






Economic mechanisms for SME development in Ukraine under EU financial support

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Abstract

The study aims to develop a conceptual framework for SME development for supporting the development of small and medium-sized enterprises (SME) in Ukraine, particularly during wartime, through the integration of EU financial mechanisms. A mixed-method approach was used, combining comparative legal analysis of EU and Ukrainian practices with empirical assessment of SME needs and limitations. The core findings highlight a significant gap between existing Ukrainian support mechanisms and European standards, as well as a misalignment in policy implementation. The proposed model introduces a dynamic system of SME financial support tailored to different business development stages, emphasizing low-interest loans, co-financing, and innovation-driven incubators. Recommendations include adapting EU financial instruments, strengthening institutional readiness of SME, and promoting cross-sectoral cooperation. The study acknowledges limitations due to wartime economic instability and inconsistent data across regions. Its originality lies in proposing a flexible, adaptive model grounded in both EU experience and local constraints. The findings contribute to the broader discourse on post-war economic resilience and policy innovation, offering a roadmap for enhancing the competitiveness and sustainability of SME in Ukraine.

JEL Classification: L26, L53, H25, H81, O25, P27.

Keywords: deregulation of small entrepreneurship, EU grant loans, financial support, grants, small business activity index.

Mecanismos económicos para el desarrollo de las pymes en Ucrania bajo el apoyo financiero de la Unión Europea

Resumen

El estudio tiene como objetivo desarrollar un concepto económico para apoyar el desarrollo de las pequeñas y medianas empresas (PYME) en Ucrania, especialmente en tiempos de guerra, mediante la integración de los mecanismos financieros de la UE. Se utilizó un enfoque de método mixto, combinando el análisis jurídico comparativo de las prácticas de la UE y Ucrania con la evaluación empírica de las necesidades y limitaciones de las pymes. Las principales conclusiones ponen de relieve una brecha significativa entre los mecanismos de apoyo existentes en Ucrania y las normas europeas, así como una falta de sincronización en la aplicación de las políticas. El modelo propuesto introduce un sistema dinámico de apoyo financiero a las pymes adaptado a las diferentes etapas de desarrollo empresarial, haciendo hincapié en los préstamos a bajo interés, la cofinanciación y las incubadoras impulsadas por la innovación. Las recomendaciones incluyen la adaptación de los instrumentos financieros de la UE, el fortalecimiento de la preparación institucional de las pymes y la promoción de la cooperación intersectorial. El estudio reconoce las limitaciones debidas a la inestabilidad económica en tiempos de guerra y a la inconsistencia de los datos entre las distintas regiones. Su originalidad radica en proponer un modelo flexible y adaptable basado tanto en la experiencia de la UE como en las limitaciones locales. Las conclusiones contribuyen al debate más amplio sobre la resiliencia económica y la innovación política después de la guerra, ofreciendo una hoja de ruta para mejorar la competitividad y la sostenibilidad de las pymes en Ucrania.

Clasificación JEL: L26, L53, H25, H81, O25, P27

Palabras clave: desregulación de la pequeña empresa, préstamos subvencionados por la UE, apoyo financiero, subvenciones, índice de actividad de las pequeñas empresas

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* No funding source was received for the development of this research.



1. Introduction

Modern trends in the economic development of Ukraine necessitate the transformation of the conditions for the management and development of small entrepreneurship (SME) as an important factor in accelerating the growth of the country's national economy, ensuring social stability, and increasing employment and innovative activity. Despite the fact that the share of SME in the total number of business entities is quite high in both the EU countries and Ukraine (the latter accounts for 95% of the total number of business entities, 46.3% in GDP formation, 27.5% in the total number of employees, and 19% in the total volume of product sales), a direct comparison of the policies for ensuring their development shows that small and micro-businesses in Ukraine are developing more slowly and are less profitable compared to their European counterparts.

The level of development of the SME in Ukraine can be judged by its ability to adapt to the trends of transformation of the economic environment, creating conditions for the realization of the abilities and talents of each individual. This has a positive effect on the processes of unification of the nation, preserving its national spirit and national dignity. The discrepancy between the level of development of the SME of Ukraine and the challenges of globalization and European integration necessitates the definition of new tasks and goals in the development of the SME, which primarily consist of improving the quality of goods and services and ensuring the synchronization of national and European standards.

The existence of internal problems in Ukraine in the development of SME is associated with the imperfection of the system of regulation of existing state support programs, which causes a significant lag in the pace of transformation and development of small businesses from the average European level. It should be noted that in 2022-2024, the share of bankrupt small enterprises in Ukraine and the EU countries was 17.7% and 3.7% of their total number, respectively; their share in the volume of exports decreased by 50% and 27%, respectively, the share in added value – by 60% and 31.3%, respectively.

The study of the state and problems of the development of the Ukrainian economy during martial law was devoted by Moskalenko (2022), who analysed the challenges in the Ukrainian economy and society under armed aggression, studied the economic policy instruments used by the authorities during this period, and determined the number of financial resources for the restoration of the post-war economy of Ukraine for the future. According to the scientist, Ukraine will need at least 3-5 years to restore the economy after the war. The Ukrainian government must work ahead, supporting business development. Economic recovery of Ukraine is possible with international donor assistance based on a similar Marshall Plan for Ukraine and accession to the EU.

The scientists Chernysh, Kurylyuk, Kolomiyets, Tomchuk-Ponomarenko, and Savchuk (2023) also provide strategic guidelines for the restoration of the domestic economy in the post-war period, namely: restoration of the pre-war level of GDP; renewal of the economic structure; achievement of a 50% share of the manufacturing industry by 2030; increasing the share of domestically produced goods in public procurement; developing the technological sector of the economy by supporting startups and innovative projects; promoting the opening of new markets for Ukrainian goods and services, including attracting foreign investors; increasing the efficiency of public administration,

including tax and customs reforms, reducing bureaucratic barriers and supporting business; developing infrastructure and technologies to support a smart economy.

However, despite the activity of research related to the application of the experience of small business in Ukraine from leading EU countries, unfortunately, they are not synchronized with the Ukrainian practice of small business development and remain insufficiently understood. The possibilities of comparing the experience of small business functioning are limited by a number of differences in the state and criteria for assessing the activities of small businesses in Ukraine and Europe. Miroshnyk and Prokopyeva (2020), even before the invasion of the aggressor country into the territory of Ukraine, noted the need to overcome crisis phenomena in Ukraine and understand the mission of small businesses in shaping the country's economy.

The article proposes a new conceptual framework for SME development for the development of small business in Ukraine, based on the integration of financial support from the EU and a adaptive financing strategy to financial instruments. This concept envisages the creation of a dynamic system that allows small enterprises to adapt to rapidly changing market conditions. Businesses at different stages of development should have access to appropriate financial instruments: from low-interest loans and grants for start-ups to co-financing with European investors for more mature businesses. In addition, an important element is to support innovation, in particular technological start-ups, through public and private financial resources, as well as the development of special incubators to support technological innovation, allowing small businesses to integrate modern technologies and adapt to European standards, which will subsequently contribute to the competitiveness and stability of enterprises (Melnik, 2023).

Within this approach, the following hypotheses can be proposed:

- Hypothesis 1. The introduction of an integrated financial support system modeled on EU practices will significantly improve access to financing for Ukrainian small and medium-sized enterprises (SME) under martial law.
- Hypothesis 2. The readiness of Ukrainian SME to effectively utilize financial support depends on their level of institutional and technological maturity and correlates with the level of SME development in EU countries.
- Hypothesis 3. Countries with a higher financial readiness index and a developed SME system are more successful models for policy transfer to Ukraine than countries with average indicators.
- Hypothesis 4. External financial support is not enough to revive SME without accompanying internal reforms, risk management mechanisms, and incentives for innovation.

Therefore, the synergy between European experience and the national needs of small businesses in Ukraine could be a decisive factor in ensuring economic stability and post-war recovery of the state.

2. Materials and Methods

The national economy of Ukraine is constantly facing challenges that cause crisis phenomena in small entrepreneurship, which require infrastructural restructuring of the environment through the implementation of a new integrated system of financial support, in cooperation with EU countries. This objective necessity is due to a key factor – the European integration orientation of the state

policy of Ukraine with EU countries, with adaptation to international standards of doing business, which provide for the development of technological innovations (access to world markets at a relatively low price, the spread of e-business and e-commerce), digital transformation (increasing competitiveness in local and global markets through innovations in products, services, production processes), globalization (improving interaction between society and government in the process of mutual economic interests and attracting investments), popularization of smartphones, use of artificial intelligence, implementation of national economy instruments (Pedchenko et al., 2018a, 2018b; Rapaccini et al., 2019; Melnyk, 2023).

