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ASSESSMENT OF THE COMPETITIVENESS OF THE FURNITURE INDUSTRY – A LESSON FROM THE LARGEST EXPORTING EU COUNTRIES

A study was carried out to determine the level of competitiveness of the furniture industry in selected EU countries, using result-oriented indicators. The analysis of international competitiveness covered individual product groups, which allowed investigation of the situation of not only the entire furniture industry, but also its particular branches. The research showed that Poland and Italy have achieved the highest comparative advantages in trade in furniture, and in the case of the Polish furniture industry, positive development trends were observed. Germany – the largest furniture exporter in the EU – demonstrated a much lower level of competitiveness, and the significant value of furniture industry products imported to that country results in a growing foreign trade deficit. Unfavourable values of the competitiveness indicators and generally negative tendencies during the analysed period were obtained for almost all of the distinguished groups of furniture in the case of the UK, which was a net importer in this area.

Keywords: international competitiveness, furniture industry, EU countries, result-oriented indicators

Introduction

The rapid globalization of markets and the consequently increasing complexity of economic processes pose new challenges for both countries and individual economic entities. Currently, an important challenge for most countries is increasing their competitiveness on the international market. Industries with exceptional production and export potential, using available economic resources, play a special role in bringing highly competitive products to the international market.

Furniture production is one of the important sectors of the EU economy. Apart from China, the largest furniture exporters include Italy, Germany and Poland. The value of Chinese furniture sector exports in 2019 was almost 50 billion euro, while that of the European countries averaged 10-11 billion euro [International Trade Centre 2019]. This means that the EU member states are important players on the global furniture products market. Hence, it is essential to assess the level of competitiveness of the furniture industry, as well as to identify the countries demonstrating comparative advantages in that industry.

In this work, an attempt was made to determine the level of competitiveness of the furniture industry in selected EU countries with the use of result-oriented indicators. The analysis of international competitiveness covered individual product groups, which enabled investigation of the situation of not only the entire furniture industry, but also its particular branches. Previous competitiveness analyses have generally covered the entire furniture sector and been based on one selected country, or a few countries selected for a comparative study. Usually, there is no information on the level of competitiveness in particular product groups. The intensification of competition under growing international trade liberalization and advanced globalization make an increase in competitiveness one of the essential challenges faced by countries. With that in mind, it is necessary to look for competitive advantages in the specializations of the national economy using the available production resources and predictions of favourable development trends.

Therefore, the study considered the changes which had occurred in the distinguished product groups over a number of years and identified groups of products with special export potential. This may create an opportunity to improve the distribution of economic resources on the basis of the indicated competitive advantages and to optimize the structure of foreign trade in the furniture industry with a view to increasing its production efficiency and financial effectiveness. The information is important both for furniture manufacturers and for government, since the identification of new sources of competitive advantage enables mapping of the right path for the sustainable development of the furniture sector.

Literature background

The competitiveness of countries, economic sectors and individual enterprises has been of interest to both theoreticians and practitioners for many years. It should be noted that competitiveness can be considered and defined at different levels: the firm level [Rugman and Oh 2008; Chao-Hung and Li-Chang 2010], the industry level [Buturac et al. 2018] and the country level [Altomonte et al. 2012; Kiseľáková et al. 2019; Rabar and Cvek 2019].

Studies of international competitiveness have been conducted with regard to forestry-based industries, including furniture manufacture. Dieter and Englert

[2007] examined the competitiveness of German forestry-based industries in relation to international timber markets. The highest levels of competitiveness were demonstrated by Russia for raw wood, Finland for semi-finished wood products and Poland for finished wood products. Additionally, a strong positive relationship between a country's timber export growth rate and its competitiveness effect was identified. Milićević et al. [2017] analysed the competitiveness of Serbian wood processing industries. The research showed that the competitiveness of the wood processing industry increased with the growth of the net export value. In addition, a country's specialization in foreign trade exchange positively influences the creation of a positive balance through the manufacture of products (furniture) with higher value added.

