“Algorithm of activation export on the example of machine-building enterprises of the Kharkiv region”

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ALGORITHM OF ACTIVATION EXPORT ON THE EXAMPLE OF MACHINE-BUILDING ENTERPRISES OF THE KHARKIV REGION

Abstract

Estimation of export potential is a basis for development and adoption of managerial decisions in the management of an enterprise export activity development, which is one of the perspective directions of foreign policy of Ukraine. Due to this the purpose of the paper is to justify the methodology of evaluating the export potential of an enterprise based on the key indicators of its export activity development, taking into account the results obtained, to formulate general directions of intensification of exports of machine-building enterprises. The object is to assess the export potential of an enterprise and make managerial decisions to enhance its export activity. In order to determine the indicators that should be used in evaluating the export potential of an enterprise, the method of expert evaluation of T. Saati, based on the system of pairwise comparisons of certain characteristics by the levels of the hierarchy, is used. The list of indicators that were evaluated by experts was formed on the basis of the theoretical synthesis of the scientific papers. These include indicators of production, financial, investment, innovation and direct export business. The indicators obtained through export analysis were used to calculate the integral indicator of export potential development for the enterprises of the machine-building industry. As a result, the level of export potential of the studied machine-building enterprises is determined, the general directions of activation of their export activity are offered.

Keywords export, export activity, export potential, export activation, export potential assessment, integral indicator of export potential development

JEL Classification E23, F15, F63, L25, L64

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АЛГОРИТМ АКТИВІЗАЦІЇ ЕКСПОРТУ НА ПРИКЛАДІ МАШИНОБУДІВНИХ ПІДПРИЄМСТВ ХАРКІВСЬКОЇ ОБЛАСТІ

Анотація

Оцінювання експортного потенціалу є базисом для розробки та прийняття управлінських рішень в управлінні розвитком експортної діяльності підприємства, що є одним із перспективних напрямів зовнішньої політики нашої держави. З огляду на це мета статті – обґрунтувати методику оцінювання експортного потенціалу підприємства на основі ключових показників розвитку його експортної діяльності, з урахуванням отриманих результатів сформувати загальні напрями активізації експорту машинобудівельних підприємств. Об'єкт – оцінювання експортного потенціалу підприємства та прийняття управлінських рішень щодо активізації його експортної діяльності. З метою визначення показників, які доцільно використовувати при оцінюванні експортного потенціалу підприємства застосовано метод експертного оцінювання Т. Сааті, що ґрунтується на системі попарних порівнянь певних ознак за рівнями ієрархії. Перелік показників, які оцінювалися експертами сформовано на підставі теоретичного узагальнення праць вчених. До їх складу увійшли показники виробничої, фінансової, інвестиційної, інноваційної та безпосередньо експортної сфери діяльності підприємства. Отримані шляхом експортного аналізу показники були використані для розрахунку інтегрального показника розвитку експортного потенціалу для підприємств машинобудівної галузі. В результаті визначено рівень експортного потенціалу досліджуваних машинобудівельних підприємств, запропоновано загальні напрями активізації їх експортної діяльності.

Ключові слова експорт, експортна діяльність, експортний потенціал, активізація експорту, оцінювання експортного потенціалу, інтегральний показник розвитку експортного потенціалу

Класифікація JEL E23, F15, F63, L25, L64

INTRODUCTION

Given the negative trade balance of Ukraine and taking into account the need to intensify the foreign trade of Ukraine, it is necessary to stimulate the development of export activity. It will help expand international markets and improve the quality and, consequently, the competitiveness of goods, turn the enterprises into reliable exporters, direct resources in high-performing industries and increase the value of high-tech products in the export structure. So, it is necessary to develop an algorithm for activation of export activity based on the assessment of the export potential of an enterprise and the calculation of the integral indicator of its development.

1. LITERATURE REVIEW

Theoretical and practical principles for assessing the export potential of an enterprise were studied by such scholars as Gubaidullina, Yakupov (2015), Silva (2019), Duginets and Kucheryevenko (2012), Solokha (2010), Kozmenko and Kolosok (2010) et al. At the same time, taking into account the key aspects of the theory and practice of assessing the export potential of an enterprise, the question of determining the system of key indicators on the basis of which such an assessment is conducted are not fully studied.

Gubaidullina, Yakupov (2015) define export potential and distinguish the main factors for its development using example of Russian Federation.

Silva, Borré, Piñeres Castilloc, Castro, Varela (2019) suggest to use data mining techniques in combination with Ensemble Learning for predicting the export potential of an enterprise. For evaluating export potential authors integrates 16 factors in following dimensions: financial, market, learning and growth, client and internal processes.

Cieślik, Kaciaka, Thongpapanl (2015) use longitudinal approach to examine enterprises export experience and performance. According to their research over time the growth of an enterprise's share of the main export market is negatively related to export performance.

Navarro-García (2016) uses the resource-based view and the contingency approach for identifying drivers of export. The results of investigation reveal that export activity positively depends on internal factors, and also depends on contingency factors linked to the external environment.

Duginets and Kucheryevenko (2012) say, that the system of indicators for assessing the level of development of the export potential grouped in the following blocks: a general description of the level and dynamics of export potential of the region; general characteristics of commodity structure of export of a region; indicators of export of commodity groups; general characteristics of the geographical structure of export of a region; regional export performance by country.

