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Iryna FEDULOVA, DSc (Econ.), Prof.
ORCID: 0000-0002-8802-137X
e-mail: i.fedulova@knute.edu.ua
State University of Trade and Economics, Kyiv, Ukraine

Vadym STADNYK, PhD Student,
ORCID: 0009-0004-2998-6851
e-mail: v.stadnyk@knute.edu.ua
State University of Trade and Economics, Kyiv, Ukraine

QUANTIFYING THE INTERNATIONALIZATION CAPACITY OF SMALL AND MEDIUM-SIZED ENTERPRISES

Background. *The article examines the problem of involvement of Ukrainian small and medium-sized businesses in foreign economic activity (FEA) in the context of deep structural changes caused by martial law, the transformation of the global economy, and digitalization. The relevance of the topic is driven by the need to formulate an effective policy to support small and medium-sized businesses to boost exports, imports, and integration into international markets, which are critical to the country's economic recovery. The purpose of the study is to quantify the export capacity, import activity, and overall involvement of enterprises of different sizes in FEA, as well as to identify barriers and formulate measures to enhance the internationalization of small and medium-sized businesses.*

Methods. *The methods of statistical analysis, comparative approach, normalization of indicators (min-max method), and construction of integral indices are used in the study. An empirical analysis of the statistical data of the State Statistics Service of Ukraine for 2016–2023 is carried out.*

Results. *The results show that micro and small enterprises have increased the efficiency of export and import activities, especially under martial law, while large enterprises have lost momentum. The indices of export capacity, import activity, and overall involvement in FEA were constructed, which allowed us to establish the leadership of medium-sized enterprises in terms of export capacity in 2023 and the growth of import intensity of microenterprises. Barriers related to lack of funding, certification difficulties, and low digital readiness have been identified.*

Conclusions. *The practical value of the study lies in the proposed tools for assessing the participation of small and medium-sized businesses in FEA and recommendations for supporting their internationalization.*

Keywords: *small and medium-sized business, foreign economic activity, export capacity, import activity, involvement in foreign economic activity, digitalization, e-commerce, barriers to foreign economic activity.*

Background

The introduction of martial law has led to structural changes in the national economy and forced the country to adapt its economic mechanisms to new conditions, as the destruction of production facilities, loss of qualified personnel due to forced migration and a sharp decline in demand in the domestic market make it more important than ever to ensure economic stability, which is becoming a significant challenge for the government and the business environment (Ministry of Economy of Ukraine, 2024). Such global challenges are driving transformation processes aimed at finding alternative ways of development and adaptation to new conditions, including access to international markets and active use of digital technologies.

Despite these challenges, a significant number of SMEs have managed to adapt; some have rebuilt their business models, while others have integrated into the wartime economy and supported humanitarian initiatives. At the same time, there is still the issue of finding opportunities to build new strategies for development and survival. In such circumstances, an international market entry strategy becomes an important tool for ensuring business sustainability.

Given the transformation of global trade relations, the digitalization of the economy, and the growing importance of production chain sustainability, it is of particular importance to increase the participation of small and medium-sized businesses (SMEs) in FEA. Despite their flexibility, innovation, and adaptability, SMEs often face many barriers to entering international markets. At the same time, the level of SME involvement in exports, imports, and international cooperation is largely determined not only by external factors but also by the internal ability of enterprises to implement their foreign economic strategy.

The purpose of the study is to quantify the export capacity, import activity, and overall involvement of enterprises of different sizes in FEA, as well as to identify barriers and formulate measures to enhance the internationalization of small and medium-sized businesses. The object of this research is the FEA of Ukrainian enterprises, categorized by size. The subject of the research is the structural and dynamic variations in FEA across enterprise sizes, including the effects of digitalization and systemic barriers on the development of targeted policy recommendations. The research objective leads to the formulation of the following hypotheses.

H1: The participation of Ukrainian SMEs in FEA varies significantly across enterprise size categories, with firms of different scales demonstrating distinct levels of export potential, import intensity, and overall engagement in international trade.

H2: Policy measures aimed at enhancing the export potential, import activity, and overall internationalization capacity of SMEs should be differentiated according to enterprise size, activity level, and the specific structural and institutional barriers constraining their development.

The scientific novelty of the study lies in the proposed methodology for assessing the level of involvement of enterprises of different sizes in foreign trade and systematizing the barriers and opportunities for these enterprises to carry out such activities.

Literature review. SMEs are the backbone of Ukraine's economy, accounting for 99.98 percent of all business entities, providing 74 percent of all jobs, and generating

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64 percent of added value (United Nations Development Programme in Ukraine, 2024).

It is noted that 40 percent of companies consider export development as a strategy to overcome the crisis under martial law (CID.CENTER, 2022). Integration into global value chains allows for expanding the market, increasing openness, and taking advantage of knowledge sharing and efficiency gains (E.Verhoogen, 2023). Thus, internationalization gives SMEs a chance not only to survive under martial law but also to expand their capabilities, adapt their business to global standards, and create a solid foundation for post-war economic recovery.

The relevance of assessing SMEs' ability to engage in foreign trade is driven by the need to develop an effective state policy to support export and import activities, particularly in the context of Ukraine's integration into the European market and post-war recovery. A comprehensive assessment of the ability of enterprises of various sizes (micro, small, medium) to conduct FEA, as well as the identification of key barriers and growth points, is a prerequisite for the development of sound recommendations for strengthening the international competitiveness of SMEs.

According to the bibliometric analysis of 195 scientific sources from the Scopus database by R. Chopra et al. (2024), the key factors of SMEs' ability to participate in foreign trade are managerial resources, innovation capacity, access to market information, and digital competencies. The study also outlines typical barriers to SME internationalization, including information, financial, institutional, and cultural constraints, which coincide with the findings of our analysis. SME internationalization is defined as a strategic process of enterprises entering foreign markets, which includes not only exports but also the expansion of partnership networks, product adaptation, and digital transformation.

A survey of 110 enterprises conducted by AKM Asaduzzaman Patwary et al. (2024) showed that the export capacity of SMEs is closely related to the structural characteristics of the enterprise: size (number of employees), experience (length of service), and market type, and is significantly limited by financial and institutional barriers. The constraints identified in this study are similar to those identified for Ukrainian SMEs: lack of information, complexity of certification, and lack of government support.

The study by Sulhan and Sudarmiatin (2022) showed that with a combination of high product quality, active digital promotion, and local association support, SMEs can implement an aggressive strategy of expanding into international markets even in the face of external risks. The authors emphasize the synergy of a quality product, digital presence, and institutional cooperation, which allows SMEs to implement a proactive internationalization strategy, even in a highly volatile environment.

According to Sudarmiatin et al. (2024), SME internationalization requires a comprehensive approach, namely a combination of internal motivation and adaptation to external conditions, such as access to finance, government support, and cooperation development. The barriers identified in this study – lack of coordination, regulatory complexities, and weak institutional support – reflect universal problems of SMEs, including those in Ukraine. The proposed "government-business-universities (+society)" model of internationalization emphasizes the importance of synergies between business, government, and the educational environment.

According to Ratten (2023a), digital platforms have become a key tool for the internationalization of SMEs. The author emphasizes that internationalization in the digital era no longer requires a step-by-step build-up of experience but can be realized through inclusion in digital ecosystems. This opens new opportunities but also increases the dependence of SMEs on the level of innovation and digital skills. Digital platforms such as Amazon, Alibaba, or Etsy act as a driver of internationalization and significantly reduce barriers to entry for SMEs in global markets. They are turning internationalization into a digital transformation. This enables new types of entrepreneurships in digital ecosystems, namely, instead of the traditional search for markets, they are embedded in existing global networks. SMEs get access to market information, logistics, and cross-border payments without intermediaries.

Denicolai, Zucchella, and Magnani (2021) investigated the interaction between three growth paths of SMEs: internationalization, digitalization, and sustainable development. The results of an empirical study of 438 enterprises showed that readiness for artificial intelligence has a positive impact on the international activities of SMEs. Among other things, the authors found that digitalization and sustainability are positively related, but they become competing growth paths when a firm enters the international market. According to the authors, a new scenario is emerging where sustainable development is increasingly becoming a "meta-driver" that can strengthen other growth paths, such as digitalization or internationalization.

According to Lobo et al. (2020), the international market entry of SMEs depends on a number of factors, including cultural differences, company traditions, venture capital, transaction costs, resources and capabilities, products, and competitors. The authors also note that the evolution of information and communication technologies has given SMEs access to customers, suppliers, and employees around the world. The study identified the following as control variables for determining activity in foreign trade: economic activity, company age, size (number of employees), and the share of company turnover from internationalization. The authors consider the decision of SMEs to enter the international market as a tool in response to external pressure within their own country.

Gron and Sikalenko (2021) analyzed the methods and indicators for assessing the level of export potential of an enterprise. The researchers proposed to determine the export potential in production, finance, human resources, export opportunities, competitiveness of export products, and participation in international industrial cooperation. For each area, the express assessment identifies indicators that allow for determining the export capabilities of an enterprise. The proposed methodology reveals more about the content of the effectiveness of the enterprise's export activity, although it may indirectly indicate the enterprise's ability to carry out such activities.

According to Blyzniuk (2023), Ukrainian enterprises should focus on foreign markets to survive. The author identifies the insufficient number of solvent customers in the domestic market as the main problem on the way to business recovery and development. Therefore, one of the ways to overcome this problem is to develop exports. Digitalization processes provide SMEs with important support tools: analytics of foreign markets, educational events, consulting, tools for finding foreign partners, grants from the state and donor organizations (Blyzniuk, 2023).

Analysis across OECD countries (Sakiru, Gil-Alana, & Gonzalez-Blanch, 2022) shows that improving framework conditions, such as enhancing the rule of law, reducing regulatory burdens, providing adequate physical infrastructure, and supporting innovation, contribute to

economic sophistication and make it easier for companies to enter the international market.

An important factor that has a significant impact on the process of entering the international market for SMEs is digitalization, which plays a fundamental role. The continuous development of information and communication technologies has greatly expanded the opportunities for cross-border e-commerce, which has become a new, effective way to enter the international market (Cassia, & Magno, 2022).

Gamova (2023) argues that e-commerce has become an essential component of the global trading system and a catalyst for globalization. It constitutes one of the principal factors influencing the growth of average national income (GDP per capita) and long-term macroeconomic productivity, thereby reinforcing global interdependencies among economies. The author further notes that the Ukrainian e-commerce market is projected to grow at an annual rate of 9% between 2021 and 2025, surpassing the global average of 6%. For SMEs seeking to expand internationally, Gamova identifies several systemic and market-related risks, including global crises, deceleration of global economic growth, logistical and infrastructural constraints, market saturation, competition, domestic market orientation, and uneven globalization.

Vergeles and Bayura (2024) contend that, in conditions of economic instability, SMEs can enter international markets only through organizational transformation, with digitalization serving as a pivotal mechanism for accelerating market expansion and developing new income streams. Nevertheless, macroeconomic and geopolitical instability in Ukraine, coupled with internal challenges such as cybersecurity vulnerabilities and shortages of skilled personnel and digital expertise, continue to present significant barriers to effective business internationalization.

Thus, the need for SMEs to enter the international market is driven by several reasons: survival under martial law conditions (loss of resources, markets, logistics); search for stable sources of income and foreign exchange earnings; increasing sustainability through market diversification; increasing competitiveness and implementing European standards; the opportunity to become part of global value chains (GVCs); increasing economic complexity and business innovation.

