THE SUBSTANTIVE DEFINITION OF THE EFFICIENCY OF EXPORT-IMPORT ACTIVITIES IN UKRAINE

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Kupriianov V. M. The Substantive Definition of the Efficiency of Export-Import Activities in Ukraine

The aim of the article is to study the efficiency of export-import activities, which is particularly relevant in the context of the ongoing war and economic instability in Ukraine, as its improvement contributes to the adaptation of enterprises to changes in the foreign economic environment, strengthening competitiveness in international markets, and creating conditions for the further post-war recovery of the country. The article conducts a critical analysis of domestic and foreign conceptions of the efficiency of an enterprise's activities, particularly the efficiency of export-import activities. A substantive model of the efficiency of export-import activities of enterprises in Ukraine is substantiated in the form of a diagram that describes such interrelated structural elements as strategizing, functions and management methods, the use of export-import potential, criteria and a system of indicators, a positive balance, as well as influencing factors and managerial decisions. An author's own modern theoretical definition of the efficiency of an enterprise's export-import activities is proposed as a characteristic of enterprises, expressed in achieving optimal economic results, that is, maximizing the positive balance from export-import operations while minimizing costs through the full utilization of existing export-import potential. The main macroeconomic factors influencing the volume of industrial production sold as one of the indicators of enterprise efficiency in Ukraine are generalized. To identify the macroeconomic factors affecting the indicators of the efficiency of entrepreneurial activities in Ukraine, a factor analysis was conducted, and a multifactor regression model has been built to determine the dependence of the volume of production sold in Ukraine on latent factors. It is found that the most significant impact comes from indicators such as Ukraine's external debt, unemployment rate, economic freedom index, and the volume of goods imported. The use of the obtained results is recommended as a basis for forming rational managerial decisions aimed at enhancing the efficiency of enterprises' export-import activities.

Keywords: efficiency, export-import activities, substantive model, multifactor regression model, factors of influence, managerial decision.

Fig.: 2. Tabl.: 3. Formulae: 2. Bibl.: 18.

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Купріянов В. М. Змістовне визначення ефективності експортно-імпортної діяльності в Україні

Метою статті є дослідження ефективності експортно-імпортної діяльності, що є особливо актуальним в умовах війни та економічної нестабільності в Україні, адже її підвищення сприяє адаптації підприємств до змін у зовнішньоекономічному середовищі, зміцненню конкурентоспроможності на міжнародних ринках і створенню передумов для подальшого повоєнного відновлення країни. У статті проведено критичний аналіз вітчизняних та іноземних концепцій ефективності діяльності підприємств, зокрема ефективності експортно-імпортної діяльності. Обґрунтовано змістовну модель ефективності експортно-імпортної діяльності підприємств в Україні у вигляді схеми, що описує такі взаємопов'язані структурні елементи, як стратегування, функції та методи управління, використання експортно-імпортного потенціалу, критерії та систему показників, додатне сальдо, а також фактори впливу та управлінські рішення. Запропоновано власне сучасне теоретичне визначення ефективності експортно-імпортної діяльності підприємства як характеристики підприємств, яка виражається в досягненні оптимальних економічних результатів, тобто максимізації додатного сальдо від експортно-імпортних операцій за умов мінімізації витрат на їх здійснення шляхом повного використання наявного експортно-імпортного потенціалу. Узагальнено основні макроекономічні фактори впливу на обсяг реалізованої промислової продукції як одного з показників ефективності діяльності підприємств в Україні. З метою виявлення макроекономічних факторів впливу на показники ефективності діяльності в Україні було здійснено факторний аналіз і побудовано багатофакторну регресійну модель залежності обсягу реалізованої продукції в Україні від латентних факторів та визначено, що найбільший вплив мають такі показники, як зовнішній борг України, рівень безробіття, індекс економічної свободи та обсяг імпорту товарів. Рекомендовано використання отриманих результатів як основи для формування раціональних управлінських рішень, спрямованих на підвищення ефективності експортно-імпортної діяльності підприємств.