Solokha (2010) defines, that the export potential directly correlates with the innovation of products, which is equated with its competitiveness in a certain foreign market.

Among scholars, there are also views on the impossibility of quantifying export potential based on the subjective nature of the concept and the lack of a direct link between the potential and the position of an enterprise on the market. In particular, Melnyk (2009) believes that in most cases, the study of export potential is a forecast of the commodity and sectoral structure of export of products based on the results of the exports dynamics analysis, its commodity and industry structure for the periods preceding the date of the study.

Kozmenko and Kolosok (2010) proposes to estimate export potential on the basis of the weighted average number of employees, weighted assets of an enterprise, weighted equity capital and adjusted correction coefficient.

An urgent need is to calculate the general indicator of development of the export potential of an enterprise as the basis for making managerial decisions regarding further intensification of the export activity of an enterprise.

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2. AIMS

Aims definition of the integral indicator of development of the export potential of an enterprise on the basis of the system of indicators determined by experts with the purpose of forming perspective directions of export activity development of an enterprise. In order to achieve this goal, authors identify the following tasks:

1) taking into account the existing trends in export development, determining the relevance of the study of the export potential of machine-building enterprises of the Kharkiv region in order to avtivate Ukrainian exports;
2) formation of a system of indicators that will provide the most accurate indicator of the level of export potential development of the studied enterprises by systematizing these indicators in terms of financial and production, innovation, investment and export areas of their activities;
3) determination of the integrated indicator of the export potential development of an enterprise on the basis of the taxonomy method; economic interpretation of the obtained results taking into account the possibilities of foreign policy formation at the local and state levels;
4) development of a structural and functional model for assessing the export potential of an enterprise, which would clearly demonstrate the proposed methodology for assessing the export potential of an enterprise.

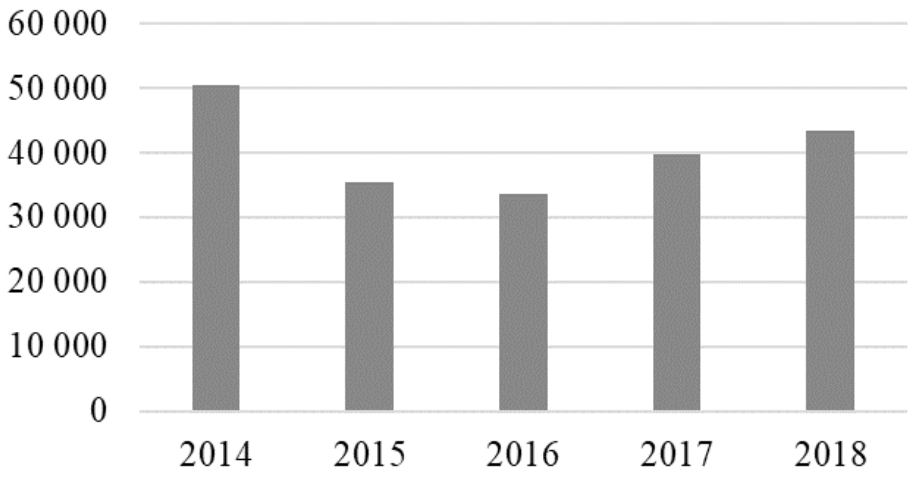
3. METHODS

To obtain the main results of the research, the method of theoretical generalization was used (for the formation of a list of indicators that were evaluated by experts); method of expert evaluation Saati (in order to determine the indicators that should be used in assessing the export potential of an enterprise), the method of taxonomy (to calculate the integral indicator of export potential development for enterprises in the machine-building industry).

4. RESULTS

Nowadays Ukraine is involved in international trade actively. One of the reason for this is Ukraine-EU Agreement of Association. Trend for 2014–2016 years was the reduction in revenue from exports of goods in Ukraine, but in 2017-2018 there was a positive trend in Ukrainian export. Let's consider dynamics of Ukrainian export (Figure 1).

In the 2017 the volume of export was 39.7 mln USD (according to the balance of payments), in 2018 – 43.35 mln USD. Despite the positive trend, Ukraine's export level in 2014 has not yet been achieved nowadays.



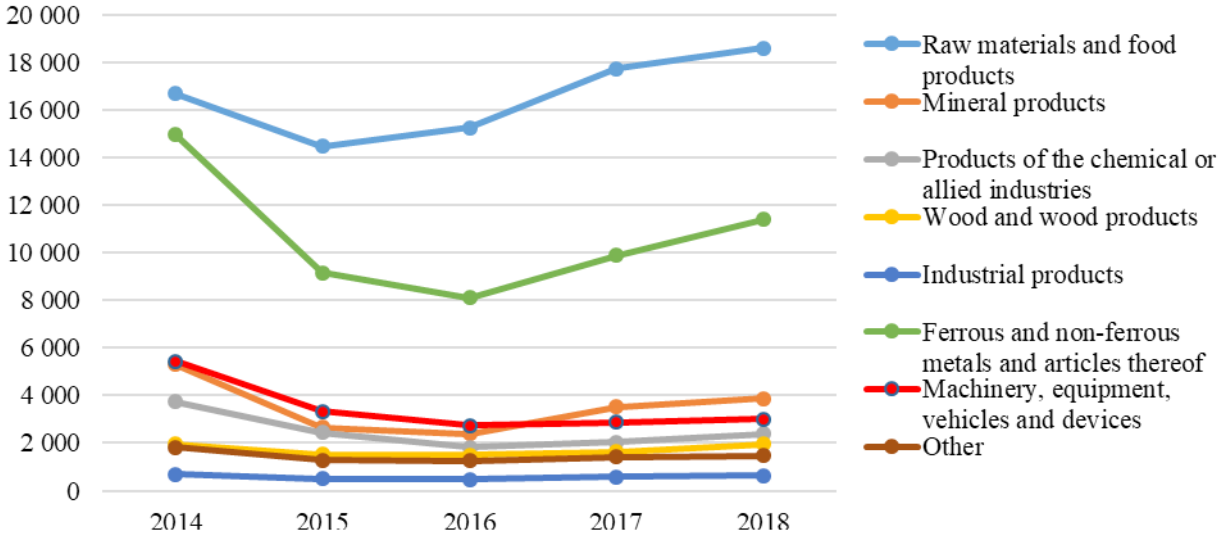
Source: Created using data of State Statistics Service of Ukraine documents publishing (n.d.).