The literature review identified the following barriers to SME exports, imports, and FEA: infrastructural (loss of production capacities, logistics disruptions (blockade of ports, transportation restrictions)); financial (high rates, instability of the banking system, lack of access to grants); human resources (outflow of specialists, lack of knowledge in foreign trade, language barriers) institutional (inspections, fragmented support, lack of coordinated policy); communication (lack of partners in the EU, distrust of SMEs from Ukraine, poor awareness); certification and standards (high cost of compliance with EU standards, and complexity of procedures).

It should be borne in mind that enterprises of different sizes demonstrate different capacities for importing, exporting, foreign trade, digitalization, e-commerce, and adaptation to modern sales channels. Thus, taking into account these features allows us to identify barriers and areas for intensifying foreign trade. For Ukraine, this is important for active integration into the global economy, as well as for the formation of new approaches to the participation of enterprises in global markets.

Methods

Empirical analysis and the method of theoretical generalization of scientific literature were used to determine the views of scientists on the essence and tools for assessing the level of readiness of enterprises to engage in FEA. Summarizing theoretical approaches, the study focused on building methodological tools for assessing the export, import, and overall ability of SMEs to participate in foreign trade.

Comparative statistical analysis was used to compare the trends in FEA for enterprises with different numbers of employees, as one of the basic criteria for dividing enterprises by size, as provided by law (On Accounting and Financial Reporting in Ukraine, 1999: Law of Ukraine; Commercial Code of Ukraine: Law of Ukraine): micro – up to 10 people; small – up to 50; medium – up to 250; large – over 250.

Methods of statistical data analysis were used to identify trends in the involvement of SMEs in foreign trade in 2016–2023. In particular, attention was paid to the study of trends in the activity of enterprises with different numbers of employees in the implementation of FEA by the following indicators: percentage share of exports in total section; sales of imports in total section sales; exports per each employed worker in thousand USD; imports per each employed worker, in thousand USD; exports per 1 UAH of personnel costs; imports per 1 UAH of personnel costs; volume of products sold per each employed worker, UAH thousand; and volume of products (goods, services) sold by enterprises received from e-commerce as a percentage of the total volume. This made it possible to determine which types of enterprises, in terms of the number of employees, demonstrate higher involvement in foreign trade to compare the results with the policy of supporting foreign trade and SMEs, and to formulate the main obstacles that arise in the course of such activities.

A review of the methods used in world practice to assess the readiness of enterprises for foreign trade and the efficiency of foreign trade, and the results of statistical analysis of the export and import activity of SMEs, allowed us to propose a methodological approach to determining the export capacity, import activity, and overall participation in foreign trade for enterprises with different numbers of employees. This was done by combining economic and statistical analysis with analytics of FEA and using an index approach with preliminary normalization of variables using the min-max method. The following indicators were used for the export capacity index: percent of the share of exports in the total sales of the section; exports per employed worker, in thousand USD; exports per 1 UAH of personnel costs; volume of products sold per employee in thousand UAH. The following indicators were used for the import activity index: percent share of imports in total section sales; imports per one employed worker, in thousand USD; imports per UAH 1 of personnel costs; volume of products sold per employed worker in UAH thousand. The following indicators were used for the index of total participation in FEA: percent share of exports in the total sales of the section; share of imports in the total sales of the section; exports per each employed worker, as thousand USD; imports per each employed worker, as thousand USD; exports per 1 UAH of personnel costs as UAH; imports per 1 UAH of personnel costs; volume of products sold per each employed worker, as thousand UAH; volume of products (goods, services) sold by enterprises received from e-commerce as a percentage of the total volume. The purpose of this assessment was to determine the level of involvement of SMEs in foreign trade, as well as to consider the impact of export and import and SME support policies in Ukraine. This made it possible to build a systematic list of barriers that hinder the participation of SMEs in foreign trade and to outline the main measures to intensify this activity.

The main data sources were official reports of the State Statistics Service of Ukraine, which provided information on the performance of SMEs.

Graphical methods were used to illustrate theoretical and practical materials.

Results

Since 2016, the policy of state support for exports, imports, and foreign trade of SMEs in Ukraine has gone through a number of successive stages reflecting the evolution from a declarative strategy to systemic digital integration.

On January 1, 2016, the Association Agreement and DCFTA (Deep and Comprehensive Free Trade Area) between Ukraine and the EU entered into force, aimed at harmonizing tariffs, sanitary and technical standards (Bala, & Ivantsyk, 2024). At the initial stage (2016–2017), the strategic framework for SME support was laid by adopting the Export Strategy of Ukraine (the so-called Roadmap for 2017–2021), which, for the first time, focused on the needs of small businesses in international trade. During this period, policy priorities were mainly formulated without a developed infrastructure for their practical implementation.

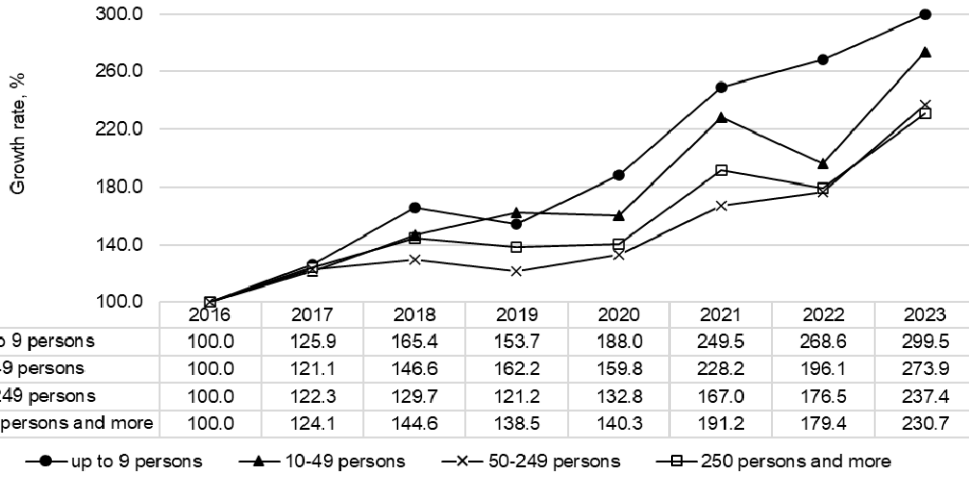
In 2018–2019, the policy was institutionalized. The Export Promotion Office of Ukraine was established, export clusters were formed, and training programs were introduced in cooperation with international organizations (EBRD (European Bank for Reconstruction and Development), GIZ (Deutsche Gesellschaft für Internationale Zusammenarbeit), CUTIS (Canada-Ukraine Trade and Investment Support Project), etc.) The first examples of SME participation in business-to-business (B2B) forums, trade missions, and advisory initiatives have emerged.

In response to the COVID-19 pandemic (2020–2021), support policies were rapidly adapted to digital formats. Online platforms, including a single export web portal, were introduced, and virtual exhibitions, trade meetings, and webinars were made available. This stage is characterized by SMEs turning to e-commerce and digital marketing as an alternative to traditional export channels.

After the start of the full-scale Russian invasion (starting in 2022), the government focused its efforts on anti-crisis and relocation support for SMEs' export potential. The Relocate for Export program was launched, logistics and certification costs were compensated, and international assistance was intensified. The Diia.Business (Ministry of Digital Transformation of Ukraine, n. d.-b), UkraineNow (Ministry of Culture and Strategic Communications of Ukraine, n. d.), and Export Recovery Platform platforms have become key channels of communication and mobilization of SMEs for foreign trade in difficult security conditions.

Since 2024, there has been a gradual transition to an integrated, digitally-oriented export policy, which involves unifying access to finance, knowledge, logistics, and promotion within a single digital ecosystem. It is expected to expand the functionality of export platforms, introduce ESG approaches to foreign trade, and strengthen the participation of SMEs in global value chains (GVCs).

Figure 1 shows the growth rate of output per employed worker at enterprises of different sizes (classified according to Ukrainian legislation in Table 1) compared to 2016.



	2016	2017	2018	2019	2020	2021	2022	2023
up to 9 persons	100.0	125.9	165.4	153.7	188.0	249.5	268.6	299.5
10-49 persons	100.0	121.1	146.6	162.2	159.8	228.2	196.1	273.9
50-249 persons	100.0	122.3	129.7	121.2	132.8	167.0	176.5	237.4
250 persons and more	100.0	124.1	144.6	138.5	140.3	191.2	179.4	230.7

Fig. 1. Growth rate of output per employed worker by number of employees in % compared to 2016

Source: calculated by the authors based on data from the State Statistics Service of Ukraine (2024): value of output of entities of large, medium, small, and micro-entrepreneurship by type of economic activity in 2013–2023.

The analysis showed that from 2016–2023, all categories of enterprises showed an increase in this indicator, but especially micro and small enterprises. Since 2016, micro and small enterprises have been outpacing large ones in terms of sales per employee. During the analyzed period, the volume of output per 1 employed worker increased almost 3 times for micro enterprises, 2.7 times for small enterprises, 2.4 times for medium-sized enterprises, and 2.3 times for large enterprises. This indicates a marked increase in labor efficiency in SMEs, especially among micro and small enterprises, which demonstrate flexibility and adapt to changes more quickly.

Figure 2 shows the volume of output per each employed worker as a percentage of the same indicator for microenterprises.

Since 2016, the gap between the volume of output per each employed worker of large, medium, small, and micro-enterprises has been widening. While in 2016 this indicator for large enterprises was at the same level as the same indicator for microenterprises, in 2023 it was already 76.6 percent. In 2023, the highest values of this indicator were at micro and small enterprises, respectively, UAH 3046.5 and 3058.3 thousand. This indicates that the transformations taking place in the economy are reducing the benefits and mitigating the barriers to doing business for enterprises of different sizes.

Figures 3, 4 show the shares of exports and imports as a percentage of total exports and imports of enterprises of different sizes, respectively.

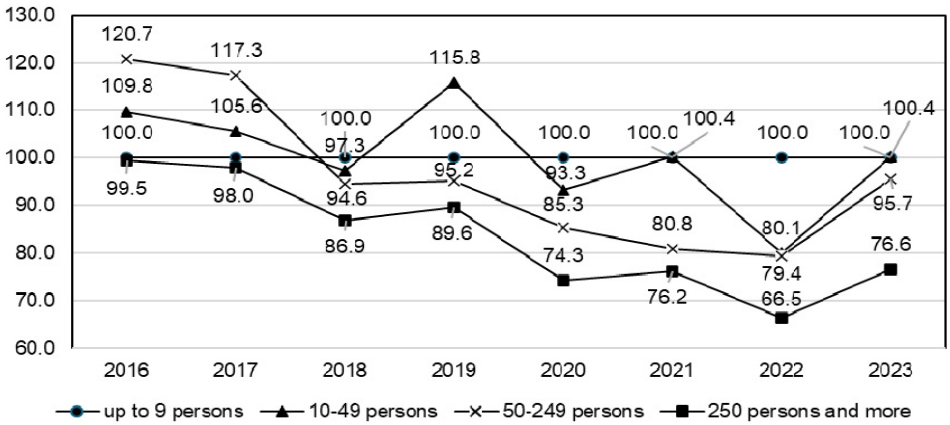


Fig. 2. Output per employed worker in enterprises of different sizes as a percentage of the same indicator for microenterprises

Source: calculated by the authors based on data from the State Statistics Service of Ukraine (2024): value of output of entities of large, medium, small, and micro-entrepreneurship by type of economic activity in 2013–2023.

