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THE LEVEL OF INTERNATIONAL COMPETITIVENESS OF POLAND'S WOOD AND FURNITURE INDUSTRY

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1. Introduction

In the theory of economics, the notion of competitiveness is not clearly defined. K. Pawlak and W. Poczta [1, p.42] indicate that the cause of this situation is the attempts to associate this conceptual category with various theories of economics, primarily with the theory of economic growth, international trade, microeconomics, with the theory of international migration of production factors, theory of localization, and theory of management. L. Latruffe [2, p.6] goes as far as to claim that no definition of competitiveness is found in the theory of economics.

Deliberations on international competitiveness of enterprises, sectors or national economy are, however, undoubtedly related to the ongoing integration and globalization processes. Competitiveness may therefore be identified with a capability to either maintain or increase the global market shares [1, p.56]. Therefore, within this set of deliberations on competitiveness, a clear reference to the outcomes as achieved in foreign trade is being made. When alluding to those concepts, A. Budnikowski [3, p.41] claims that international competitiveness of a given sector may be defined as a capability to produce goods which are better or cheaper than products being offered by foreign competitors, and to sell them in a foreign market.

The study assesses international competitiveness of Poland's wood and furniture sector which is an important segment of national economy, since the value of production accounts for approx. 9% of industrial processing [4, pp.85–86]. The share of the sector concerned in the value of Poland's exports is at a similar level.

2. Research methods

Depending on the aim and analysis of competitiveness of a given sector, one may apply various designations and measures of competitiveness. It was assumed that the competitive position of wood and furniture industry would be defined on the basis of indices being most often applied in such researches, namely:

1) Foreign trade balance

It was calculated as a difference between exports and imports of wood and furniture industry. Where the exports are greater than imports, the balance is positive and indicates a surplus in foreign trade.

2) Export Propensity Index (EPI)

The EPI for a particular industry is defined as a proportion of exports over domestic production of that industry. A higher ratio of the EPI in a particular commodity indicates that country has a higher degree of specialization in producing the commodity, and a comparative advantage in that commodity. It was calculated according to the following formula:

$$EPI = X / DP \quad (1)$$

where X is the exports of Poland's wood and furniture industry;

DP is the domestic production of wood and furniture industry in Poland.

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3) Export / Import Ratio (EIR)

P. J. Verdoorn [5, p.27] introduced the exports to imports ratio in order to identify a country's international trade competitiveness. The export/import ratio is calculated as:

$$EIR = (X / M)*100 \quad (2)$$

where X is the exports of wood and furniture industry;

M is the imports of wood and furniture industry.

The higher the value of the ratio, the more a country is competitive in terms of international trade in a particular industry.

4) Revealed Comparative Advantage (RCA)

Revealed Comparative Advantage determines if a country has a comparative advantage for a product by comparing its representatives in the export numbers of the country with the weight of its international trade in the total world market. This index is calculated by the following equation:

$$RCA = (X_{ij} / X_j / (X_{iw} / X_w) \quad (3)$$

where X_{ij} is the exports of commodity i by country j;

X_j is the exports of all commodities by country j;

X_{iw} is the exports of commodity i by all countries in the world;

X_w is the exports of all commodities by all countries in the world.

If the value for RCA is higher than 1,00, the country has a revealed comparative advantage in the specific product.

5) Standard Grubel-Lloyd Index (GL)

H. G. Grubel and P. J. Lloyd [6, p.646] explained that the inter-industry trade index is the ratio of the absolute value of differences in exports and imports to total trade of a particular industry or commodity group. A higher GL Index indicates a higher degree of intra-industry trade. It was calculated according to the following formula:

$$GL = \{1 - |Xi - Mi| / (Xi + Mi)\} \times 100 \quad (4)$$

where Xi and Mi represent, respectively, the value of exports and imports of a particular industry or commodity i, and the vertical bars (|) denote the absolute value. The GL index can be expressed in percentage terms in which values range between 0 and 100. If GLi = 100, there is only intra-industry trade, and no inter-industry trade. Conversely, if GLi = 0, there is no intra-industry trade, only inter-industry trade.