An assessment of the international competitiveness of the wood processing industry, especially in the countries of Central and Eastern Europe, was made by Sujová et al. [2015 a,b,c]. The research showed existing comparative advantages, but the level of competitiveness achieved by the wood processing industry in Slovakia and the Czech Republic was lower than the EU average and the potential of the industry. The research also confirmed these countries' low level of specialization in foreign trade and the inability of industry to contribute actively to the national trade balance, resulting in a decline in its existing comparative advantages on international markets [Sujová et al. 2015a]. In addition, the use of wood raw material is not effective, and the export of products is still dominated by products of low added value [Sujová 2015b]. Paluš et al. [2015] analysed the international competitiveness of the Slovak wood processing sectors against the Visegrad Group countries. Parobek et al. [2016a] examined the competitiveness of selected Central European countries (Austria, the Czech Republic, Germany, Hungary, Poland, Slovakia and Slovenia) in the EU forest products market. They concluded that comparative advantages change with the level of processing, and decline with increasing product value added.

Analyses concerning the competitiveness of the wood industry were also carried out by Han et al. [2009], Ratajczak [2009], Ratajczak-Mrozek and Herbec [2014], Parobek et al. [2016b], and Akyüz et al. [2020]. These studies are mostly based on result-oriented indicators, including the Balassa index – an indicator modified by many authors. Most of the studies concluded that the furniture manufacturing industry has high export performance compared with other sectors of industry. Inasmuch as furniture represents the highest value-added production in the wood processing chain, it is desirable for it to achieve high export performance and to generate the largest trade surplus within the sectors of the wood processing industry [Sujová et al. 2015c].

Research methodology

Complete statistical data were obtained for the period in question; the principal source of research data was the International Trade Centre database (www.trademap.org). This provides accurate international trade statistics, and moreover facilitates the analysis of disaggregated data. It indicates the completeness and credibility of data, and is based on the HS (Harmonized System) and, more specifically, the Harmonized Commodity Description and Coding System. This is a homogeneous system for describing and coding commodities for the purpose of international trade, and is commonly used in relevant analyses.

The study of competitiveness covered the five EU member states which had the highest share in global exports of furniture products in selected categories by value in 2019. These countries were Germany, Poland, Italy, the Czech Republic and the UK.

These countries play an important role in international trade in furniture industry products. The study considered the most important furniture product groups from those HS classification classes for which those countries are significant exporters. Class 9402 was excluded, since the countries analysed are not important exporters of furniture in that category.

The majority of the group are among the EU-15 countries; however, Poland and the Czech Republic are also to be included among the important players on the global furniture market. The period of 2009-2019 was adopted as the time interval of the study.

Account was taken of the products which accounted for significant values of exports from EU countries in the analysed period; they included:

- 9401 Seats, whether or not convertible into beds, and parts thereof, n.e.s.;
- 940161 Upholstered seats, with wooden frames (excluding convertible into beds);
- 940169 Seats, with wooden frames (excluding upholstered);
- 940171 Upholstered seats, with metal frames (excluding seats for aircraft or motor vehicles, swivel...);
- 940179 Seats, with metal frames (excluding upholstered, swivel seats with variable height adjustments...);
- 9403 Furniture and parts thereof, n.e.s. (excluding seats and medical, surgical, dental or veterinary...);
- 940330 Wooden furniture for offices (excluding seats);
- 940340 Wooden furniture for kitchens (excluding seats);
- 940350 Wooden furniture for bedrooms (excluding seats);
- 940360 Wooden furniture (excluding for offices, kitchens and bedrooms, and seats);

- 940390 Parts of furniture, n.e.s. (excluding of seats and medical, surgical, dental or veterinary...).

The first part of the study involved a preliminary analysis of international trade in the specified furniture groups, using the simplest indicators of the structure and dynamics: TC (Trade Coverage), the relationship of the value of exports of a product group to the value of its imports; EMS (Export Market Share), the relationship of the value of exports of a given product group to the value of world exports; EMS(C), the relationship of the value of exports of a given product group to the country's total exports; ED/ID, the relationship of the growth in exports of a given product group to the growth in its imports; and ED/ED(W), the relationship of the growth in exports of a given product group to the growth in its world exports.