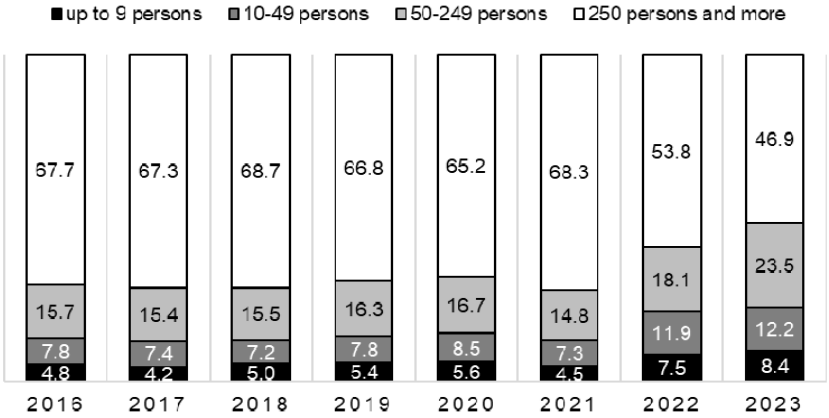


Fig. 3. Share of exports as a percentage of total exports by number of employees

Source: compiled by the authors based on data from the State Statistics Service of Ukraine (2024): exports of goods by economic entities by number of hired workers by types of economic activity in 2016–2023.

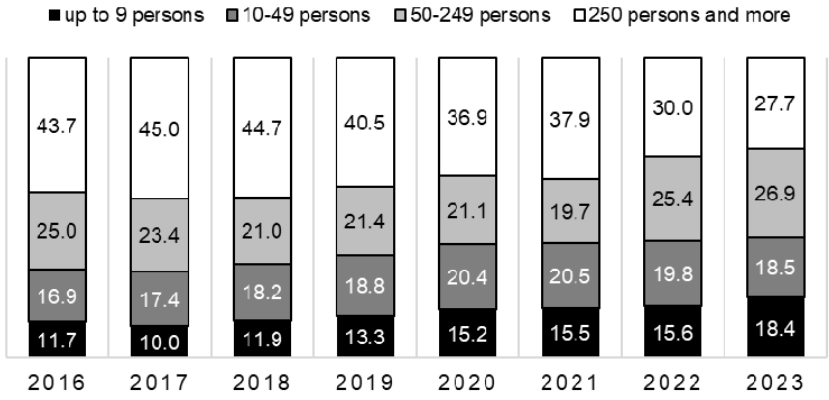


Fig. 4. Share of imports in percent of total imports by enterprises by number of employees

Source: compiled by the authors based on data from the State Statistics Service of Ukraine (2024): import of goods by economic entities by number of hired workers and by types of economic activity in 2016–2023.

The share of exports of large enterprises as a percentage of total exports of enterprises is steadily declining: from 67.7 percent (2016) to 46.9 percent (2023). Meanwhile, SMEs are increasing their export activity, but with different intensity. Thus, the share of exports by microenterprises increased from 4.8 percent to 8.4 percent over the study period; by small enterprises, from 7.8 percent to 12.2 percent; and by medium-sized enterprises, from 15.7 percent to 23.5 percent. Medium-sized enterprises showed a particularly significant increase in 2022–2023.

Also, during the study period, there was a sharp drop in the share of imports by large enterprises: from 43.7 percent (2016) to 27.7 percent (2023). Small enterprises consistently hold between 16.9 percent and 18.5 percent of the market. In 2023, medium-sized enterprises became the leaders among SMEs in terms of imports (26.9 percent), but their share increased by only 1.9 percentage points over the study period. The share of microenterprise imports in total enterprise imports showed the largest increase from 11.7 percent in 2016 to 18.4 percent in 2023.

Thus, there is a gradual decrease in the monopoly of large enterprises on exports. Medium-sized businesses are becoming active participants in foreign trade, while micro and small enterprises are beginning to strengthen their positions.

In 2022–2023, the share of exports by medium and micro enterprises increased, while the share of imports increased only by micro enterprises. This is partly because from June 29, 2022, to June 5, 2025, Ukraine and the European Union signed an agreement on duty-free transportation to the EU ("permit-free" roads). The agreement cancels the requirement for Ukrainian carriers to obtain appropriate permits for bilateral and transit transportation to the EU and avoids stopping the export of Ukrainian products through road checkpoints (logist.fm, 2025). In view of this, the requirements for SMEs to enter international markets have been eased.

Among other things, imports are becoming more diversified, and large companies are losing share to medium-sized enterprises. This indicates a greater involvement of SMEs in global supply chains.

Under the auspices of the United Nations, a survey was conducted to identify threats and limitations to the impact of the conditions under martial law on micro, small, and medium-sized enterprises in Ukraine (United Nations Development Program in Ukraine, 2024). percent do not carry out FEA at all, 10.9 percent carry out only export operations, 13.1 percent carry out only import operations, 10.8 percent carry out export-import operations, and 8.0 percent plan to enter the international market in 2024.

Figures 5, 6 show, respectively, exports and imports for each employed worker for enterprises of different sizes.

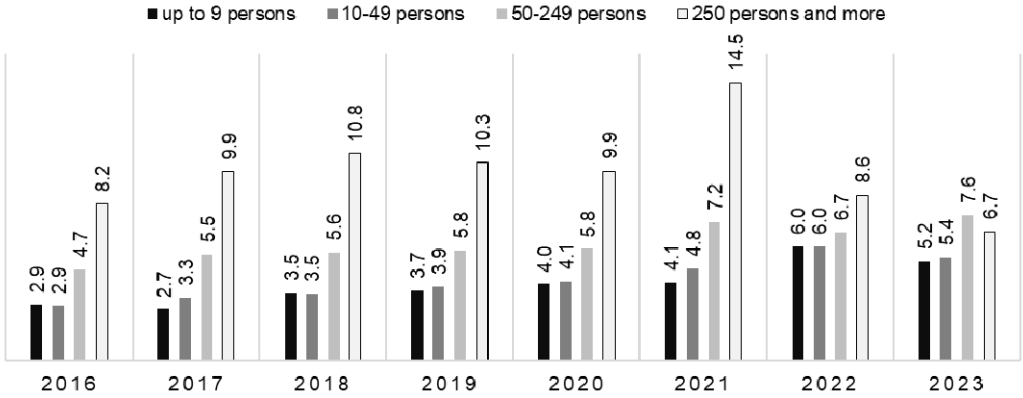


Fig. 5. Exports per each employed worker of enterprises of different sizes, thousand USD

Source: calculated by the authors based on data from the State Statistics Service of Ukraine (2024): exports of goods by economic entities, by number of hired workers and by types of economic activity in 2016–2023: State Statistics Service of Ukraine (2024): valu e of output of entities of large, medium, small, and micro-entrepreneurship by type of economic activity in 2013–2023.

The largest value of exports per each employed worker was observed at large enterprises, followed by medium-sized enterprises, and with a small margin, almost the same value at small and micro enterprises. In general, in 2016–2023, exports per each employed worker at microenterprises increased by 1.8 times, at small enterprises by 1.9 times, and at medium-sized enterprises by 1.6 times. At large enterprises, exports per employee in 2023 amounted to 82 percent of the level of 2016. Micro- and small enterprises saw a gradual increase in exports per employee from 2016 to 2021, with a sharp jump in 2022 (likely due to staff reductions while exports remained stable). Large enterprises, after peaking in 2021 (USD 14.5 thousand), experienced a sharp drop in 2022–2023 to USD 6.7 thousand, i.e., by 53.8 percent in 2 years. Medium-sized enterprises in 2023 have the highest figure ($7.6 thousand) among all groups.

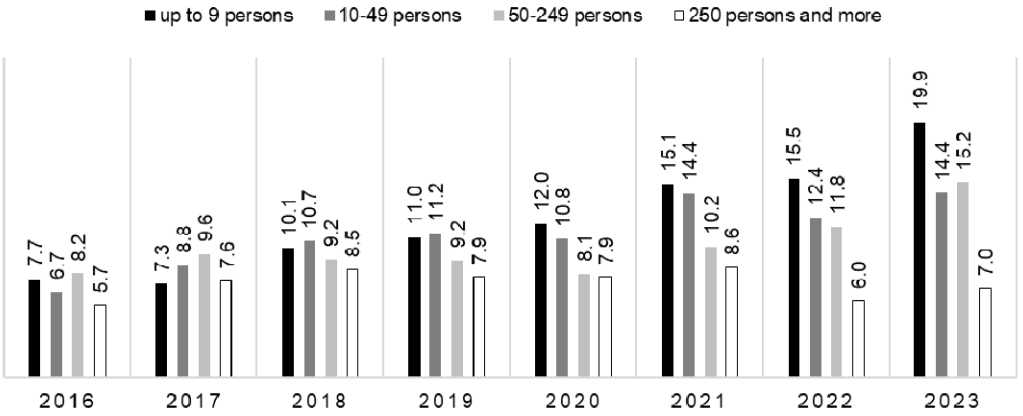


Fig. 6. Imports per each employed worker of enterprises of different sizes, thousand USD

Source: calculated by the authors based on data from the State Statistics Service of Ukraine (2024): import of goods by economic entities, by number of hired workers and by types of economic activity in 2016–2023; State Statistics Service of Ukraine (2024): value of output of entities of large, medium, small, and micro-entrepreneurship by type of economic activity in 2013–2023.

The highest value of imports per employee was observed in microenterprises, followed by SMEs, and in last place, large enterprises. In particular, in 2023, imports per employee at large enterprises amounted to 35 percent of the

level of microenterprises and about 45–48 percent of the level of SMEs.

The largest increase in imports per employee is demonstrated by microenterprises: from 7.7 to 19.9 thousand USD, which means a 2.6-fold increase over 2016–2023, the highest intensity among all groups. Medium-sized enterprises have also stepped up their imports: from 8.2 to 15.2 thousand USD, which is a 1.9-fold increase over seven years. Large enterprises have hardly changed their import intensity, and it even fell from 8.6 thousand USD per employee in 2021 to 7.0 USD in 2023. Overall, large enterprises increased their import intensity by 20 percent in 2016–2023.

Figures 7–8 show, respectively, the exports and imports of personnel costs by the number of employees. Exports per UAH of personnel costs show the efficiency of exports relative to personnel costs. Imports per UAH of personnel costs show the intensity of import activity relative to personnel costs.

