

# Intellectual component of global trade leadership

Liudmyla Tsymbal

*Prof. Dr., Prof. Dr., prof. of department of international economy, Kyiv National Economic University Named After Vadym Hetman, Kyiv, Ukraine,*

*Corresponding author's e-mail: ltsymbal@ukr.net*



**Abstract.** The formation of a new global system and systemic global interdependence generates new factors of competitiveness of market participants, determining their appropriate strategic behavior to ensure a high competitive position and leadership. Based on the author's methodology for assessing the intellectual leadership of countries, the clustering of countries in the global economy is determined. The evaluation algorithm was based on three stages: first - the resource level; secondly - the level of intermediate results of intellectual activity; third - the level of the final results of overall progress. Using the multifactor regression model and cluster analysis, four clusters of countries were identified according to key indicators of intellectual leadership. The specialization of the two countries in terms of merchandise exports was analyzed, namely, 1 cluster - the United States and Germany; 2nd cluster - Israel and Italy; 3rd cluster - Brazil and Ukraine; Cluster 4 - China and the Republic of Korea. The index of economic complexity by the given countries is allocated and the change of position of each country of a cluster in a rating for 10 years is defined.

**Keywords:** Index of economic complexity, intellectualization, clustering of countries, commodity exports.

Exploring the preconditions for leadership and specialization of countries is an important issue in the context of globalization. The influence of individual factors on the ability of individual countries to achieve leadership positions is an important scientific issue that requires the study of a significant body of data. It is necessary to carry out clustering of countries in order to understand the peculiarities of the development of countries selected for analysis. Clustering is based on the author's methodology for assessing the intellectual leadership of countries in the system of global economies, which provides a three-step assessment algorithm - and allows a comprehensive assessment and comparison of the main functional areas of the phenomenon and follow the experience of innovative systems of intellectual leaders [1]. Clustering indicates significant differences between countries in terms of development, so cluster 1 is characterized by high rates of development, cluster 2 includes countries with moderate rates of development and covers mostly European countries, cluster 3 is characterized by geographical diversity and relatively low rates of development, cluster 4 combines Asian countries that have emerged as a result of economic and mathematical modeling into a separate group. The paper examines the export specialization of individual countries within each cluster, as well as the level of economic complexity of the products they export. UN trade statistics were used in the analysis [2], and information from the Center for International Development at Harvard University [3]. Countries belonging to the same cluster, when specializing, have significant common features in their export profile and have reached a similar level of economic complexity. We will consider features of the countries of the first cluster on an example of the USA and Germany. The commodity exports of both countries are dominated by high-tech goods (machinery and transport equipment, chemical products, electronic integrated circuits, medicines) [2].

A comparison of the development of countries'

leadership in terms of the Economic Complexity Index, which takes into account the complexity and diversification of the country's exports, determined a sufficient proximity of countries within one cluster. For the USA reached 1,55, and Germany has one of the best results in the world on this index 2,09. The positions of these countries in the ranking of economic complexity are quite close. In 2020 Germany ranked 4th out of 133 countries, and the United States was in 11th place [3]. If we consider the countries of the 2nd cluster, which include Italy and Israel, as of 2018 they are in the top ten of the 133 countries participating in the ranking. Italy ranks 14th on the economic complexity index of 1,44, its rating has improved by 3 positions over the past ten years. Israel is characterized by a fairly high share of machinery and transport equipment. In Italy's merchandise exports, this position generally dominates. According to the SITC, approximately the same share in Italian exports is occupied by goods of the group "Chemicals", "Goods classified mainly by materials", "Various manufactured goods". Among the TOP-10 goods of Italian exports are medicines, cars, engine parts, shoes. In Israel exports, a significant place is occupied by goods belonging to the group "Chemicals", "Goods classified mainly by materials", "Various manufactured goods" [2].

The group of third cluster countries is considered on the example of Brazil and Ukraine. Both countries have rather low indicators of economic complexity and have not shown significant progress in this area for the period 2008-2020. Thus, Ukraine with an index of economic complexity of 0,37 ranks 44th in the ranking and for ten years its positioning has not changed. Brazil's economy is less complex than Ukraine's - ECI is 0,21 and 49th in the ranking and the deterioration of the position by 1 point. In contrast to the countries of the previous clusters, the specialization of both countries is dominated by products with a low degree of processing, in particular, agricultural products. For Brazil, the leading exports are soybeans and iron ores and concentrates, the SITC commodity group "Raw

materials+oils of animal and vegetable origin" accounts for almost a third of Brazilian exports, "Food, animals + beverages, tobacco". Commodity groups SITC "Food, animals + beverages, tobacco" and "Raw materials+oils of animal and vegetable origin" in 2018 accounted for almost half of Ukrainian exports of goods. A significant volume of exports of both Ukraine and Brazil accounted for the group "Goods classified mainly by materials". Regarding the export of machinery and transport equipment, both countries are not strong enough in this segment. Only 11,2% of Ukrainian exports were machinery and equipment. [2]. This commodity group dominates the imports of the two countries. The peculiarities of the countries that were assigned to the 4th cluster are their significant export specialization in machinery and transport equipment, as well as significant progress in increasing the level of economic complexity of national economies. Consider the Republic of Korea, as well as China as examples of countries in the 4th cluster. The Republic of Korea ranks third in the world in terms of economic complexity. Over the ten-year period, the country has risen 8 positions in the rankings, ahead of even Germany today. During the same period, China increased its place in the world ranking of economic complexity by 6 positions with an ECI of 1,34 (18th place). Machinery and transport equipment predominate in the exports of both countries. For China, the share of machinery in the country's exports is 48%. Regarding the Republic of Korea, machinery and transport equipment in 2020 accounted for 57,5% of the country's merchandise exports. The main export items of China were radio and television transmitters, television cameras, digital cameras and video recorders; computers; electronic integrated circuits; parts and accessories for office

equipment, special equipment; semiconductor devices; phones. The exports of the Republic of Korea were represented by the following commodity items: electronic integrated circuits; refined petroleum oils; cars; ships, boats; engine parts; parts and accessories for office equipment special equipment; liquid crystal devices, lasers; other optical instruments and instruments [2].

Thus, the study confirms the existence within the cluster of common features in the specialization of countries, as well as the achievement by countries of similar levels of economic complexity and diversification of export goods. We can note that the clustering of countries on the basis of key indicators of intellectualization is also confirmed by the analysis of the specialization of each cluster in the production of certain goods. For the countries of one cluster is characterized by the proximity of indicators of complexity of economic activity, close structure of production of goods and export-import activities. The countries of the first and second clusters are characterized by goods with a high degree of processing and the level of added value. Third cluster countries (including CEE and Baltic countries) specialize in commodities and occupy rather low positions in terms of economic complexity. The countries of the fourth cluster unite mainly the Asian region and have high rates of economic complexity, mostly high-tech exports and specialize in both high value-added and ICT goods. The criteria of development of the countries revealed by means of mathematical model and the formed clustering according to the indicator of the international specialization in an export profile confirms economic closeness and similarity of economic structure of the countries. This is in line with current trends in the formation of leadership positions in the global market.

## References:

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