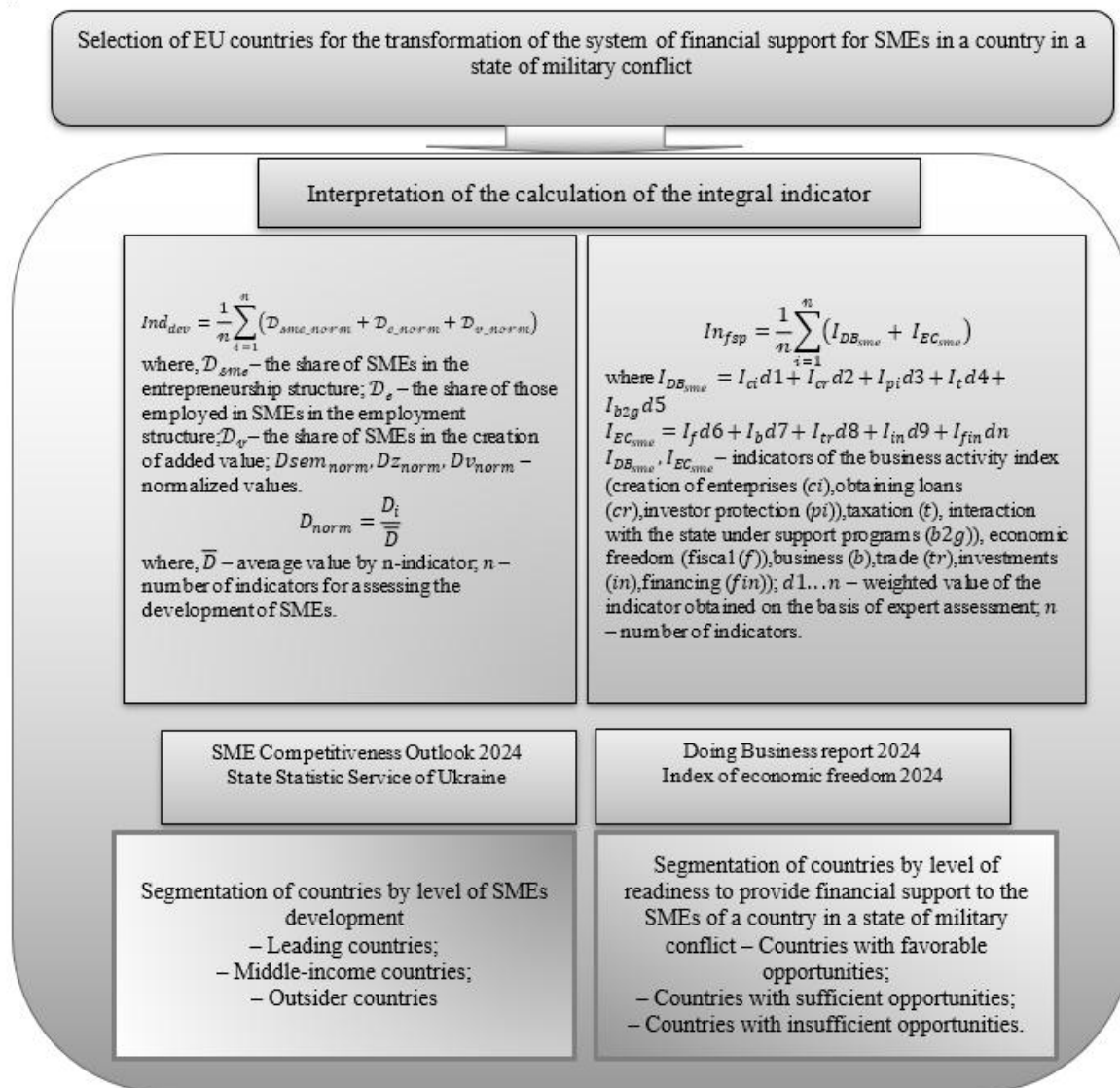


Figure 1. Methodology for assessing the coherence of the integrated system of financial support by EU countries for SME in a country in a military conflict. Source: based on OECD (2015); Pedchenko et al. (2018a, 2018b); Rapaccini et al. (2019)

Trends in the development of small businesses based on an integrated system of financial support in a country that is in martial law with EU countries can be tracked by key OECD indicators: distribution of loans by firm size; structure of small and medium-sized business debt (share of loans

to finance expenses compared to investment needs); access of small entrepreneurship to credit; prevalence of state guarantee programs; growth of capital of small and medium-sized businesses and its mission in business financing; restrictions on cash flows (delayed payments); financial capacity of small and medium-sized businesses during an economic downturn (OECD, 2015, 2024a, 2024b). The OECD focuses on the criteria of usefulness, accessibility, expediency and timeliness of these indicators. Although, Barna notes that the quantitative predominance of SME in the national economy system can lead to a change in the index of economic freedom and the index of ease of doing business, and indicate the irrationality of the structural proportions of their formation (Barna & Moroz, 2019). Therefore, an integrated system of financial support for SME requires methodological consistency in the interaction of state policies for the purpose of its successful implementation in Figure 1 demonstrates the methodology for assessing the consistency of the integrated system of financial support for SME by EU countries in the context of a country in a state of military conflict. It is based on the construction of integrated indicators that determine the level of SME development in the country (Ind_{dev}) and the country's readiness to financially support SME in wartime (Inf_{sp}).

1. SME development index in the country:

$$Ind_{dev} = \frac{1}{n} \sum_{i=1}^n (\mathcal{D}_{sme_norm} + \mathcal{D}_e_norm + \mathcal{D}_v_norm) \quad (1)$$

where \mathcal{D}_{sme} is the share of SMEs in the business structure, \mathcal{D}_e is the share of people employed in SME, and \mathcal{D}_v is the share of SME in value added; normalization is performed by relation to the average value. This index allows countries to be segmented by SME development level (leaders, middle income, outsiders) using data from, for example, SME Competitiveness Outlook 2024 and the State Statistics Service of Ukraine.

2. Index of a country's readiness to financially support SME during wartime:

$$Inf_{sp} = \frac{1}{n} \sum_{i=1}^n (I_{DB_{sme}} + I_{EC_{sme}}) \quad (2)$$

where $I_{DB_{sme}}$ stands for business activity indicator (business creation, obtaining loans, investor protection, taxation, interaction with government programs) and $I_{EC_{sme}}$ is economic freedom index (financial freedom, business freedom, trade, investment, financing). All variables are weighted according to expert assessment (Doing Business report 2024, Index of Economic Freedom 2024).

These indicators are used to classify countries according to their ability to financially support SME during military conflict (countries with high, sufficient, or insufficient capabilities).

3. SME support consistency matrix

The interference of the Ind_{dev} and Inf_{sp} indices allows us to build a matrix of the success of an integrated financial support system. It determines the optimal pairs of countries by clustering (Table 1).

Table 1. Matrix of SME support consistency

Level of SME development	High level of preparation	Medium	Low
High	Leading countries with favorable conditions	x	x
Medium	Countries with medium levels of development and favorable conditions	Medium-sized countries with sufficient capabilities	Countries with insufficient capacity
Low	x	x	Outsiders with insufficient capabilities

Source: constructed by the authors

Thus, the combination of two integral indicators allows selecting those EU countries that can serve as benchmarks for transforming the SME financial support system in a country experiencing military conflict. This ensures the validity of recommendations for public policy, taking into account both the internal capabilities of SMEs and external institutional resources.

The implementation by the EU countries of a single vector of financial support for SME, a country in a state of military conflict, requires the construction of a success matrix that takes into account 4 segments of interference clusters between countries in terms of the ratio of created opportunities and the degree of their implementation: segment 1 is characterized by a high level of readiness of the country for financial support of a country in a state of military conflict and a high level of development of SME in the country itself. It includes countries in which the state has created the most favourable conditions for doing business, and SME are able to turn the created opportunities into strengths of their activities, and, accordingly, ensure growth; segment 2 is characterized by a high level of readiness of the country for financial support of a country in a state of military conflict and an average level of development of SME in the country itself (OECD, 2023, 2024a, 2024b).

This segment includes countries in which SME have not been able to fully take advantage of the created favourable conditions for development; segment 3 is characterized by an average level of readiness of the country to provide financial support to a country in a state of military conflict and an average level of development of SME in the country itself. These countries are able to use limited opportunities to realize their development potential; segment 4 is characterized by a low level of readiness of the country to provide financial support to a country in a state of military conflict and a correspondingly low level of development of SME in the country itself. This segment includes outsider countries. Small businesses in this segment operate under the regulatory burden of the state and limited incentives and therefore have negative development trends (Strilets & Pedchenko, 2019; Bilovska & Maystro, 2023).

The system of methods and sources of financial support for the development of SME in a country in martial law is integrated from the standpoint of resource availability both on the basis of self-financing methods and through the use of grant aid and credit services of EU countries, as well as international organizations for post-war provision of small businesses with financial funds. This is due to the level of uncertainty of alternatives for financial support of small business entities in a country that is in a risky business environment, which affects each variant of the occurrence of financing events from EU countries. At the same time, the choice of alternative sources of financial support for the development of SME in a country under martial law is based on a scientific approach that takes into account the availability and possibility of obtaining resources in the early stages of the post-war cycle of small business revival using the taxometry method (Gepp & Kumar, 2015).