Ключові слова: ефективність, експортно-імпортна діяльність, змістовна модель, багатофакторна регресійна модель, впливові фактори, управлінське рішення.

Рис.: 2. Табл.: 3. Формул: 2. Бібл.: 18.

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ЕКОНОМІКА ЕКОНОМІКО-МАТЕМАТИЧНЕ МОДЕЛЮВАННЯ

The ongoing war in Ukraine has led to the emergence of problems in all sectors of the national economy, but especially in the field of the export-import activities. The dynamics and structural changes in Ukraine's export-import flows, in particular the continuously growing negative trade balance over the past few years, clearly indicate the need to improve the efficiency of export-import operations at the enterprise level. Therefore, it is relevant to conduct a comprehensive study of efficiency, as enterprises are the key entities capable of ensuring competitiveness in foreign markets amid growing challenges such as geopolitical instability and the transformation of global markets. The aim of the article is to conduct a critical analysis of existing national and foreign conceptions of enterprise efficiency, to formulate an author's own definition of the export-import efficiency of enterprise, and to elaborate a substantive efficiency model. The obtained results strengthen the theoretical foundations of export-import activities and determine the formation of rational managerial decisions directed towards improving the efficiency of enterprises' export-import activities.

The issues of the export-import efficiency of enterprise are addressed in the works of both foreign and domestic scholars, among them V. P. Andryshyn [1], T. I. Bondarieva, A. I. Osadchuk [2], P. O. Hrynko [3; 6], A. O. Kasych [4], Y. H. Kozak [5], L. M. Malyarets [6–8], I. B. Oleksiv [9], K. V. Sukhareva, A. A. Kolodyanova [10], O. V. Sheremetynska, Yu. R. Varfolomeeva [11], A. Bourguignon, V. Malleret, H. Nørreklit [13], R. S. Kaplan and D. P. Norton [14], H. Leibenstein [15], M. Meyer [16], A. Neely, C. Adams [17], T. Watts, C. McNair-Connolly [18].

The concept of efficiency is interpreted differently in the works of domestic and foreign scholars. In 1966, Harvey Leibenstein introduced «X-efficiency» as an another conception of efficiency in the operation of enterprises, where an enterprise is considered x-efficient if «it is able to increase their output with given resources by much larger magnitudes» [15]. Contemporary domestic scientists, e. g. L. Malyarets, L. Norik, and A. Zhukov, define the efficiency of an enterprise's production and economic activities as «an integrated aggregate of characteristics of the efficiency of the subsystems of the enterprise's production and economic activities (production, financial, investment-innovation, material-technical, marketing, personnel), the efficiency of resource use (enterprise capital, labor resources, fixed production assets, current assets) and social-ecological efficiency (as a characteristic of the level of fulfillment of the enterprise's social-ecological obligations), which are capable of ensuring the economy, purposefulness, and optimality of the paths to achieving the enterprise's purposes» [7, p. 51]. Hav-

ing analyzed various interpretations of the efficiency of the enterprise's activities, it can be concluded that most entrepreneurs associate efficiency with achieving the desired result under the condition of rational resource use.

The efficiency of an enterprise's export-import activities is a separate economic category that, although it shares common features with the general concept of the efficiency of an enterprise's activities, has its own specifics. Definitions of this concept in the literature largely echo the general interpretations of efficiency but focus specifically on the features of export-import activities. According to O. Sheremetynska and Yu. Varfolomeeva, «a necessary condition for formulating and making a rational managerial decision on the introduction of export-import activities at the enterprise is its efficiency, which is determined by comparing the achieved economic result with the enterprise's costs for obtaining it» [11, p. 97]. Professor Y. Kozak et al. believes that the main criterion for assessing the efficiency of foreign economic activity of an enterprise is the maximization of net income from export operations. According to this criterion, the best options for cooperation with foreign trade partners should be chosen. The quantitative assessment of this criterion is carried out on the basis of a comparison of the cumulative effect of certain options for foreign economic cooperation of the enterprise and the total costs associated with its implementation [5, p. 162–163].