3. Results and discussion

The international dimension of the competitive position of wood and furniture industry in Poland is related to possibilities for rivalry in foreign markets. A significant measure of that aspect of competitiveness is the trade balance. In the years 2007–2012, a positive phenomenon was the large surplus of exports over imports, which amounted to PLN 20–30 billion. The lowest level of that index was recorded in 2008, which resulted from the global economic crisis. This was due to both the decrease in the value of exports by 3,1% as compared to the previous year, and, at the same time, an increase in imports by 0,1%.

In subsequent years, a progressive improvement in the balance of foreign trade for wood and furniture industry was recorded. This indicates the export nature of the sector in question. It should be noted here that among the key sales markets, similarly as for other sectors of Poland's economy, are markets of the eurozone (including mainly the German market).The highest indices of the rate of exports and imports were recorded in 2011, and amounted to 14,7 and 12,9%, respectively. The outcomes of foreign trade in the period concerned indicate that the competitive position of Poland's wood and furniture industry is strong, and that the sector is well prepared for international competitiveness. This is all the more important since the share of wood and furniture industry in Poland's exports is significant. By far, the largest share of the entire exports of products of wood and furniture sector was that of furniture industry (approx 55%).

The next position was held by manufacturers of paper, paperboard and articles of these materials (approx 28%), and the lowest by producers of wood and cork manufactures (approx 17%). The structure of imports of the sector concerned was different. It is the manufacturers of paper, paperboard and articles of these materials that cover two-thirds of the imports. Producers of furniture imported approx. 21%, and producers of wood and cork manufactures approx. 14% of the value of imports of wood and furniture industry.

The situation presented above indicates that the positive outcome of international trade of the sector concerned mainly resulted from the high value of trade balance for manufacturers of furniture. This hypothesis is confirmed by the level of the export/import ratio (EIR). The share of exports of wood-and-furniture products in the sold production of that sector was relatively stable, and amounted to 53,3–58,4%. A particularly strong export propensity was recorded for manufacturers of furniture (in the years 2007–2011, the EIR was at a level of approx 80–90%).

As regards manufacturers of paper, paperboard and articles of these materials, the EIR was clearly lower, and amounted to approx 53%. In the period concerned, it was the entities producing wood and cork manufactures that showed the most stable and, at the same time, the lowest export propensity (with the EIR at a level of approx 30%).

Similar conclusions arise from the analysis of export propensity index (EPI). In all the years under analysis, the export/import ratio for products of wood and furniture industry was over 2. This indicates both Poland's specialization in wood and furniture production and a relative advantage of Polish manufacturers over foreign ones. While considering the level of intra-industry trade, it may be concluded that the GL index was at a level of approx. 60%; such a percentage in trade of the sector concerned was intra-industry in nature. A cumulative list of competitive position indices for wood and furniture industry is presented in tab. 1.

Tab. 1. International competitive position indices for wood and furniture industry in the years 2007–2011

Index level in the years:	Export Propensity Index (EPI)	Export / Import Ratio (EIR) %	Standard Grubel-Lloyd Index (GL) %
2007	2,28	58,1	61,1
2008	2,19	53,3	62,7
2009	2,32	56,4	60,3
2010	2,34	58,4	59,9
2011	2,38	58,4	59,2

Source: own work based on [4]

In terms of the assessment of competitive position of wood and furniture industry, it is of high importance to identify which products of that sector determine, to the greatest extent, the competitiveness thereof.

Tab. 2 presents the level of international competitive position indices for wood and furniture industry according to the SITC classification. Most divisions of that sector were characterized by the EPI of over 1. The highest level of that index was recorded for manufacturers of furniture of wood (9,82), mattresses and articles of bedding (7,78), wood manufactures excluding furniture (6,36), and furniture of other materials (5,87).