As a method of situational analysis of risks in the predicted results, which are graphically displayed in a hierarchy of logical rules established by studying the attribute base. The taxometry method creates models with asymmetric information and is based on attributes that are used as a basis for separating different classes. The situational analysis algorithm is sources of financial support in the early stages of the post-war development of SME (Fig. 2). The mathematical basis for measuring sources of financial support in the early stages of the revival of SME development and determining the optimal alternative is a function described by the formula (Gepp & Kumar, 2015):

$$Dm_g = \sum_{g=1}^n \rho_g \times Q_{ig}, \quad (3)$$

$$Dm_g \rightarrow \max, \quad (4)$$

where, Q_{ig} – is a mathematical assessment of the attribute level for each alternative for providing financial support to SME (high – 0; medium 0.5; low – 1 for attributes (2 – small amount of start-up capital), (3 – simplified taxation system), (4 – availability of credit resources, simplicity of the procedure for obtaining them (in the case of a high credit rating)), (5 – increased state support for banks favourable to small businesses), (6 – use of tax instruments to stimulate the development of SME); high – 1; medium 0.5; low – 0 for attribute (1 – financial independence), points; ρ_g – is the probability of achieving the results of criterion g (when determining the probability of risk and manifestation of events regarding financial support for SME from EU countries (in a country that is in the early stages of SME revival (Tarasenko, 2024); Dm_g – is the result of mathematical expectation from the priority alternative of sources of financial support for SME (European Central Bank, 2024).

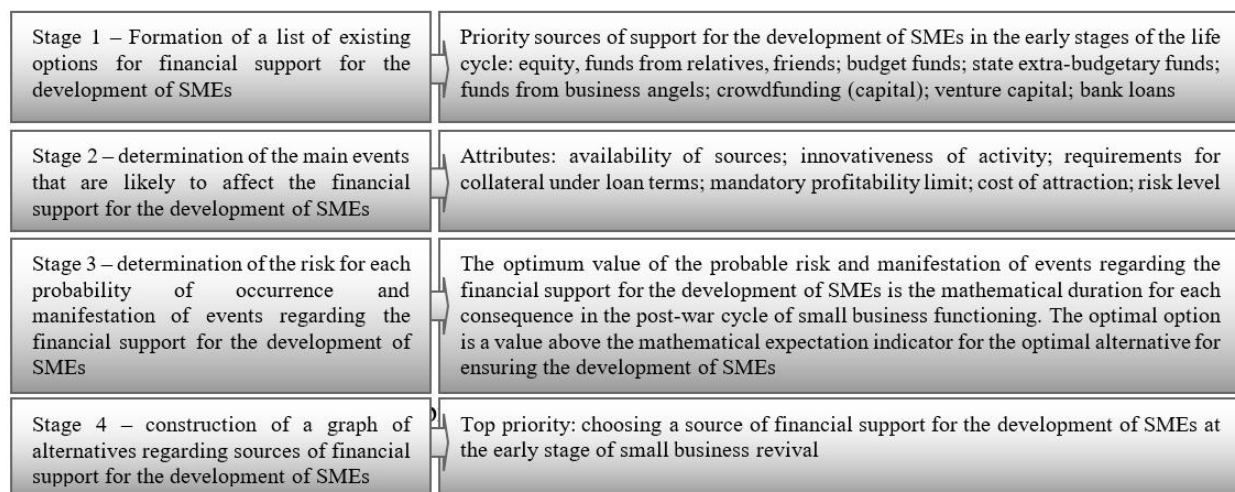


Figure 2. Phased selection of priority sources of financing for SME from EU countries to support a country at an early stage of revival (using the taximetry method). Source: constructed by the authors

According to Taleb, Goldstein and Spitznagel (2009), risks may arise when providing financial support to SME. Therefore, it is necessary to focus on preventing risk events that have a high impact on the financial support of SME. In authors' opinions, risks for each probability of occurrence and manifestation of events regarding the integrated system of financial support for SME in a country under martial law are an integral part of the structure of foresight scenarios, as a cyclical process that repeats at regular intervals. This applies to both all business activities and individual business processes; a set of methods, techniques and measures that allow to predict to a certain extent the occurrence of risk events and take measures to reduce them; an interactive process with clearly defined stages, through which one can clearly imagine the risks that SME face; predicting risks, determining their probable size and consequences, developing and implementing measures to prevent or minimize losses associated with risks; a system of targeted measures aimed at identifying and assessing the degree of the entire set of risks affecting entrepreneurial activity, in order to develop mechanisms to counteract their possible negative impact (Well-Stam et al., 2004).

Accordingly, the functional relationship between foresight scenarios of risk occurrence in the integrated system of financial support for SME and their assessment will have the following form, formula:

$$F_r \{R_{in_g}; R_{fk_g}\} \quad (5)$$

where, F_r – the function of the impact of the risk of transformation of the integrated system of financial support of SME; R_{in_g} – the risks of providing institutional support; R_{fk_g} – the risk of providing financial support. At the same time, the systemic approach to the structure of foresight scenarios determines the need to outline the limits of the permissible risk for the desired future, which can be described by formula:

$$P_{for \in} \left\{ \begin{array}{l} scenario_1 \text{ gf } F_r \{R_{in_g}; R_{fk_g}\} \leq x_1 \\ scenario_2 \text{ gf } F_r \{R_{in_g}; R_{fk_g}\} \leq x_2 \\ scenario_3 \text{ gf } F_r \{R_{in_g}; R_{fk_g}\} \leq x_n \end{array} \right\} \quad (6)$$

where, $P_{for \in}$ – the probability of realizing foresight scenarios of risk occurrence in the integrated system of financial support of SME ($scenario_1, scenario_2, scenario_3$), which is determined by the expected value of the random variable (x_1, x_2, \dots, x_n). The empirical scale of the permissible level of risk of realizing foresight scenarios of risk occurrence in the integrated system of financial support of SME is shown in Table 2.

Table 2. Empirical scale of acceptable risk level when implementing foresight scenarios in the integrated system of financial support for SME

Probability of an undesirable outcome	Risk rating
0.00 – 0.10	Minimum
0.11 – 0.31	Small
0.32 – 0.40	Medium
0.41 – 0.60	High
0.61 – 0.80	Maximum
0.81 – 1.00	Critical

Source: constructed by the authors

The effectiveness of the empirical scale of acceptable risk level is standardized according to the average expected value of the random variable ($M = \bar{x} = \sum_{g=1}^{\infty} x_g P_g$), which provides possible results: achievement of scenario 1 (ensuring profitable activity of SME) is possible provided that risks are minimized and the possibility of their occurrence is ensured within the limits of no more than 0.41-0.60; implementation of scenario 2 (optimistic closed) is achieved provided that risks are minimized and the possibility of their occurrence is ensured within the limits of no more than 0.32-0.40; implementation of scenario 3 (optimistic open) is possible provided that risks are minimized and the possibility of their occurrence is ensured within the limits of no more than 0.11-0.31.

The stages of the study included several key stages, each based on specific data, models and methods to achieve the research objectives. In particular, the study focused on the development of

small businesses under martial law with the support of EU countries, as well as on the selection and comparison of different EU countries to determine the effectiveness of financial support for small businesses. At the first stage, data were collected from academic sources, international organisations and statistical databases, including OECD indices such as the distribution of loans by size of enterprise, the debt structure of small and medium-sized enterprises, access to credit, demand for government guarantee programmes and capital growth of small enterprises. Data on the level of readiness of countries for financial support, such as the volume of public investment, the stability of the credit system and the availability of financing for small enterprises, were also used.

The methodology used to analyse the data included an analysis of key indicators such as the availability of credit, the level of government support and tax instruments to stimulate the development of small businesses. One of the main methods used was the taxonomy method, which allows for situational risk analysis and the creation of models with asymmetric information. This method was used to identify the most optimal sources of financing for small enterprises in the early stages of their recovery in the post-war period.

For comparison, EU countries were selected that demonstrate different levels of small business development and different approaches to providing financial support. The countries were selected based on their economic characteristics, willingness to provide financial support under martial law, and experience in adapting small businesses to new realities. The list includes countries that already have successful experience in supporting small businesses, such as Poland, Germany and France, as well as other countries that may be useful in developing a model of financial support for Ukraine (Lytvyn et al., 2023).

Using the data obtained and the models applied, the article compares the effectiveness of financial instruments for small enterprises in different EU countries. The countries were divided into four segments depending on the level of readiness to provide support and the level of development of small businesses in the country. This resulted in a success matrix that helped to identify priority sources of funding and strategies for small business development under martial law. Risk assessment was an important part of the study. For this purpose, a project risk modelling approach was used to predict possible problems and identify the necessary measures to reduce them.

For this purpose, a typology of risks that may affect financial support for small businesses was developed, and methods of mitigating these risks through adaptation to the specific conditions of a country in a state of military conflict were identified. As a result of the study, a scientific and methodological approach has been developed to ensure effective financial support for small enterprises based on integrated financing systems, using the experience of EU countries. This will help Ukraine adapt to European standards and ensure the stable development of small businesses even under martial law (European Union, 2024).

