of trade performance, identify opportunities for growth and address vulnerabilities in the export sector. These variables reflect the value of goods exported by a country, while the difference between them is that goods exports include all physical goods, regardless of classification. Goods exports data reveal the role of intermediate goods and raw materials in global supply chains, while merchandise exports reflect the integration of a country into international trade networks and its reliance on imports for re-exporting value-added goods. Understanding goods exports helps policymakers identify sectors that need support, such as subsidies, trade agreements, or infrastructure improvements. Merchandise exports provide a macroeconomic view, enabling governments to assess the effectiveness of trade policies and their contribution to economic

growth. Both dependent and independent variables have been presented conceptually in the previous sector related to the theoretical background or literature review.

The first step of the analysis is the descriptive assessment based on maps. Maps were centered in the median, to better emphasize the spatial distribution. By median - centering, the analysis more clearly highlighted the spatial distribution of exports and associated variables, emphasizing significant deviations from median values. The transformation and visualization enabled the identification of geographic and economic patterns in the export data, suggesting possible correlations or regional specificities. This was followed by the cluster analysis conducted to see if there are any local specificities that make different countries behave the same. We applied the Ward's Linkage for the cluster analysis. Ward's Linkage method minimizes the internal variation of clusters and is useful for identifying groups of countries that behave similarly according to the analysed variables. Results suggest the existence of common patterns among certain groups of countries, probably influenced by factors such as infrastructure, foreign investment or financial services. To test for the robustness of the results we applied all the analyses for the two dependent proxies. Additionally, for the cluster analysis, we also applied the k-means procedure available in Tableau 2024.4. It returned the same results as the cluster analysis based on the Ward's linkage, confirming the stability of the patterns in time and space. The consistency of the results between the two methods indicates that the observed patterns are stable and do not depend on the clustering method used. This suggests that there are similar structural factors influencing exports in countries in the same clusters. In the second step we assessed the time properties of the variables. We applied the unit root panel tests to account for stationarity and the Wooldridge test for autocorrelation. In case variables are non-stationary they could be cointegrated. Additionally, a persistent autocorrelation indicates the need for a dynamic approach. All variables proved to be panel stationary, as pointed out by the results in *Table 1*. Additionally, in all combinations studied, there has been obtained a highly significant panel autocorrelation (p-values of 0.000). Consequently, there is the need for a dynamic approach. In this research, we employ the xtabond2 procedure for the dynamic panel, developed by Roodman (2009). In order to treat heterogeneity in data, estimations were conducted in the robust form. The final model was run for two times, for robustness reasons, once having as a dependent LExp_goods and once LExp_merchandise. Results are presented in *Table 5*. We also present the number of observations, number of instruments, the global Wald Chi^2 test probability and the probabilities for the Arellano-Bond test for AR(2) and the Hansen test.

Table 1. Unit root results for the variables considered

Role	Variable	p-value
Dependent	LExp_goods	0.000
	LExp_merchandise	0.000
Factor	Linsurance	0.003
	LGCF	0.000
	LTransport	0.000
	LFDI	0.000
	LR&D	0.000
	LInventories	0.000
	LInflation	0.002

Source: own research in STATA 16.

The estimated models are given by eq. (1).

$$Y_{it} = \alpha + \beta * L.Y_{it} + \sum_{k=1}^{7} \gamma_k * X_{kit} + \delta * L.LInsurance_{it} + \varepsilon_{it} \quad (1)$$

where Y is the dependent variable, X stands for the seven factors that we assess, L.variable is the first lag of the variable. All other components of the model have their classical meaning.

The estimated coefficients are short-run coefficients. The dynamic approach has the advantage to also allow the testing of the long-term effects of the factors. For the variables that are present in the model only with the level, the long-run coefficient is given by eq. (2), while for LInsurance is given by eq. (3).