Figure 1. Ukrainian export dynamic

In the product structure of Ukrainian exports, the following groups of goods are the most important: ferrous and non-ferrous metals and articles thereof, vegetable products, animal and vegetable fats and oils, machinery, equipment and mechanisms; electrical equipment, mineral products. The product structure of Ukrainian exports shows the predominance of raw materials over finished industrial goods, machinery and equipment (Serpuhov, & Mazorenko, 2017). For Ukraine it is important to change the export products structure, and redirect from production of raw materials to the production of finished products, especially industrial and machinery.

The dynamics of different product category is given in the Figure 2. According this figure Ukraine had reduction of export of industrial products and machinery, equipment, vehicles and devices in 2014–2017. In 2018 there was slight increase for these product categories.

For assessing export potential of the Kharkiv region it necessary to analyze the structure of production and define the place of industrial products and machinery. According to the regional statistics (State Statistics Service of Ukraine, n.d.), the most profitable and popular economic activity in the Kharkiv region are industry (42.06%) and wholesale and retail trade (37.08%) (Figure 3). The big share of the industrial products shows the potential of the Kharkiv region in the redirection of Ukrainian export.



Source: Created using National Bank of Ukraine (2018).

Figure 2. Dynamics of exports by products

The Top-4 areas of the industry in Karkiv region in 2018 are (State Statistics Service of Ukraine, n.d.): mining and quarrying (26.1%); food, beverages and tobacco (25.2%); electricity, gas, steam and conditioned air (14.9%); machine building (11.3%).

The priority import products categories for EU, as generalized by Serpuhov and Mazorenko (2017), are machines and equipment; other industrial products; and mineral fuels, lubricants. Therefore, the machine building should become a strategic direction for boosting Ukraine's exports.

The foregoing determines the relevance of the research of the export potential of the machine-building enterprises of the Kharkiv region in order to intensify Ukrainian exports.

The list of indicators of an enterprise's export potential assessment is formed on the basis of theoretical generalization of the scientific papers in this field. The model of the hierarchy of prioritization of the indicators for enterprise's export potential assessment is presented in Figure 4. In the course of the study, data from machine-building enterprises of the Kharkiv region were used to make calculations.

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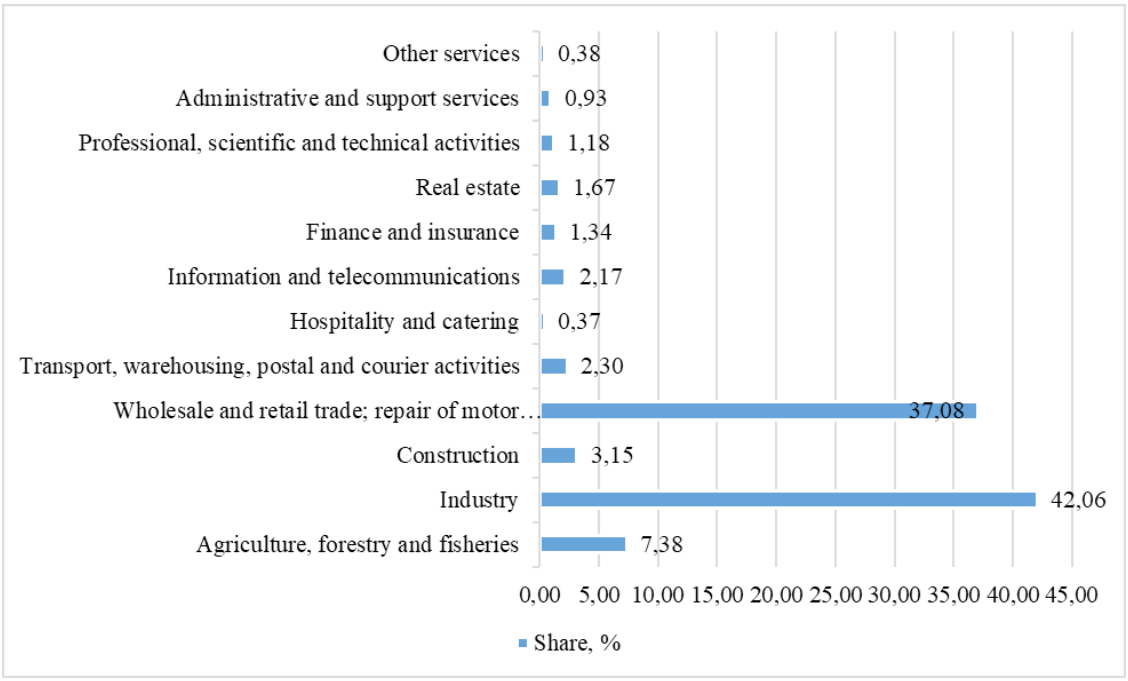

Source: Created using data of State Statistics Service of Ukraine (n.d.).