For a more complete understanding of the essence of the efficiency of an enterprise's export-import activities, it is advisable to conduct a critical analysis of the main existing conceptions proposed by domestic and foreign authors. *Tabl. 1* provides precis of some conceptions of the efficiency of an enterprise's activities:

In addition to conceptions of the enterprise's performance, various approaches to evaluating the efficiency of export-import activities can also be distinguished. Among the common ones, the cost, balance, comparative, indicator approaches, and the balanced scorecard approaches [2] can be allocated.

The analysis of the efficiency of an enterprise's export-import activities involves clarifying basic concepts. P. Hrynko examined the issues of the efficiency of the export-import activities (EEIA) and substantiated a system of its basic concepts that form the essence of the efficiency of the enterprise's export-import activities, including: strategy of the EEIA, goals of the EEIA, management methods of the EEIA, management functions of the EEIA, conditions of the EEIA, factors of the EEIA, the export-import potential of the enterprise, indicators of the EEIA, criteria of the EEIA, effect of the EEIA [6]. Based on the mentioned basic

Table 1

The conceptions of the efficiency of an enterprise's activities

The author and name of the conception	Precis
1	2
I. Oleksiv – the simultaneous model for considering the interests of various groups of economic influence of the enterprise. [9]	The model is oriented towards assessing the impact of measures aimed at considering the interests of various groups of economic influence of the enterprise on the enterprise's economic efficiency. The model includes a system of equations, each corresponding to a specific group of economic influence (owners, managers, suppliers, etc.). Analyzing this conception, it is appropriate to note such advantages as comprehensiveness (consideration of both financial and non-financial interests) and methodological soundness (use of the analytical hierarchy process, regression analysis). However, the model has certain drawbacks: complexity for practical use in small and medium-sized enterprises with less developed management systems; the model focuses primarily on the internal environment rather than a comprehensive analysis that takes into account the influence of external parties (government regulators, competitors, international economic institutions, etc.), which have a strong impact on the efficiency of enterprises' activities
R. Kaplan and D. Norton – the conception of balanced scorecard [14, p. 41–43]	This conception involves a comprehensive assessment of the efficiency of an enterprise's activities through the integration of financial and non-financial indicators, and allows for the consideration of the enterprise's activities from four perspectives: financial, customer, internal business processes, as well as learning and growth. This conception is quite widespread, and based on the conducted analysis, it can be concluded that this indeed is a powerful tool, as its application helps to comprehensively assess efficiency, aligning operational activities with strategic goals. At the same time, the implementation of the balanced scorecard can be complicated for many companies due to the subjectivity of indicator selection, the need for highly qualified managerial staff, a deep understanding of the company's specific activities, and the necessity for constant monitoring
K. Sukhareva, A. Kolodyanova – the polygon of effectiveness of the enterprise's activity [10, p. 244–245]	The authors specify that «the overall efficiency of the enterprise is calculated as the area of the polygon formed by 8 vector rays (a system of indicators for a comprehensive assessment of the enterprise's performance)». The advantage of this conception is its comprehensiveness (it can truly cover different areas of the enterprise's activities), the equal importance of each component of the enterprise's efficiency, and the graphical representation of the enterprise's strengths and weaknesses. Still, it is worth considering the complexity in calculating the area of the polygon due to the subjectivity in choosing indicators and their normalization
M. Meyer – the activity-based profitability analysis (ABPA) [16, p. 145–167]	Within the framework of ABPA, the elemental conception of an economic entity is implemented by breaking down the producer firm of goods into its business processes and their costs, as well as into the customers and the revenues they generate by consuming the company's products and services. ABPA offers highly accurate indicators: revenues and expenses, and accordingly, profitability, which stem from the enterprise's activities and the transactions it conducts. ABPA differs positively from financial indicators and the balanced scorecard system in that the indicators are aligned with the company's goals for achieving profitability. On the other hand, a drawback of this conception is its focus solely on financial indicators. It should also be considered that the application of ABPA may incur significant organizational and informational costs for conducting the analysis of business processes and customers, so the feasibility of its use directly depends on the goals and scale of the specific enterprise
A. Neely, C. Adams – the performance prism [17]	This conception encompasses five interconnected areas: stakeholder satisfaction; strategies, processes, capabilities, stakeholder contributions. The performance prism helps management teams formulate questions more clearly that require attention to achieve and enhance efficiency, considering the interests of all parties and ensuring a comprehensive analysis of the organization's activities. However, the complexity of the model can also be its drawback; implementing this conception in an enterprise requires highly qualified management staff and significant resources

