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КЛАСТЕРНІ ІНІЦІАТИВИ ЯК ЧИННИК СТІЙКОСТІ ЗОВНІШНЬОЕКОНОМІЧНОЇ ДІЯЛЬНОСТІ ЛЕГКОЇ ПРОМИСЛОВОСТІ В УМОВАХ ВОЄННОГО СТАНУ: ДОСВІД УКРАЇНИ

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Анотація. Російська збройна агресія завдала масштабних збитків національній економіці України, зруйнувавши виробничі потужності та дестабілізувавши традиційні логістичні ланцюги. За таких умов забезпечення стійкості та адаптації вітчизняного бізнесу, зокрема у сфері легкої промисловості, безпосередньо пов’язане з пошуком нових інструментів підтримки зовнішньоекономічної діяльності (ЗЕД) та інтеграції підприємств у глобальні ринки. Кластеризація розглядається як один із найбільш ефективних механізмів мінімізації наслідків криз, оскільки за рахунок мережевої кооперації та синергетичного ефекту вона дозволяє організаціям бути більш стійкими до макроекономічних потрясінь, обмінюватися ресурсами й стимулювати спільні інновації.

Метою статті є теоретико-методичне обґрунтування та емпіричний аналіз ролі кластерів у сфері легкої промисловості України у стимулюванні та відновленні їхнього зовнішньоекономічного потенціалу в умовах воєнного стану.

У статті комплексно проаналізовано динаміку розвитку та зміни в товарній структурі зовнішньої торгівлі легкої промисловості України протягом 2020–2024 років. Виявлено тенденцію до суттєвого падіння обсягів експорту (зокрема, текстилю та одягу у 2023 році) та зростання імпортозалежності галузі від іноземної сировини. Ідентифіковано ключові нетарифні бар’єри у здійсненні ЗЕД, серед яких найвищу негативну оцінку отримали черги на прикордонних переходах, тривале оформлення документів та бюрократизація митних процедур. Обґрунтовано роль концепції розумної спеціалізації (S3 Smart Specialization) та подвійного (цифрового й зеленого) переходу в межах діяльності Українського кластерного альянсу (УКА) як інструментів інтернаціоналізації вітчизняних малих і середніх підприємств.

На прикладі діяльності ГС «Західноукраїнський кластер індустрії моди» продемонстровано ефективність інституційної та донорської підтримки бізнесу (участь у міжнародних виставках Pure London, Berlin Fashion Week, Fashion Park Lviv, залучення грантів GIZ, USAID, EU4Business). Для детальної оцінки практичної ефективності кластерної взаємодії досліджено показники ЗЕД конкретного учасника об'єднання – ПП «Беладонна» за 2021–2024 роки. На основі фінансово-економічних даних розраховано показники сальдо ЗЕД, рентабельності ЗЕД, а також рентабельності та ефективності експорту підприємства. Аналіз підтвердив, що пік ефективності експортної діяльності припав на 2022–2023 роки завдяки кластерній кооперації та диверсифікації товарного портфеля (зокрема, через нарощування експорту робочого та верхнього одягу). Незважаючи на загальногосподарський спад у 2024 році через системні виклики (дефіцит кадрів, перебої з енергопостачанням), підприємство зберегло позитивне сальдо ЗЕД.

Доведено, що формування розвинених кластерних структур в індустрії моди діє як стратегічний інструмент підвищення конкурентоспроможності на міжнародній арені. Кластеризація забезпечує малим та середнім підприємствам легший вихід у глобальні ланцюги створення доданої вартості та нівелює логістичні й фінансові ризики в період воєнного стану.

Ключові слова: легка промисловість, зовнішньоекономічна діяльність, кластерні ініціативи, індустрія моди, економічна стійкість, експортний потенціал, воєнний стан.

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CLUSTER INITIATIVES AS A FACTOR OF THE RESILIENCE OF FOREIGN ECONOMIC ACTIVITY IN LIGHT INDUSTRY UNDER MARTIAL LAW: THE CASE OF UKRAINE

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Abstract. Russian armed aggression has caused large-scale damage to the national economy of Ukraine, destroying production capacities and destabilizing traditional supply chains. Under such conditions, ensuring the resilience and adaptation of domestic businesses, particularly in the light industry sector, is directly linked to the search for new tools to support foreign economic activity

(FEA) and integrate enterprises into global markets. Clustering is considered one of the most effective mechanisms for minimizing the consequences of crises, as network cooperation and synergetic effects allow organizations to be more resilient to macroeconomic shocks, share resources, and stimulate collaborative innovation.

The objective of the article is to provide a theoretical and methodical substantiation and empirical analysis of the role of clusters in the Ukrainian light industry sector in stimulating and restoring their foreign economic potential under martial law.

The article comprehensively analyzes the development dynamics and changes in the commodity structure of Ukraine's light industry foreign trade during 2020–2024. A trend towards a significant drop in export volumes (in particular, textiles and clothing in 2023) and an increase in the sector's import dependence on foreign raw materials was revealed. Key non-tariff barriers to FEA were identified, among which delays at border crossings, lengthy document processing, and bureaucratization of customs procedures received the highest negative ratings. The role of the Smart Specialization concept (S3) and the twin (digital and green) transition within the activities of the Ukrainian Clusters Alliance (UCA) as tools for the internationalization of domestic small and medium-sized enterprises is substantiated.

Using the example of the "West Ukrainian Fashion Industry Cluster" Public Union, the effectiveness of institutional and donor business support (participation in international exhibitions such as Pure London, Berlin Fashion Week, and Fashion Park Lviv, as well as attracting grants from GIZ, USAID, and EU4Business) is demonstrated. For a detailed assessment of the practical effectiveness of cluster interaction, the FEA indicators of a specific cluster participant – "Beladonna" Private Enterprise – for the years 2021–2024 were investigated. Based on financial and economic data, indicators of FEA balance, FEA profitability, as well as export profitability and efficiency of the enterprise were calculated. The analysis confirmed that the peak of export activity efficiency occurred in 2022–2023 due to cluster cooperation and diversification of the product portfolio (specifically through increasing the export of workwear and outerwear). Despite the general economic downturn in 2024 caused by systemic challenges (labor shortages, power supply disruptions), the enterprise maintained a positive FEA balance.

It is proven that the formation of developed cluster structures in the fashion industry serves as a strategic tool for increasing competitiveness in the international arena. Clustering provides small and medium-sized enterprises with easier access to global value chains and mitigates logistic and financial risks during the period of martial law.

Key words: light industry, foreign economic activity, cluster initiatives, fashion industry, economic resilience, export potential, martial law.

