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Article

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ASSESSMENT OF THE COMPETITIVENESS OF THE ECONOMIES OF THE EURASIAN ECONOMIC UNION COUNTRIES

The object of the study is the competitiveness of the economies of the Eurasian Economic Union (EAEU) countries. Assessment of the level of competitiveness is one of the urgent problems of the modern economy. There are still no uniform methods and standards in the world for defining the concept of «competitiveness of the economy», methods for its assessment and factors influencing it, which raises many questions regarding the comparison of the level of development and competitiveness of world economies.

Given the comparative advantages of economies, different methodological approaches may produce different results in relation to the competitive position of a given country. In the course of the study, the author presented the developed mathematical model for calculating the competitiveness of the similarity and dissimilarity index, which comprehensively characterizes the state of the economy of the Eurasian Economic Union countries. Thus, comparing the measure of similarity or dissimilarity of countries according to different methods will undoubtedly give a comprehensive idea of their competitiveness, as well as allow the development of an appropriate and effective economic policy.

The analysis in the paper of the dynamics of the index of similarity and dissimilarity in the external economic activities of Kazakhstan with the EAEU countries over the years, it is possible to establish the trend observed in this process, and, consequently, to determine the strategy of international economic relations for the future.

The results of the study can be used by government agencies that make decisions in the field of trade, economic and investment cooperation.

Keywords: *Eurasian Economic Union, competitiveness assessment, macroeconomic indicators, similarity index, dissimilarity index, mathematical model.*

1. Introduction

In the process of competitive positions, the problem of choosing the optimal solution from among the various existing ones is very relevant. In such cases, the approach to solving optimization problems can be recognized as fundamental in assessing competitiveness [1, 2].

The use of an integrated approach to solving the problems of assessing competitiveness opens up a real opportunity for effective management of the system of technical, economic and financial indicators of competitiveness in a changing market situation [3–5].

To compare the competitiveness of countries in the global economy, the World Economic Forum has developed two indices: the Global Competitiveness Index and the Business Competitiveness Index [6].

The assessment of the competitiveness of the Eurasian Economic Union (EAEU) countries was carried out using the Global Competitiveness Index (GCI) and the Business

Competitiveness Index (BCI), while the living standards of countries were assessed using GDP indicators at purchasing power parity and the Human Development Index (HDI). The five EAEU countries are ranked according to four variables [7].

The assessment of competitiveness in the context of Digitalization is a key component of the future development in the industrial age 4.0. The main purpose of this study is to use the pillars of sustainable competitiveness (such as social, economic, environmental and energy) to assess the development of international digitalization [8].

In order to link the economic indicators of the country (GDP) with the current problems of the modern world in the form of sustainability and quality of life in the assessment of competitiveness, the article used linear regression, multiple linear regression and ANOVA. A significant impact of the Global Competitiveness Index (GCI) on the level of GDP and the subsequent positive impact of the level of GDP on indicators of sustainability and quality of life have been demonstrated [9].

To compare the competitiveness of Nordic and Eastern European countries, a cluster analysis was conducted to examine the relationship between digital competitiveness and several economic indicators such as GDP per capita, labor productivity and employment rate. The results show that the Nordic countries have achieved the highest digital competitiveness, while most of the Eastern European countries are still lagging behind [10].

Achieving a competitive economy and a competitive market, the EU member states and the UK from the EUROSTAT databases are investigated on the basis of bidirectional linear correlations between competitiveness, well-being and innovation and analyzed the main factors influencing these relationships [11].

Over the past few decades, globalization has dramatically changed the context of competitiveness around the world. Considering the role of competitiveness in the development of the digital economy, the role of innovation, foreign direct investment and human capital in supporting competitive European economies. The results show that fluctuations in GDP per capita are explained by human and physical capital and R&D spending [12].

Thus, *the object of research* is the competitiveness of the economies of the countries of the Eurasian Economic Union. *The aim of this article* is to assess the competitiveness of the economies of the countries of the Eurasian Economic Union.

2. Research methodology

Very often in world economic research one has to resort to finding differences in compared phenomena and processes. Their mathematical expression makes it possible to clearly define the measure of similarity or dissimilarity between them. In this case, a quantitative indicator can be an index of similarity and dissimilarity (dispersion), calculated by the formula:

$$I_s = \sum \min(X', Y'), \qquad (1)$$

where I_s – similarity index; X' – percentage share by factor (attribute) X; Y' – percentage share by factor (attribute) Y.

$$I_{ds} = \frac{1}{2} \sum |X' - Y'|, \qquad (2)$$

where I_{ds} – dissimilarity index; X' – percentage share by factor (attribute) X; Y' – percentage share by factor (attribute) Y.

The index of the measure of similarity and dissimilarity (dispersion) is within 0 and 100 (0 % and 100 %) [8].