Figure 3. Volume of sold products by types of economic activity in Kharkiv region

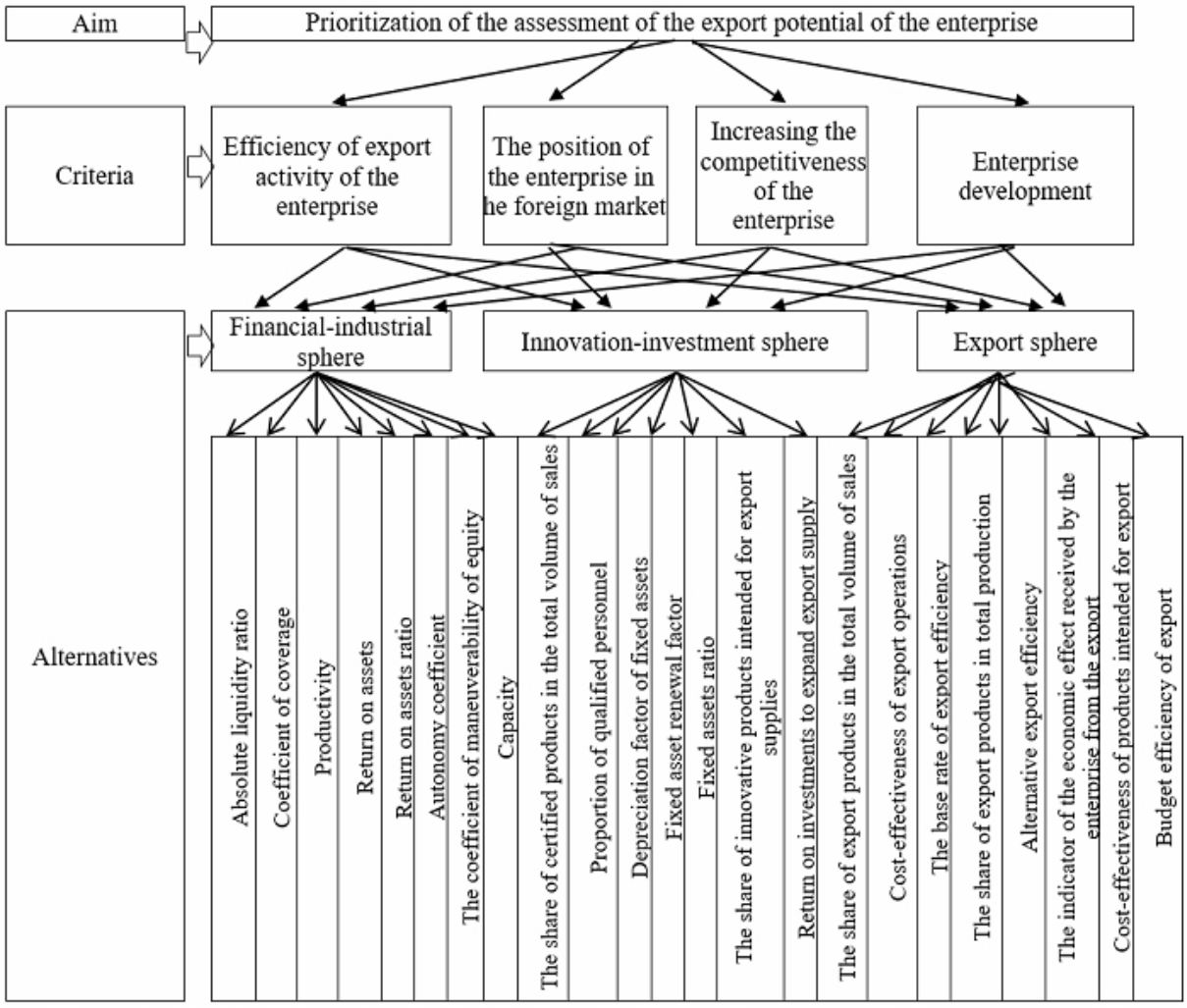

Figure 4. Model of hierarchy of prioritization of indicators for an enterprise's export potential assessment

10 experts participated in the expert evaluation, which were selected on the basis of their formal professional status – position, degree, length of service, etc.

According to expert assessment, the majority of experts (8 out of 10) determined the position of a company in the foreign market, the efficiency of the export activity of an enterprise, increase of competitiveness of an enterprise and development of an enterprise as the basic characteristics of the level of an enterprise's export potential. The degree of consensus of experts, estimated on the coefficient of concordation, at the level of 80% indicates the reliability of the survey conducted on the definition of priority criteria for assessing the export potential of an enterprise.