ЕКОНОМІКА ЕКОНОМІКО-МАТЕМАТИЧНЕ МОДЕЛЮВАННЯ

1	2
C. McNair-Connolly, T. Watts – the performance pyramid [18]	The essence of this conception is the integration of corporate goals with the operational activities of the company through a multi-level hierarchy of indicators. The performance pyramid allows for a clear tracing of the connection between the strategic goals of the enterprise and everyday operational activities, combining external (customer and market-oriented) and internal efficiency (operational processes and structures). This conception helps management effectively define, measure, and control the efficiency of the enterprise at all levels. A drawback of the conception is that the focus on the hierarchical nature of indicator connections may slow down adaptation to dynamic changes in the external environment
J. L. Malo – «tableau de bord» [13, p. 125–134]	«Tableau de bord» – a system that combines financial and non-financial indicators to measure the performance of all departments at the enterprise. The indicators are divided into functional and target indicators, between which causal relationships are determined. At lower management levels, operational efficiency indicators (non-financial) are used, while at higher levels, financial indicators are added. The advantages of this conception include comprehensiveness (similar to the conception of balanced scorecard by Kaplan and Norton, «the polygon of effectiveness of the enterprise's activity by K. Sukhareva and A. Kolodyanova», «the performance prism by A. Neely and C. Adams», «the performance pyramid by C. McNair-Connolly and T. Watts») and hierarchical structure (level with «the performance pyramid by C. McNair-Connolly and T. Watts»). However, like in most other cases, the complexity of implementing the system in enterprises should be taken into account, and its application appears advisable in combination with other conceptions

**Source:** [9; 10; 13; 14; 16–18].

concepts and the introduced new structural elements, a substantive model of the efficiency of the enterprise's export-import activities has been formed, which can be presented in the form of a diagram (*Fig. 1*).

The diagram reflects the interconnections of structural elements that form the essence of efficiency, namely: micro-, meso-, and macro-level factors that influence the formation of purposes and goals, the use of export-import potential, the process of strategizing, management methods and functions, evaluation criteria, and the system of the EEIA indicators; the purposes and goals of the EEIA – formulated are specific end results of export-import activities and a guideline for further strategizing the efficiency; the use of export-import potential reflects the ability of the enterprise to effectively use its capabilities regarding export-import activities; management methods of the EEIA are a set of measures in managing the EEIA to achieve the goals of the EEIA while fully utilizing export-import potential; functions of the EEIA are targeted managerial influence on the EEIA (planning, organization, motivation, control, evaluation, etc.), used together with methods for the practical implementation of both operational and strategic tasks, ensuring the implementation of rational managerial decisions; strategizing the EEIA is a set of substantive and organizational-methodical provisions and procedures that regulate and ensure the process of developing and implementing strategies for enhanc-

ing the EEIA [4, p. 15]; the EEIA indicator system is a system of partial and integral absolute and relative indicators that reflect the EEIA; the EEIA criteria are indicators whose changes reflect the achievement of the EEIA purposes and goals (economy, efficiency, profitability, etc.); the positive balance (surplus) is the generalized economic result of the EEIA, calculated as the difference between the results of the EEIA and its costs, and indicates the achievement of positive efficiency; a managerial decision regarding the EEIA is the result of choosing an alternative from many options to achieve the EEIA, and a rational management decision is the basis of strategizing of the EEIA [6].