3. Research results and discussion

Evaluation of competitiveness projects will be carried out on the basis of a comparative analysis of the following factors (Tables 1, 2).

To assess the average quality indicator (competitiveness) of exports and imports, let's determine the index of similarity and index of dissimilarity of exports and imports of Kazakhstan with the EAEU countries based on the data in Tables 1, 2.

The results of the calculations show that the index of similarity of exports and imports between Kazakhstan and the countries of the EAEU in January-June 2021 was 93.5 %, and in 2022 – 94.0 %. A slight, but increase in the similarity of exports and imports of Kazakhstan with the EAEU countries is due to an increase in artificial corundum (aluminum oxide, aluminum hydroxide), which increased by 2.9 times compared to the same period last year. At the same time, a slight decrease in the index of dissimilarity of exports and imports between Kazakhstan and the countries of the EAEU in January-June 2021 was 6.46 %, and in 2022 – 6.01 % due to an increase in iron ores and concentrates, including burnt pyrite (less by 62.8 %) [13].

Table 1

Trade turnover of Kazakhstan with the Eurasian Economic Union (EAEU) countries (million USD)

Countries	Export		Import	
	January-June 2021	January-June 2022	January-June 2021	January-June 2022
Russia	3,372.0	3,387.8	7,715.0	8,255.9
Kyrgyzstan	312.2	303.3	156.9	192.3
Belarus	55.4	38.4	357.5	384.6
Armenia	3.0	4.3	4.8	5.1
Total	3,742.5	3,733.9	8,234.3	8,837.9

Note: calculated on the basis of EAEU data [13]

Table 2

Index of similarity of exports and imports of Kazakhstan with the countries of the EAEU

Countries	Export, % of total		Import, % of total		Dissimilarity index		Similarity index	
	January-June 2021	January-June 2022	January-June 2021	January-June 2022	January-June 2021	January-June 2022	January-June 2021	January-June 2022
Total	100.00	100.00	100.00	100.00	–	–	–	–
Russia	90.10	90.73	93.69	93.41	3.6	2.7	90.1	90.7
Kyrgyzstan	8.34	8.12	1.91	2.18	6.4	5.9	1.9	2.2
Belarus	1.48	1.03	4.34	4.35	2.9	3.3	1.5	1.0
Armenia	0.08	0.12	0.06	0.06	0.0	0.1	0.1	0.1
Sum	–	–	–	–	12.9	12.0	–	–
Similarity index	–	–	–	–	–	–	93.5	94.0
Dissimilarity index	–	–	–	–	6.46	6.01	–	–

Note: calculated on the basis of EAEU data [13]

As can be seen from the data presented, in January-June 2022. The trade turnover of the Republic of Kazakhstan with the EAEU countries amounted to 12,571.8 million USD, which is 5 % more in nominal terms compared to the same period last year. January-June 2022 export of goods amounted to 3,733.9 million USD (0.2 % less), import – 8,837.9 million USD (7.3 % increase).

In the total volume of foreign trade turnover of the Republic of Kazakhstan with the EAEU countries, the Russian Federation occupies a large share – 92.6 %, followed by Kyrgyzstan – 3.9 %, Belarus – 3.4 % and Armenia – 0.1 %.

Thus, on the basis of the developed algorithm, the analysis of foreign trade indicators of a number of countries, including Kazakhstan with the EAEU countries, was carried out, and the qualitative characteristics of competitiveness indicators were determined. From this point of view, it should be pointed out that the competitiveness of the country's economy can be determined on the basis of the quality of such macroeconomic indicators as GDP, exports, investments. Therefore, this article proposes a methodology for determining the quality level of these indicators [1, 2].

The assessment of the quality of economic development will be determined by comparing it with similar indicators of the world economy, i. e. one can follow the same method when evaluating the degree of product quality by comparing it with international standards. For example, to assess the quality of exports and imports, it is advisable to use the similarity index of exports and imports.

The Export Similarity Index measures neither Kazakhstan's trade performance nor its comparative advantage, but measures the country's degree of specialization in the export of similar types of goods (which practitioners need to know and consider if they are going to use these results).

4. Conclusions

According to calculations, the index of measure of similarity and dissimilarity of Kazakhstan's foreign trade with the EAEU countries indicates a relatively even distribution of the volume of export-import operations.

The analysis of the dynamics of the index of similarity and dissimilarity in the external economic activities of Kazakhstan with the EAEU countries over the years, it is possible to establish the trend observed in this process, and, consequently, to determine the strategy of international economic relations for the future.

In the future, the proposed approaches can be developed to assess the current and strategic competitiveness of a particular sector of the economy of the EAEU member countries.

The results of the study can be used by government agencies that make decisions in the field of trade, economic and investment cooperation.

Conflict of interest

The authors declare that they have no conflict of interest in relation to this research, whether financial, personal, authorship or otherwise, that could affect the research and its results presented in this paper.

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