3. Results

In the context of the full-scale war in Ukraine, the total number of SME has undergone significant changes. In 2022, compared to 2020, their number decreased by almost a third medium-sized enterprises – by 17%, small – by 31% (Fig. 3).

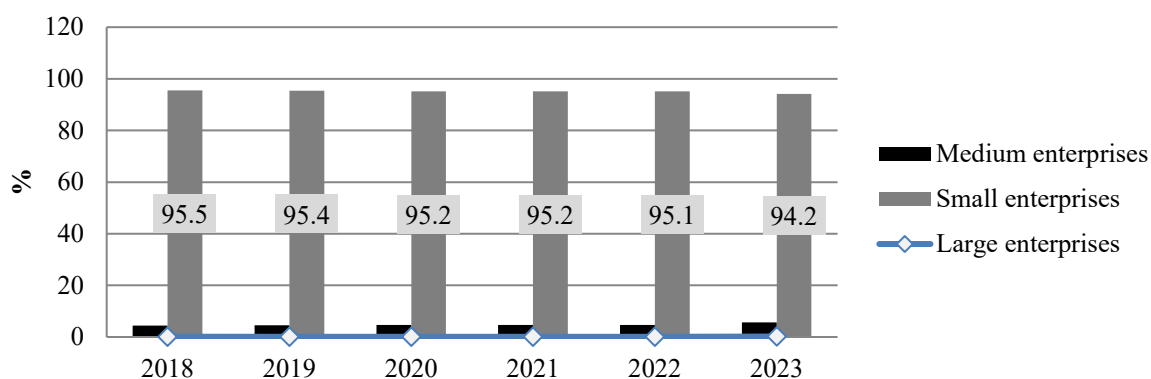


Figure 3. Dynamics of the structure of the entrepreneurial sector in Ukraine 2018-2023, %
Source: based on Yatsenko (2024a)

Before the full-scale Russian armed invasion, one-fifth of businesses (22.3%) assessed their financial and economic condition as satisfactory; by the end of 2023, this figure had risen to 78.1%. Only 36.5% of small businesses in Ukraine continued to operate during the war, with 6% forced to suspend operations for more than one year. Enterprises in the Eastern and Southern regions were hit hardest (Fig. 4). In the East of the country, 18.2% of enterprises were forced to suspend their operations for 12 months due to military operations, while in the South the share of such enterprises was 12.7%.

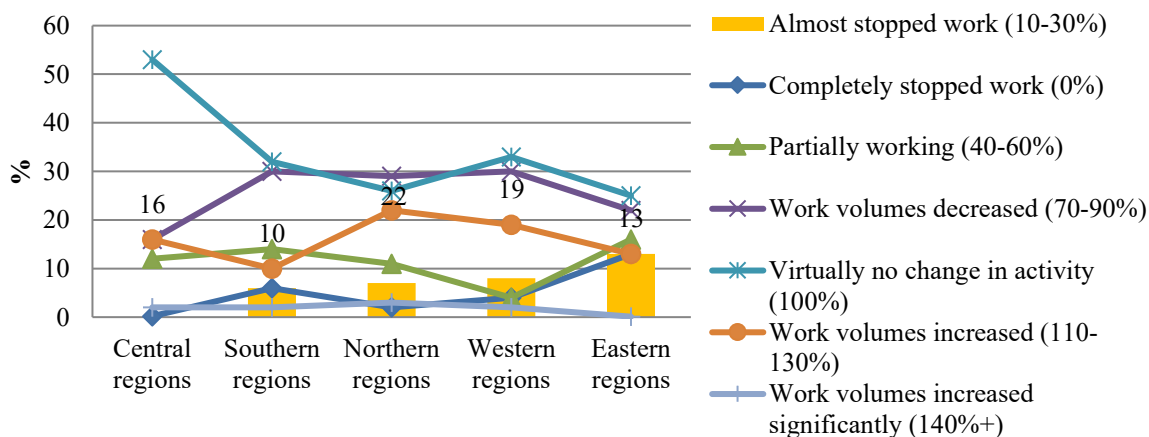


Figure 4. Small entrepreneurship activities within the regions of Ukraine in 2024, %
Source: based on Yatsenko (2024b)

In 2023, the largest losses were suffered by SME in the construction and transport, catering and tourism sectors, the IT sector and agriculture suffered the least (Fig. 5).

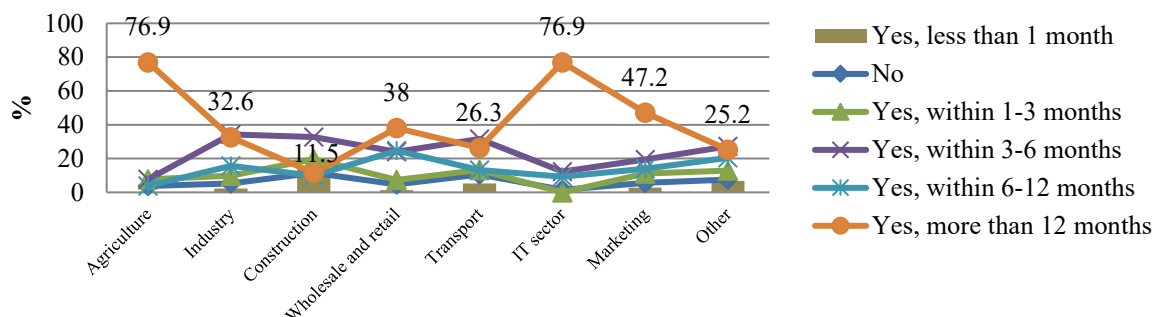


Figure 5. Distribution of responses of SME respondents to the question: “Has your company ceased operations due to a full-scale invasion?” Source: based on Yatsenko (2024a)

The weighted average expected indicator of product and service turnover in the entrepreneurship sector in 2023 compared to 2022 decreased from +10.3% (January 2023) to -0.7% (June 2023). At the same time, more than a third (38.4%) of SME subjects expect an increase in turnover of goods and services. 24.3% of entrepreneurs do not see prospects (business will not operate or will operate at a level of up to 50% of 2022 turnover) (Center for Innovation and Development, 2024). At the same time, in 2024, compared to 2023, the weighted average turnover in the entrepreneurship sector demonstrated a decrease in enterprise activity by 5.9% (Fig. 6).

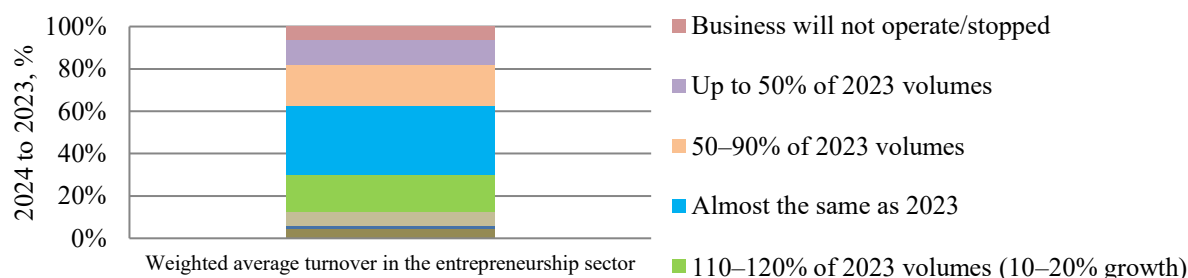


Figure 6. Weighted average growth in turnover of products and services in the entrepreneurship sector of Ukraine for 2023-2024, %. Source: based on Yatsenko (2024b)

Despite the obstacles, in June 2023, a record number of entrepreneurs were registered over the past three years, namely 31.4 thousand individual entrepreneurs (IEPs). In the first half of 2023, Ukrainians opened 134 thousand new types of businesses – this is almost 70% of the number of IEPs opened for the whole of 2022. Among the most popular areas, retail trade took first place – 38.41 thousand Ukrainians (28.7%), second – computer programming and consulting – 11.89 thousand entrepreneurs (8.9%), third – the provision of other individual services – 8.75 thousand IEPs (6.5%), (Opendabot, 2024). In first place among the main obstacles to the development of small business in December 2024 were the unpredictability of the situation in Ukraine and on the domestic market, the lack of a sufficient number of solvent clients (46.9%), the second – unpredictable actions of the state, which could worsen the state of the business (42.8%), the third – the lack of sufficient capital (37.5%), (Fig. 7).