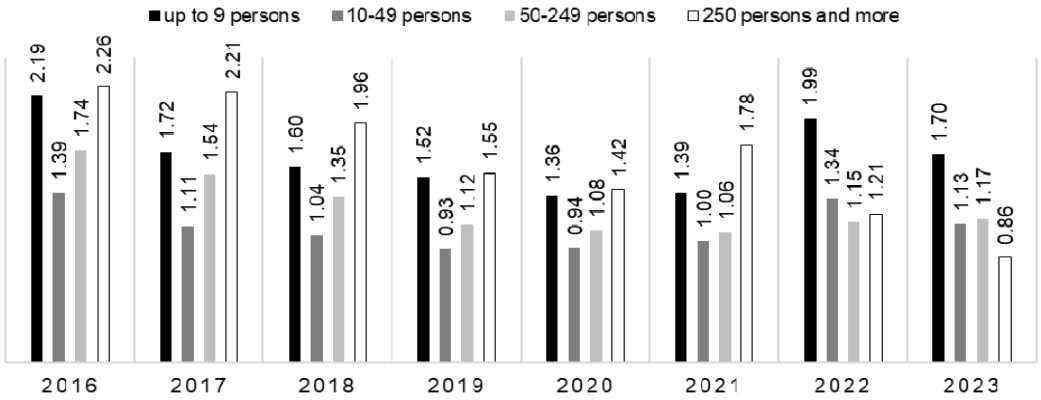


Fig. 7. Exports per UAH of personnel costs by number of employees, UAH

Source: calculated by the authors based on data from the State Statistics Service of Ukraine (2024): exports of goods by economic entities, by number of hired workers, and by types of economic activity from 2016 through 2023; State Statistics Service of Ukraine (2024): value of output of entities of large, medium, small, and micro-entrepreneurship by type of economic activity in 2013–2023.

In microenterprises, exports per UAH of personnel costs decrease until 2020, then recover to a peak of 1.99 (2022), followed by a decline to 1.70 in 2023. At large enterprises, after a long leadership in 2016–2022, there is a sharp drop in 2023 to UAH 0.86. This is the lowest value for the entire period. Small firms have the lowest values in almost all years, although there is a slight increase in 2022–2023, which can be explained by the agreement on preferential treatment of exports to the EU. This suggests that small enterprises need support to increase their export efficiency. Medium-sized enterprises show a gradual decline in 2016–2022, with stabilization in 2023 at UAH 1.17.

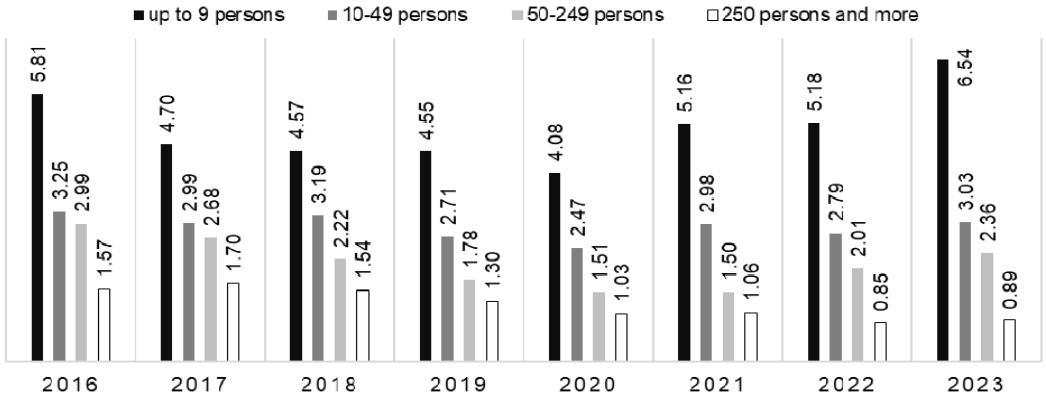


Fig. 8. Imports per UAH of personnel costs by number of employees

Source: calculated by the authors based on data from the State Statistics Service of Ukraine (2024): import of goods by economic entities, by number of hired workers, and by types of economic activity from 2016–2023; State Statistics Service of Ukraine (2024): value of output of entities of large, medium, small, and micro-entrepreneurship by type of economic activity in 2013–2023.

Microenterprises consistently have the highest import intensity, especially in 2023 – UAH 6.54 of imports per UAH of personnel costs. Only microenterprises showed positive dynamics of imports per UAH of personnel costs in 2016–2023, by 12.7 percent.

Large enterprises have the lowest import intensity, and the indicator is falling: from 1.57 (2016) to 0.89 (2023), i.e., it is almost halved. In 2023, imports per UAH of personnel costs at large enterprises amounted to 13.6 percent of the level of the same indicator for microenterprises.

Medium-sized enterprises show a gradual decrease in imports per UAH of personnel costs until 2021, and then an increase. Overall, there was a 20 percent decrease over the study period. In 2023, the import efficiency of personnel costs at medium-sized enterprises was 36.1 percent of the level of the same indicator for microenterprises.

For small enterprises, imports per UAH of personnel costs ranged from 2.47 to 3.25 without a pronounced trend. During the study period, its value for small enterprises

ranged from 46 to 70 percent of the level of the same indicator for microenterprises.

Table 1 compares the efficiency of personnel costs for export and import activities for enterprises of different sizes.

Thus, micro and small enterprises are the most "dependent" on imports, if we count per UAH of personnel costs. Medium-sized enterprises also demonstrate this dependence, but not as high as for microenterprises. Large enterprises are the least import-dependent by this criterion, especially after 2020.

Table 1

Comparison of the efficiency of personnel costs for export and import activities of enterprises of different sizes

Indicator	Average value for the period	Category of enterprises			
		Micro	Small	Medium	Large
Exports/1 UAH of personnel costs, UAH	2016–2021	1.63	1.07	1.32	1.86
	2022–2023	1.85	1.24	1.16	1.04
Imports/1 UAH of personnel costs, UAH	2016–2021	4.81	2.93	2.11	1.37
	2022–2023	5.86	2.91	2.19	0.87
The ratio of imports to exports	2016–2021	2.95	2.75	1.61	0.73
	2022–2023	3.17	2.35	1.89	0.84

Source: calculated by the authors based on data from the State Statistics Service of Ukraine (2024): exports of goods by economic entities, by number of hired workers, and by types of economic activity from 2016 through 2023. State Statistics Service of Ukraine (2024): import of goods by economic entities by number of hired workers by types of economic activity from 2016 through 2023.

SMEs' focus on imports, and large enterprises' focus on exports, is due to several economic, organizational, structural, and institutional factors.

First, micro and small enterprises often operate in the wholesale and retail trade sector, where imports of goods are the basis of their business. Most of the imports in this segment are finished goods (clothing, household appliances, cosmetics, tools, etc.), which they resell.

Second, due to a lack of investment and small scale, microenterprises do not tend to produce sophisticated products that could enter international markets.

Third, low institutional support for exports does not allow them to overcome barriers related to logistics, certification, language, and cultural restrictions. Import activities have fewer regulatory requirements and require less initial investment.

Fourth, imports take advantage of price flexibility. SMEs often look for cheaper purchases abroad (in particular, in China, Turkey, and Poland), which allows them to make quick profits in the domestic market.

Fifth, the absence of their own brand or unique products does not allow SMEs to compete in the international market.

Large enterprises in Ukraine (agriculture, metallurgy, chemicals, and mechanical engineering) create products that are competitive on global markets. They have specialists in logistics, certification, international law, their own infrastructure, and contracts with traders. They may have FEA departments, legal departments, and marketing departments that work with foreign customers. Large enterprises can adapt their products to the requirements of foreign markets, undergo international certification, and obtain international standards (ISO, HACCP, etc.). They are the main beneficiaries of state support programs, preferential lending, access to the EBRD (European Bank for Reconstruction and Development), the ECA (Export Credit Agency), and participation in exhibitions. Large production volumes help to reduce costs and be competitive in the global market.

Given this, SMEs are mainly "consumers" of global trade, while large companies are "suppliers" to foreign markets. This situation is typical for economies with unevenly developed business environments and requires government support for the export transformation of small businesses.

In the pre-digital era, it was mostly large and medium-sized companies that entered the international market. This is because this process requires certain financial, human, and managerial resources. In addition, this activity is associated with a higher level of risk compared to activities in the local market. In most cases, small and micro enterprises simply do not have enough resources for this. However, in the process of digital transformation and globalization, tools and methods are emerging that are becoming available to small and medium-sized businesses.

Digital transformation processes have led to the rapid development of online commerce. This, in turn, was made possible by the corresponding development of the logistics infrastructure. These processes were followed by the development of such an e-commerce segment as marketplaces (Dicuonzo et al., 2022; Ratten, 2023b). Amazon, AliExpress, eBay, Etsy, and Rozetka – all these resources allow small and micro enterprises to organize online sales quickly and without excessive costs. Among these marketplaces, Amazon, eBay, and Etsy are worth highlighting as those that allow mastering of selling abroad through e-commerce. Each of them has its own characteristics, which make them more or less suitable for businesses depending on the type of activity they are engaged in or the type of products they offer. In 2018, Ukraine was among the top nine countries with more than 10,000 sellers on Amazon, and in 2024, the number exceeded 20,000 (NewsLetter Forbes Ukraine, 2025). As of 2024, there were 7.5 million active sellers on the marketplace, including more than 50 thousand Ukrainians and 95.1 million active buyers (NewsLetter Forbes Ukraine, 2025). This resource has high potential for small and micro enterprises from Ukraine. However, to succeed, they must, in turn, create a product suitable for remote sales abroad.

Figure 9 shows the volume of products (goods, services) sold per enterprise, obtained from e-commerce.

The volume of products sold from e-commerce grew rapidly in 2018–2023, with the exception of 2022, which saw a drop due to martial law. Overall, the volume sold grew by 2.4 times over the period. In 2018–2021, the growth was 188 percent, or an average of 30 percent annually. In 2023, there was a 1.8-fold jump in this indicator compared to 2022. The development of digital infrastructure, the growth of digital literacy, and the search for opportunities for enterprises to operate in the context of the dangerous existence of an offline business format due to military operations played a role here. However, the share of the volume of products (goods and services) sold from e-commerce in the total volume of products (goods, services) sold by enterprises by type of sales is low and amounted to 4–5 percent in 2020–2023.

The conditions of martial law have accelerated the digitalization of society and the use of digital e-government platforms Diia (Ministry of Digital Transformation of Ukraine, n. d.-a), Diia.Business (Ministry of Digital Transformation of Ukraine, n. d.-b), and Vzaemo.Diia (Ministry of Digital Transformation of Ukraine, n. d.-c), which has allowed SMEs to use digital tools (OECD, 2024). Figure 10 shows the dynamics of the volume of products (goods, services) sold by enterprises received from e-commerce as a percentage of the total volume of products (goods, services) sold by enterprises.

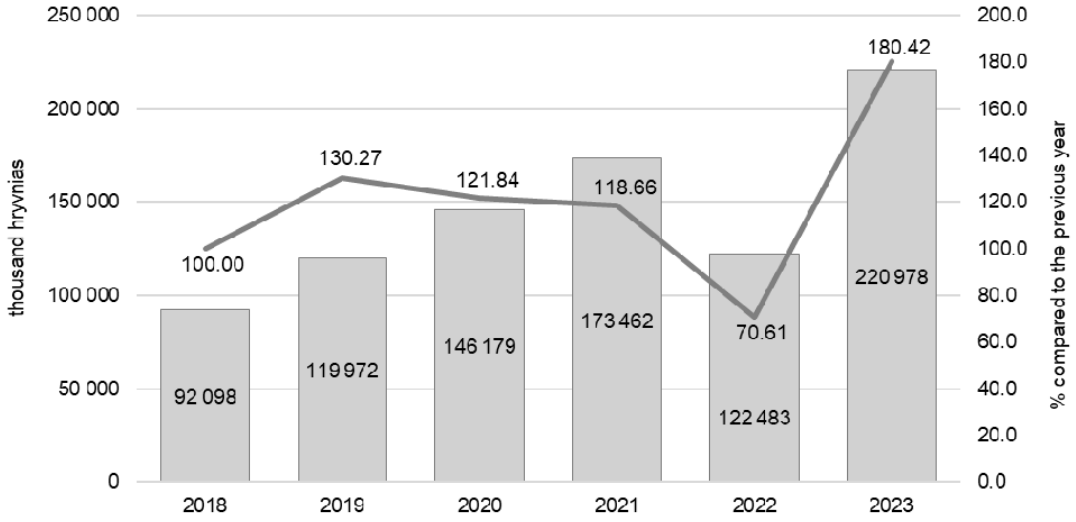


Fig. 9. The volume of products (goods, services) sold from e-commerce per enterprise

Source: calculated by the authors based on data from the State Statistics Service of Ukraine (2024): use of information and communication technologies at enterprises: e-commerce, invoicing 2018–2023.