$$lrc = \frac{\gamma_k}{1-\beta} \quad (2)$$

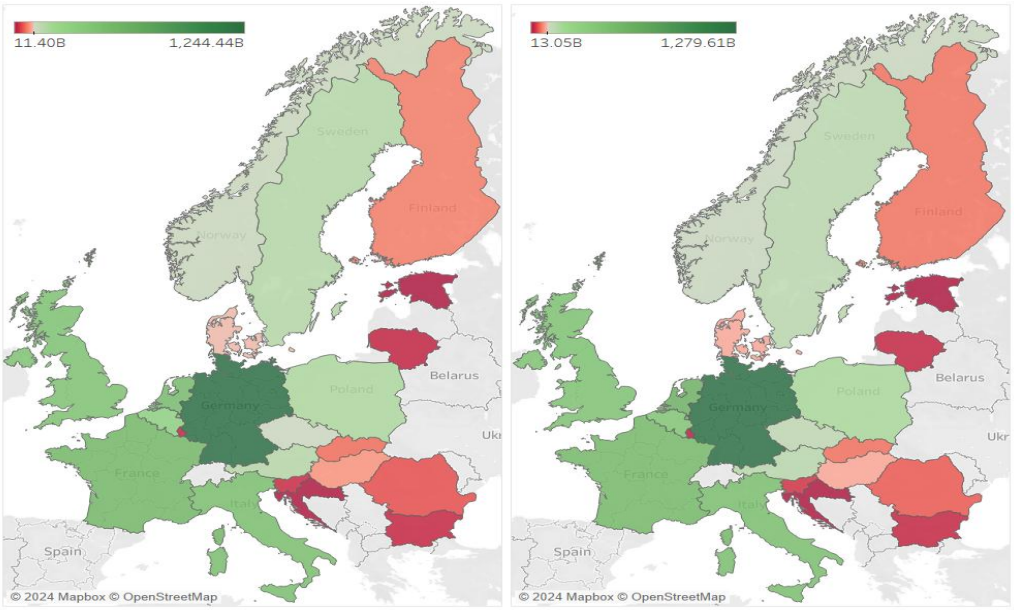
$$lrc_{LInsurance} = \frac{\gamma_{LInsurance}+\delta}{1-\beta} \quad (3)$$

The significance of the long-term coefficients is evaluated using the Wald Chi^2 test, a test that is derived from the maximum likelihood estimation for non-linear relationships. Analyses were conducted in STATA 16 and Tableau 2024.4. The model allows the analysis of the short- and long-term effects of factors on exports, integrating both current variables (X_{kit}) and lagged effects ($L.Y_{it}$, $L.LInsurance_{it}$). The estimated short-term coefficients reflect the immediate impact of the factors on the dependent variable. These coefficients are useful for understanding how short-term changes in the independent variables affect exports. The long-term coefficients (Eq. 2 and Eq. 3) reflect the cumulative effect of the variable on long-term exports, taking into account the persistence of the dependent variable. The eq. (3) formula integrates both direct and lagged effects of the *LInsurance* variable, providing a complete measure of its long-run impact. Wald Chi2 test is used to evaluate the statistical significance of the long-term coefficients, which are non-linear derivatives. If the test indicates statistical significance (usually $p<0.05$), the long-term coefficients are considered relevant.

3. Results

The main goal of the current research is to assess the impact of the economic conditions of the countries upon foreign trade, proxied by the two types of exports, at European level. The spatial characteristics of the exports, regardless the proxy used (*Figure 1*, *Figure 2* and *Figure 3*) follow pretty much the classical East – West clusterization of the European Union, meaning that countries in the Eastern part of Europe have significantly lower average levels than the Western ones. This gap reflects historical and structural differences in economic development, infrastructure and integration into global markets.

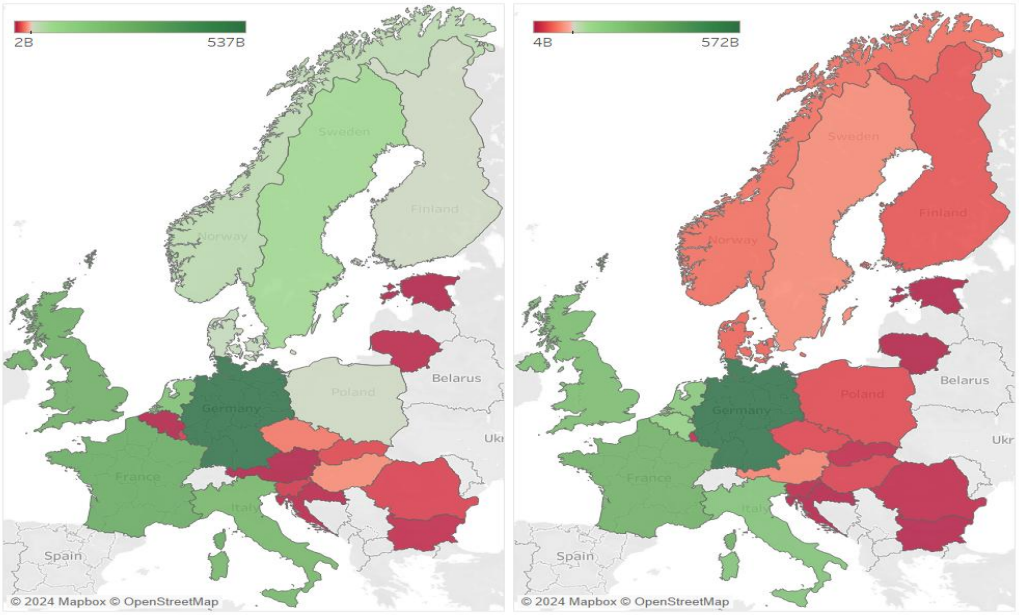
The comparative analysis between 2001 and 2023 shows a significant increase in the value of exports for all countries analysed. Countries such as Belgium, Austria and Poland have made remarkable progress. For example, in 2001, these countries were performing below the median and by 2023, their exports exceeded this value, indicating a partial economic convergence between East and West. *Figure 2* (2001) reflects a situation where many Eastern countries had relatively low exports, mainly due to the post-communist economic transition and incomplete integration into the global economy, while *Figure 3* (2023) shows clear progress, especially for Eastern European countries such as Poland, which have benefited from EU integration, market access and foreign direct investment (FDI).