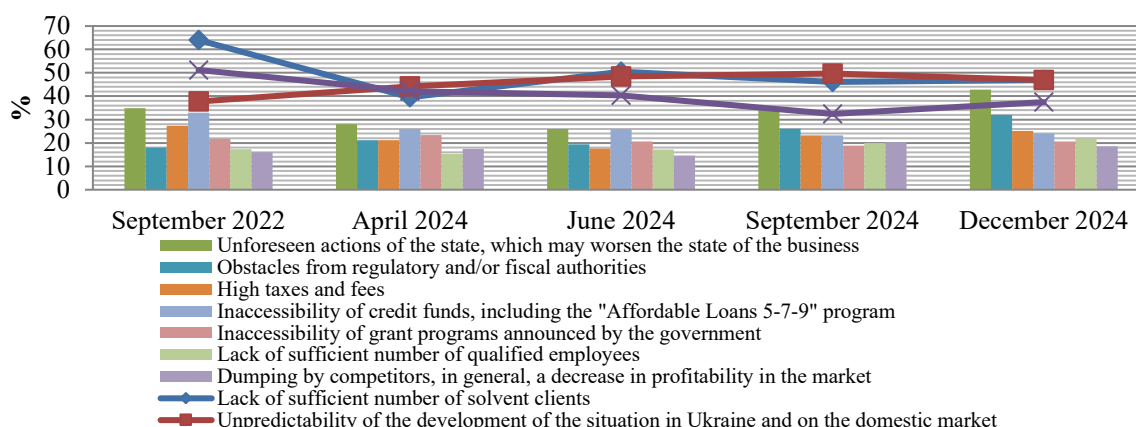


Figure 7. Obstacles to the development of SME in Ukraine during a full-scale invasion by an aggressor country. Source: based on Opendabot (2024)

The most noticeable changes in the aspect of financial support for SME during martial law are associated with the active implementation of the banking state support program by the Resolution of the Cabinet of Ministers of Ukraine "On the Provision of Financial State Support" dated January 24, 2020. No. 28, in particular credit guarantees, the state program "Affordable Loans 5-7-9%", the program "Affordable Leasing 5-7-9%" (partial compensation of interest rates on loans provided for the implementation of projects by SME subjects; partial compensation of leasing, factoring payments and payments for the use of guarantees; provision of guarantees and sureties for loans to SME subjects; provision of loans, including microloans, for starting and running one's own business; provision of loans for the acquisition and implementation of new technologies; compensation of expenses for the development of cooperation between SME subjects and large enterprises; financial support for the implementation of energy-saving and environmentally friendly technologies; other types of financial state support not prohibited by law) (Strilets, 2019; Ministry of Finance of Ukraine, 2024). This situation required deregulation of SME due to reducing pressure on it and introducing a regulatory framework for the relocation of SME subjects from temporarily occupied territories or territories of active hostilities. These transformations affected the portrait of a small business entity, which in 2024 looked like this (Table 3).

Table 3. Portrait of a small business entity in Ukraine in 2018 and 2024

Expenses of SME subjects		2018	2024
registration; licensing; technical regulation; sanitary and hygienic control; inspections	Full business registration (re-registration)	11 days, 17 EUR	1 day, free
Tax payment	General system		
	Profit tax	18%	
	Single social contribution (SSC)	22%	
	Military levy	1.5% of net income	
	Simplified system (single tax)		
	1 group	1–10% of the subsistence minimum	
	2 group	2–20% of the minimum wage	
	3 group	3% of income + 20% VAT, 5% of income excluding VAT	

	4 group	0.19–6.33% (depending on the type of land plot)	
	SSC – 22% of the minimum wage		
Inspections of SME subjects			
Inspections passed		68%	Moratorium on inspections (Resolution of the Cabinet of Ministers of Ukraine dated March 13, 2022 No. 303 “On the termination of state supervision (control) and state market supervision measures under martial law”)
Inspections ended in fines		60.7%	
Total cost of inspections		1068 EUR	
Inspections carried out, % of enterprises per year	Fire protection authorities	23.9%	
	Pension fund	9%	
	State Labor Service	11.4%	
	Ministry of Ecology and Natural Resources	7.2%	
	State Tax Inspectorate	15.5%	
	State Sanitary and Epidemiological Service	7.3%	
A small business employs on average		22 people	27 people
Small business leaders		Men – 75%, Women – 25%	Men – 52,5%, Women – 47,5%
Sources of financing for small businesses			
Bank loans		11%	12%
Loans from friends		22%	–
Loans from other businesses/investments		9%	9%
Grant programs		–	20%
Main obstacles to the development of small businesses			
Low demand		59%	49.7%
Adverse political situation		44%	34%
High tax rates		35%	26,1%
Unpredictability of the situation		–	46.1%

Source: based on Kuzyakov et al. (2019); Verkhovna Rada of Ukraine (2023); Diia-Business (2024)

In Ukraine, in the structure of the state program "Affordable Loans 5-7-9%", 59% of funds are directed to support operational activities, as anti-crisis, anti-war and working capital loans meet these goals (Fig. 8).

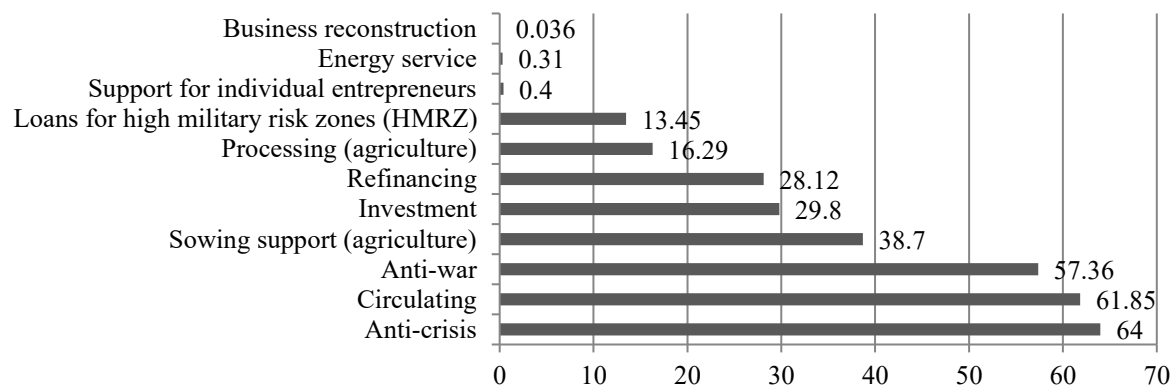


Figure 8. Structure of targeted lending within the framework of the program "Affordable Loans 5-7-9%" for 2018-2024. Source: based on Ministry of Finance of Ukraine (2024)

For three quarters of 2024, SME subjects under the program "Affordable Loans 5-7-9%" received 71.02 thousand loans from banks for a total amount of 5.46 billion EUR, in particular 48,113

loans from state-owned banks for a total amount of 2.41 billion EUR. During the martial law in Ukraine, 36.2 thousand loan agreements were concluded for a total amount of 3.33 billion EUR (in particular, public-sector banks – 27.66 loan agreements for a total amount of 1.77 billion EUR), of which: 1.31 billion EUR – for anti-war purposes; 0.81 billion EUR – loans for agricultural producers; 0.19 billion EUR – anti-crisis loans; 0.17 billion EUR – for investments; 0.1 billion EUR – for refinancing previously received loans (Melnyk, 2022; Schwarz, 2024) However, grant credit levers for supporting small businesses in Ukraine outside of government programs have negative trends (Fig. 9).

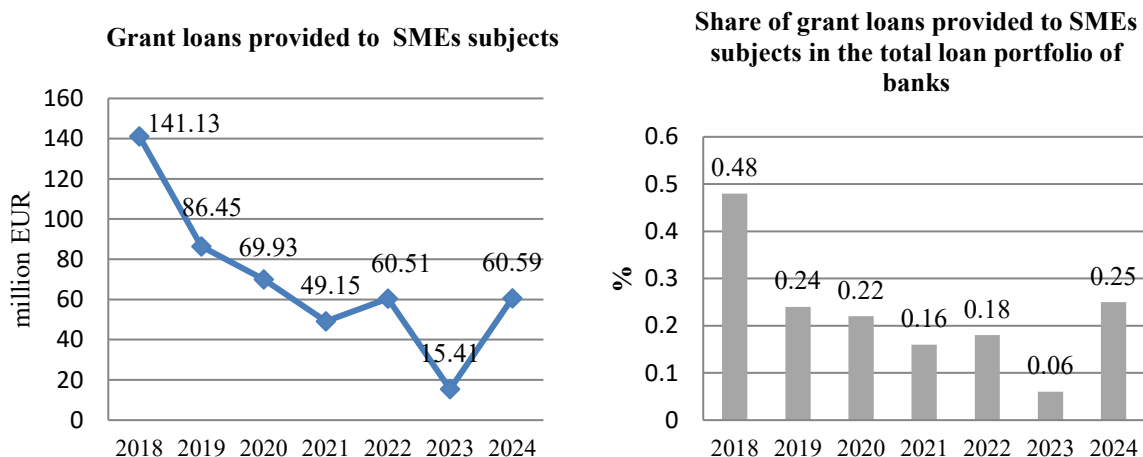


Figure 9. Dynamics of grant bank lending to SME in Ukraine in 2018-2024. Source: based on Melnyk (2022)

In most SME, the attraction of credit resources has an ambiguous effect on the final result of the activity. Focusing on the financial leverage indicator, it should be noted that it determines the impact of the attracted credit resources on the level of profitability of the enterprise's own investments. This impact is manifested when the profitability of capital exceeds the level of interest rate on borrowed funds, rather than when relying only on the level of self-financing (Murovana, 2023). In 2024, the effect of financial leverage of SME in Ukraine by industry showed a negative trend, especially in industry, where the level of loss of equity exceeds the loss of this indicator by 103.2 and 107.5 times in the construction and tourism industries, as well as 25 times in relation to the transport industry. The loss of SME in the construction industry amounted to 188.7 thousand EUR in 2024, and the financial leverage exceeded the mark of 700.2

It should be noted that the positive effect of financial leverage occurs in cases where credit resources obtained at a fixed interest rate bring higher profits than financial costs, that is, the return on total capital is higher than the weighted average price of borrowed resources. Financial leverage can be effective during periods of upswings and bring losses during periods of decline in the development of small business. Therefore, lending to SME is characterized not only by the friendliness of banking institutions to their financing, but also by significant support for this process from the state. Therefore, the primary task for Ukraine is to adapt the experience of state support for bank lending to SME from EU countries (Zbarsky et al., 2020).