Introduction. In the context of the ongoing full-scale war in Ukraine, the development and effective functioning of foreign economic activity (FEA) has acquired particular relevance. The armed aggression by the Russian Federation has inflicted substantial losses on the national economy, leading to the large-scale destruction of critical infrastructure, a decline in production capacities, and the destabilization of supply chains. Despite these challenging circumstances, Ukrainian business entities demonstrate remarkable resilience and adaptability by actively seeking new opportunities for integration into global markets, establishing international partnerships, and expanding their export potential.

Special attention should be given to the development of cluster initiatives as an effective mechanism for economic recovery and growth. The Public Union (PU) "West Ukrainian Fashion Industry Cluster" is a promising association capable of becoming a major market player owing to its competitive advantages. Under these conditions, expanding international cooperation becomes not merely an economic necessity, but a strategic tool for supporting Ukrainian businesses. Crucial aspects include market diversification, the attraction of foreign investment, the adaptation of logistics and production processes, and the strengthening of the "Made in Ukraine" brand. Given these factors, researching the foreign economic activity of the PU "West Ukrainian Fashion Industry Cluster" is both timely and necessary. The findings of such research can contribute to the development of strategies for integrating Ukrainian manufacturers into the global economy, consolidating international partnerships, and creating new opportunities for business development even under the severe constraints of martial law.

The topic of foreign economic activity and the development of cluster formations is a subject of active research in contemporary academic literature. Significant contributions to establishing the theoretical foundations have been made by scholars such as M. Porter, P. Swann, E. Feser, V. F. Tyshchenko, V. M. Ostapenko, Yu. G. Kozak, O. Yu. Budiakova, V. V. Zadorozhnyi, O. V. Kryvda, N. Ya. Boichuk, A. O. Vovchenko, V. M. Kraievskyi, and others. In addition, important sources include the regulatory and legal acts of Ukraine, specifically the Laws of Ukraine "On Foreign Economic Activity," "On Innovation Activity," "On Priority Directions of Innovation Activity in Ukraine," and the National Cluster Development Program until 2027, among others.

Task statement. The objective of the article is to provide a theoretical and methodical substantiation and empirical analysis of the role of light industry clusters in stimulating the state's foreign economic potential.

A set of general scientific and specialized methods of economic analysis was applied in the study. The method of theoretical generalization, analysis, and synthesis was used to substantiate the conceptual foundations of clustering, smart specialization (S3), and the twin (digital and green) transition. The method of statistical and comparative analysis was employed to study the development dynamics, commodity and geographical structure of foreign trade, as well as industrial production indices of Ukraine's light industry for 2020–2024. The method of sociological survey and qualitative assessment (based on rating scales) was applied to identify and rank non-tariff barriers to foreign economic activity (FEA). The Case Study method allowed for a detailed analysis of the practical effectiveness of cluster interaction using the PU "West Ukrainian Fashion Industry Cluster" and its participant – PE "Beladonna" – as an example. To evaluate the performance of the enterprise's foreign economic operations, methods of financial and economic analysis as well as mathematical modeling were used to calculate FEA balance indicators, FEA profitability, and the efficiency and profitability of exports.

Results. Contemporary globalization processes and the increasing intensification of international trade necessitate the adaptation and improvement of mechanisms for developing states' foreign economic activity. Cluster formations play a pivotal role in the development of a state's foreign economic activity, as they facilitate the revitalization of international cooperation, attract foreign direct investment, enhance the level of innovative development, and increase the efficiency of production processes. Due to the synergetic effect arising from the interaction of cluster participants, favorable conditions are created for expanding the export potential of the national economy, diversifying target markets, and integrating into global value chains.

To implement strategic priorities and ensure the long-term transformation of regional economic structures, it is essential to achieve a critical mass of resources in specific sectors (such as industry, technology, and research and development). The introduction of the "Research and Innovation Strategies for Smart Specialisation" (RIS3) concept by the European Commission has played an important role in redefining approaches to cluster policy. Highly efficient clusters can secure this critical mass, and their strategically oriented initiatives play a key role in developing and implementing comprehensive regional economic strategies in accordance with the S3 Smart Specialization concept.

The significance that clusters can hold in the context of regional development is frequently underestimated. In the long term, a cluster can offer an integrated strategic approach toward the successful transformation of a region. In the short term, a cluster can serve as an important tool for overcoming sudden economic crises (such as during the COVID-19 pandemic), where rapid support is required to address urgent challenges.

Another crucial motive for returning to the cluster concept is economic resilience. Clusters enable organizations to be more resilient to global economic shocks. Organizations within a cluster are more likely to withstand economic crises because they can collaborate to find solutions to emerging problems rapidly and effectively. For instance, during the COVID-19 pandemic, many clusters managed to maintain their competitiveness by sharing resources and stimulating collaborative innovations [17].

In the context of the contemporary economic instability caused by the armed conflict in Ukraine and transformations in global markets, accelerating the foreign economic activity (FEA) of light industry enterprises becomes increasingly relevant. This sector, particularly the fashion industry, possesses significant potential for ensuring the state's economic resilience, demonstrating the ability not only to meet domestic demand but also to compete effectively in international markets. Expanding presence in foreign markets facilitates investment attraction, job creation, and the growth of foreign exchange inflows. The choice of light industry as an object of research within the FEA framework is driven by its high level of adaptability in times of crisis and its potential for further modernization. A prominent example of effective functioning is the activity of the PU "West Ukrainian Fashion Industry Cluster," which provides support to enterprises in the sector by developing foreign economic relations even under conditions of economic instability.

Despite numerous challenges faced by Ukrainian manufacturers in the fashion and light industry sector – specifically logistical constraints, customs barriers, and the growing pressure of global competition – the sector demonstrates the capability to adapt quickly, ensuring a stable production process and compliance with current quality standards. Under martial law and economic transformations, the significance of foreign economic activity intensifies, particularly regarding the entry of Ukrainian enterprises into international markets.

Light industry is a multi-sectoral segment of the national economy, encompassing over twenty specialized sub-sectors that are conditionally classified by functional attributes. According to the Classification of Economic Activities (CEA), the primary sub-sectors include: textile manufacturing; manufacture of wearing apparel; and manufacture of leather, leather products, and related products.

Among the various sectors of light industry, the textile industry occupies a significant position. It utilizes a wide range of raw materials, including both natural (e.g., cotton, flax, wool, silk) and artificial or synthetic fibers (such as lavsan, viscose, nylon, capron, etc.). Ukrainian enterprises operate using not only domestic raw materials (flax, fur, leather, chemical fibers) but also imported ones (cotton, partially wool, and other textile materials). According to the State Statistics Service of Ukraine, it is possible to trace the changes in the number of enterprises in the light industry sector during 2020–2024. Table 1 illustrates the total number of companies and individual entrepreneurs operating within this field in Ukraine over these years.