The presence of various approaches to defining efficiency necessitates the formation of a generalized definition that takes into account the specifics of an enterprise's export-import activities and corresponds to the current economic conditions. Considering this, it is advisable to propose a contemporary definition of the efficiency of an enterprise's export-import activities.

The efficiency of the export-import activities is a characteristic of the enterprise expressed in achieving optimal economic results, that is, maximizing the positive balance from export-import operations while minimizing the costs of their implementation through the full implementation of the existing export-import potential. Maximizing the positive balance means achieving the greatest possible excess of export revenues over import costs.
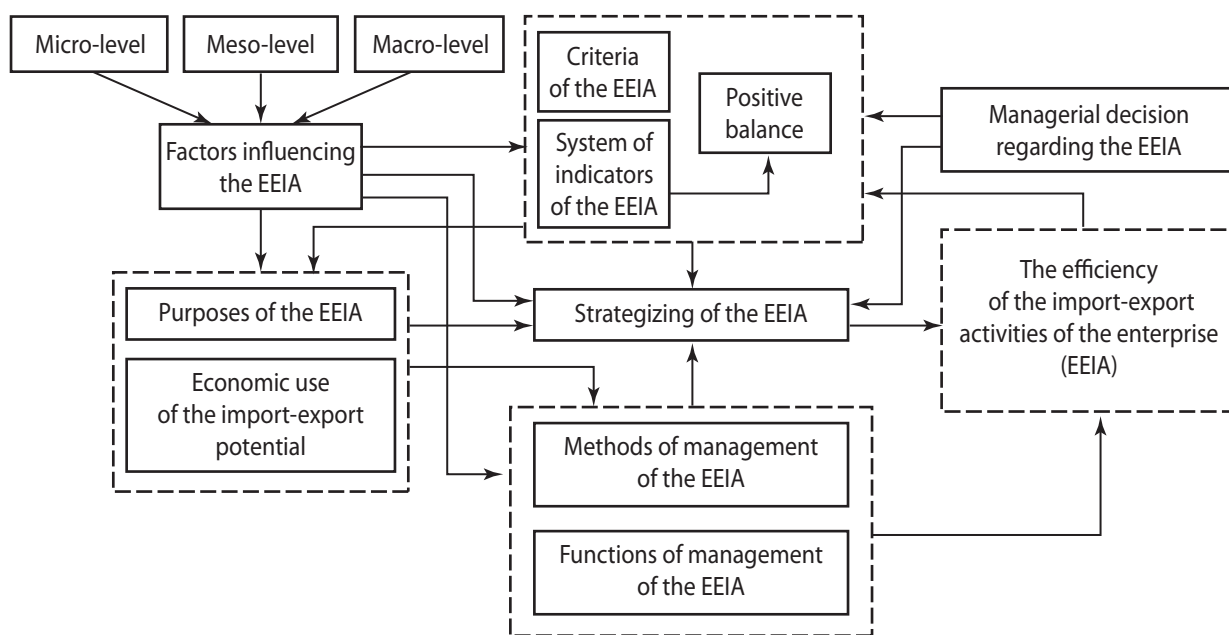
Fig. 1. A substantive model of the efficiency of an enterprise's export-import activities