It is advisable to pay attention to two aspects of international cooperation in the field of SME development in Ukraine, which is under martial law, and in EU countries: grant financing and

concessional lending (Trofin & Kosheliuk, 2024). It should be noted that in EU countries, not only innovative business entities that are exporters are involved through grants and guaranteed state loans, but also domestic companies that operate in the domestic market and are engaged in non-innovative activities (Trofin & Kosheliuk, 2024). Statistics for 2024 show that 8% of SME in Ukraine used grants and guaranteed loans from EU countries in their activities over the last 6 months (Fig. 10).

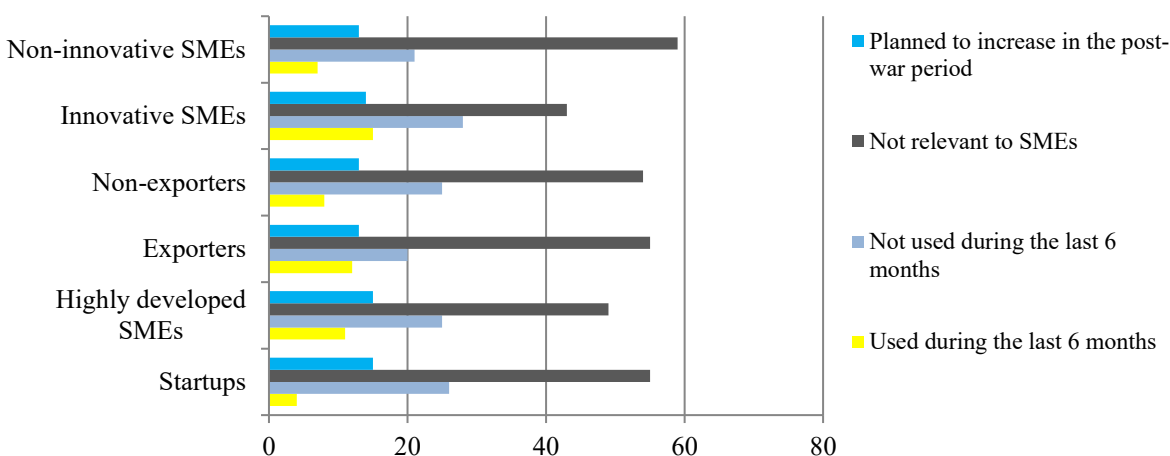


Figure 10. Use of grants and guaranteed state loans of EU countries for the development of SME in Ukraine by stages of development, export and innovation in 2024, % of respondents (508 respondents). Source: based on Trofin & Kosheliuk (2024)

Used in the last 6 months: Italy – 15%; Croatia, Greece, Austria, Poland, Czech Republic – 9%; Germany, Portugal, France, Malta, Slovenia – 8%; Luxembourg – 7%; Ireland, Finland – 6%; Spain, Cyprus, Bulgaria, Romania – 5%; Belgium, Estonia, Sweden, Lithuania – 4%; Slovakia – 3%; Denmark – 2%; Netherlands, Latvia – 1%. Plan to increase use in the post-war period: France – 17%; Portugal, Romania, Lithuania – 9%; Sweden, Estonia, Denmark – 5%; Latvia, Slovakia, Belgium – 4%; Finland, Malta, Bulgaria, Netherlands – 3%; Italy, Austria, Poland, Germany, Luxembourg, Ireland, Spain – 2%; Slovenia, Czech Republic, Greece – 1%. The mechanism of direct financing of SME within the framework of the in-depth program of the Eastern Partnership deserves attention: ready for trade – the “EU4Business” initiative helps export-oriented small enterprises from the Eastern Partnership countries to integrate into global production and sales networks and enter new markets (Trofin & Kosheliuk, 2024).

For example, after the military conflicts in the Balkans, a model of international financing was used, combining loans, grants and investments to rebuild local enterprises. At the same time, in the Balkan countries, much attention was paid to creating an institutional framework for the development of small and medium-sized businesses through national programmes and international assistance. However, in Ukraine, in contrast to this approach, the emphasis is on direct integration with European financial systems, which opens up new opportunities for attracting investment and adapting to European standards at different levels of economic development (Rachynska & Lisovska, 2012; Bortnik, 2022).

The unique contribution of this study is the creation of a new model of financial support that takes into account not only traditional aid instruments, but also innovative mechanisms such as crowdfunding, venture capital investments and the development of special incubators for technology start-ups, which allows for more efficient implementation of the latest technologies and increase the competitiveness of small businesses in the context of war and post-crisis recovery. Small businesses

in EU countries have benefits for angel investors in the form of reduced tax rates and tax credits (Table 4).

Table 4. State support for business angels in EU countries

EU countries	Characteristics of state support
Belgium	"tax haven" provides for a reduction in personal income tax at the level of 45% of the profit tax for investors working in the enterprise for four years
Finland	50% of investments made in the authorized capital of a qualified company can be deducted from the annual capital income of private investors
France	18% tax reduction on the amount invested up to a limit of 50 thousand EUR and a 50% reduction in property tax
Ireland	The Employment and Investment Incentive Program (EIIS) provides tax breaks of 30% (possibly increased to 41%) for investments not exceeding EUR 150 thousand EUR per year
Italy	Capital gains realized by business angels (residents and non-residents) who do not engage in commercial activities, to which the shares are effectively linked, are not subject to tax
Portugal	Angel investors can claim a deduction from personal income tax of 20% of the investment

Source: compiled based on Robertson & Tengeh (2018); Trofin & Kosheliuk (2024)

Another specific form of financial support for SME in the early stages of their revival is crowdfunding. It is a relatively new source of early-stage venture financing, where a large number of people are mobilized through online donations or an investment model to contribute to the support of a project or business over a certain period. In 2024, the largest amount of financing for the activities of Ukrainian small businesses from EU countries was provided by crowdfunding – 34.71 billion EUR (Kazak & Sulima, 2023; Shcherbak et al., 2023; Darid, 2024). It should be noted that crowdfunding is a new mechanism for financing SME and is one of the tools for ensuring their development. However, like other forms of support, crowdfunding is associated with increased risk, since funds are provided not at a certain percentage, but as a share of capital growth. Therefore, in order to improve international cooperation with Ukraine on state financial support for SME, the EU countries are developing the most priority financial policy initiatives in the field of facilitating access to various instruments and sources of financing for small entrepreneurship (for example, direct government lending and credit guarantees, and in some cases economically neutral banking targets for lending to the entrepreneurial sector. These measures also provide for varying degrees of participation by state authorities in the implementation of foresight scenarios regarding the acceptable level of risk in the integrated system of financial support for SME (Vasilyeva et al., 2020). The assessment of the acceptable level of risk when implementing foresight scenarios in the integrated system of financial support for SME was carried out by expert method within the framework of the implementation of the EU4Business program: a network of Business Support Centres in Ukraine (the "FORBIZ" project) with the participation of the Ministry of Economic Development and Trade of Ukraine to build a SME development strategy on average for one region of Ukraine. The results of the expert assessment were unified according to the empirical scale of the acceptable level of risk and standardized according to the average expected value of the random variable (Fig. 11).