Only for two divisions, namely cork manufactures and articles of paper and paperboard, the value of production sold exceeded that for exports, and, as a result, the EPI was lower than one. Similar conclusions arise from the analysis of the revealed comparative advantages (RCA) index. For the divisions characterized by a high EPI level, a significant share of exports of that commodity group in relation to the global market was also recorded.

The highest RCA index was found for manufacturers of furniture for sitting and sleeping (7,31). The next positions were held by producers of wood manufactures excluding furniture, and producers of sleeping mattresses. Significant comparative advantages were also gained by entities involved in production of furniture of wood.

The only SITC division with no comparative advantage was that of cork manufactures. The division with a highest level of the GL index was that of veneers, plywood and wood pulp (86,9 %). A slightly lower level for that index was recorded for producers of paper and paperboard (85,3 %). It means that the smallest difference between exports and imports occurred for trade in those commodity groups.

A different situation was observed for producers of furniture of wood, where the GL index amounted to 18,5%. A low level of intra-industry trade for those commodity groups resulted from the previously presented data, since furniture of wood is primarily intended for export (which is confirmed by the export/import ratio). A similar situation also concerned producers of mattresses and articles of bedding, and of furniture for sitting and sleeping.

Tab. 2. International competitive position indices for wood and furniture industry, according to the SITC classification in 2011

Name of SITC division	Export Propensity Index (EPI)	Revealed Comparative Advantage (RCA)	Standard Grubel-Lloyd Index (GL) %
Cork manufactures	0,46	0,31	63,0
Veneers, plywood, wood pulp	1,30	2,35	86,9
Wood manufactures excluding furniture	6,36	6,60	27,2
Paper and paperboard	0,74	1,81	85,3
Articles of paper and paperboard	1,91	3,47	68,8
Furniture for sitting and sleeping	6,74	7,31	25,8
Mattresses, articles of bedding	7,78	6,08	22,8
Furniture of metal	1,58	1,22	77,7
Furniture of wood	9,82	5,51	18,5
Furniture of other materials	5,87	3,11	29,1
Parts of furniture	2,83	4,12	52,2

Source: own work based on [4]

4. Conclusion

Both the results of an analysis of the index-based assessment of competitiveness of wood and furniture industry, and outcomes of foreign trade, indicate a strong position thereof on foreign markets. In the period under analysis, the export/import ratio (EIR) was over two (the highest one was recorded for furniture of wood, mattresses and articles of bedding, and furniture for sitting and sleeping). The export propensity index (EPI) was at a level of approx. 58%, which indicates both the export specialization of the sector concerned and sales to foreign customers. This trend is clearly visible for the sales of furniture of which approx. 90% is directed to the international market. This situation is confirmed by the level of the revealed comparative advantages (RCA) index. The highest competitive position as measured using that index was recorded for producers of furniture for sitting and sleeping, and entities involved in production of wood manufactures, and of mattresses and articles of bedding. The least important role in establishing and maintaining the competitive advantage of the sector in question was played by trade in paper and paperboard, and in cork manufactures.

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Summary

The study assesses international competitiveness of Poland's wood and furniture sector which is an important segment of national economy, since the value of production accounts for approx. It was assumed that the competitive position of wood and furniture industry would be defined on the basis of indices being most often applied in such researches, namely: foreign trade balance, Export Propensity Index (EPI), Export / Import Ratio (EIR), Revealed Comparative Advantage (RCA) and Standard Grubel-Lloyd Index (GL).

Both the results of an analysis of the index-based assessment of competitiveness of wood and furniture industry, and outcomes of foreign trade, indicate a strong position thereof on foreign markets. The highest competitive position as measured using that index was recorded for producers of furniture for sitting and sleeping, and entities involved in production of wood manufactures, and of mattresses and articles of bedding.

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