To determine the indicators that should be used in assessing the export potential of an enterprise, the method of expert evaluation by Saati (1993), based on the system of pairwise comparisons of certain characteristics by the levels of the hierarchy, was used. The hierarchy model consists of the following levels: purpose, criteria, and alternatives. The purpose of the expert evaluation is to determine the indicators of evaluation of the export potential of an enterprise according to the criteria: the position of an enterprise in the foreign market, the efficiency of the export activity of an enterprise, increase of competitiveness of an enterprise and development of an enterprise. At the same time, the position of an enterprise in a foreign market, the efficiency of the export business of an enterprise, increasing the competitiveness of an enterprise and an enterprise development are the criteria of the model, the indicators themselves, discovered as a result of theoretical generalization of scientific papers, - alternatives.

By means of expert evaluation, consolidated results were obtained from the definition of the vector of priority of the basic criteria. This allows to justify the indicators of evaluation of the export potential of an enterprise (Table 1).

Table 1. The relative importance of the criteria for determining the priority of indicators in assessing the export potential of an enterprise

Information Quality Criterion	The importance of the criteria										
	Expert 1	Expert 2	Expert 3	Expert 4	Expert 5	Expert 6	Expert 7	Expert 8	Expert 9	Expert 10	Middle Priority Vector
Efficiency of export activity of an enterprise	0.36	0.33	0.41	0.39	0.41	0.25	0.34	0.28	0.38	0.37	0.35
The position of an enterprise in a foreign market	0.14	0.18	0.12	0.12	0.15	0.23	0.16	0.18	0.14	0.16	0.16
Increasing the competitiveness of an enterprise	0.21	0.23	0.12	0.18	0.16	0.24	0.24	0.24	0.14	0.21	0.19
Enterprise development	0.29	0.26	0.35	0.31	0.28	0.28	0.26	0.3	0.34	0.26	0.30

According to expert assessments, the most important criterion for assessing the export potential of an enterprise is the effectiveness of the export activity - the priority was 0.35, the second most important criterion is an enterprise development (priority 0.30), the priority of a company's position in the foreign market and the competitiveness development of an enterprise is 0.16 and 0.19, respectively.

The next stage of expert evaluation is to determine the priorities of the indicators by the basic criteria. The calculation of priorities was carried out separately for indicators of the financial-industrial sphere, the innovation-investment sphere and the export sphere.

Among the indicators of the financial and production sphere, the priority indicator is the absolute liquidity ratio according to the criteria of efficiency of an enterprise's export activity, an enterprise's position in the foreign market and increasing the enterprise's competitiveness. Priority of the indicator for these criteria is 0.22, 0.22 and 0.21, respectively. According to the criterion of an enterprise development, the highest priority is the indicator of productivity – 0.21.

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Among the indicators of the innovation and investment sphere, the share of certificated products in the total volume of products sold and the number of qualified personnel has been the most important for assessing the export potential according to the key criteria. The average priority vector according to the criterion of the effectiveness of the export activity of an enterprise is 0.27, the criterion the position of an enterprise in the foreign market for the share of certified products in the total volume of sales is 0.27; the number of employees who have increased the qualification is 0.20, the criterion of increasing the competitiveness of an enterprise for the first indicator is 0.22; the second is 0.23, the criterion of an enterprise development for the first indicator is 0.23; the next is 0.24.

Among the group of indicators of export sphere, according to all criteria, the profitability of export operations prevails. The priority of this indicator is according to the criteria: 0.26, 0.31, 0.28 and 0.24, respectively.

Global priority of alternatives (indicators of an enterprise export potential assessment) is calculated on the basis of multiplication of the matrix of priority of alternatives for each criterion on the criterion priority matrix, the results of which are presented in Table 2.

Table 2. Priority of indicators of evaluation of the export potential of an enterprise

Indicator	Priority value
Absolute liquidity ratio	0.21
Coefficient of coverage	0.19
Productivity	0.2
Return on assets	0.17
Return on assets ratio	0.05
Autonomy coefficient	0.05
The coefficient of maneuverability of equity	0.05
Capacity	0.05
The share of certified products in the total volume of sales	0.24
Proportion of qualified personnel	0.24
Depreciation factor of fixed assets	0.23
Fixed asset renewal ratio	0.07
Fixed assets ratio	0.07
The share of innovative products intended for export supplies	0.07
Return on investments to expand export supply	0.06
The share of export products in the total volume of sales	0.22
Cost-effectiveness of export operations	0.26
The base rate of export efficiency	0.22
The share of export products in total production	0.07
Alternative export efficiency	0.05
The indicator of the economic effect received by the enterprise from the export	0.05
Cost-effectiveness of products intended for export	0.05
Budget efficiency of export	0.04

According to the empirical results of the study, it was determined that the highest priority for assessing the export potential of an enterprise by the criteria of the effectiveness of an enterprise export activity, the position of an enterprise in the foreign market, increasing the competitiveness of an enterprise, an enterprise development have indicators: the absolute liquidity ratio, priority value - 0.21, the share of certified products in the total volume of sales - 0.24 and the number of employees who have improved their qualifications (priority was 0.24) and the profitability of exports - 0.26.

The decision on the reliability of the sample of evaluation indicators is based on the value of the percentage of dispersion by indicators. Indicators within groups have been redrawn by the value of the global priority. A sample is considered sufficient, for which the cumulative coefficient of dispersion exceeds 0.7. Consequently, the evaluation indicators are determined on the basis of their ranking by priority and selection of the number of indicators for which the aggregate percentage of the dispersion will be not less than 0.7, and the next indicator not included in the priority list will have a percentage of variance that is significantly lower than the previous one, which became a priority (by analogy with Quettel's criterion in factor analysis).