One of the important structural elements of this substantive model is the influence of macro-, meso-, and micro-level factors on the efficiency of activities, as considering external and internal environmental factors allows for timely responses to challenges, adapting to changes, which subsequently affects the improvement of efficiency of activities. Positive and negative influencing factors are distinguished. Yet, given the specifics of the current business conditions in Ukraine, the ongoing hostilities and geopolitical instability, negative factors remain dominant, significantly limiting the ability of enterprises to enhance the efficiency of export-import activities, as evidenced by the trend of declining industrial product sales in Ukraine during 2020–2025 (see Fig. 1). Destabilizing factors also include the deterioration of the price situation and the tightening of import restrictions worldwide, the low level of investment attractiveness due to high levels of corruption and the lack of transparency in the regulatory environment in Ukraine, the non-compliance of products with quality standards (in particular, EU standards), unfavorable currency regulation, instability of tax and customs legislation, and so on. Despite the existing negative factors, the efficiency of Ukraine's export-import activities can be enhanced by the activation of international support and Ukraine's integration into European economic structures, the search for new markets, the establishment of a transparent regulatory system (tax, customs), and the implementation of modern technologies and innovative practices in production.

So, let us consider the impact of external environment factors on the efficiency of enterprises in Ukraine by constructing a multifactor regression model of the dependence of efficiency indicators on macro-economic indicators. We will use the volume of industrial production sold as the performance indicator – the dependent variable Y (UAH million), as it is one of the indicators of the efficiency of industrial enterprises in Ukraine. Analyzing the research of various scholars on the analysis of factors influencing the development of export-import activities [1; 3; 8], we will use the following external environment factors: the volume of Ukraine's goods exports (USD million, X_1), the volume of Ukraine's goods imports (USD million, X_2), the unemployment rate in Ukraine (%, X_3), Ukraine's external public debt (USD million, X_4), foreign direct investment in Ukraine (USD million, X_5), the average annual NBU discount rate (%, X_6), the industrial production index (%, X_7), and the economic freedom index (units, X_8).

Since there are linearly dependent indicators in the specified system of factors, we will remove them and keep only the linearly independent ones. Using *Statgraphics*, the factor analysis was applied to reduce the dimensionality of the data and identify latent factors. As a result of the analysis, 3 latent factors are identified, as they have eigenvalues greater than 1.0.

These 3 factors collectively explain 82.45% of the total variance. The ranking of the interrelationship of factors should be formed based on the weighting coefficients of the first latent factor, which explains 35.819% of the variability of the initial system of indicators (*Tabl. 2*).

$$F = -0,063\,X_1 + 0,712\,X_2 + 0,836\,X_3 + 0,882\,X_4 + {} \\ + 0,230\,X_5 + 0,082\,X_6 - 0,039\,X_7 + 0,813\,X_8.$$

ЕКОНОМІКА ЕКОНОМІКО-МАТЕМАТИЧНЕ МОДЕЛЮВАННЯ

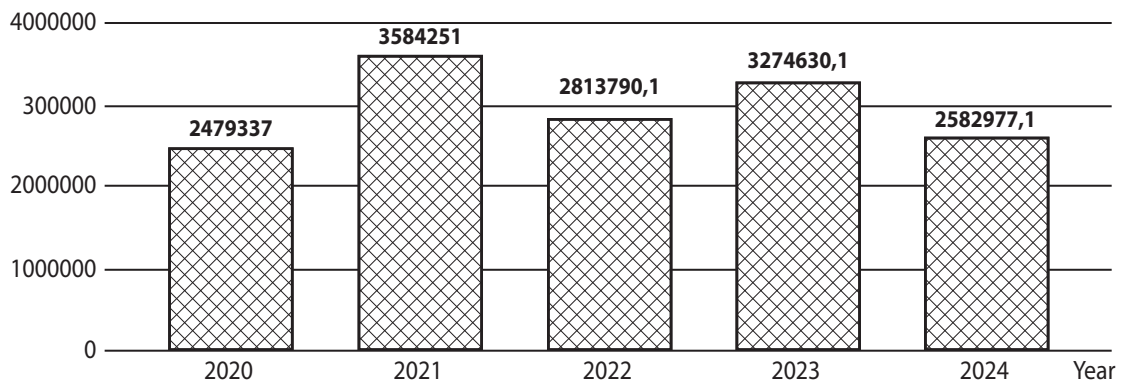The volume of industrial product sales in Ukraine (UAH million)