Note: left LExp_goods, right LExp_merchandise.

Source: own construction in Tableau 2024.4.

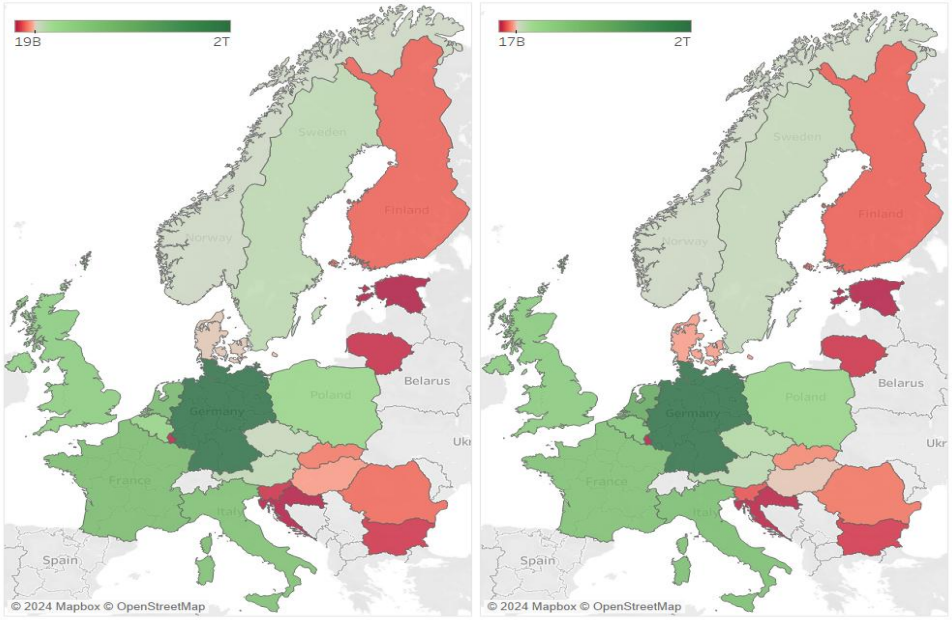
Figure 1. **Spatial Distribution of the Average Values of Exports for the Analysed Period**



Note: left LExp_goods, right LExp_merchandise.

Source: own construction in Tableau 2024.4.

Figure 2. **Spatial Distribution of the Values of Exports, 2001**



Note: left LExp_goods, right LExp_merchandise.

Source: own construction in Tableau 2024.4.

Figure 3. **Spatial Distribution of the Values of Exports, 2001**

We found spatial local specificities in the analysed period by implementing the cluster analysis. Results are presented in *Figure 4*. Clusters are stable, as we obtained the same cluster composition both for the exports of goods and for merchandise. This also confirms that both of the two dependent variables can be used in an efficient manner as a proxy for the performance of exports.