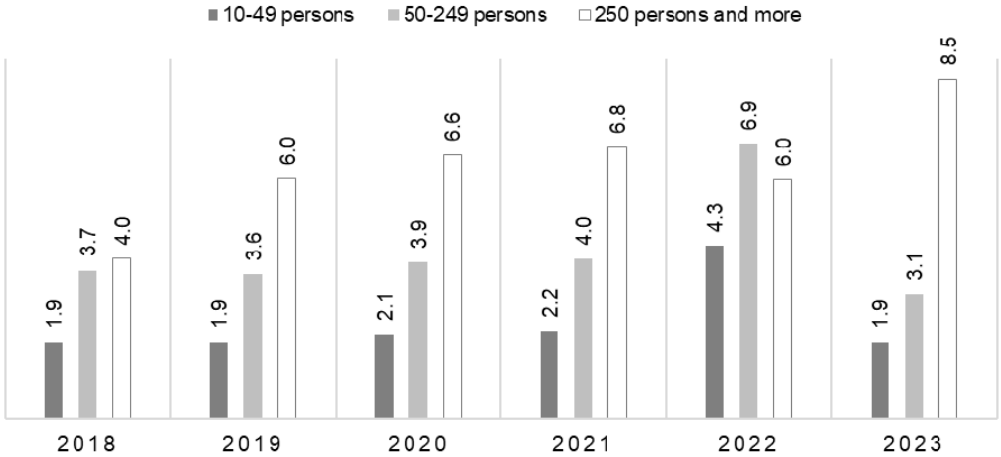


Fig. 10. The volume of products (goods, services) sold by enterprises received from e-commerce as a percentage of the total volume of products (goods, services) sold by enterprises

Source: compiled by the authors based on data from the State Statistics Service of Ukraine (2024): use of information and communication technologies at enterprises: e-commerce, invoicing 2018–2023.

Small businesses had a consistently low level of e-commerce until 2021of about two percent. In 2022, there was a sharp jump to 4.3 percent, the highest for the period, which is seen as a reaction to martial law, relocation, and the growth of online sales. In 2023, there was a return to the level of 2018–2021 (1.9 percent). Accordingly, small businesses temporarily intensified e-commerce in the crisis year but were unable to sustain it.

Medium-sized enterprises showed a steady increase by 2022, from 3.7 to 6.9 percent. In 2023, there was a significant drop to 3.1 percent, which is almost half as much as in 2022. Accordingly, medium-sized businesses also increased online sales, but in 2023 may have returned to offline models or started losing market share due to competition.

Large enterprises showed the steadiest growth in the share of e-commerce from 4.0 percent in 2018 to 6.8 percent in 2021. There was a noticeable dip in 2022 to 6.0 percent, but a record growth in 2023 to 8.5 percent. Thus, large companies are actively scaling up e-commerce as a strategic direction, despite the crisis. Their share is the highest among all groups.

Large enterprises are the only ones that have consistently and strategically increased the share of online sales. Small businesses demonstrate reactive behavior – growth during the crisis, but a return to traditional models afterwards. Medium-sized businesses are losing momentum and need support to stabilize their e-commerce presence.

Analyzing the effectiveness and intensity of participation in foreign trade by enterprises of different sizes is important for identifying specific risks and barriers, assessing the

effectiveness of foreign trade strategies, identifying imbalances in the structure of exports and imports, and optimizing institutional support tools for enterprises.

In view of this, it is advisable to combine economic and statistical analysis with the analytics of FEA. For this purpose, it is proposed to use an index approach to analysis. Such an analysis will allow us to consider the efficiency and intensity of participation in FEA of different groups of enterprises by the number of employees in accordance with their potential and level of resource provision.

It is proposed to build integral indices of FEA in the following stages:

Stage 1. Building a model of integral indices and determining the indicators for the indices.

Stage 2. Normalization of indicators.

Stage 3. Construction of integral indices.

Stage 4. Interpretation of indices.

Stage 5. Analysis of the results obtained.

Each stage of the proposed methodology is considered separately.

Stage 1. Building models of integral indices and determining indicators.

To identify enterprises by the number of employees with the greatest potential and digital readiness to enter international markets, it is proposed to build three group integral indices:

- export capacity – Y_1;
- import activity – Y_2;
- total involvement in foreign trade – Y_3.

Export capacity index:

$Y_1 = f(X_1; X_3; X_5; X_7)$.

Import activity index:

$Y_1 = f(X_2; X_4; X_6; X_7)$.

Index of total involvement in foreign trade:

$Y_1 = f(X_1; X_2; X_3; X_4; X_5; X_6; X_7; X_8)$.

The following indicators were selected for this purpose:

X_1 – percent of the share of exports in the total sales of the section;

X_2 – percent of the share of imports in the total sales of the section;

X_3 – exports per employed worker, thousand USD;

X_4 – imports per employed worker, thousand USD;

X_5 – exports per UAH of personnel costs, UAH;

X_6 – imports per UAH of personnel costs, UAH;

X_7 – volume of sold products per employed worker, UAH thousand;

$X_{(8)}$ – volume of products (goods, services) sold by enterprises received from e-commerce as a percentage of the total.

Table 2 selects the rationale for selecting indicators for the integral indices of intensity of participation in FEA.

Table 2

Rationale for selecting indicators for the integrated assessment of the intensity of SMEs' involvement in foreign trade

Indicator	Justification
Share of exports in sales	Reflects the intensity of involvement in foreign markets; the higher the share, the greater the export focus of enterprises
Share of imports in sales	Determines external integration into the value chain. It may indicate involvement in international cooperation or dependence on imported raw materials
Exports per employed person	Indicates labor productivity in export activities. High values are a sign of efficiency and competitiveness
Imports per employed person	Indicates the scale of import operations at the level of one employee. Indicates technological modernization or logistics openness
Exports per UAH of personnel costs	Measures the efficiency of using personnel costs in export activities. This is the cost-benefit ratio in terms of foreign trade
Imports per UAH of personnel costs	How efficiently companies use labor costs in their import activities
Output per employee	Reflects the overall operational efficiency (labor productivity) of the enterprise. A high value indicates that the company potentially has the resources to scale up and internationalize. A low level indicates limited resources, which may be a barrier to international market entry
Percent volume of sales through e-commerce	E-commerce is a key tool for entering the international market, especially for SMEs. It reduces barriers to entry and allows sales abroad without a physical presence. The higher the share of e-commerce, the greater the digital readiness and potential for global reach

Source: created by the authors.

Imports are important for participation in international value chains, internationalization of supply, technological modernization, and preparation for exports through the renewal of the material base. The inclusion of imports in the integrated assessment of FEA is quite justified, especially in the context of general openness to the international market. Exports are a basic and critical element of SMEs' FEA, which allows quantification of their international activity, determination of their readiness to integrate into global markets, and to identify the potential for expanding participation in other forms of FEA (imports, international investment, partnerships).

The share of sales through e-commerce in total sales should be included in the overall index of foreign trade participation, as it expands the ability of SMEs to enter the international market.

Sales per employee should be included in the general indices of export capacity and import activity as an indicator of operational efficiency and used for the general index of foreign trade participation.

Stage 2. Normalization of indicators.

To evaluate the proposed indices, it is proposed to use the method of normalization of variables: "Min-Max scaling". This is a method of linear transformation of input values into a certain interval, most often [0; 1], where the normalized value of the indicator (Xinorm) is determined by the formula:

$$Xinorm = \frac{Xi - Ximin}{Ximax - Ximin}, \quad (1)$$

where: Xi is the current value of the indicator; Ximin is the minimum value in the sample of enterprises with different numbers of employees; Ximax is the maximum value in the sample of enterprises with different numbers of employees.

The rationale for choosing the Min-Max normalization method is based on several important methodological, logical, and practical advantages:

1. This method is convenient and easy to use, as the obtained values fall within the range [0;1], where 1 is the

best result and 0 is the worst. This simplifies comparison and ranking.

2. This normalization is suitable for different indicators. Since the units of measurement of the indicators selected for analysis are different, it is necessary to normalize the indicators by bringing them to a single scale.

3. This method takes into account the relative difference between values. For example, an enterprise with three times higher exports will receive a significantly higher index. In particular, Z-normalization (standardization) is poorly suited if the distribution is not normal, and there are difficulties in interpreting the results (values > 1 or < 0). When using rating scaling (ranks), information about absolute differences between indicators is lost. Using a logarithmic transformation complicates interpretation, requires strictly positive values, and can "smooth out" important differences between indicators.

4. This method is easily implemented in Excel without any special software. It is convenient for processing statistical data by year.

5. All indicators have the same impact on the index (no need for weighting).

6. There are no significant outliers that can distort the results, as Min-Max is sensitive to extreme values.

7. Easy interpretation of the results: indices "close to 1" can be easily interpreted as high.

Stage 3. Construction of integral indices.

Integral indices Y_j (j – integral index index; Y_1, Y_2, Y_3 – indices of export capacity, import activity, and overall involvement in FEA, respectively) are calculated using the following formula:

$$Y_j = \frac{\sum_i^n x_{inorm}}{n}, \quad (2)$$

where n is – number of indicators in the group for assessing the j-th index.

Figure 11 shows the results of the assessment of the export capacity index of enterprises of different sizes by the number of employees in 2018–2023 according to the proposed methodology.

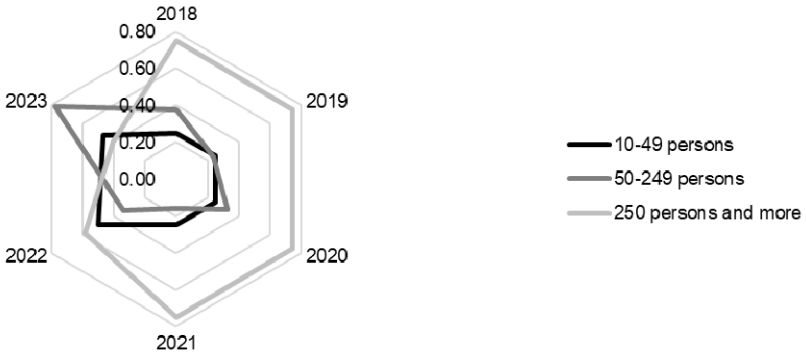


Fig. 11. The export capacity index of enterprises of different sizes for 2018–2023

Source: calculated by the authors based on the State Statistics Service of Ukraine (2024): value of output of entities of large, medium, small, and micro-entrepreneurship by type of economic activity in 2013–2023; State Statistics Service of Ukraine (2024): exports of goods by economic entities by number of hired workers by types of economic activity from 2016 through 2023.