Table 1

The number of active business entities in the light industry sector

Code according to CEA-2010	**Region**	**Year**				
		2020	**2021**	**2022**	**2023**	**2024**
13+14+15	Ukraine, total, units	15 764	14 623	13 085	14 628	15 224
	of them:					
13+14+15	individual entrepreneurs, units	12 959	11 757	11 043	12 312	13 005

Compiled by the author based on data from [6]

At the beginning of 2021, Ukrlegprom comprised 257 leading companies that accounted for over 60% of the sector's total production volume in Ukraine. With the outbreak of the full-scale war, the light industry underwent significant transformations: a number of enterprises located in combat zones were forced to temporarily suspend operations or relocate their production capacities to safer regions. The mobilization of personnel emerged as one of the critical challenges. While women accounted for over 75% of those employed in the sector at the beginning of the war, this share currently exceeds 90% [14].

According to information provided by the Ukrainian Association of Enterprises of Textile and Leather Industry, a substantial decline in the export volumes of key commodity items within the sector was observed throughout 2023: shipments of textile garments decreased by 63%, home textiles by 40%, and footwear by 60%. In parallel, a noticeable growth in import volumes was recorded, indicating an increasing dependence of the sector on external suppliers for both raw materials and finished goods. For instance, the export of knitted garments, which amounted to $6 million in 2022, ceased entirely by the beginning of 2024, whereas the import of similar products during the same period rose from $13 million to $35 million [2].

These shifts demonstrate a significant weakening of the domestic producers' positions in foreign markets and increasing competition from foreign products in the domestic market. To substantiate these trends, it is appropriate to refer to official statistics regarding the foreign trade commodity structure of light industry goods for the period 2020–2024 (Table 2).

Throughout the analyzed period, the commodity structure of foreign trade in light industry underwent significant transformations, which were directly linked to the economic, political, and social developments occurring both within Ukraine and abroad. Export and import indicators for textile materials and articles demonstrate a sharp decline in volumes; in particular, exports in 2023 dropped precipitously compared to previous years. This downturn is attributed to economic destabilization, logistical issues, and diminished demand for Ukrainian products resulting from the impacts of the war. Imports remained consistently high across all years, indicating the dependence of the Ukrainian market on foreign suppliers and substantial difficulties in domestic manufacturing during the crisis. The wearing apparel and clothing accessories sectors also experienced a negative impact. Specifically, the decline in exports of knitted garments and textile apparel in 2023 reflects a drop in production capacity and reduced demand. Imports in these categories remained at the 2021 level, which may suggest a persistent need for imported goods to fill the domestic market, but also points to a certain degree of stability within this sub-sector. Overall, the commodity structure of Ukraine's light industry foreign trade reveals severe challenges under wartime conditions, a reduction in production capacities, and import reliance. Exports in most categories sustained significant losses, while imports, despite decreasing in certain years, remained high. These shifts evidence Ukraine's profound economic vulnerability and underscore the necessity of structural changes to restore and develop domestic manufacturing amidst the global crisis.

According to the findings of the study "Exports Under Wartime Conditions" conducted by the Institute for Economic Research and Policy Consulting in cooperation with USAID, light industry enterprises demonstrated a more substantial contraction in production volumes during the first months of the full-scale invasion compared to other industries. The survey covered 458 enterprises from 21 regions of Ukraine and the city of Kyiv, allowing for well-founded conclusions regarding the scale of the downturn in the sector [3]. Concurrently, against the background of the general decline, the sector revealed a capacity for structural adjustment: reorienting toward military procurement orders enabled a portion of enterprises not only to stabilize their operations but also, during certain periods, to exceed the average Ukrainian production growth rates. This trend is further supported by statistical data: according to the State Statistics Service of Ukraine, the general industrial production index in light industry stood at 93.9% in 2020 compared to the previous year, which was driven by the consequences of the COVID-19 pandemic. A recovery was observed in 2021: the general index rose to 102.3%, with textile manufacturing increasing to 113.8% and the manufacture of leather and related products reaching 109.9%. These indicators demonstrate the gradual stabilization of the sector, which retains high potential even under multilevel challenges.

Table 2

Commodity structure of foreign trade of light industry enterprises in 2020–2024

Types of activities	**Export**		**Import**	
	million USD	**% of total volume**	**million USD**	**% of total volume**
2020				
Textile materials and products	778.25	1.6	2291.12	4.2
Clothing and clothing accessories, knitted or crocheted	109.63	0.2	358.56	0.7
Clothing and clothing accessories, textile	338.56	0.7	349.15	0.6
Other made-up textile articles	165.13	0.3	367.24	0.7
2021				
Textile materials and products	864.98	1.3	2661.51	3.7
Clothing and clothing accessories, knitted or crocheted	135.32	0.2	461.95	0.6
Clothing and clothing accessories, textile	332.36	0.5	401.46	0.6
Other made-up textile articles	199.10	0.3	356.30	0.5
2022				
Textile materials and products	671.52	1.5	2483.74	4.5
Clothing and clothing accessories, knitted or crocheted	121.88	0.3	402.14	0.7
Clothing and clothing accessories, textile	286.87	0.6	704.21	1.3
Other made-up textile articles	140.72	0.3	282.47	0.5
2023				
Textile materials and products	354.32	1.0	2391.88	3.8
Clothing and clothing accessories, knitted or crocheted	53.42	0.1	423.77	0.7
Clothing and clothing accessories, textile	99.03	0.3	391.83	0.6
Other made-up textile articles	99.41	0.3	337.66	0.5
2024				
Textile materials and products	610.92	1.5	2398.68	3.4
Clothing and clothing accessories, knitted or crocheted	104.43	0.3	464.68	0.7
Clothing and clothing accessories, textile	264.86	0.6	380.92	0.5
Other made-up textile articles	132.42	0.3	348.25	0.5

Compiled by the author based on data from [13]

Conversely, the year 2022 was marked by a significant downturn: the general index dropped to 74.0%, with textile manufacturing falling to 69.1% and the leather sector decreasing to 71.7%. The primary cause was the full-scale military invasion, which caused disruptions in logistics, the loss of target markets, and a significant reduction in production capacities. A positive trend toward gradual recovery was observed in 2023: the general index rose to 100.7%, with the textile industry increasing to 101.6% and leather manufacturing reaching 102.7% (Table 3).

Table 3

Industrial production indices in light industry for 2020–2023, % of the previous year

Indicators	**2020**	**2021**	**2022**	**2023**
Textile production, production of clothing, leather, leather products and other materials	93.9	102.3	74.0	100.7
Textile production	98.3	113.8	69.1	101.6
Clothing production	89.6	90.4	80.1	98.8
Manufacture of leather, leather products and other materials	97.0	109.9	71.7	102.7

Compiled by the author based on data from [5]

Despite the negative results in actual sales, the expectations of light industry enterprises regarding future sales volumes remain moderately optimistic. The index of expected changes in sales volumes reached a value of 0.36 in August, which corresponds to the average level for the period from January to July of the current year. This result aligns with the overall dynamics observed across all enterprises participating in the study by the Institute for Economic Research and Policy Consulting (IRPC). In August, 41% of light industry enterprises predicted an increase in sales, while only 5% expected a decrease [3].