Table 2. Cluster description

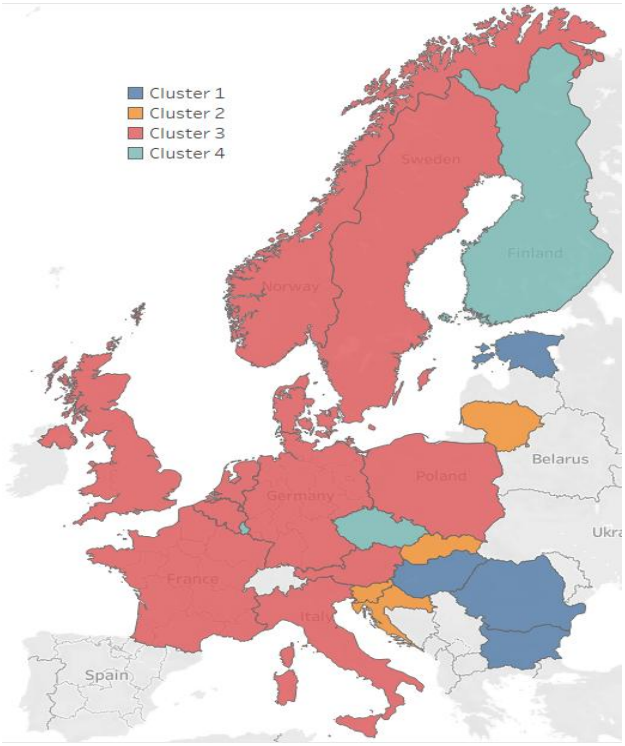
Cluster	No.of countries	Lexp_goods	Lexp_merchandise	Linsurance	LGCF	LTransport	LFDI	LR&D	LInventories	LInflation
1	4	24.07	24.19	19.20	23.57	21.66	22.27	20.04	20.54	1.58
2	4	23.85	23.98	18.57	23.20	21.42	21.1	20.02	20.28	0.86
3	11	26.34	26.38	22.44	25.94	23.81	23.89	23.53	22.36	0.64
4	3	24.71	24.70	21.60	24.17	22.07	23.07	21.63	20.62	0.69

Source: created by the authors.

The descriptive characteristics of the clusters are presented in *Table 2*. According to this, cluster 1 is made up of four countries in the Eastern part of Europe: Romania, Estonia, Hungary and Bulgaria. This cluster had, in the analysed period, the second lowest averages for all the variables assessed, except for inflation, which was the highest for these countries (1.58 in logged form). The lowest values for almost all variables are characteristic to the 2nd cluster, having the worst performance. This is accompanied by the second

highest average inflation rate (0.86 in logged form). There are four countries in this cluster: Lithuania, Slovakia, Croatia and Slovenia. The 3rd cluster is the largest, having 11 members: The United Kingdom, France, Germany, Italy, Austria, Poland, Norway, Sweden, Denmark, The Netherlands, and Belgium. These are the most performant and developed countries, ranking the first in terms of all variables used. They have the highest exports, accompanied by the highest capital formation, the most developed financial markets or transportation services. They spend the most on R&D and had the lowest inflation. Cluster 4 has 3 members: Luxembourg, Czech and Finland, which had the second-best performance in the sample. High levels for the analysed variables, but below those of cluster 3 suggest these countries approach the performance of cluster 3, but have slightly lower values, indicating a well-developed economy, but not as integrated or competitive as the countries in the top cluster.

In conclusion, the clusters confirm the existence of a classical model of East-West division, where the countries of Western Europe dominate in terms of economic and trade performance. Cluster 3 (developed western countries) and cluster 4 (Luxembourg, Czech Republic, Finland) represent the economic leaders, while clusters 1 and 2 reflect the economic laggards in Eastern Europe. High inflation in clusters 1 and 2 suggests a correlation between macroeconomic instability and lower export performance. Countries in clusters 1 and 2 can benefit from policies to reduce inflation, improve infrastructure and attract foreign investment, while continued support for economic convergence between East and West can help reduce the observed gaps. The analysis provided a solid basis for understanding regional specificities and formulating tailored economic policies.



Source: own construction in Tableau 2024.4.

Figure 4. **Cluster Analysis Results – Average Values for the Analysed Period**

Table 3. Performance and significance of the clusterization process – Lexp_goods

			Model		Error	
Variable	**F-statistic**	**p-value**	**Sum of Squares**	**DF**	**Sum of Squares**	**DF**
LTransport	5.10	0.010	1.778	3	2.09	18
LR&D	4.74	0.013	1.649	3	2.087	18
LGCF	4.34	0.018	1.402	3	1.94	18
LExp_goods	4.26	0.019	1.179	3	1.663	18
Linsurance	3.89	0.026	1.234	3	1.905	18
LInflation	3.63	0.033	0.908	3	1.5	18
LFDI	3.58	0.034	0.935	3	1.567	18
LInventories	3.48	0.037	0.870	3	1.499	18

Source: created by the authors.