Thus, a system of indicators of the export potential of an enterprise assessment, which fully reflects such criteria as the effectiveness of export business, the position of an enterprise in the foreign market, increasing the competitiveness of an enterprise, and the enterprise development, includes indicators: absolute liquidity ratio, coverage ratio, labor productivity, return on assets, the share of certified products in the total volume of sales; the number of employees who increased their qualifications; coefficient of depreciation of fixed assets; the share of export products in the total volume of sales; profitability of export operations; the base rate of export efficiency.

The cumulative percentage of dispersion for the selected indicators of the financial and industrial sphere is 0.77, for indicators of innovation-investment sphere - 0.7, for indicators of export sphere - 0.7. The value of the percentage of dispersion greater than 0.7 indicates the completeness of the sample to assess the export potential of an enterprise. Reliability of the conducted expert evaluation on the basis of hierarchy analysis method of Saati is confirmed by the values of the index of consistency, which does not exceed the normative value of 0.2, the values of the indicator of the ratio of coherence - not higher than 0.1 and the coefficient of concordance – 0.76. The value of the coefficient of concordance, which exceeds 0.74, indicates the consistency of expert opinions and the possibility of using expert appraisal results.

In order to assess the export potential of an enterprise in terms of acceptance and justification of management decisions at the machine-building enterprise, a wide variety of coefficients and norms are currently being applied. Thus, there is an urgent need to calculate an integral indicator, which would be a synthetic value, so-called, equalizing all forces. As such indicator within the limits of this research it is expedient to use a taxonomic indicator of the level of development, which within the limits of this research will be used as an integral indicator of development of export potential of an enterprise.

The starting point for the calculation of the mentioned indicator in the dynamics were the importance of indicators of export potential assessment, determined by expert analysis, namely: absolute liquidity ratio, coverage ratio, labor productivity, return on assets, share of certified products in the total volume of sales; the share of workers who have increased qualification; coefficient of depreciation of fixed assets; the share of export products in the total volume of sales; profitability of export operations; the base rate of export efficiency.

A compulsory condition for determining the integral index is the calculation of the standardized values of the matrix by the method of Plyuta (1980) (Table 3).

Table 3. Matrix of standardized values

Indicator	Years				
	2013	2014	2015	2016	2017
Enterprise A					
Absolute liquidity ratio	0.50	1.49	–0.62	–2.51	1.12
Coefficient of coverage	2.84	–1.07	–1.07	–1.07	0.66
Productivity	1.85	–0.66	–0.75	–0.26	–1.13
Return on assets	–0.97	–0.78	1.13	–0.72	–0.84
The share of certified products in the total volume of sales	1.80	–0.04	–0.70	–0.22	–0.32
Proportion of qualified personnel	0.39	0.35	–0.02	1.30	0.75
Depreciation factor of fixed assets	1.51	–1.31	–0.75	–0.35	0.65
The share of export products in the total volume of sales	1.02	0.89	1.16	0.45	1.39
Cost-effectiveness of export operations	0.01	0.02	0.02	0.012	0.032
The base rate of export efficiency	0.89	0.78	1.03	1.02	0.95
Enterprise B					
Absolute liquidity ratio	0.70	2.09	–0.86	–3.52	1.56
Coefficient of coverage	3.97	–1.50	–1.50	–1.50	0.93
Productivity	2.59	–0.93	–1.04	–0.36	–1.59
Return on assets	–1.36	–1.09	1.58	–1.01	–1.18
The share of certified products in the total volume of sales	2.53	–0.06	–0.98	–0.30	–0.45
Proportion of qualified personnel	0.54	0.48	–0.03	1.81	1.04
Depreciation factor of fixed assets	2.12	–1.83	–1.04	–0.48	0.91
The share of export products in the total volume of sales	0.56	0.68	0.64	0.42	1.95
Cost-effectiveness of export operations	0.89	0.78	0.91	0.79	1.31
The base rate of export efficiency	0.85	0.86	0.96	1.00	1.04

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Table 3 (cont.). Matrix of standardized values

Enterprise C					
Absolute liquidity ratio	0.71	2.09	–0.86	–3.53	1.57
Coefficient of coverage	3.98	–1.50	–1.50	–1.50	0.93
Productivity	2.59	–0.93	–1.05	–0.36	–1.59
Return on assets	–1.36	–1.09	1.58	–1.02	–1.18
The share of certified products in the total volume of sales	2.53	–0.06	–0.99	–0.30	–0.45
Proportion of qualified personnel	0.55	0.49	–0.03	1.82	1.05
Depreciation factor of fixed assets	2.12	–1.83	–1.05	–0.49	0.91
The share of export products in the total volume of sales	1.85	0.65	0.25	0.15	2.60
Cost-effectiveness of export operations	1.03	0.85	1.21	1.04	0.75
The base rate of export efficiency	1.35	1.03	2.98	1.44	–1.42

The next stage involves the definition of a taxonomic indicator, called within the scope of this study, an integral indicator of the development of the export potential of an enterprise, that is, the definition of the distances between individual observations (periods) and the vector-standard. The obtained results are presented in the Table 4.