To analyze changes in the foreign economic activity of enterprises, the export dynamics index was utilized, which is calculated according to [20, p. 160]:

$$I_q = \frac{q_1}{q_0} * 100\%, \qquad (1)$$

where q_1 – export volume in the reporting period;
q_0 – export volume in the base period.

The analysis showed that the general export change index in the light industry sector during the full-scale war exceeds the average Ukrainian indicator. However, a decline in the index to a negative value was observed in August, coinciding with the negative dynamics of production and sales. The primary factors behind this decline were an increase in the share of enterprises that recorded a drop in export volumes (18%) and a decrease in the share of companies that experienced growth (23%). The share of exporters with unchanged volumes remained at the previous level. Such variability in the index value indicates the high sensitivity of the sector to external challenges, including energy constraints, complicated logistics, and demand fluctuations.

The European Union countries remain the main trading partner for enterprises in this sector. This direction is logical, given the reorientation of logistical routes toward the EU [16]. The share of exports to EU countries accounts for nearly 94%, which exceeds the average figure among all surveyed companies (86%). Despite the dominance of the EU, other countries also play a noticeable role in exports, although exports to Moldova demonstrate the smallest share (Fig. 1).

Among the main foreign economic challenges faced by light industry enterprises, non-tariff barriers are the key issues. The majority of respondents consider their impact to be moderate. On a five-point scale, the average rating of the nine primary barriers stands at 2.5 points, which is slightly higher than the overall average across all sectors (2.4 points). At the same time, most of these barriers occur infrequently or are not recorded at all (Fig. 2). Long queues at border crossings received the highest rating among all problems (3.1 points), representing the highest indicator across all industries. The second most significant issue was the lengthy processing of export documentation, rated at 2.7 points for the light industry (compared to 2.6 points overall). The third obstacle is the excessive bureaucratization of customs procedures. Difficulties in obtaining certificates of origin and the requirement to process a large volume of permissive documents are particularly highlighted.

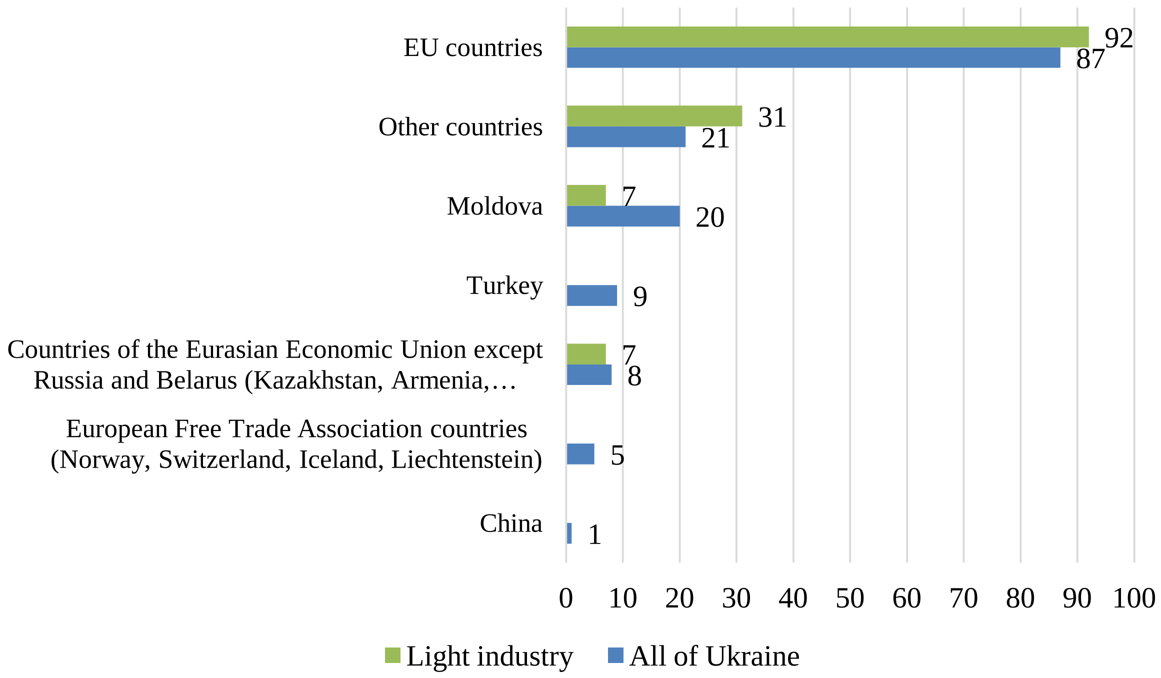

Fig. 1. Geographical structure of exports, August 2024 (% of respondents) [3]