Table 4. Performance and significance of the clusterization process – Lexp_merchandise

			Model		Error	
Variable	**F-statistic**	**p-value**	**Sum of Squares**	**DF**	**Sum of Squares**	**DF**
LTransport	5.103	0.010	1.778	3	2.09	18
LR&D	4.74	0.013	1.649	3	2.087	18
LGCF	4.337	0.018	1.402	3	1.94	18
LExp_merchandise	4.057	0.023	1.198	3	1.771	18
Linsurance	3.886	0.026	1.234	3	1.905	18
LInflation	3.633	0.033	0.908	3	1.5	18
LFDI	3.582	0.034	0.935	3	1.567	18
LInventories	3.483	0.037	0.870	3	1.499	18

Source: created by the authors.

Table 3 and *Table 4* confirm that all considered variables have significant relevance in defining clusters. This shows that each variable contributes to the differentiation between country groups and is essential for cluster analysis. In *Table 3*, the variable LExp_goods ranks 4th in order of relevance for defining cluster. In *Table 4*, the same position (place 4) is occupied by the second proxy of exports, LExp_merchandise. Although the dependent variables (exports) are important, other variables (e.g. transport, capital formation) play a more significant role in structuring clusters. The LTransport variable is the one that initiates the clustering process, having the most influence in defining the clusters. This indicates that the performance of transport services is a key factor in determining differences between European countries. Efficient transport services are critical to facilitating trade and supporting export-oriented economies. All analysed variables contribute significantly to the definition of clusters, but variables related to infrastructure (e.g., LTransport) and capital play a dominant role. Although exports are relevant, they are rather a consequence of other factors (e.g. transport, capital formation) than a main determinant in the structuring of clusters. Transport performance is fundamental to international trade and clearly differentiates more developed from less developed economies.

Countries with lower performance (e.g., clusters 1 and 2) should prioritize investment in transport infrastructure to facilitate exports and stimulate economic growth. Further researches could explore the causal relationship between transport and exports to confirm the role of infrastructure as a primary determinant of trade performance. This analysis provides a solid basis for understanding the determinants of foreign trade and for formulating regional economic policies. In the last part of the analysis, we

employed the dynamic panel model, as described in the methodological part. Results are presented in *Table 5*. The stability and robustness of the estimated models are confirmed by the very similar results obtained for the two dependent variables.

The dynamic panel model incorporates the lagged dependent variable as an independent variable, capturing the persistence of exports over time, accounting for unobserved heterogeneity and time-varying dynamics. This approach is suitable for panel data where the current level of exports depends on past levels, as indicated by the significance of the first lag. The first lag of the dependent variables (exports) has a statistically significant and positive effect, suggesting that higher exports in the previous period are associated with higher exports in the current period, highlighting the importance of historical trends in export performance. The predictors LGCF (Log of Gross Capital Formation), LFDI (Log of Foreign Direct Investment), LR&D (Log of Research and Development) and Linventories (Log of Inventories) all exhibit significant positive effects on exports. Their positive short-run effects suggest that these variables immediately enhance export performance. Inflation negatively affects exports, indicating that higher inflation rates are associated with reduced competitiveness in international markets. This finding aligns with economic theory, where high inflation erodes a country's trade balance due to cost-push effects. When European countries import more than they export, it can lower inflation due to the fact cheaper foreign goods keep domestic prices down. Barthélemy and Cléaud (2017) argued that persistent trade imbalances in the Euro area have contributed to inflation fluctuations, with increasing imports exerting downward pressure on domestic inflation, while Cantavella *et al*. (2000) highlighted that real exchange rate changes impact trade balances in major EU countries over the long run, emphasizing the role of cost-push inflation in shaping external trade performance. If a country's currency loses value, its exports become cheaper and imports more expensive, which can influence inflation? Furthermore, Stockhammer and Sotiropoulos (2014) discussed how internal devaluation policies in the Euro area, aimed at correcting trade imbalances, have led to deflationary pressures and severe economic costs, affecting overall inflation dynamics.

Linsurance (Log of Insurance) positively influences exports in the short run, but its first lag has a negative effect, necessitating a long-run analysis to understand its net impact. The similarity in results across the models with the two different dependent variables confirms the robustness of the estimates and this consistency strengthens confidence in the model's reliability. Investments in physical capital (LGCF), foreign capital inflows (LFDI), and innovation (LR&D) are key drivers of export growth by enhancing productivity, product quality, and global competitiveness and making exports more attractive in international markets. The positive role of Linventories implies that maintaining adequate stock levels supports timely fulfilment of export orders, improving reliability and customer satisfaction in foreign markets. High inflation undermines export performance by increasing domestic production costs and reducing international competitiveness. Policymakers should aim for stable inflation to sustain export growth. The mixed impact of Linsurance suggests a complex relationship. While insurance facilitates risk management and trade confidence, its lagged negative effect may reflect over-insurance costs or delayed impacts on trade efficiency. A detailed long-run analysis is essential to optimize insurance policies for export promotion.