A review of research concerning international competitiveness in the wood and furniture industry, as well as a theoretical overview of empirical studies on competitiveness assessment with regard to the forest industry conducted by Gordeev [2020], reveal that in the majority of cases, result-oriented indicators are employed to evaluate the comparative advantages of foreign trade. However, as emphasized by Sirgmetts et al. [2019], indicators for competitiveness should be used in combination with others to provide an assessment which is as complete as possible. Therefore, the following set of indicators was used in the analysis of competitiveness: RCA, RTA, TSI, RCA1 and RC. An important element in assessing the competitiveness of a given country or industry was the assessment of the situation of not only the entire furniture industry, but also individual product groups. On this basis, a detailed analysis was made of the competitiveness of selected countries in the area of foreign trade in the distinguished product groups.

One of the indicators most commonly used in the literature for assessing the competitiveness of exports of a country or sector is the RCA (Revealed Comparative Advantage Index), presented by Balassa [1965]:

$$RCA_j^A = \frac{X_j^A / X^A}{X_j^W / X^W}$$

where X_j^A is country A's exports of product j , X^A is country A's total exports, X_j^W is world exports of product j , and X^W is total world exports.

Hinloopen and Marrewijk [2001] proposed to divide RCA index values into four classes: class a: $0 < RCA \leq 1$ – no comparative advantage of the sector; class b: $1 < RCA \leq 2$ – weak comparative advantage of the sector; class c: $2 < RCA \leq 4$ – average comparative advantage; class d: $RCA > 4$ – strong comparative advantage.

First used by Scott and Vollrath [1992], the RTA (Relative Trade Advantage Index) is more complex and gives the difference between the RCA and the RMA:

$$RTA_j^A = RCA_j^A - RMA_j^A = \frac{X_j^A / X^A}{X_j^W / X^W} - \frac{M_j^A / M^A}{M_j^W / M^W}$$

where M_j^A is country A's imports of product j , M^A is country A's total imports, M_j^W is world imports of product j , and M^W is total world imports.

The indicator RTA is interpreted as follows: $RTA < 0$ means comparative disadvantages in the industry or commodity group, $RTA > 0$ points to comparative advantages in the country for export commodities for that industry or commodity group, and $RTA > 1$ identifies the commodity or industry as internationally competitive [Sujová et al. 2017].

The trade specialization index (TSI), also referred to as the indicator of net trade performance, is calculated as the ratio of net trade to total trade in the commodity category [Paluš et al. 2015; Sujová et al. 2015c]:

$$TSI_j^A = \frac{X_j^A - M_j^A}{X_j^A + M_j^A}$$

Values between -1 and 0 indicate comparative disadvantage, and values above zero mean that the country has a comparative advantage in the commodity.

The RCA1 indicator introduced by Aiginger and Landesmann [2002] examines competitiveness at the national level. This indicator takes the following form [Sujová et al. 2015a]:

$$RCA1_j^A = \ln[(X_j^A / M_j^A) / (X^A / M^A)]$$

where X_j^A is country A's exports of product j , M_j^A is country A's imports of product j , X^A is country A's total exports, and M^A is country A's total imports. The assessment of a country's competitiveness is as follows:

- $RCA < 0$ indicates comparative disadvantages in the commodity;
- $RCA > 0$ indicates comparative advantages in the country for exported commodities of that industry or commodity group;
- $RCA > 1$ indicates that the commodity and industry are internationally competitive.

The Revealed Competitiveness Index (RC) introduced by Vollrath [1991] enables evaluation of a country's competitiveness in foreign trade. It is the difference between the RXA (Relative Export Advantage) and RMA (Relative Import Advantage) ratios, and has the following formula [Paluš et al. 2015]:

$$RC_j^A = \ln(RXA_j^A) - \ln(RMA_j^A) = \ln \frac{X_j^A / X_n^A}{X_j^R / X_n^R} - \ln \frac{M_j^A / M_n^A}{M_j^R / M_n^R}$$

where X_n^A is country A's exports of all products excluding product j , X_j^R is exports of product j by all countries worldwide excluding country A, X_n^R is exports of all products excluding product j by all countries excluding country A, M_j^A is country A's imports of product j , M_n^A is country A's imports of all

products excluding product j , M_j^R is imports of product j by all countries excluding country A, and M_n^R is imports of all products excluding product j by all countries excluding country A.

According to Song and Gazo [2013], if RC_j^A has a value greater than zero it means that the country has a net competitive advantage, while a value lower than zero indicates a net competitive disadvantage.