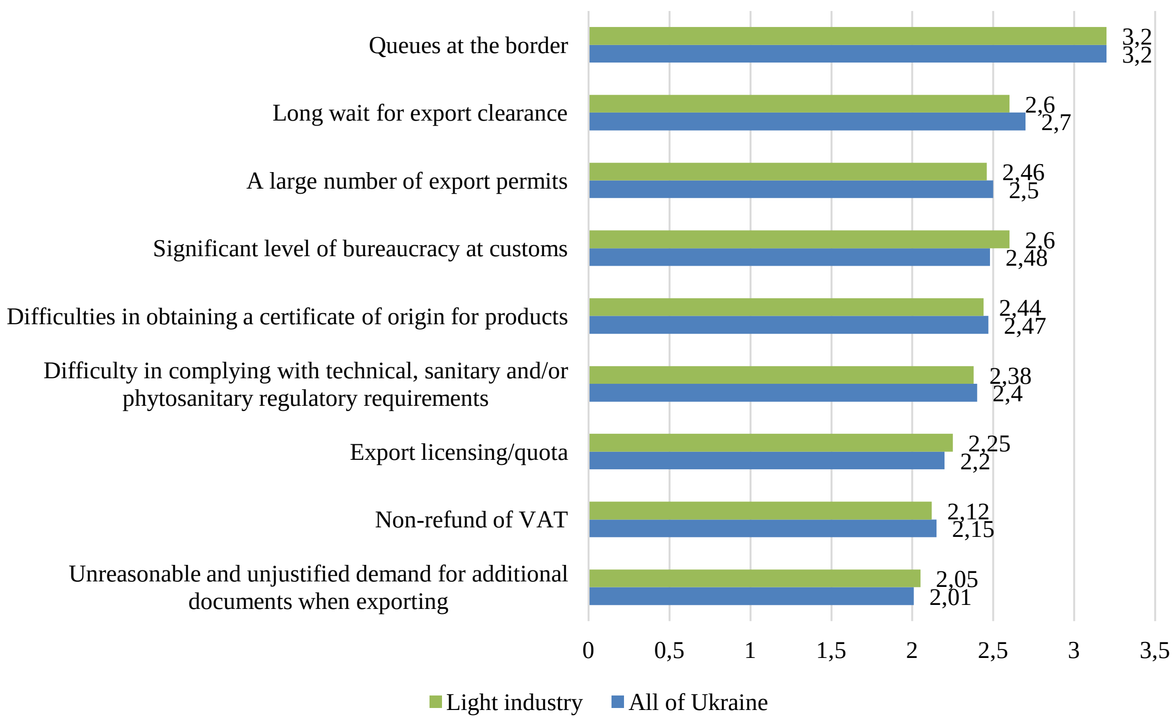

Fig. 2. Assessment of non-tariff barriers in light industry [3]

The past three years have been characterized by growing dynamics in the development of cluster associations in Ukraine, indicating increased business interest in the processes of cooperation, integration into global markets, and strengthening competitive positions.

The revitalization of the cluster movement facilitated the establishment of a nationwide network – the Ukrainian Clusters Alliance (UCA). The primary mission of the UCA is to enhance the competitiveness of enterprises and organizations through the implementation of cluster cooperation models, the development of industrial, digital, and environmental innovations, production automation, and the optimization of interaction with state institutions [15].

The official founding of the UCA took place on March 24, 2022, within the framework of the Cluster4Ukraine initiative, serving as a response to the urgent need for business consolidation and the formation of resilient partner networks during crisis challenges. According to UCA data, as of 2025, there are 43 active cluster associations, 5 resource centers, and 2 sectoral committees operating in Ukraine, spanning 16 regions of the country.

The Ukrainian Clusters Alliance (UCA) performs a strategic function in strengthening national and European value chains (VCs), which constitutes one of the key missions of cluster organizations and the cluster movement as a whole. An important strategic direction of the UCA's development is its European integration course, which is implemented through building an internationalization strategy for small and medium-sized enterprises (SMEs). The main components of this strategy are [15]:

- integration of Ukrainian enterprises into European value chains;
- expansion of participation in EU programs, including Horizon Europe;
- attraction of investments for the development of innovative infrastructure;
- support for transnational cooperation in the fields of digital and industrial technologies.

In addition, at the beginning of 2024, the UCA developed and published its Internationalization Strategy along with a corresponding action plan. The implementation of this strategy was partially funded and resource-supported by a series of projects, including UCA CapGrowth, Export Alliance APPAU, and ClusterINT. Within the framework of the UCA CapGrowth project, eight strategic directions were developed, among which is the "Innovative Ecosystem in Fashion and Design," representing one of the key directions for representatives of light industry enterprises and organizations. The significance of this direction for light industry lies in its facilitation of increased competitiveness through the integration of advanced technologies and creative solutions, the digitalization of production, marketing, and logistics processes, and the green transition, which is becoming increasingly relevant due to the growing environmental requirements of the EU, alongside the expansion of international cooperation, particularly through participation in European Commission programs and international cluster initiatives [12].

Since light industry is one of the leading sectors in terms of industrial waste generation, the first roadmap for the twin transition in this sector, combining green transformation and digitalization, was developed in December 2024 within the framework of the GDT Textile project, implemented in cooperation with the Association of Industrial Automation Enterprises of Ukraine. The methodical framework for the roadmap development includes the following key components:

- Implementation of European approaches and methods: The adaptation of advanced European tools, particularly ADMA (Agile Production and Manufacturing) and SIRI (Smart Industry Readiness Index), made it possible to consider the specifics of Ukrainian manufacturing in the context of contemporary technological challenges.

– Benchmarking studies and analytics: Examining the results of leading European initiatives, such as the Textile Pathway and the Twin Transition project, allowed for the identification of the most effective digital and environmental transformation practices, as well as the formulation of relevant strategies for implementing innovations in the light industry of Ukraine based on them.
– Engagement of key stakeholders: Organizing a series of open online and offline discussions ensured wide involvement of industry representatives, which facilitated the formation of a shared vision for strategic development and accounted for the positions of all interested parties [2; 4].

The analysis of the foreign economic activity of the Ukrainian Clusters Alliance (UCA) for the years 2022–2024 indicates a dynamic expansion of international cooperation and a strengthening of its institutional presence at the global level. The main achievements include:

– securing funding from development funds totaling 400,000 euros;
– signing more than 10 memoranda of cooperation;
– launching the Professionals4Ukraine program, aimed at mobilizing the professional potential of the Ukrainian diaspora;
– establishing a general portfolio of 52 project proposals worth over 120 million euros;
– implementing 10 key projects in the field of Advanced Manufacturing in Brno (Czech Republic) and 40 projects in Košice (Slovakia);
– developing the Burshtyn+ program, which aims to attract investment and strengthen cross-border cooperation with Poland, Slovakia, and Germany;
– launching Enterprise Europe Network (EEN) services within the framework of promoting the internationalization of small and medium-sized businesses;
– expanding the international partnership network with organizations and institutions in Poland, the Czech Republic, Romania, Germany, France, Spain, the United Kingdom, Norway, and Denmark;
– securing UCA membership in the European Cluster Alliance and the global cluster network TCI Network, among others.

Financial, technical, and organizational support for the UCA’s activities is provided with the assistance of such key institutions and donor organizations as GIZ, UNDP, USAID, Horizon Europe, Interreg Europe, UNIDO, and the International Renaissance Foundation [9–12].

Since clustering in Ukraine has adopted a systemic character, its development is considered an instrument for enhancing the competitiveness of enterprises, integrating them into global economic processes, and stimulating innovation. The Ukrainian Clusters Alliance plays a pivotal role in this process by forming resilient partner ecosystems under the conditions of war and economic instability. Its activities are focused on attracting international investments, expanding cooperation with European institutions, and implementing advanced technologies in priority sectors, particularly the fashion industry. In this context, analyzing the activities of the PU “West Ukrainian Fashion Industry Cluster” makes it possible to isolate the factors of effective cluster management and outline strategic directions for strengthening the competitive positions of Ukrainian companies in the international market.