Table 4. The value of the integral indicator of the development of export potential for the enterprises of the machine-building industry of the Kharkiv region in 2013-2017

Enterprise	Years				
	2013	2014	2015	2016	2017
Enterprise A	0.6829	0.7019	0.6543	0.6250	0.6190
Enterprise B	0.5927	0.5979	0.6298	0.6087	0.6073
Enterprise C	0.6229	0.6558	0.6365	0.6271	0.5722

The economic interpretation of the calculation of this indicator is that the closer its value to one, the higher the level of export potential of the machine-building enterprise.

In general, the considered stages of assessing the export potential of an enterprise should be generalized in the form of a structural and functional model (Figure 5). Structural and functional modeling is implemented using the Ramus software product under the IDEF0 standard.

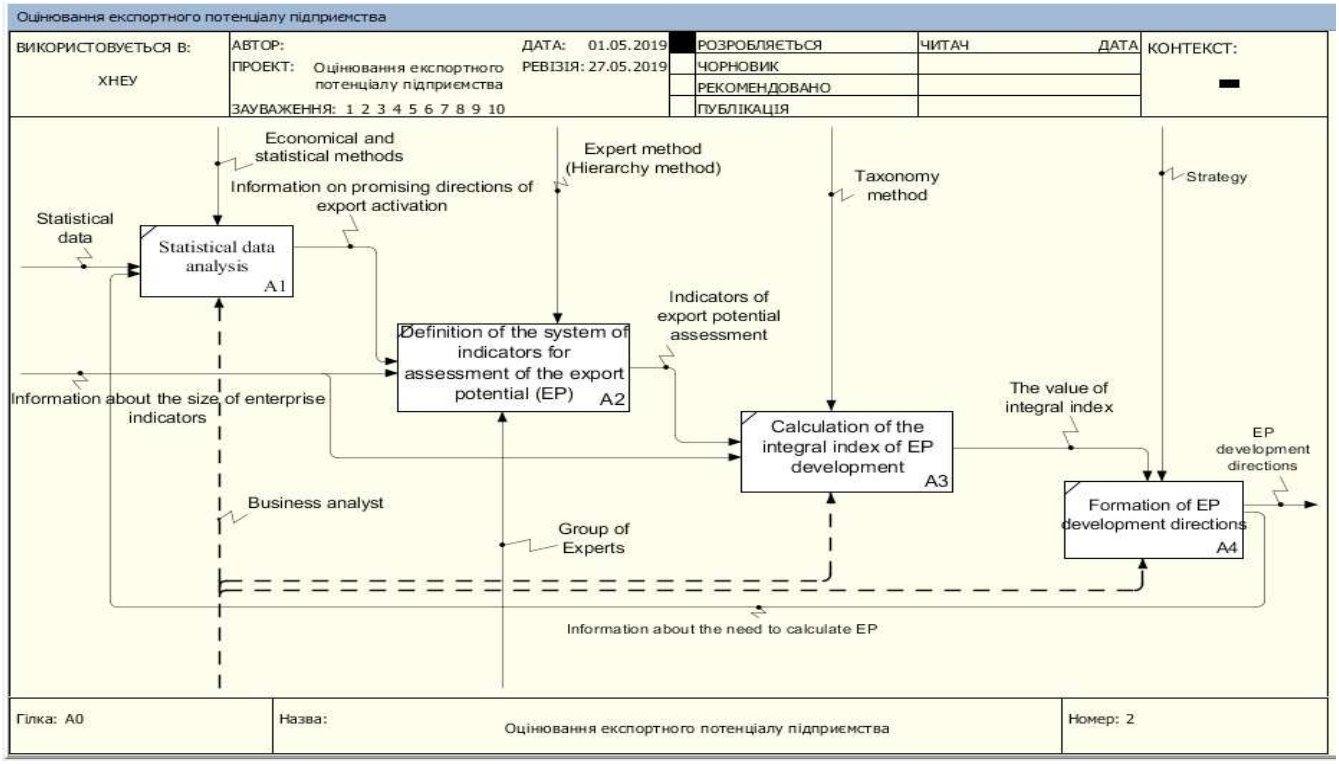

Figure 5. Structural and functional model of the process "Estimation of export potential of an enterprise"

In general, the study obtained the following results:

1. An algorithm for estimating the export potential of machine-building enterprises of the Kharkiv region is proposed, which is presented in the form of a structural and functional model, which, according to the authors' proposal, includes the following stages:
- analysis of export development trends based on statistical data;
- determination of the system of indicators for assessing the export potential of an enterprise.
2. In order to obtain qualitative and accurate results, the indicators on the basis of which the export potential of an enterprise will be carried out are grouped in terms of financial and production; and innovation and investment spheres of an enterprise, which was previously considered in the economic literature. The authors propose to supplement these areas with indicators that characterize the export activities of economic entities:
- calculation of the integrated indicator of development of export potential of an enterprise and acceptance on its basis of management decisions concerning formation of perspective directions of development of export activity of an enterprise and region.

It is important to note that the inclusion in the proposed algorithm for assessing the export potential of all areas of activity of an enterprise makes it universal in relation to different sectors of the economy.