Results by product group

The preliminary study of international trade showed that in 2009, in class 9401 (Seats, whether or not convertible into beds, and parts thereof), the greatest international competitiveness was achieved by Poland and Italy. The size of revenues from exports in that furniture category exceeded more than sixfold (TC = 6.11) and more than threefold (TC = 3.48) the value of expenditure on imports (Table 1), whereas in the Czech Republic exports were almost twice as high as imports (TC = 1.86). The largest shares in world exports of that furniture group were recorded for Poland (EMS = 8.48%), Germany (EMS = 7.70%) and Italy (EMS = 7.56%). Additionally, of all the countries analysed, the highest share of exports of that class of products in the country's total exports was recorded for Poland. Only for Poland did the rate of growth of class 9401 furniture exports exceed the rate of growth of corresponding imports. However, when comparing growth in exports of that furniture category with global export growth, next to Poland, positive trends were also recorded for the Czech Republic and Italy (1.05 and 1.03, respectively).

In the category of upholstered seats with wooden frames (940161), the highest ratio of the value of exports to imports of those goods was recorded in Poland. In 2009 the TC value was 36.42. At the end of the period the TC value was lower; however, it still remained high, pointing to a clear export surplus over imports of upholstered seats with wooden frames. A favourable situation was also reported in Italy (the TC value increased from 7.10 to 9.21). Poland and Italy recorded the highest shares of exports in total exports of that furniture group: at the end of the period analysed, the EMS values were 11.58% and 7.85%, respectively. In the other countries, unfavourable trends in international trade were usually found: a surplus of imports in that furniture group over exports. Additionally, the significance of exports of that furniture group in the exports of respective countries and in global exports was not considerable. A slight improvement in the trend in foreign trade in this area was observed in the case of the UK.

A favourable situation in international trade in seats with wooden frames (940169) was found for Poland and Italy. Those countries recorded a surplus in exports of that furniture group over imports: in 2019 the TC values were 2.26

Table 1. Analysis of the foreign trade structure and dynamics for selected furniture groups (class 9401) in 2009 and 2019

Country	TC		EMS [%]		EMS(C) [%]		ED/ID		ED/ED(W)	
	2009	2019	2009	2019	2009	2019	2009	2019	2009	2019
9401 – Seats whether or not convertible into beds, and parts thereof										
CZ	1.86	1.46	3.17	3.92	1.22	1.63	0.92	0.99	1.05	0.94
DE	0.55	0.57	7.70	5.45	0.30	0.30	0.89	1.02	0.98	0.98
IT	3.48	3.31	7.56	4.37	0.81	0.68	0.94	1.01	1.03	0.98
PL	6.11	3.76	8.48	7.76	2.70	2.54	1.19	0.95	1.08	1.02
UK	0.25	0.54	1.51	2.48	0.18	0.44	0.94	1.10	0.88	1.19
940161 – Upholstered seats, with wooden frames (excluding convertible into beds)										
CZ	0.34	0.25	0.30	0.13	0.03	0.01	1.01	1.00	0.99	0.94
DE	0.40	0.21	5.29	1.84	0.05	0.02	1.05	0.99	1.27	0.97
IT	7.10	9.21	14.90	7.85	0.39	0.28	0.88	0.93	1.03	0.96
PL	36.42	32.60	13.65	11.58	1.07	0.88	1.36	0.92	1.18	1.00
UK	0.06	0.12	0.54	0.67	0.02	0.03	0.79	0.91	0.81	1.00
940169 – Seats, with wooden frames (excluding upholstered)										
CZ	1.32	1.13	0.85	0.79	0.02	0.01	0.77	0.99	0.84	1.04
DE	0.16	0.32	1.60	2.69	0.00	0.00	0.85	1.01	1.05	1.10
IT	2.22	2.09	5.53	4.21	0.03	0.02	0.82	0.88	0.90	0.95
PL	1.89	2.26	1.54	2.97	0.03	0.03	0.81	0.80	0.77	1.01
UK	0.06	0.20	0.40	1.03	0.00	0.01	0.93	0.99	1.03	1.02
940171 – Upholstered seats, with metal frames										
CZ	0.65	0.61	0.39	0.25	0.01	0.01	1.07	0.73	1.14	0.99
DE	0.79	0.74	7.51	3.95	0.02	0.02	0.84	0.92	1.02	0.97
IT	6.12	6.38	10.46	5.71	0.09	0.09	0.88	1.04	1.03	1.07
PL	3.53	2.12	1.98	2.70	0.05	0.09	1.16	0.71	1.05	1.03
UK	0.15	0.22	0.74	0.55	0.01	0.01	0.86	0.86	0.96	1.04
940179 – Seats, with metal frames										
CZ	1.25	0.99	1.00	0.85	0.03	0.02	0.83	0.77	0.90	0.92
DE	0.43	0.35	4.65	3.40	0.01	0.01	0.95	0.92	1.12	1.02
IT	1.64	1.42	5.81	3.96	0.05	0.04	0.97	0.88	1.05	0.97
PL	0.79	0.71	0.58	1.56	0.01	0.03	0.76	0.84	0.75	1.04
UK	0.15	0.11	0.60	0.45	0.01	0.00	0.96	0.77	1.21	0.98