Policies fostering investment in capital, R&D, and FDI should be prioritized to sustain export growth. Inflation control measures are crucial for maintaining export competitiveness. Effective inventory and risk management strategies, including appropriate insurance mechanisms, can further enhance export performance.

Table 5. Dynamic panel estimations

Variable	LExp_goods	LExp_merchandise
L.LExp_goods	0.61*** (0.062)	-
L.LExp_merchandise	-	0.66*** (0.060)
LInsurance	0.17** (0.067)	0.17*** (0.063)
L.LInsurance	-0.19*** (0.067)	-0.21*** (0.063)
LGCF	0.19*** (0.051)	0.17*** (0.061)
LTransport	0.066 (0.060)	0.05 (0.067)
LFDI	0.029** (0.012)	0.032*** (0.012)
LR&D	0.07*** (0.026)	0.059* (0.034)
LInventories	0.025** (0.010)	0.02** (0.010)
LInflation	-0.02* (0.010)	-0.02* (0.011)
Constant	1.47*** (0.533)	1.366** (0.552)
N	331	331
No. of instruments	46	46
Wald Chi^2 (prob)	4518.5 (0.000)	4751.99 (0.000)
AR(2) prob.	0.178	0.229
Hansen prob.	0.997	0.996

*Note: Coef.*** (robust std. err.) ***, **, * significant at 1%, 5%, 10%*.

Source: own calculations in STATA 16.

In *Table 5*, the coefficient of the first dependent variable lag (L.LExp_goods) is 0.61, and the coefficient for the second dependent variable LExp_merchandise is 0.66, being both statistically significant at the 1% level (***), indicating strong persistence in exports over time. Past export levels strongly predict current export levels. The standard errors (0.062 and 0.060) confirm the precision of these estimates.

The contemporaneous effect of LInsurance is positive and significant for both dependent variables (0.17 for LExp_goods and 0.17 for LExp_merchandise), indicating that insurance positively impacts exports in the short run. However, the first lag of LInsurance (L.LInsurance) has a significant negative effect (-0.19 and -0.21, respectively) suggesting that while insurance initially boosts exports, the long-run effect is more nuanced and needs to be calculated to determine its net impact. Positive and highly significant LGCF (Log of Gross Capital Formation) for both models (0.19 and 0.17) highlights the role of investment in enhancing exports. Positive and significant LFDI (Log of Foreign Direct Investment) of 0.029 and 0.032, emphasizes the importance of foreign capital in export performance. Positive and significant LR&D (Log of Research and Development) of 0.07, respectively of 0.059, shows that innovation supports export growth, while LInventories (Log of Inventories) is positive and significant (0.025 and, respectively, 0.02), indicating the importance of maintaining stock levels for export readiness. However, negative and significant LInflation (Log of Inflation) of -0.02 for both models, confirms that inflation reduces export competitiveness.

Variable LTransport is not statistically significant in either model, suggesting that transport costs or infrastructure may not have a direct impact on export performance in this context.

In the AR(2) Test model diagnostics, the p-values (0.178, respectively 0.229) indicate no second-order autocorrelation, validating the dynamic panel model specification. High p-values of 0.997 and 0.996 in Hansen Test suggest that the instruments used are valid and not overidentified. The highly significant values $p < 0.001$ in Wald Chi-Squared Test confirm the joint significance of the regressors.

Hence, the significant lagged dependent variables confirm the dynamic nature of exports, where past performance strongly influences current outcomes. This justifies the use of a dynamic panel model. The short-run effect of LInsurance is positive, but the negative lagged effect suggests diminishing or counterbalancing impacts over time. This indicates a net negative long-run effect of insurance on exports, possibly due to over-insurance costs or inefficiencies.

Table 6. Long-run coefficients

Variable	LExp_goods	LExp_merchandise
LInsurance	-0.051 (0.033)	-0.118 (0.002)
LGCF	0.487 (0.000)	0.50 (0.000)
LTransport	0.169 (0.223)	0.147 (0.378)
LFDI	0.074 (0.006)	0.094 (0.004)
LR&D	0.179 (0.016)	0.174 (0.110)
LInventories	0.064 (0.044)	0.059 (0.045)
LInflation	-0.051 (0.034)	-0.059 (0.031)

Note: Coef. (prob).