Fig. 2. The volume of industrial product sales in Ukraine for the years 2020–2024 [12]

Results of factor analysis with *Statgraphics*

No. of the factor	Eigenvalue	Share of dispersion, %	Cumulative share of dispersion, %
1	2.86552	35.819	35.819
2	2.34527	29.316	65.135
3	1.38501	17.313	82.448
4	0.716951	8.962	91.409
5	0.463059	5.788	97.198
6	0.170281	2.129	99.326
7	0.04791	0.599	99.925
8	0.0059949	0.075	100.000

Thus, the main factor that forms the interconnection in the system is Ukraine's external public debt, followed by factors such as the unemployment rate in Ukraine, the index of economic freedom, and the volume of Ukraine's goods imports. Factors with weight coefficients of less than 0.5 are not advisable to consider. The considered factors are closely interconnected and this should be taken into account when elaborating strategies to enhance the efficiency of Ukraine's export-import activities.

As demonstrated in the *Tabl. 3*, the model of multifactor regression dependence of the volume of sold products in Ukraine (Y) on latent factors has the form:

$$Y = 2471650 + 247609\,F_1,$$
$$R^2 = 74{,}28\ \%,\ F = 25{,}99.$$

Therefore, the volume of industrial production sold in Ukraine is influenced only by the first latent factor and not by the other factors. The analysis of the structure of the first latent factor shows that to improve the efficiency indicators of enterprises in Ukraine, it is first necessary to pay attention to the indicators of Ukraine's external public debt, the unemployment rate in Ukraine, the index of economic freedom, and the volume of Ukraine's goods imports. It can be assumed that the first latent factor reflects general structural changes in the economy and the influence of external factors: for example, the scale and intensity of economic processes when the country actively attracts external resources (debt, goods) and experiences internal socioeconomic changes (e. g. unemployment, or reforms, as reflected in the freedom index).

Thus, as a result of the conducted critical analysis of the conceptions of efficiency of an enterprise's activities, particularly export-import activity, a theoretical definition of the efficiency of export-import activity has been proposed. A substantive model of of the efficiency of export-import activities of an enterprise has been developed, which is presented in the form of a diagram reflecting interconnected structural elements such as strategizing, functions, and management methods, implementation of export-import potential, criteria and a system of indicators, positive balance, as well as influencing factors and managerial decisions. For the practical determination of the im-

The assessments of latent factors for building a multifactor regression model

No. of the observation	Factor 1	Factor 2	Factor 3
1	−2.19021	1.64149	−1.39689
2	−3.34505	−3.83059	−1.15964
3	−2.85649	−2.31886	0.12008
4	−1.92090	−0.18455	0.04045
5	−0.76087	0.43077	0.67098
6	−0.48721	1.15760	0.99233
7	−0.76613	0.95471	−0.19442
8	1.40707	5.17723	1.87313
9	2.46731	−0.92021	−3.22926
10	5.06135	−2.27806	2.25085
11	3.39111	0.17047	0.03239

pact of macroeconomic factors on the efficiency indicators in Ukraine, a factor analysis was conducted and a multifactor regression model of the dependence of the volume of sold products in Ukraine on latent factors has been built. Based on the results of the factor and regression analyses, it is determined that the most significant impact is caused by the external debt indicator in Ukraine, plus other indicators such as the unemployment rate, the index of economic freedom, and the volume of goods imports. The results of the study strengthen the theoretical foundations and can serve as a basis for forming rational managerial decisions directed towards improving the efficiency of export-import activities of enterprises. ∎

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