Source: own compilation.

and 2.09, respectively. The Polish furniture industry achieved an almost twofold increase in the share of the country's exports in world exports for that furniture group (EMS = 2.97% against EMS = 1.54%). In Italy the opposite tendency was observed: a slight decrease in the importance of the Italian industry in world exports of furniture with a wooden frame. Interestingly, however, in those countries the growth in imports was higher than that of exports. Additionally, the value of exports of that furniture group in Italy was growing more slowly than

the worldwide average rate. Similar tendencies were noted in the case of upholstered furniture with metal frames. The share of the Polish furniture industry in global exports of that product group increased slightly. Positive tendencies were also noted when comparing growth in exports of that furniture group in Poland with worldwide growth.

Germany, on the other hand, which is one of the leading furniture suppliers in the European market, recorded generally negative tendencies in foreign trade in class 9401. The TC value, the ratio of the value of exports to the value of imports, was below 1 in all of the analysed furniture categories in that class. There was also found to be a considerable decrease in that country's share of global exports of upholstered furniture with wooden frames (5.29% against 1.84%), upholstered furniture with metal frames (7.51% against 3.95%) and furniture with metal frames (4.65% against 3.40%). Besides, there was a decrease in the rate of growth of the value of furniture exports compared with the rate of growth of corresponding world exports, except in the case of furniture with wooden frames, where the value was 1.10. At the beginning of the period under study, an unfavourable situation was also found in foreign trade in the respective class 9401 furniture categories in the UK. However, over the period, positive tendencies were recorded: that country's share in world exports increased, and the rate of growth in exports of that furniture group increased, as compared with the rate of growth of global exports.

In the analysis of foreign trade in furniture and parts thereof (9403), again favourable tendencies were found in the Polish and Italian furniture sectors. Those countries recorded values of exports of those goods more than five times as high as imports (Table 2). In 2019 the values of the TC indicator were 5.49 and 5.76, respectively. Additionally, in Poland, the importance of class 9403 furniture for the country's exports increased, and at the end of the period under study the rate of growth in exports of those goods in Poland was 7% higher than the world average. A relatively favourable situation at the beginning of the period was also recorded for Germany, which had the highest share in world exports of such furniture (EMS = 8.60%), and exports exceeding the value of corresponding imports. However, the rate of growth in the value of goods coming to the German market from abroad exceeded the growth in the value of the goods shipped by German manufacturers. In the Czech Republic, on the other hand, there was recorded a slight increase in that country's share of the global market. The rate of growth in exports of that furniture class was similar to the global rate; however, in the Czech Republic the value of imports grew faster than the value of exports. The situation of the Polish and Italian furniture sectors in terms of foreign trade in the respective furniture categories in class 9403 was relatively favourable.

Those countries recorded the greatest shares of exports in most of the groups specified, including wooden office furniture (for which the EMS value was

Table 2. Analysis of the foreign trade structure and dynamics for selected furniture groups (class 9403) in 2009 and 2019