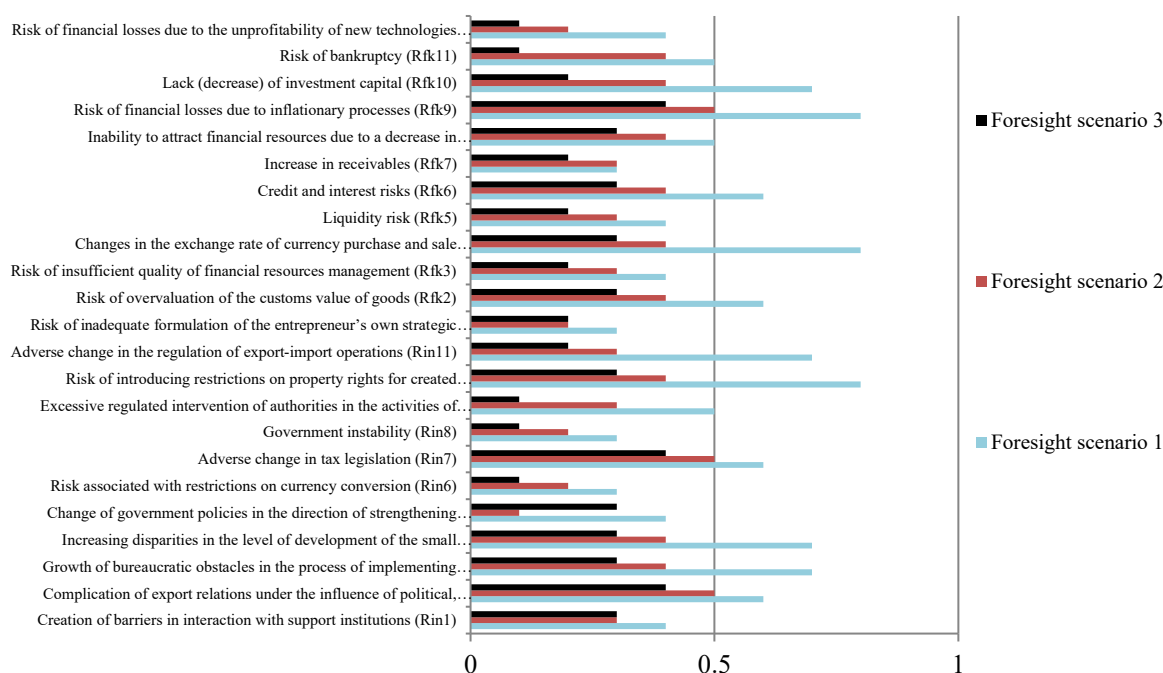


Figure 11. Tolerable risk level when implementing foresight scenarios in the integrated system of financial support for SME in Ukraine. Source: calculated by the authors

According to the assessment results, the acceptable level of risk when implementing foresight scenarios in the integrated system of financial support for SME in Ukraine under the condition of cooperation with EU countries in 2024 is as follows: the achievement of format scenario 1 (ensuring profitable activity of SME) is possible provided that risks are minimized and the possibility of their occurrence is no more than 0.47; the implementation of format scenario 2 (optimistic closed) is achieved provided that risks are minimized and the possibility of their occurrence is no more than 0.29; the implementation of format scenario 3 (optimistic open) is possible provided that risks are minimized and the possibility of their occurrence is no more than 0.22.

A sample of EU countries was selected to transform the development of SME in Ukraine, which is in a state of military conflict, based on an integrated system of financial support (Fig. 14). An integrated assessment was carried out according to the following criteria: efficiency (the ability to conduct business and achieve results with the least expenditure of resources and time), quality (a set of properties and signs of development that determine the ability to meet existing needs), accessibility of ensuring the development of SME (access to resources in the required period of time and in a certain volume), risk mitigation of initiatives in small businesses (the ability to hedge risks in the process of entrepreneurial activity) (Di Bella et al., 2023).

Integrated system of financial support for SME in Ukraine in the single economic space of the EU countries (Fig. 12).

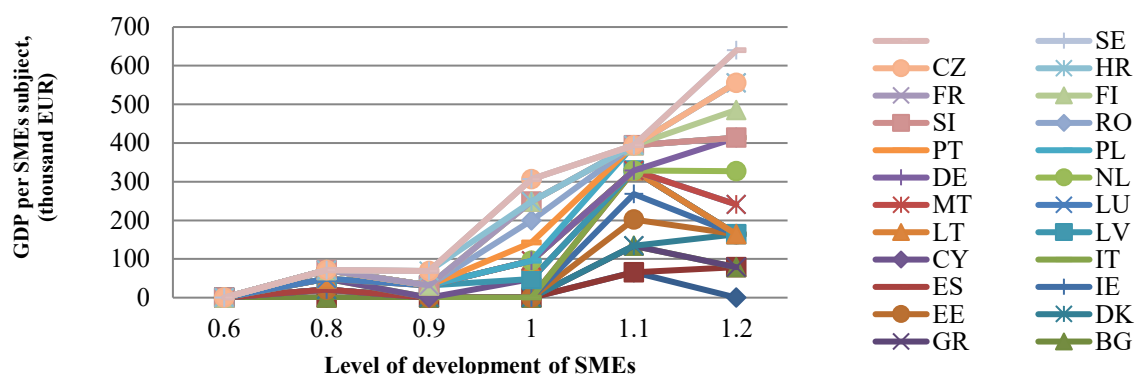


Figure 12. The level of financial support for small businesses in Ukraine in the single economic space of the EU countries Source: calculated by the authors

According to the segmentation of EU countries by the level of SME development, it was determined that the leading countries in terms of the coherence of their actions in financial and credit support for SME in Ukraine are Belgium, Denmark, Luxembourg, the Netherlands, Germany, Finland, France, and Sweden. Support from these countries will allow Ukraine to increase GDP per SME entity in the range from 70.4 thousand EUR to 86.5 thousand EUR.

A comprehensive analysis of the financial support system for small and medium-sized enterprises in Ukraine during the period of martial law demonstrates its transformation under the influence of both internal reforms and external factors of integration into the financial space of the European Union (Yatsenko, 2024). All the enterprises considered—both those operating in the domestic market and those export-oriented, innovative, and traditional—are united by a common context: adaptation to new financing conditions, attraction of banking and grant resources, and the desire to increase sustainability and competitiveness in crisis situations. Thus, preferential lending mechanisms, state programs (such as affordable loans 5-7-9%), grant support from the EU, crowdfunding, and business angel financing – all these instruments form a comprehensive model of multi-level financial support covering various types of SME and different stages of their development (from start-up to scaling up and entering foreign markets).

The methodology used allows the research results to be combined through an integrated assessment of the effectiveness, accessibility, quality, and risks of financial support. In particular, the generalized portraits of SME in 2018 and 2024 show the evolution of the regulatory environment and a reduction in the financial burden, which contributes to the involvement of a wider range of the population in entrepreneurial activity, including women, IT startups, and social enterprises. In addition, a comparative analysis of EU and Eastern Partnership countries' practices reveals potential vectors for further development, both through Ukraine's deeper involvement in EU programs (EU4Business, FORBIZ) and through the use of successful financing models (e.g., crowdfunding and investment-grant packages used in the Balkan countries). Thus, all the enterprises considered are links in a single financial ecosystem, which, in the context of war, demonstrates adaptability, interdependence, and the prospects for integration into the European economic space (Yatsenko, 2024; Landa et al., 2024).

4. Discussion of results

The main instruments of financial support for entrepreneurship and the trends of their application in a country operating under martial law are of great importance for the formation of adequate deregulation at different levels of development of SME subjects. Furthermore, Murovana (2023) focuses on tax, customs and financial instruments, with deregulation of support at the local level (in particular, assistance with relocation, information support by industry). Financial support is the most effective, because most of the SME subjects that managed to preserve their business and survive the shock moment at the beginning of the war and in the first months of nationwide instability were faced with the need for financial resources, additional sources of financing for their activities and investments.

Redziuk (2022) argues that the state of business activity of entrepreneurship under the influence of military actions must be conducted to identify the environment that inhibits their development potential; based on European experience, proposes a number of measures to improve the sustainable development of business activity in Ukraine. It should be noted, that at the strategic level, for the sustainable successful development of SME in Ukraine, it is necessary to form responsible state and political elites, determine a long-term strategy for economic recovery, and direct business-active subjects to innovative niches, sectors, and areas of activity in which Ukrainian SME can become competitive in Europe (Redziuk, 2022). In turn, Bilovska and Maistro (2023) provide a list of state deregulation measures to support business activity under martial law and note that the innovations adopted after the first months of catastrophic losses due to military operations in the country contributed to the restoration and activation of business activity. The authors also provide mechanisms and tools that the state should implement in the field of business activity in order to overcome existing obstacles.

Despite the large number of programs to support SME implemented by the Ukrainian government (budgetary subsidy for the development of agricultural producers, tax and customs benefits, the state compensation program “Affordable loans 5-7-9%”, etc.), and international organizations (EU4Business, COSME, FORBIZ, Creative Europe, etc.), it does not allow providing a comprehensive picture of the system and mechanisms for ensuring forecasting and regulating policy in this area (Galtsova, 2016). Unlike Ukraine, in EU countries, the growth of SME to a medium or large level is a priority business development strategy. Over the past 2022-2024, 45% of SME in EU countries annually increased their activity by up to 20%, and 14% – by more than 20%. At the same time, in the future, 64% of SME plan to expand their activities, 24% – to remain at the volumes they have now, and only 8% are confident in the prospect of a decrease in the volume of activity.