The PU “West Ukrainian Fashion Industry Cluster” is a professional association of enterprises, entrepreneurs, and experts in the light and textile industry sector, collaborating to develop the fashion industry and enhance its competitiveness at both national and international levels. The Cluster’s activities are aimed at forming an innovative ecosystem, supporting the creation of modern, recognizable Ukrainian brands, and promoting products labeled “Made in Ukraine” in foreign markets. Since its inception in 2018, the Cluster has focused its operations primarily in the western region of Ukraine. It unites participants interested in implementing innovation, strengthening national branding, and ensuring the sustainable development of small and medium-sized enterprises (SMEs) in the textile, light industry, and fashion sectors. The core areas of the Cluster's activity include participation in national and international exhibitions, public procurement programs, seminars, grant initiatives, the development of international cooperation, and interaction with leading industry experts [1; 21].

The primary objective of the Cluster's activity is to facilitate the sustainable development of the light industry and related sectors, ensure the innovative growth and competitiveness of its members, and protect their legal rights and interests. The Cluster aims to develop its members' brands, integrate them into international markets, and expand their global opportunities.

The participant structure of the PU "West Ukrainian Fashion Industry Cluster" encompasses representatives from various economic sectors, which facilitates a comprehensive and multidisciplinary approach to the development of the light industry. The largest share – approximately 85% – is comprised of business entities, including manufacturing companies, designers, and raw material suppliers. All of them belong to the category of small and medium-sized enterprises (SMEs), which play a vital role in strengthening the sector's competitiveness and implementing new market practices. Higher education institutions account for about 7.5% of the cluster's participants, with their primary function being the scientific and educational support of the cluster's activities. They train highly qualified personnel and contribute to the development of innovative solutions and technologies necessary for modernizing the industry. Another 7.5% consists of IT companies specializing in software development and implementation, which ensures the digitalization of business processes for cluster participants. Furthermore, they provide information system administration services, thereby enhancing enterprise management efficiency and facilitating the integration of modern digital technologies into the fashion industry.

In the process of analyzing the foreign economic activity of the PU "West Ukrainian Fashion Industry Cluster," special attention should be paid to a comprehensive examination of the cluster's initiatives aimed at revitalizing international cooperation, strengthening the competitiveness of the association's members, and ensuring their effective integration into global value chains. It is appropriate to focus on studying the cluster's participation in international exhibitions, sectoral business forums, and professional education programs, as well as analyzing established partnerships with foreign business structures and potential investors. The effectiveness of these measures should be evaluated based on a financial and statistical analysis of the cluster's member enterprises. This will help identify the extent to which the implemented initiatives have influenced export volume growth, changes in production indicators, and the expansion of foreign economic cooperation channels. The PU "West Ukrainian Fashion Industry Cluster" actively integrates into the international business environment by participating in events designed to promote Ukrainian brands in the global market. Cooperation with international organizations, state institutions, and professional associations fosters innovative development in the sector and expands its export potential. The events in which the cluster participated are systematized by category (Table 4).

In response to the challenges caused by the military conflict, the PU "West Ukrainian Fashion Industry Cluster" reoriented its activities toward securing employment, establishing new enterprises, and supporting internally displaced persons (IDPs). One of the key areas was expanding the operations of the Lviv Innovation School of Tailoring, which received an updated curriculum, material and technical support (premises, equipment), and funding for the educational process with the backing of international donors, notably the Jagiellonian Foundation and Polish Aid in cooperation with the Ministry of Foreign Affairs of the

Republic of Poland. As a result, 12 individuals out of 180 applicants completed the training program over a period of 2.5 months.

Table 4

International events with the participation of representatives of the PU "Western Ukrainian Fashion Industry Cluster" [22]

Event category	Event name	Description
Business missions	National consultations on the development of a sectoral export strategy of Ukraine (Creative Industries), 23.11.2018	Discussion of strategies for Ukrainian creative industries to enter international markets, analysis of export opportunities and potential barriers. *Partners:* International Trade Centre and the Ministry of Economic Development and Trade of Ukraine
	Italian-Ukrainian Working Group, 11.01.2019	Discussion of prospects for bilateral cooperation. *Partners:* Ukraine, Italy
	Business mission to Milan, 20-23.09.2023	Participation in Milan Fashion Week, establishing connections with international partners, visiting showrooms and the Istituto Marangoni Milan fashion institute. *Partners:* Ukraine, Italy
	Business mission to Berlin, 17-22.11.2023	Introduction to the German fashion market and collaboration with industry leaders (Carina Bischof, Waridi Pabst). *Partners:* Ukraine, Germany
Exhibition activities	Pure London, 09-11.02.2020	Participation in the world's largest designer clothing exhibition. *Partners:* Ukraine, Great Britain
	EXPO 2020 Dubai, 03.10.2021	Presentation of the achievements of Ukrainian manufacturers in the field of fashion. Partners: Ukraine, UAE
	Fashion Park Lviv, 25.03.2023 and 29.03.2024	Popularization of Ukrainian brands under the slogan "Buy Ukrainian". *Partners:* Western Ukrainian Fashion Industry Cluster, Polish-Ukrainian Chamber of Commerce, Export Support Sector of Lviv Regional State Administration, Embassy of Ukraine in Poland, Diia.Business.Warsaw
	Berlin Fashion Week, 01.07-04.07.2024	The debut of the Ukrainian fashion industry at the international level. *Partners:* Ukraine, Germany
Educational and consulting activities	Seminar "Exporting Clothing and Footwear to Canada", 11.12.2019	Training event for Ukrainian manufacturers on the specifics of exporting fashion products to Canada, market requirements and certification. *Partners:* Canada-Ukraine Trade and Investment Support Project (CUTIS Project), Canada-Ukraine Chamber of Commerce, Lviv Business School
	EU4Business, 27.12.2021	Strengthening the competitiveness and internationalization of Ukrainian SMEs. *Partners:* Ukraine and the EU
Initiative support programs	EBRD, UNDP and GIZ Ukraine grants	Providing cluster participants with modern equipment. *Partners:* Ukraine and the EU
	Financing programs for the development of production capacities	Supporting small and medium-sized businesses through EU4Business. *Partners:* Ukraine and the EU

The cluster is also developing an export support program for Ukrainian garment enterprises, aimed at mitigating product commercialization risks. In 2022, funded by the EU4Business program, two specialized seam reinforcement machines for heavy-duty garments were purchased for the Segetex-UA enterprise, with the provision that they could be utilized by all 28 member companies of the cluster. Additionally, with the support of EU4Business, the cluster organized the international exhibition “Fashion Park Lviv” in Warsaw on March 25, 2023, which facilitated the establishment of export relations for Ukrainian manufacturers. Thirteen brands participated in the event to showcase their products.