Small enterprises in 2018–2021 demonstrate a consistently low level of export capacity (0.25), which indicates a limited potential for exports or no changes in the foreign economic strategy. In 2022–2023, there is a noticeable increase to 0.50 (2022) and 0.47 (2023). The conditions of martial law and relocation, digitalization, and temporary customs privileges may have encouraged small businesses to enter foreign markets. The growth also reflects an improvement in relative efficiency or a reduction in the total number of active enterprises, which affects export capacity.

Medium-sized enterprises show an unstable trend from 0.38 (2018) to a record low of 0.16 (2021), and then a sharp jump to 0.78 in 2023. Medium-sized business activities likely decreased during 2020–2021 (COVID-19). In 2023, exports intensified due to the simplified regime of entering the EU market, adaptation to European standards, and digital solutions. The indicator of 0.78 is the highest among all in 2023, a sign of the reorientation of the structure of Ukrainian exports to medium-sized businesses.

In 2018–2021, large enterprises had a constant maximum (0.75) – they are export leaders. In 2022, there was a sharp drop to 0.59, and in 2023, an even greater drop to 0.40. Large enterprises are losing their dominance in export capacity due to damage/seizure of production facilities (especially in the east and south); logistical problems; focus on volumes rather than flexibility; and reduced competitiveness in the new environment.

Based on the study, the following conclusions can be drawn. Medium-sized businesses demonstrate the highest dynamics of growth in export potential, especially in times of crisis. Small businesses have shown moderate but stable growth, which may be a sign of their readiness to expand with proper support. Large enterprises are rapidly losing their export capacity, which signals a structural transformation of Ukraine's foreign trade.

Figure 12 shows the results of estimating the index of import activity of enterprises of different sizes by the number of employees in 2018–2023 using the proposed methodology.

Small enterprises are the most stable group with an import activity value of 0.60 ± 0.01 over 6 years. A slight decrease was observed in 2023 to 0.58. Small businesses maintain a stable dependence on imports (finished goods, raw materials). This stability may indicate both limited opportunities for import substitution and narrow specialization in trade.

Medium-sized enterprises show a sharp decline from 0.49 (2018) to 0.22 (2021), which may be due to a decrease in imports or difficulties with financing, logistics, and currency restrictions. In 2022, there was a sharp increase to 0.80, and in 2023, a slight decrease to 0.72. In 2022–2023, medium-sized businesses intensified their import activities, which were aimed at resuming production, supplying critical components, and securing new market opportunities after relocation or restructuring.

Large enterprises showed the most stable values in 2018–2021 of 0.50. In 2022, there was a drop to 0.41, and in 2023, a return to 0.50. In 2022, large enterprises reduced imports due to: supply chain disruptions (martial law), changing priorities (reorientation to the domestic market, localization), and problems with currency settlements. At the same time, in 2023, they restored the pre-war level of import activity, which indicates adaptation to new conditions.

Based on the study, the following conclusions can be drawn. Medium-sized enterprises became the most active importers among all groups in 2022–2023. Small enterprises are stable consumers of imported products, which indicates a conservative business model. Large enterprises have an adaptive potential, but their import activity was suppressed during the military crisis.

Figure 13 shows the results of assessing the index of total foreign trade involvement of enterprises of different sizes by the number of employees in 2018–2023 using the proposed methodology.

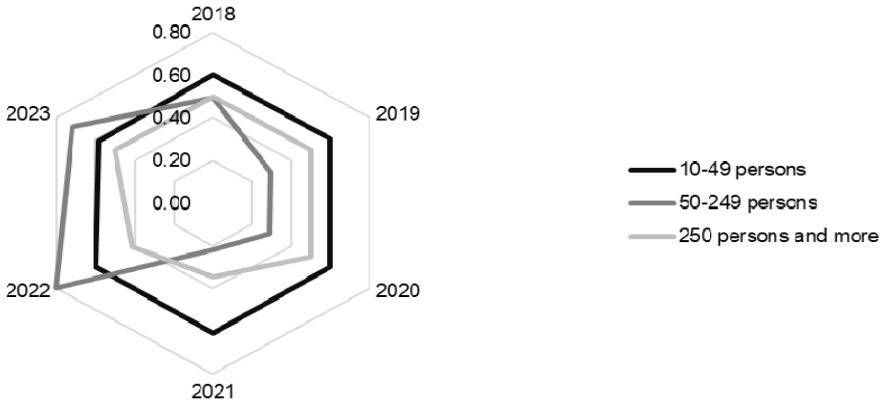


Fig. 12. Index of import activity of enterprises of different sizes in 2018–2023

Source: calculated by the authors based on the State Statistics Service of Ukraine (2024): value of output of entities of large, medium, small, and micro-entrepreneurship by type of economic activity in 2013–2023; State Statistics Service of Ukraine (2024): import of goods by economic entities, by number of hired workers, and by types of economic activity from 2016 through 2023.

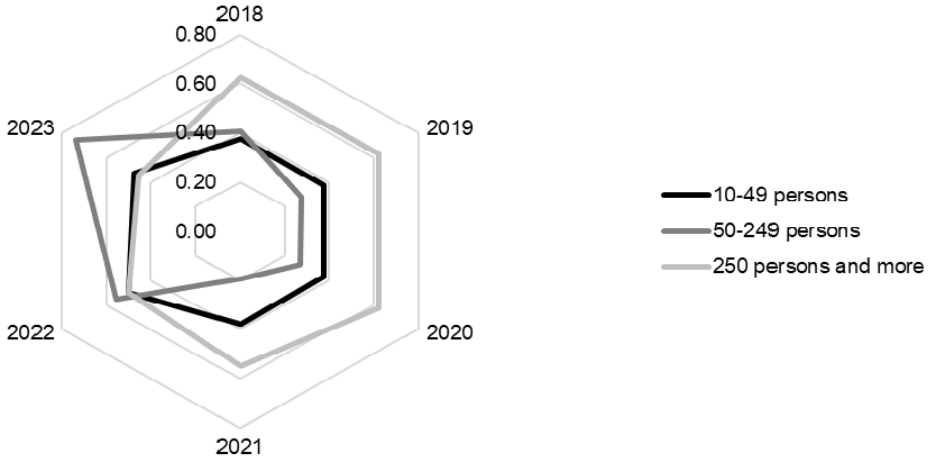


Fig. 13. The index of total involvement in FEA of enterprises of different sizes in 2018–2023

Source: calculated by the authors based on State Statistics Service of Ukraine (2024): value of output of entities of large, medium, small and micro-entrepreneurship by type of economic activity in 2013–2023; State Statistics Service of Ukraine (2024): use of information and communication technologies at enterprises: e-commerce, invoicing 2018–2023; State Statistics Service of Ukraine (2024): exports of goods by economic entities, by number of hired workers, and by types of economic activity in 2016–2023; State Statistics Service of Ukraine (2024): import of goods by economic entities by number of hired workers by types of economic activity from 2016 through 2023.

The assessment indicates that small enterprises have a consistently low level of the index of general involvement in foreign trade in 2018–2021 (0.38), followed by a jump in 2022 to 0.50 and a slight decrease in 2023 to 0.47. This shows that small businesses became significantly more active in foreign trade during the crisis year of 2022 due to adaptation to changes, searching for new sales channels, and participating in the import of critical goods. In 2023, activity remained at an elevated level.

Medium-sized enterprises are the most dynamic group, showing a drop from 0.40 (2018) to 0.19 (2021), and an increase to 0.55 (2022) and 0.74 (2023). This is the highest figure among all groups in 2023. Medium-sized businesses, after falling in previous years, have sharply intensified under martial law. This was due to management flexibility, partial localization of production, rapid digital transformation, and export support (from platforms, projects, and donor programs).

Large enterprises were stable leaders in 2018–2021 (0.63), demonstrating the highest level of involvement in foreign trade. In 2022, there was a drop to 0.50, followed by a further decline in 2023 to 0.45. Big business has lost its dominant position in foreign trade due to destruction/seizure of assets, logistical constraints, closure of ports, reduction of production capacity, and problems with large-scale exports in wartime.

Medium-sized enterprises are the new leaders in overall engagement in foreign trade. In 2023, their integral index is the highest (0.74). Small enterprises show a gradual intensification, especially after 2021. Large enterprises have lost their advantage, which may be the result of a structural crisis caused by martial law, relocation, and a drop in production.

Stage 4. Interpretation of the indices.

It is proposed to use a linear scale to interpret the integral indices. The use of "Min-Max" normalization, which converts all indicators into the interval [0, 1], is logically continued by the use of a linear scale to interpret the results (Table 3). This allows for a clear, consistent, and objective interpretation of the results.

Table 3

Interpretation of the obtained indices

Index	Interpretation
0.76–1.00	**High level (HL).** Enterprises have strong external integration, technological readiness, and competitiveness. Full or high ability to carry out FEA, export (import) strategy, experience, and sales channels
0.51–0.75	**Medium level (MedL).** There is some participation in foreign trade, but with limited potential. Partial readiness has been formed; sporadic participation in foreign trade or export (import) through intermediaries is possible, support or strategic rethinking is needed
0.26–0.5	**Moderate level (ModL).** Limited use of FEA instruments. FEA is sporadic or fragmented. Single attempts at export or import, lack of a coherent strategy/resources. Weak or absent strategy for entering foreign markets
≤ 0.25	**Low level (LL).** Minimal or no participation in foreign trade. The index indicates the absence of systematic participation in foreign trade or extremely low capacity. Enterprises are focused on the domestic market, often due to resource or institutional constraints

Source: compiled by the authors.

Stage 5. Analysis of the results.

The following measures can be proposed to stimulate export capacity, import activity, and overall foreign trade capacity for enterprises of different sizes.

The following recommendations are proposed to balance export capacity:

- Reconfigure export policy to support medium-sized businesses as new leaders.
- For small businesses, develop export accelerators, e-commerce, and B2B platforms.
- Large enterprises need to invest in modernization, logistics, and production resumption.

Recommendations for balancing import activity:

- For medium-sized enterprises, support for the development of domestic production chains to reduce dependence on imports.
- For small enterprises, training on the possibilities of import substitution, local production, or transformation into exporters.
- For large enterprises, institutional support for logistics, customs clearance, and currency regulation is needed to mitigate risks in times of turbulence.
- General recommendations for balancing foreign trade:
- The focus of state foreign trade policy should shift to supporting medium-sized businesses that demonstrate high adaptability and flexibility.
- Small businesses need institutional support to maintain the pace of integration into foreign trade (digital infrastructure, logistics, training).
- Large companies need targeted recovery programs: investments in production, infrastructure, and transport corridors.

The European Bank for Reconstruction and Development (2023) (EBRD) commissioned a study "Problems and needs of SMEs almost a year after the start of the war". Barriers to doing business included loss of part of the production capacity (equipment, personnel), lack of funds to pay for rented premises (payment is due upon signing the contract, but moving takes several months), inflated prices in the rear, difficulties with equipment installation (lack of necessary equipment, specialists), unsatisfactory condition of premises available for rent (lack of repair, toilets, etc.), the requirement for businesses to invest heavily in leased premises on their own, inspections by controlling authorities (State Consumer Service, SES), significant investments in equipment of premises in accordance with state requirements, disorientation of managers in a new location (no networking, no information center for relocated businesses), difficulties in finding premises for rent (rarely: some SMEs were provided with premises by the authorities).