According to the EU classification, business entities must meet the criteria, of which the mandatory ones are “number of employees”, “volume of sales income” or “volume of assets”. As for the latter, small business entities are considered to be those with assets of no more than EUR 10 million (EUR 2 million for micro-enterprises) (Schwarz, 2024). In Ukraine, the key criteria for classifying business entities as small enterprises are close to the criteria of EU countries, and this is not surprising, because Ukraine has chosen a clear vector for European integration, which in turn involves the transformation of the national economy in the direction of bringing Ukrainian standards of conducting and regulating business closer to EU standards. At the same time, Vasilyeva et al. (2020) emphasizes that the positive European experience of countries that have gone through the

stage of SME reform is a tool for eliminating imbalances in the Ukrainian SME market in the context of European integration, with the aim of creating additional jobs, reducing unemployment, activating innovation processes, developing competition, and quickly saturating the market with goods and services (Trusova et al., 2021; Diia-Business, 2024).

When examining the role of Ukraine, which seeks to promote the development of SME, it should be noted that it is the Government that can take urgent measures to adjust financial programs for their development among stakeholders of the business environment of EU countries. Therefore, the introduction of state guarantees of bank loans for SME should be part of the mechanism for their support, which implements financial and non-financial relationships between stakeholders of the business environment of EU countries (Moskalenko, 2022; Lupenko et al., 2022).

The proposed system of financial and non-financial relationships between stakeholders of EU countries can also take into account the hierarchical structure of the banking environment to identify criteria that describe the level of possibility of credit support for SME. The analytical process of the hierarchy is used to determine the weight of the criteria for identifying favourability (I_{bc}), which is the basis for rating banks and is described by the formula (Trusova, 2016; Pedchenko et al., 2018b; Strilets, 2019; Trusova et al., 2020):

$$I_{bc} = \{PC; H; SB; RO; TB; O_v; IK; I_o; DD; PR\} \quad (7)$$

where, PC – percentage of problem loans, %; H – economic standards of banking institutions (H_1, H_2 – instant liquidity and capital adequacy); SB – bank reliability; SR – availability of special programs, loyalty programs and regimes for small businesses (soft loans, reduced interest rates, etc.); RO – efficiency of banking institutions (ROA, ROE – return on assets and capital), %; TB – level of trust among small businesses, %; O_v – overdraft conditions (interest rate), %; IK – investment lending conditions for small businesses, including the maximum term (T_{max_1}), one-time commission (IK_{ik}) and actual interest rate (iik), %; I_o – working capital replenishment loan conditions, including the maximum term (T_{max_2}) and empirical interest rate (io), %; DD – additional favourable conditions for attracting customers (D_{uan}, D_{eur} – rate on deposits in national and foreign currency for a period of 3, 6, 12 months), %; PR – service cost, currency at the exchange rate.

To confirm the existence of connections between the factors of the development of SME and the relationships of SME subjects with other stakeholders, the method of constructing neural networks is used, which by their nature are stochastic, probabilistic and have internal properties of uncertainty. The construction of neural network graphs was carried out to cluster the group of stakeholders of the EU leader countries and their influence on the financial support of SME, according to the importance of their connections in overcoming obstacles to attracting financial resources to Ukraine.

Graphic visualization of existing relationships allows us to determine the actual and predicted values of the integrated system of financial support for Ukrainian SME by a group of stakeholders from EU countries, by generating taxonomic indicators in conditions of uncertainty in the results of the activities of entrepreneurs who are able to take risks and act to create a new business in the state (Fig. 13).

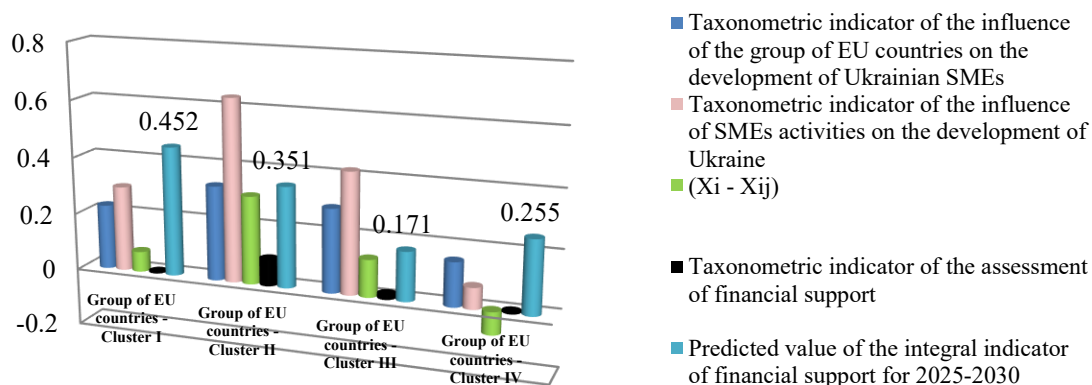


Figure 13. Actual and predicted values of taxonomic indicators of the integrated system of financial support. Source: calculated by the authors

Group of EU countries – I cluster (BE, DK, LU, NL, DE, FI); Group of EU countries – II cluster (FR, SE, AT, BG, ES); Group of EU countries – III cluster (CY, IE, SI, PT, PL); Group of EU countries – IV cluster (EE, LT, CZ, RO, HR). According to forecast calculations, the level of financial support for the group of EU countries of the first cluster for 2025-2030 will be within 45.2% of the total assistance for the development of the Ukrainian SME sector (Belgium, Denmark, Luxembourg, the Netherlands, Germany, Finland), the second cluster – 3.51% (France, Sweden, Austria, Bulgaria, Spain), the third cluster – 17.1% (Cyprus, Ireland, Slovenia, Portugal, Poland), the fourth cluster – 25.2% (Estonia, Lithuania, the Czech Republic, Romania, Croatia).

Using the forecast level of financial support from the EU group of countries will allow Ukraine to effectively apply the 10 SBA principles and introduce an assessment of entrepreneurial activity in accordance with international standards for SME support. Greater emphasis should be placed on implementing the vector of progress for SME development, which adapts to such principles as “Entrepreneurship”, “Second Chance”, “Responsive Administration”, “Access to Finance”, “Public Procurement”, “SME Skills”. Along with this, there should be a substantiated position on the implementation of the principles “Think Small First”, “Innovation”, “Single Market”, “Environment”, “Internationalization”, which are effectively adhered to by EU countries (European Commission, 2024).

5. Conclusions

Thus, the recovery of Ukrainian business during the war requires a comprehensive approach and careful planning of financial support from the EU. Over the short term, SME are unable to overcome the existing obstacles on their own, so it is important that government agencies at various levels, business actors and international partners join forces to promote economic recovery through SME transformation, development of new supply chains, business partnerships and cooperation, cost optimisation and financial assistance. The SME will need support for sustainable recovery in the medium term through innovative practices, impactful investments that take into account optimal environmental and social factors, job creation, and adaptation to EU standards and regulations.

An important priority is to promote the development of high-potential industries as a driving force for the country's economic development (agriculture and food processing, IT, construction and infrastructure). Despite all the challenges and difficulties, war can also encourage entrepreneurs to look for new opportunities and develop survival strategies. It is important to bear in mind that during a crisis, some SME can demonstrate their flexibility and innovative potential by changing their business direction and even becoming market leaders after the crisis ends. The SME need to realise that the approaches to production organisation, market promotion and competitive tools that were relevant and effective a few years ago are being radically transformed.

In view of this, the development of new scenarios for financial support and risk mitigation in the activities of SME is a priority for their financial stabilisation and increased investment attractiveness, provision of resources and assets, adaptation to new conditions for the development of innovative strategies for the implementation of comprehensive financial support programmes, tax benefits, development of special regulators to attract investment in new industries and innovative projects, reduction of bureaucracy, increase of competitiveness and stimulation of business activity. The prospects for further SME development should be to justify the essential characteristics of certain instruments for creating a favourable business climate in Ukraine and identify the entities responsible for their implementation to reduce obstacles for business entities, formulate an effective state economic policy in the context of a full-scale war and growing global challenges.

A review of the hypotheses put forward allowed us to draw a number of scientifically sound conclusions. First, the hypothesis regarding the potential of integrated mechanisms for supporting small and medium-sized enterprises (SME), adapted from the experience of the European Union, to increase the financial accessibility of such entities in Ukraine was confirmed, provided that the instruments are properly institutionally structured and localized. Second, the hypothesis regarding the readiness of SME to effectively utilize external support was partially confirmed: the level of such readiness proved to be uneven across economic sectors and is significantly limited by existing institutional barriers. At the same time, orientation towards European regulatory and financial frameworks contributes to the growth of integration and convergence potential. The third confirmed hypothesis was that it is precisely those EU countries with high financial readiness indicators and a developed SME ecosystem that are most relevant for the use of their models and practices in the Ukrainian context. Finally, the hypothesis that external financial assistance, particularly with EU support, cannot be effective without simultaneous structural reforms in the areas of business regulation, innovation promotion, business environment deregulation, and the creation of effective risk management mechanisms was confirmed.

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