Country	TC		EMS [%]		EMS(C) [%]		ED/ID		ED/ED(W)	
	2009	2019	2009	2019	2009	2019	2009	2019	2009	2019
9403 – Furniture and parts thereof, n.e.s.										
CZ	1.29	1.43	0.92	1.09	0.48	0.50	1.00	0.96	0.92	1.00
DE	1.43	1.27	11.48	8.60	0.60	0.53	0.90	0.98	1.08	1.03
IT	5.72	5.76	11.57	8.06	1.68	1.38	0.94	1.00	0.98	0.97
PL	4.56	5.49	4.54	5.98	1.96	2.17	1.00	0.95	0.92	1.07
UK	0.20	0.21	1.31	1.15	0.22	0.22	0.97	1.00	0.94	1.05
940330 – Wooden furniture for offices										
CZ	1.55	2.58	0.65	1.71	0.02	0.03	1.00	0.90	0.63	0.93
DE	1.98	1.23	8.32	6.78	0.02	0.02	0.78	0.74	0.79	0.94
IT	13.55	5.50	10.93	6.67	0.08	0.05	0.82	0.87	0.79	0.85
PL	7.50	8.38	3.44	6.36	0.07	0.10	1.33	1.25	0.81	1.22
UK	0.37	0.45	1.42	1.69	0.01	0.01	0.96	1.03	0.77	1.09
940340 – Wooden furniture for kitchens										
CZ	0.30	0.49	0.27	0.45	0.01	0.02	0.89	0.88	0.97	0.86
DE	17.19	21.94	37.40	32.84	0.16	0.16	0.98	1.05	1.13	1.01
IT	23.82	20.46	15.95	13.13	0.19	0.18	0.92	0.87	0.99	0.99
PL	4.71	5.42	1.60	2.01	0.06	0.06	0.90	1.13	0.82	1.15
UK	0.17	0.31	0.84	0.60	0.01	0.01	0.84	0.79	0.78	0.81
940350 – Wooden furniture for bedrooms										
CZ	1.01	1.77	0.67	0.95	0.04	0.06	0.97	1.07	0.96	1.06
DE	1.59	0.70	9.59	4.80	0.06	0.04	0.88	0.90	1.14	1.00
IT	5.75	3.34	6.18	3.95	0.11	0.09	0.98	1.02	0.98	1.01
PL	9.89	11.51	4.61	7.54	0.25	0.36	1.23	0.87	0.92	1.10
UK	0.07	0.06	0.73	0.35	0.01	0.01	0.92	0.82	1.07	0.93
940360 – Wooden furniture (excluding for offices, kitchens and bedrooms and seats)										
CZ	0.84	0.92	0.68	0.70	0.12	0.09	0.95	0.90	0.79	0.97
DE	0.72	0.63	6.90	4.90	0.12	0.09	0.84	1.01	0.88	1.03
IT	4.85	5.28	10.81	7.35	0.53	0.37	0.94	0.95	0.93	0.93
PL	8.54	9.46	7.42	9.44	1.08	1.00	1.06	0.94	0.93	1.05
UK	0.15	0.15	1.05	1.08	0.06	0.06	0.89	1.00	0.92	1.05

Source: own compilation.

6.36% for Poland and 6.67% for Italy) and wooden furniture for bedrooms (for which the respective EMS values were 7.54% and 3.95%). Moreover, in Poland the TC value in all of the furniture categories increased, indicating an increase in exports of furniture of that type as compared with its imports. As for Germany, note must be taken of that country's considerable share (more than one-third) in

world exports of wooden furniture for kitchens. A considerable share in that furniture category was also recorded for Italy. In the case of these two countries, there was a considerable surplus of exports of goods in this category over imports. There was also found to be clear growth in Polish exports of wooden furniture for kitchens, as compared with the rate of growth in world exports, although the importance of the Polish furniture industry in that category was markedly lower ($EMS = 2.01\%$).

Again, the least favourable foreign trade situation was found for the UK. That country did not have a significant share in global exports in the respective furniture groups: in none of the product categories did the EMS value exceed 2%. Additionally, the ratio of exports of those products to the value of imports was less than 1. Interestingly, however, the situation of UK manufacturers improved slightly in the period under study, except in group 940390 (parts of furniture).