5. DISCUSSION

Therefore, in order to assess the export potential of an enterprise, it is suggested to determine by expert analysis the system of indicators on the basis of which such an assessment will be made. Financial and industrial, innovation and investment areas most fully reveal all aspects of an enterprise. Addition of these areas indicators that characterize the export activity of economic entities allows to get the most accurate indicator of the level of development of their export potential.

The economic interpretation of the level of export potential of an enterprise resulting from the research carried out allows us to draw the following conclusions: in 2017, the highest indicator was for the Enterprise A, retaining its leading position throughout the study period. The results obtained can be taken into account when formulating foreign policy at the local and state levels. In order to increase the export potential, it is possible to adopt the following management decisions, in particular relating to the expansion and re-equipment of capacities for the production of export products; diversification of the commodity structure of exports; fixing on traditional export markets and developing new ones; intensification of participation in international industrial cooperation; carrying out organizational and legal measures, etc.

CONCLUSION

In order to summarize the proposed methodology for assessing the export potential of an enterprise, a structural and functional model for assessing the export potential of an enterprise using the Ramus software product in the IDEF0 standard has been developed.

The offered method of estimation of export potential of an enterprise on the basis of key indicators of development of its export activity allows to form general directions of activation of export of machine-building enterprises. The offered algorithm of estimation of export potential takes into account all spheres of activity of an enterprise, can be used in relation to various branches of economy.

The suggested algorithm can be used by enterprises for assessing their potential and developing export strategy for entering on potential markets. Further research will be devoted to substantiation of the directions of export potential development.

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REFERENCES

1. Cieślik, J., Kaciaka, E., & Thongpapanl, N. (2015). Effect of export experience and market scope strategy on export performance: Evidence from Poland. *International Business Review, 24*(5), 772–780. https://doi.org/10.1016/j.ibusrev.2015.02.003
2. Duhinets, G., & Kucheriavenko, G. (2012). Pokaznyky otsinky rivnia rozvytku eksportnoho potentsialu rehionu [Indicators for assessing the level of development of the region's export potential]. *Economic scope, 68*, 68–73. (In Ukrainian)
3. Gubaidullina, T., & Yakupov, A. (2015). Export Potential of the Russian Regions in the Context of WTO Accession. *Procedia Economics and Finance, 24*, 274–279. https://doi.org/10.1016/S2212-5671(15)00659-0
4. Kozmenko, S., & Kolosok, S. (2010). Metodychni pidkhody do otsinky eksportnoho potentsialu innovatsii mashynobuduvannia [Methodical approaches to the assessment of the export potential of mechanical engineering innovations]. *Efektyvna ekonomika - Efficient economy, 12*. (In Ukrainian). Retrieved from http://www.economy.nayka.com.ua/?op=1&z=422
5. Main Department of Statistics in Kharkiv region (n.d.). *Official site*. Retrieved from http://kh.ukrstat.gov.ua
6. Melnyk, T. (2008). Eksportnyi potentsial Ukrainy: metodolohiia otsinky ta analiz [Ukraine's export potential: methodology of assessment and analysis]. *Mizhnarodna ekonomichna polityka - International economic policy, 8–9*, 221–245. (In Ukrainian). Retrieved from http://journals.uran.ua/jiep/article/view/27507
7. National Bank of Ukraine (n.d.). Official web site. Retrieved from https://bank.gov.ua
8. National Bank of Ukraine (n.d.). *Zovnishnia torhivlia tovaramy (vidpovidno do KPB6) [The name of trade in goods (up to KPB6)]*. (In Ukrainian). Retrieved from https://bank.gov.ua/files/ES/Tov_y.pdf
9. Navarro-García, A. (2016). Drivers of export entrepreneurship. *International Business Review, 25*(1)(B), 244–254. https://doi.org/10.1016/j.ibusrev.2015.05.007
10. Plyuta, V. (1980). *Sravnitelnyy analiz v ekonomicheskikh issledovaniyakh: metody taksonomii i faktornogo analiza [Comparative Analysis in Economic Research: Taxonomy and Factor Analysis Methods]* (151 p.). Moscow: Statistics. (In Russian)
11. Saaty, T. (1993). *Prinyatiye resheniy. Metod analiza iyerarkhiy [Making decisions. Hierarchy analysis method]* (278 p.). Moscow: Radio and communication. (In Russian)
12. Serpuhov, M., & Mazorenko, O. (2017). Determination of sales markets and conditions for ukrainian production export to eu countries. *Ekonomist, 10*(372), 10–13. (In Ukrainian). Retrieved from http://nbuv.gov.ua/UJRN/econ_2017_10_7
13. Silva, J., Borré, J., Piñeres Castilloc, A., Castro, L., & Varela, N. (2019). Integration of Data Mining Classification Techniques and Ensemble Learning for Predicting the Export Potential of a Company. *Procedia Computer Science, 151*, 1194–1200. https://doi.org/10.1016/j.procs.2019.04.171
14. Solokha, D. (2010). Teoretyko-metodychni osnovy otsinky rivnia innovatsiinoho potentsialu promyslovoho rehionu [Theoretical and methodological bases of the assessment of the level of innovation potential of the industrial region]. *Economics of Development, 4*(56), 42–44. (In Ukrainian). Retrieved from http://www.ed.ksue.edu.ua/ER/knt/e104_56/e104solo.pdf
15. State Statistics Service of Ukraine documents publishing (n.d.). *Official site*. Retrieved from https://ukrstat.org/en