To enhance the efficiency of cluster management, the participants of the West Ukrainian Fashion Industry Cluster joined a UNDP project, which allows for mastering modern management tools and creating a platform for interaction between enterprises and donor organizations. In addition, the implementation of service contracts for consulting small and medium-sized enterprises is planned, which will provide additional opportunities for businesses in the sector. Furthermore, it is worth noting the activities of the “Astar” Sustainable Development Agency, which functions as a cluster broker and coordinator of international cooperation. In particular, the agency engaged Polish donors to cover the procurement costs for a large batch of fabrics and initiated negotiations with the European Cluster Alliance and German partners, who agreed to supply raw materials for production. In cooperation with GIZ and USAID, the cluster gained access to state-of-the-art equipment and secured orders for manufacturing textile products for internally displaced persons, as well as apparel for various population segments [18].

Since the PU “West Ukrainian Fashion Industry Cluster” is an association of enterprises and organizations aiming to enter international markets, and the cluster plays a key role in supporting this process, it is proposed to examine the activities of one of its members – Private Enterprise (PE) “Beladonna” – as a case study to evaluate the effectiveness of cluster support in conducting foreign economic activity.

PE “Beladonna” is a Ukrainian company specializing in the manufacture and sale of wearing apparel [8]. The enterprise actively conducts export operations and cooperates with international partners under the support of the PU “West Ukrainian Fashion Industry Cluster.”

To obtain relevant information regarding the foreign economic activity of PE “Beladonna,” the ABRAMS World Trade Wiki platform was utilized. This specialized business portal provides analytical access to macroeconomic and customs trade data supplied by the UN Comtrade database. This resource enables a deep analysis of enterprises’ foreign trade operations based on official statistics, thereby enhancing the reliability and objectivity of the results obtained. Additionally, online resources, namely the company’s official website and data from internet portals containing information on its foreign economic activity (FEA), were utilized [16].

PE “Beladonna” actively exports to various European countries, including France, Poland, the United Kingdom, Belgium, Germany, and the Czech Republic. France represents the largest market for the enterprise, indicating its strong competitive position in this destination, while Poland ranks second (Fig. 3).

The primary export commodities are women’s textiles, including coats, dresses, and blouses, which account for a significant share of total exports. Concurrently, the presence of goods made from synthetic fabrics and wool materials demonstrates that the company manufactures products to satisfy a wide range of consumer demands.

Table 5 outlines the commodities and their respective shares exported during the period 2021–2024.

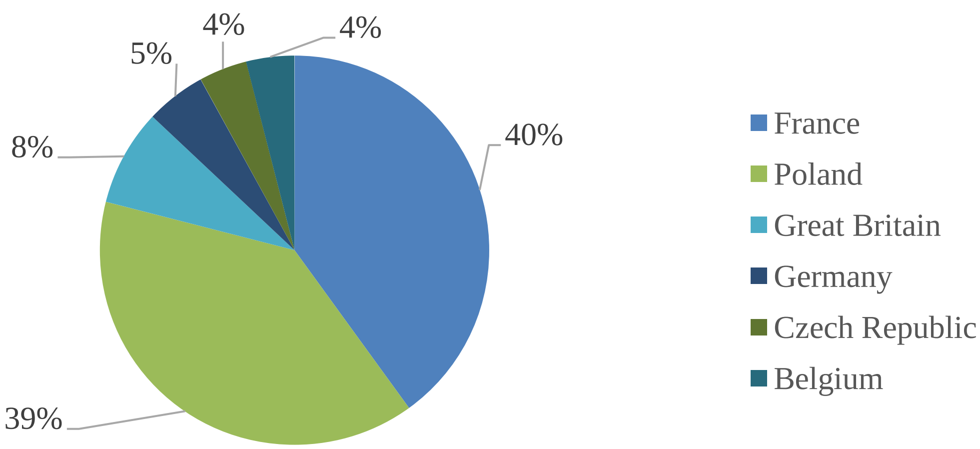

Fig. 3. Share distribution of shipments to importing countries of PE "Beladonna" products (compiled by the author based on data from [16])

Table 5

Commodities exported by PE "Beladonna" in 2021–2024

Product positions	Shares by year, %			
	2021	2022	2023	2024
Work clothes (overalls, uniforms, gowns)	22	26	32	34
Outerwear: jackets, coats, blazers	18	21.5	28	30
Underwear (women's, men's)	10	13	16	17.5
Knitwear (T-shirts, pajamas, tank tops)	9	12	14.8	16
Women's dresses	13	16.5	20	22.5
Children's clothing	8	10.5	13	14
Clothing accessories (belts, collars, clothing decorations)	8	9	10.5	11
Knitted or embroidered fabrics	7.5	8.5	9	10
Synthetic fibers (raw material/semi-finished product)	6	6.5	7.2	8
Other textile products	6	6	6.5	7

Compiled by the author based on data from [16]

The data analysis reveals steady growth in export volumes across the majority of commodity groups, indicating the expansion of the enterprise's foreign economic activity and rising demand for its products in the international market. Workwear (overalls, uniforms, gowns) consistently accounts for the largest share of exports, increasing from 22% in 2021 to 34% in 2024. This trend may be driven by heightened demand for specialized clothing in partner countries, as well as the active adaptation of production lines to customer requirements. Positive dynamics are also demonstrated by the categories of outerwear, women's dresses, underwear, and knitted garments, which evidences the strengthening of PE "Beladonna's" position in the field of fashion textiles and casual wear. Notably, the export share of children's clothing increased from 8% in 2021 to 14% in 2024, indicating an expansion of the enterprise's target markets and product range.

There is also a gradual increase in the export of clothing accessories, knitted/embroidered fabrics, synthetic fibers, and other textile products, indicating the diversification of the product portfolio and the efficient utilization of manufacturing remnants or raw materials. Overall, the export structure demonstrates the enterprise's effective marketing policy, commitment to product quality, and a clear understanding of international market needs. The positive growth dynamics across all commodity groups confirm the competitiveness of PE "Beladonna" within the light industry sector.

To evaluate the efficiency of foreign economic activity, key performance indicators for the FEA of PE "Beladonna" were identified (Table 6).

Table 6

Foreign economic activity indicators of PE "Beladonna" in 2021–2024

Indicators \ Years	2021	2022	2023	2024
Produced, tons	38.2	52.4	87.6	63.1
Exported, tons	12.4	25.7	45.3	21.6
Imported, tons	5.3	6.2	4.8	7.1
Export volume, units	12340	17820	47260	15370
Import volume, units	7130	11730	15980	8720
Profit from export-import operations, UAH	14530	36410	92560	28740
Export-import costs, UAH	92840	135210	270860	118470
Profit from exports, UAH	506370	1168690	2184820	1116380
Profit from imports, UAH	201830	277940	486370	340752
Export costs, UAH	274120	356360	724140	674430
Import costs, UAH	31645	50450	68470	41030
Export revenues, UAH	232250	812330	1460680	441950
Revenues from imports, UAH	170185	227490	417900	299722

Compiled by the author based on data from [8]

The analysis of the foreign economic activity indicators of PE "Beladonna" for the period 2021–2024 reveals significant fluctuations in both absolute and relative efficiency metrics. In 2022, compared to 2021, there was a substantial increase in both production and export volumes, which is evidenced by the growth in absolute deviations by 14.2 tons and 13.3 tons, respectively, alongside a marked rise in relative deviations – by 137.2% and 207.3%. However, imports remained low, reflecting only a minor increase in the absolute indicator by 0.9 tons.