According to the assessment of the impact of martial law on micro, SMEs in Ukraine (United Nations Development Program in Ukraine, 2024), the largest obstacles to the integration of SMEs with the European market are the lack of European partners, financial resources, and qualified specialists.

The lack of European partners is due to the lack of awareness of Ukrainian companies about cooperation opportunities, the lack of established contacts with the EU business community, and the low level of trust of European partners in Ukrainian enterprises due to the risks of martial law. To improve the situation, it is necessary to create public and private platforms for finding partners in the EU, organize business forums, exhibitions, and B2B meetings with European companies, and introduce government programs to support international partnerships for SMEs.

Intensive participation in trade missions, exhibitions, and international business networking has become not only a response to the challenges of recent years but also a strategic response of Ukrainian business to the need to find new markets, partnerships, and ways to integrate into the global economy. Accordingly, during 2020–2023, about 2,500 Ukrainian companies participated in 34 trade missions, 24 international exhibitions, and more than 50 international B2B events (National Council for the Recovery of Ukraine, 2022).

The lack of financial resources is a result of limited access to credit due to high interest rates and instability of the banking system, high costs of certification of products according to European standards, and a lack of sufficient state support for exporters. To solve this problem, financial support and access to investment are needed, including the expansion of EU grant programs for Ukrainian enterprises (Horizon Europe, EBRD, USAID), the launch of state programs to compensate for the costs of certification and access to the European market, and the development of public and private funds to support export-oriented businesses.

The shortage of qualified specialists is a result of the outflow of personnel abroad due to martial law and economic instability, insufficient knowledge of international trade, certification, and work with European markets, and a lack of specialists with knowledge of European languages and EU business culture. To overcome this problem, it is necessary to develop human resources, namely to implement educational programs and training on international trade for SMEs, standardization and certification, to encourage the return of specialists from abroad (grants, preferential business conditions), and to strengthen cooperation between universities and businesses to train specialists in export and international business.

Since 2016, the policy of supporting SMEs' foreign trade in Ukraine has evolved from strategic declarations to the creation of institutions, digital tools, and anti-crisis mechanisms. Currently, the key vectors are digitalization, partnership with the EU, adaptation of standards, e-commerce support, and participation in global platforms. The internationalization of SMEs is supported through the adoption of a new Export Strategy, increased transparency, and expansion of support programs to integrate SMEs into the GVC and promote e-commerce (OECD, 2024). This includes conducting an independent review and publishing a list of beneficiaries of export promotion programs.

The survey of Ukrainian SMEs identified the top ten options for support other than a loan, including assistance with business reconstruction (grant) (35 percent), grant (non-repayable financial assistance for various purposes) (32 percent), advice from companies that have been in a similar situation and coped with it (25 percent), experience of international companies in a similar field in their market (22 percent), establishing international partnerships in times of war (21 percent), participation in international exhibitions (19 percent), expertise from a local consultant, (16 percent), expertise from a local or international expert on entering new markets (14 percent), expertise from a local consultant who knows the business region with 85 percent, reimbursement of project costs or an international consultant with 100 percent reimbursement – 13 percent, consulting (accounting, law, marketing, strategy, etc. – 11 percent (European Bank for Reconstruction and Development, 2023). Problems and needs of SMEs almost a year after the start of the war).

In Ukraine, support for SMEs' integration into the global value chain is only at its initial stages. However, the Diia.Business project (Ministry of Digital Transformation of Ukraine, n.d.-b), as well as several export promotion activities conducted by the Export Ecosystem Development Office (EEPO), are helping SMEs become part of global production and trade networks (OECD, 2024; Ionan, 2022). The EEPO is an institutional platform that provides systemic support for exports, especially for small and medium-sized businesses (SMEs), through the coordination of various elements of the system: digital services, education, finance, and institutions. EEPO supports digital transformation by providing online courses for SMEs. The Ministry of Digital Transformation of Ukraine is also working to promote the use of artificial intelligence (AI) technologies by businesses and establish AI governance rules, aligning them with EU rules.

It is not only the country's resource potential and production capacity that create conditions for foreign trade. In Ukraine, exports account for a small share of the country's total value added. However, in 2022, Ukraine managed to increase exports of services, in particular telecommunications, computer and information services (40.5 percent of total exports of services), transportation (32.3 percent), and business services (11.2 percent) (OECD, 2025).

The introduction of martial law has exacerbated existing problems for SMEs in Ukraine and created new barriers related to supply chain disruption, limited access to finance, physical insecurity, and infrastructure losses. In response, businesses were forced to intensify their search for foreign markets, partnerships, and alternative logistics solutions.

Ukrainian SMEs face objective barriers to international market entry due to martial law, weak institutions, insufficient resources, and human resource constraints. However, the availability of international support, the development of digital tools, institutional integration, and the strengthening of human resources can turn export and import activities into a sustainable growth vector.

Discussion and conclusions

To test the first hypothesis, composite indicators for evaluating export capacity, import activity, and the overall degree of enterprise participation in foreign economic activity were constructed using statistical data for 2016–2023. This approach enabled a comparative analysis of dynamic changes across enterprise size categories.

The analysis indicates that small enterprises exhibit adaptive behavior under crisis conditions, primarily through the utilization of digital channels for international trade. Although their engagement in foreign economic activity remains less extensive than that of medium or large enterprises, they demonstrate potential for sustainable growth, contingent upon continued digitalization, localized support, and the development of micro-export infrastructure.

Medium-sized enterprises represent the most flexible segment of SMEs, capable of responding promptly to market fluctuations, provided that adequate incentives, digital infrastructure, and foreign economic support mechanisms are available. This group appears particularly promising for scaling up participation in international trade during the subsequent phases of public policy implementation.

In contrast, large enterprises, despite showing substantial recovery in foreign economic activity in 2023, remain more susceptible to structural shocks, emphasizing the need to reassess strategies for supporting this segment.

The integrated assessment of overall enterprise participation in foreign economic activity reveals a shift in leadership: while large companies dominated during 2018–2021, since 2022, medium-sized enterprises have taken the lead, demonstrating superior adaptability to changing conditions. This finding is consistent with the OECD SME Policy Index: Eastern Partnership Countries (2024), which attributes their resilience to rapid digital transformation and optimization of production capacity. Small enterprises show steady, though gradual, progress. These structural changes underscore the necessity of reorienting state foreign economic policy toward medium-sized enterprises as a critical source of economic stability and expansion.

Given current trends, the digitalization of foreign economic activity remains a key vector for enhancing the competitiveness of Ukrainian SMEs. Further growth in their export potential may be achieved through the development of e-commerce, participation in international marketplaces, digital marketing, and the application of data analytics in strategic decision-making.

The study also identified several systemic barriers that constrain SME integration into foreign markets, including limited access to finance, complex certification procedures aligned with international standards, insufficient digital maturity, and a lack of foreign trade competencies. These challenges require

targeted interventions from the government, international donors, and business associations.

Consistent with the second hypothesis, a balanced rationale for the intensification of foreign economic activity among Ukrainian SMEs was developed for each enterprise size category (small, medium, and large). The recommendations incorporated observed trends in export capacity, import activity, overall SME engagement in foreign economic activity, and the identified barriers to internationalization.

Future research should focus on regional differentiation in SME foreign trade activity, the impact of digital export tools on business model efficiency, and the integration of Ukrainian SMEs into global value chains, with consideration for sectoral characteristics and technological development levels.

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References

Bala, O., & Ivantsyk, B. (2024). Entering international markets for Ukrainian enterprises: new challenges of wartime. *Academic visions*, 29, 1–8 [in Ukrainian]. [Бала, О., & Іванцик, В. (2024). Вихід на міжнародні ринки для українських підприємств: нові виклики воєнного часу. *Академічні візії*, 29, 1–8]. https://doi.org/10.5281/zenodo.10804053

Blyzniuk, K. (2023). Methodology of assessing the readiness of the enterprise to export activities. *Economic analysis*, 33(2). 202–208. [in Ukrainian]. [Blyzniuk, K. (2023). Методологія оцінки готовності підприємства до провадження експортної діяльності. *Ekonomichnyy analiz*, 33(2), 202–208]. https://doi.org/10.35774/econa2023.02.202

Cassia, F., & Magno, F. (2022). Cross-border e-commerce as a foreign market entry mode among SMEs: the relationship between export capabilities and performance. *Review of International Business and Strategy*, 32(2), 267–283. https://doi.org/10.1108/RIBS-02-2021-0027

Chopra, R., Bhardwaj, S., Baber, H., & Sanusi, O. I. (2024). Navigating global horizons: a review of export promotion and foreign market entry strategies for small and medium enterprises (SMEs). *Journal of Business & Industrial Marketing*, 39(12), 2774–2790. https://doi.org/10.1108/JBIM-10-2023-0610

CID.CENTER. (2022). *Initiative for economic recovery, entrepreneurship and export development of Ukraine.* Retrieved September 20, 2025, from https://cid.center/en/project/inicziatyva-shhodo-vidnovlennya-ekonomiky-rozvytku-pidpryyemnycztva-ta-eksportu-ukrayiny-en-translation/

Denicolai, S., Zucchella, A., & Magnani, G. (2021). Internationalization, digitalization, and sustainability: Are SMEs ready? A survey on synergies and substituting effects among growth paths. *Technological Forecasting and Social Change*, 166, 120650. https://doi.org/10.1016/j.techfore.2021.120650

Dicuonzo, G., Donofrio, F., Fusco, A., & Ranaldo, S. (2022). The role of transformational entrepreneurship in managing a digital platform: the case of Yamamay. *Journal of Strategy and Management*, 15(3), 434–449. https://doi.org/10.1108/JSMA-02-2021-0062

European Bank for Reconstruction and Development. (2023). *Problems and needs of SMEs almost a year after the start of the war* [in Ukrainian]. [Європейський банк реконструкції та розвитку. (2023). *Проблеми та потреби МСБ майже через рік після початку війни*]. https://platforma-msb.org/wp-content/uploads/2023/03/Challenges-and-Needs-of-SMEs-in-War-Time.pdf

NewsLetter Forbes Ukraine (2025). *There are about 100,000 sellers from Ukraine on Amazon, Etsy, and eBay. How to earn more on international marketplaces in 2025?* [paragraph]. LinkedIn [in Ukrainian]. [NewsLetter Forbes Ukraine. (2025, 24 січня). *На Amazon, Etsy, eBay близько 100 000 продавців з України. Як заробляти більше на міжнародних маркетплейсах в 2025 році?* [стаття]. LinkedIn]. https://bit.ly/3WWKRSW

Gamova, I. (2023). Impact of e-trade on globalization changes in the world and ukraine. *Bulletin of Taras Shevchenko National University of Kyiv. Economics*, 1(222), 27–33 [in Ukrainian]. [Гамова, І. (2023). Вплив е-торгівлі на глобалізаційні перетворення у світі та в Україні. *Вісник Київського національного університету імені Тараса Шевченка. Економіка*, 1(222), 27–33. https://doi.org/10.17721/1728-2667.2023/222-1/4]

Gron, O., & Sikalenko, O. (2021). Assessment of the enterprise export potential. *Galician economic journal*, 73(6), 115–122. \ [in Ukrainian]. [Гронь О., & Сікаленко О. (2021). Оцінювання експортного потенціалу підприємства. *Галицький економічний вісник*, 73(6), 115–122]. https://doi.org/10.33108/galicianvisnyk_tntu2021.06.115