Source: own calculations in STATA 16.

Coefficients in *Table 6* represent the long-run equilibrium effects of the independent variables on exports. The high significance of LGCF demonstrates that investment in physical capital is crucial for long-run export growth. On the long run, the coefficients of LTransport remain unsignificant. Consequently, we can conclude that this aspect does not impact the macroeconomic performance of the analysed sample proxied by exports. LInsurance has a negative long-run coefficient, implying that the cost or inefficiency of insurance mechanisms outweighs their benefits over time. Countries with a more developed insurance and financial market had, on average, lower exports of goods or merchandise. The positive impact of LFDI reflects the importance of attracting foreign investments to enhance export capacity and global competitiveness. Inflation also preserves its negative impact upon the exports of goods and merchandise on the long run. All other factors have significant positive long-term impact, with one exception. When LExp_merchandise is the dependent, Research & Development becomes unsignificant on the long run.

4. Discussion

Driven by heightened geopolitical tensions and macroeconomic volatility, exporting is becoming more difficult and more complex. Trade wars affect global economies, suppressing job creation, inflationary risks, supply chain disruptions and slower economic growth, since all sectors may be affected. Tensed international relations erode the trust in diplomatic solutions and in multilateral institutions that once were made exactly for that point, to foster free trade among cherishing each country's competitive advantage in a multilateral world. Global dispersion of component production and assembly over the last decades have revealed pronounced structural interdependence of the world economy, making US and EU markets to be more dependable on Asian countries (Jongwanich, 2010). Covid-19 pandemics has also disrupted supply chains (lockdowns and closing factories), reduced drastically demand (leisure, travel, combustibles, commodities etc) altering trade patterns (export bans on essential goods) and consumer behaviour (pharma and medical supplies, demand for cars). Covid-19 pandemics has taught us important lessons about the global aspect of supply chains, the importance of resilience, diversification and the need to support economic cohesion (among population and SMEs) towards achieving long term growth and

stability. Some of the most important challenges nowadays may seem the uncertainty of the AI and digital technology global spillovers in the context of geopolitical tensions, most due to regional trade wars, affecting global trade dynamics in a way difficult to predict now.

Opportunities on the export market are more easily identified using the chambers of commerce that can provide information on business partners, sales markets and reports, trade promotion agencies on the respective export markets, as well as, advice provided by consultants on export and the relevant banks. Governments, using the Export Credit Agencies (ECAs) as intermediaries, have traditionally been the primary providers of finance, insurance and guarantees in support of exporters. Agosin *et al*. (2011) suggest in their study a high level of human capital and knowledge are far more important than other factors like exchange rate volatility, currency overvaluation and trade frictions (costs, distance, barriers infrastructure and tax policies). Export growth is one of the best ways to reach sustainable economic growth. Reaching sustainable economic growth implies having some critical ingredients as sound economies of scale, trade liberalizations and technology advancement and human capital development spillovers throughout the broad economy. Economies of scale means lower production costs and increased competitiveness and specialization among other external markets but require high initial capital formation which are hardly dependent on consistent demand. Trade liberalization through free trade agreements and wide access to the newest technological advances (automation, digitalization, mainstream media and social media, innovation and AI) ready to be engaged could provide the synergy needed for export growth. None of them could be possible without active commitment and support from governments, corporations, capital suppliers and entrepreneurs, the support not being in silos but leveraged all together in targeted policies and investments. Policymakers need to address the resource constraints, brain drain and the continuous gap between skill taught at schools and market needs, they need to have the right mix and dosage of incentives to develop and retain talent. Policy changes in US, in China, invite EU to redesign its trade architecture, to identify and build new competitive advantages.

Conclusions

The objectives of the article are anchored within the international geopolitical landscape. The main purpose of the research was to evaluate the impact of the countries' economic conditions on foreign trade, measured by the two types of exports (goods exports and merchandise exports) at the European level. The analysis explored both the geographical distribution of exports and their dynamics over time. The study had the aim of determining factors of growth in goods exports. The scope of the paper is to provide input for economic policies that enhance global trade competitiveness. It bridges the gap between theory and practice, offering actionable insights that drive sustainable and inclusive economic development. Also, it advances academic knowledge.