In 2023, the enterprise maintained its positive dynamics in terms of production and export volumes; however, a decline in imports by 1.4 tons was recorded. Compared to the previous year, the absolute deviations for production and exports increased significantly (by 35.2 tons and 19.6 tons, respectively), indicating an enhancement in foreign economic performance. Relative deviations grew by 167.2% for production and 176.3% for exports, confirming a high growth rate in these areas. Conversely, imports decreased by 1.4 tons, causing a 77.4% reduction in the relative metric.

In 2024, a reverse dynamic was observed: production volumes, exports, and profits from export-import operations declined. This is reflected in negative absolute deviations for production and exports, specifically at -24.5 tons and -23.7 tons, respectively. Relative deviations also decreased, indicating a significant deceleration in growth rates and a certain decline in the efficiency of foreign economic activity. Concurrently, imports increased by 2.3 tons, which is reflected in a 147.9% growth of the relative metric.

In 2022, PE “Beladonna” demonstrated a notable increase in profitability resulting from the intensification of export-import operations, which, in turn, positively influenced the total volume of revenues from foreign economic activity. However, as early as 2023, a substantial increase in expenditures associated with the execution of foreign economic operations was recorded, particularly within export and import activities, leading to a decline in the enterprise’s profitability level. In 2024, a reduction in foreign trade revenues was observed, which may indicate a decrease in the economic efficiency of the enterprise’s operations within the international environment. Overall, the results of the analysis of PE “Beladonna’s” foreign economic activity dynamics for the 2021–2024 period provide grounds to conclude that there are both positive developments and specific problematic aspects that necessitate the updating and adjustment of current strategic approaches. Such a review is expedient given the need to ensure long-term stability and enhance the enterprise’s performance in international markets.

To objectively evaluate the level of economic efficiency of PE “Beladonna’s” foreign economic activity, it is appropriate to calculate the relevant indicators (Table 7).

Table 7

Calculation of export economic efficiency indicators for PE “Beladonna”

Years / **Indicators**	**2021**	**2022**	**2023**	**2024**
Foreign trade balance, in tons	7.1	19.5	40.5	14.5
Foreign trade balance, UAH	304540	890750	1698450	775628
Profitability of foreign economic activity	0.16	0.27	0.34	0.24
Export efficiency	1.85	3.28	3.02	1.66
Export profitability	0.85	2.28	2.02	0.66

In 2021, the FEA balance in tons amounted to 7.1 tons, while in monetary terms it stood at UAH 304,540. The FEA profitability at this stage was at the level of 0.16, indicating a modest but positive result from foreign trade. Concurrently, the export efficiency of 1.85 and the export profitability of 0.85 evidence an initial growth in profitability from foreign trade. Although these indicators were relatively low, they had a favorable impact on the enterprise’s development, allowing for a gradual increase in foreign trade volumes. In 2022, a significant growth in indicators was observed. The FEA balance increased to 19.5 tons (UAH 890,750), indicating an enhancement in foreign economic activity.

The FEA profitability rose to 0.27, pointing to improved efficiency in conducting business in international markets. Meanwhile, export efficiency increased to 3.28, reflecting a substantial expansion in export volumes and heightened profitability derived from them. Export profitability also grew significantly to 2.28, demonstrating a high level of returns from foreign trade during this period. In 2023, the enterprise achieved an even higher FEA balance of 40.5 tons (UAH 1,698,450), indicating further success in foreign economic activity. However, despite the high values of the balance and FEA profitability (0.34), export efficiency and export profitability decreased slightly (to 3.02 and 2.02, respectively). This trend could be the result of rising export costs or instability in foreign markets, which negatively affected profitability. In 2024, a certain decline in efficiency indicators occurred, as the FEA balance decreased to 14.5 tons (UAH 775,628) and FEA profitability dropped to 0.24. Export efficiency decreased to 1.66, and export profitability fell to 0.66. This may signal certain difficulties in the markets or a decline in the competitiveness of PE “Beladonna’s” products. Nevertheless, despite the downturn in 2024, the enterprise still maintains a positive balance and profitability, proving its potential for the stable development of foreign trade.

Conclusions. The development of clustering in Ukraine possesses significant potential for the effective integration of business initiatives with state structures, which will contribute to unlocking the country's economic potential. Clusters can become an effective mechanism for supporting small and medium-sized enterprises, overcoming financial and economic challenges, and stimulating sustainable development. The active formation of clusters is a crucial element in creating a favorable business environment, expanding the country's export capabilities, and ensuring Ukraine's steady advancement along the path of European integration.

The further evolution of cluster associations in Ukraine is determined by a number of essential factors, among which consistent state support, targeted investments in education and scientific research, and a high level of business interest in cooperation and the implementation of innovative solutions are particularly significant. Clusters are capable of becoming drivers of economic progress for individual enterprises, as well as for regions and the country as a whole, creating a foundation for sustainable development and deeper integration of Ukraine into global economic processes. Implementing a comprehensive approach to the creation and functioning of cluster structures, along with adapting the most successful world practices, opens up substantial opportunities for achieving progress toward economic transformation. Ultimately, this will contribute to the formation of viable, innovation-oriented, and competitive clusters capable of operating effectively in international markets and strengthening Ukraine's economic position on the global stage.

Based on the analysis conducted, it can be argued that the light industry, despite wartime challenges, retains its strategic significance for the stability of the Ukrainian economy. Although the sector experiences difficulties related to changes in supply chains, customs barriers, and declining export volumes, enterprises demonstrate flexibility and an orientation toward new markets. The data indicate a downward trend in the number of entities in 2020–2022; however, a minor recovery occurred in 2023, signaling a possible stabilization of the industry.

At the same time, exports of textiles, apparel, and footwear decreased, which is a consequence of Ukrainian manufacturers losing their competitive positions in the global market. Concurrently, a growth in product imports is noted, indicating the industry's dependence on foreign raw materials, which may pose a challenge to the sustainable development of domestic manufacturing.

In order to enhance competitiveness and further develop foreign economic activity, it is necessary to strengthen international cooperation, attract investments, implement effective marketing strategies, and adapt the product range to the requirements of foreign markets. State support remains equally important – through grant programs, preferential lending, and facilitating integration into the European market. Only under such conditions will light industry enterprises be able to strengthen their positions on the international stage and adapt to the changing conditions of the global environment.

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