Ionan, V. (22.11.2022).. The role of SME support in the post-war economic recovery of countries around the world. *Economic Truth* [in Ukrainian]. [Іонан, В. (22.11.2022). Роль підтримки МСП у відновленні післявоєнної економіки країн світу. *Економічна правда*]. https://www.epravda.com.ua/columns/2022/11/22/694090

Lobo, C. A., Fernandes, C. I., Ferreira, J. J., & Peris-Ortiz, M. (2020). Factors affecting SMEs' strategic decisions to approach international markets. *European Journal of International Management*, 14(4), 617–639. http://dx.doi.org/10.1504/EJIM.2020.107607

Ministry of Digital Transformation of Ukraine. (n. d.-a). Diia. Retrieved September 20, 2025 from https://diia.gov.ua/ [in Ukrainian]. [Міністерство цифрової трансформації України. (б. д.-а). Дія. Взято 20 вересня 2025 з https:// diia.gov.ua/]

Ministry of Digital Transformation of Ukraine. (n. d.-b). Diia. Business. Retrieved September 20, 2025, from https://business.diia.gov.ua/ [in Ukrainian]. [Міністерство цифрової трансформації України. (б. д.-b). Дія. Бізнес. Взято 20 вересня 2025 з https://business.diia.gov.ua/]

Ministry of Digital Transformation of Ukraine. (n. d.-c). Vzaemo. Diia. Retrieved September 20, 2025, from https://vzaemo.diia.gov.ua/ [in Ukrainian]. [Міністерство цифрової трансформації України. (б. д.-c). Vzaemo. Diia. Взято 20 вересня 2025 з https://vzaemo.diia.gov.ua/]

Ministry of Economy of Ukraine. (2024). Strategy for the recovery, sustainable development and digital transformation of small and medium-sized enterprises (SMEs) for the period up to 2027. https://me.gov.ua/view/78058a5d-4cbf-4eea-9724-c12aa8adda72 [in Ukrainian]. [Міністерство економіки України. (2024). Стратегія відновлення, сталого розвитку та цифрової трансформації малого і середнього підприємництва. https://me.gov.ua/view/78058a5d-4cbf-4eea-9724-c12aa8adda72]

Ministry of Culture and Strategic Communications of Ukraine. (n.d.). UkraineNow. Retrieved September 20, 2025, from https://www.ukrainenow.org/ [in Ukrainian]. [Міністерство культури та стратегічних комунікацій України. UkraineNow. https://www.ukrainenow.org/]

National Council for the Recovery of Ukraine (2022). Draft Ukraine Recovery Plan: Materials of the "Digitalisation" working group. https://www.kmu.gov.ua/storage/app/sites/1/recoveryrada/eng/digitization-eng.pdf

OECD (2025). Economic Surveys: Ukraine in 2025. https://doi.org/10.1787/940cee85-en

OECD. (2024). SME Policy Index: Eastern Partnership countries. [in Ukrainian]. [ОЕСР. Індекс політики щодо МСП: країни Східного партнерства 2024 р. Основні характеристики України. https://epo.org.ua/downloads/UKR_SME_policy_index_2024.pdf]

On Accounting and Financial Reporting in Ukraine (1999): Law of Ukraine dated 16.07.1999, № 996-XIV [in Ukrainian]. [Про бухгалтерський облік та фінансову звітність в Україні (Закон України від 16.07.1999. № 996-XIV). https://zakon.rada.gov.ua/laws/show/996-14#Text]

Patwary, A. A., Al Ahsan, S. A., Surfaraz, M. S., Khan, F., Al Maruf, A., Rana, S., Hassan, M., & Majumder, K. A. (2024). *Enhancing Export Capability of MSMEs: Challenges and Way Forward*. https://doi.org/10.63784/djbep2024v1n1a11

Ratten, V. (2023a). Digital platforms and transformational entrepreneurship during the COVID-19 crisis. *International Journal of Information Management*, 72. https://doi.org/10.1016/j.ijinfomgt.2022.102534

Ratten, V. (2023b). Entrepreneurship: Definitions, opportunities, challenges, and future directions. *Global Business and Organizational Excellence*, 42(5), 79–90. https://doi.org/10.1002/joe.22217

Sakiru, S., L. Gil-Alana, & M. Gonzalez-Blanch (2022). Persistence of economic complexity in OECD countries. *Physica A: Statistical Mechanics and its Applications*, 603. https://doi.org/10.1016/j.physa.2022.127860.

State Statistics Service of Ukraine (2024): exports of goods by economic entities by number of hired workers by types of economic activity in 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023 [in Ukrainian]. [Державна служба статистики України (2024): експорт товарів суб'єктами господарювання за кількістю найманих працівників за видами економічної діяльності у 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023 рр. https://www.ukrstat.gov.ua/operativ/operativ2022/zd/i_e_knp/et_sg_knp_ed_23ue.xls]

State Statistics Service of Ukraine (2024): import of goods by economic entities by number of hired workers by types of economic activity in 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023 [in Ukrainian]. [Державна служба статистики України (2024): імпорт товарів суб'єктами господарювання за кількістю найманих працівників за видами економічної діяльності у 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023 рр. https://www.ukrstat.gov.ua/operativ/operativ2022/zd/i_e_knp/it_sg_knp_ed_23ue.xls]

State Statistics Service of Ukraine (2024): use of information and communication technologies at enterprises: e-commerce, invoicing 2018–2023 [in Ukrainian]. [Державна служба статистики України (2024): використання інформаційно-комунікаційних технологій на підприємствах: електронна торгівля, виставлення рахунків-фактур у 2018–2023 рр. https://www.ukrstat.gov.ua/operativ/operativ2022/zd/i_e_knp/it_sg_knp_ed_23ue.xls]

State Statistics Service of Ukraine (2024): value of output of entities of large, medium, small and micro-entrepreneurship by type of economic activity in 2013–2023 [in Ukrainian]. [Державна служба статистики України (2024):

обсяг виробленої продукції (товарів, послуг) суб'єктів господарювання за видами економічної діяльності з розподілом за кількістю зайнятих працівників у 2017-2023 роках. https://www.ukrstat.gov.ua/operativ/operativ2021/fin/pdp/pdp_ue/new/ovpsgvedkz_rik.xlsx]

Sudarmiatin, S., Fitri, R., Mala, I. K., & Setiawan, B. (2024). MSMEs Move Up a Class: Sustainable Strategies to Encourage MSMEs to Enter the International Market. *International Journal of Business, Economics and Social Development*, 5(4), 437–445. https://journal.rescollacomm.com/ index.php/ijbesd/index

Sulhan, M., & Sudarmiatin, S. (2022). Analysis of the internationalization strategy of MSMES Kendang Djembe Blitar. *Proceedings Of The International Conference Of Islamic Economics And Business* (ICONIES), 8(1), 349–360. UIN Maulana Malik Ibrahim Malang. Retrieved from https://conferences.uin-malang.ac.id/index.php/iconies/article/view/1768

The EU continues to apply a duty-free regime for imports from Ukraine. (2025, May 26). [in Ukrainian]. ЄС продовжує безмитний режим для імпорту з України. (2025, 26 травня). [Logist.fm]. https://logist.fm/news/ies-prodovzhuie-bezmitniy-rezhim-dlya-importu-z-ukrayini]

United Nations Development Programme in Ukraine. (2024). *Assessment of the impact of the war on micro, small and medium-sized enterprises in Ukraine.* Kyiv. [Програма розвитку ООН в Україні. (2024). *Оцінка впливу війни на мікро-, малі та середні підприємства в Україні.* Київ. https://www.undp.org/sites/g/files/zskgke326/files/2024-04/undp-ua-smb-2024.pdf]

Vergeles, V., & Baiura, D. (2024). Business transformation in the conditions of global macroeconomic instability in Ukraine. *Bulletin of Taras Shevchenko National University of Kyiv. Economics*, 1(224), 14–20 [in Ukrainian]. [Вергелес, В., & Баюра, Д. (2024). Трансформація бізнесу в умовах глобальної макроекономічної нестабільності. *Вісник Київського національного університету імені Тараса Шевченка. Економіка*, 1(224), 14–20. https://doi.org/10.17721/1728-2667.2024/224-1/2]

Verhoogen, E. (2023). Firm-Level Upgrading in Developing Countries. *Journal of Economic Literature*, 61(4), 1410–1464. https://doi.org/10.1257/jel.20221633

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Ірина ФЕДУЛОВА, д-р екон. наук, проф.
ORCID ID: 0000-0002-8802-137X
e-mail: i.fedulova@knute.edu.ua
Державний торговельно-економічний університет, Київ, Україна

Вадим СТАДНИК, асп.
ORCID ID: 0009-0004-2998-6851
e-mail: v.stadnyk@knute.edu.ua
Державний торговельно-економічний університет, Київ, Україна

КІЛЬКІСНА ОЦІНКА ІНТЕРНАЦІОНАЛІЗАЦІЙНОГО ПОТЕНЦІАЛУ МАЛИХ І СЕРЕДНІХ ПІДПРИЄМСТВ

В с т у п . ***Досліджено проблему залученості підприємств малого і середнього бізнесу України до зовнішньоекономічної діяльності в умовах глибоких структурних змін, спричинених війною, трансформацією глобальної економіки та цифровізацією. Актуальність теми зумовлена необхідністю формування ефективної політики підтримки малого і середнього бізнесу для активізації експорту, імпорту й інтеграції в міжнародні ринки, що є критично важливими для відновлення економіки країни. Метою дослідження є кількісне оцінювання експортної здатності, імпортної активності та загальної залученості підприємств різного розміру до зовнішньоекономічної діяльності, а також виявлення бар'єрів і формулювання заходів для активізації інтернаціоналізації малого і середнього бізнесу.***

М е т о д и . ***Застосовано методи статистичного аналізу, порівняльного підходу, нормалізації показників (метод "мін-макс") та побудови інтегральних індексів. Проведено емпіричний аналіз статистичних даних Державної служби статистики України за 2016–2023 рр.***

Р е з у л ь т а т и . ***Результати показали, що мікро- та малі підприємства наростили ефективність експортної та імпортної діяльності, особливо у воєнний період, тоді як великі підприємства втратили динаміку (зокрема й експортну). Побудовано індекси експортної здатності, імпортної активності та загальної залученості до зовнішньоекономічної діяльності, що дозволило встановити лідерство середніх підприємств за експортною спроможністю у 2023 р. та зростання імпортної інтенсивності мікропідприємств. Виявлено бар'єри, пов'язані з нестачею фінансування, сертифікаційними труднощами, низькою цифровою готовністю.***

В и с н о в к и . ***Практична цінність дослідження полягає у запропонованому інструментарії для оцінювання участі малого і середнього бізнесу у зовнішньоекономічній діяльності та рекомендаціях щодо підтримки їх інтернаціоналізації.***

К л ю ч о в і с л о в а : ***малий і середній бізнес, зовнішньоекономічна діяльність, експортна здатність, імпортна активність, залученість до зовнішньоекономічної діяльності, цифровізація, електронна торгівля, бар'єри зовнішньоекономічної діяльності.***

Автори заявляють про відсутність конфлікту інтересів. Спонсори не брали участі в розробленні дослідження; у зборі, аналізі чи інтерпретації даних; у написанні рукопису; в рішенні про публікацію результатів.

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