The study analysed economic growth in the European Union’s area and provided informational support for evidence-based strategies in promoting exports. The study validates, via research-based instruments, key drivers such as trade agreements, infrastructure quality or technological innovation, enabling EU policymakers to prioritize specific measures. Understanding barriers to export growth, such as trade tariffs, logistical inefficiencies or lack of market access, allows policy options. It is also necessary to underline that many developing economies face structural challenges such as limited access to international markets or inadequate production capabilities. Our study emphasizes these challenges and proposes actionable solutions. Investments (LGCF, LFDI, LR&D) and inventory management are critical for boosting exports. Inflation control is essential to maintain international competitiveness.

The strong positive lagged effects of exports underscore the importance of maintaining momentum in trade activities. Policies that sustain export growth are crucial for long-term economic benefits. Gross capital formation and FDI are key drivers of export performance, likely due to improved infrastructure, technology, and production capacity. R&D investments enhance product quality and innovation, making exports more competitive in global markets. While insurance initially supports exports by reducing trade risks, its long-run negative effect suggests inefficiencies or overdependence on insurance mechanisms. Policymakers should review insurance structures to optimize their role in trade. Inflation's negative impact highlights the need for macroeconomic stability to enhance export competitiveness. Insurance policies must be reassessed to ensure they provide adequate support without imposing long-term costs. Transport infrastructure and costs, even though they appear insignificant, they might interact with other variables not captured in this model and should be taken into consideration. Policies promoting infrastructure development and capital accumulation will likely yield substantial export benefits. The negative coefficients for LInflation highlight the importance of maintaining macroeconomic stability. High inflation erodes cost advantages and reduces global market share. High inflation undermines export competitiveness by increasing production costs and reducing pricing power in international markets. The negative long-run effects of LInsurance suggest inefficiencies in the insurance sector or over-insurance costs that outweigh its risk mitigation benefits. Reforms in insurance policies may be necessary to optimize their impact on exports. Our analysis confirms that significant increase in prices due to cost-push inflation can negatively impact trade by making exports less competitive in international markets. Conversely, efforts to address trade imbalances through cost reduction measures may result in economic distress. Therefore, maintaining a balanced approach to inflation and trade policies is essential to ensuring overall economic stability. This requires investments in technological advancements to enhance productivity rather than relying on wage reductions, making the European trade system more resilient and balanced.

A balanced policy mix, structured and harmonized at European level, will add value, via promoting the European exports, fostering economic growth, improving and distributing the impact of economic policies in all the European countries.

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EKSPORTO AUGIMO VEIKSNIAI ES

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Santrauka. Straipsnyje nagrinėjami analizuojamų nepriklausomų rodiklių (t. y. draudimo ir finansinių paslaugų, bendrojo kapitalo formavimo, transporto paslaugų, tiesioginių užsienio investicijų, mokslinių tyrimų ir technologinės plėtros išlaidų, atsargų pokyčių ir infliacijos) poveikio 22 Europos šalių ekonomikai per 23 metus nustatymo klausimai. Prekių ir prekių eksporto raida buvo laikoma priklausomais rodikliais. Remiantis ekonometrinio tyrimo rezultatais, didesnis su eksportu ir prekėmis susijęs kiekis yra sujungtas su aukštu draudimo, bendrojo kapitalo formavimo, transporto paslaugų, TUI, MTEP išlaidų ir atsargų lygiu. Šio tyrimo analizė patvirtina, kad didelis kainų padidėjimas dėl sąnaudų sukeltos infliacijos gali neigiamai paveikti prekybą, nes eksportas tampa mažiau konkurencingas tarptautinėse rinkose. Priešingai, pastangos spręsti prekybos disbalanso problemą taikant išlaidų mažinimo priemones gali sukelti ekonominių sunkumų. Todėl labai svarbu išlaikyti subalansuotą požiūrį į infliacijos ir prekybos politiką, kad būtų užtikrintas bendras ekonominis stabilumas. Nustatyta, kad mažesnę infliaciją turinčių ES šalių, tokių kaip Šiaurės Vakarų Europos šalys, grupės linkusios keisti - į didesnį prekybos aktyvumą. Tuo pačiu metu Pietryčių Europos šalyse bendros vertės yra mažesnės, o tai gali reikšti besivystančią ar mažesnę ekonomiką. Šie rezultatai papildo esamą literatūrą, sudarant ir formuluojant rekomendacijas dėl politikos rėmimo, siekiant prisidėti ir padidinti eksporto konkurencingumą tiek ES, tiek Pietryčių Europos lygiu.

Reikšminiai žodžiai: TUI; infliacija; šalių grupė; Vakarų ir Rytų dichotomija; politikos priemonių derinys.