In the next stage of the research, an in-depth analysis was made of the international competitiveness of countries' furniture industries, using selected results-oriented indicators. The analyses show that in 2009, in class 9401 (Seats whether or not convertible into beds, and parts thereof), the highest comparative advantages in trade in furniture were generated by producers and exporters from Poland, the Czech Republic and Italy. This is confirmed by the values of the indicators for the relative comparative advantage of exports (RCA) and the relative trade advantage (RTA), as well as the positive values of the TSI index, indicating a positive balance of trade in this group of products (Table 3). In Poland and Italy, revenue from exports of this group of furniture exceeded expenditure on imports more than fivefold and more than threefold, respectively. In the case of the Czech Republic, the value of exports was almost double that of imports. These countries also achieved the highest values of RCA1, indicating a competitive advantage in the export of seats, and in the case of Italy and Poland, an international advantage ($RCA1 > 1$) was recorded. At the beginning of the analysed period, the values of this index were 1.90 for Poland, 1.27 for Italy and 0.55 for the Czech Republic. Also noteworthy are the positive and relatively high values of the RC index, which, being the difference between the logarithms of the RXA and RMA indicators, takes into account both the export and import situation of a given country. Among the analysed furniture exporters, Poland achieved the highest competitive advantage in this area ($RC = 1.30$), followed by Italy ($RC = 1.08$) and the Czech Republic ($RC = 0.27$). At the end of the analysed period, those countries also exhibited a competitive advantage in trade in seats, although the analysis shows that this advantage decreased in all countries. However, Poland and Italy still achieved values of the RCA1 index greater than 1, as well as favourable values of the RC index, indicating a relative comparative advantage in trade in seats. The positive values of the TSI indicator confirmed the competitiveness of the furniture industry in these countries.

Table 3. Competitiveness indicators for EU countries in selected furniture product groups (class 9401) in 2009 and 2019

Country	RCA		RTA		TSI		RCA1		RC	
	2009	2019	2009	2019	2009	2019	2009	2019	2009	2019
9401 – Seats whether or not convertible into beds, and parts thereof										
CZ	3.47	3.70	2.69	2.87	0.30	0.19	0.55	0.27	1.51	1.52
DE	0.84	0.69	-0.63	-0.69	-0.29	-0.27	-0.80	-0.74	-0.55	-0.69
IT	2.30	1.54	0.98	0.28	0.55	0.54	1.27	1.08	0.58	0.20
PL	7.66	5.77	5.84	4.31	0.72	0.58	1.90	1.30	1.40	1.38
UK	0.52	0.99	-1.43	-1.88	-0.60	-0.30	-0.96	-0.23	-1.33	-1.07
940161 – Upholstered seats, with wooden frames (excluding convertible into beds)										
CZ	0.32	0.13	0.04	-0.16	-0.49	-0.60	-1.15	-1.50	0.12	-0.83
DE	0.58	0.23	-0.61	-0.49	-0.43	-0.65	-1.11	-1.73	-0.70	-1.13
IT	4.52	2.76	2.69	1.13	0.75	0.80	1.98	2.10	0.98	0.55
PL	12.34	8.62	10.64	7.22	0.95	0.94	3.69	3.46	2.01	1.85
UK	0.19	0.27	-0.80	-0.33	-0.88	-0.79	-2.32	-1.75	-1.66	-0.80
940169 – Seats, with wooden frames (excluding upholstered)										
CZ	0.93	0.74	0.18	0.03	0.14	0.06	0.21	0.01	0.22	0.04
DE	0.18	0.34	-1.68	-2.23	-0.72	-0.51	-2.01	-1.32	-2.36	-2.02
IT	1.68	1.48	0.37	-0.30	0.38	0.35	0.82	0.62	0.26	-0.21
PL	1.39	2.21	-0.15	0.90	0.31	0.39	0.73	0.80	-0.16	0.50
UK	0.14	0.41	-0.53	-0.56	-0.89	-0.66	-2.43	-1.19	-1.59	-0.86
940171 – Upholstered seats, with metal frames										
CZ	0.43	0.23	-0.58	-1.11	-0.21	-0.24	-0.50	-0.60	-0.86	-1.75
DE	0.82	0.50	-0.01	-1.00	-0.12	-0.15	-0.43	-0.49	-0.04	-1.12
IT	3.18	2.01	1.72	0.80	0.72	0.73	1.83	1.74	0.77	0.49
PL	1.79	2.01	0.43	0.57	0.56	0.36	1.35	0.73	0.23	0.31
UK	0.25	0.22	-0.33	-0.30	-0.73	-0.63	-1.45	-1.10	-0.85	-0.87
940179 – Seats, with metal frames										
CZ	1.09	0.80	-1.40	-2.35	0.11	-0.01	0.15	-0.12	-0.83	-1.38
DE	0.51	0.43	-0.65	-0.85	-0.40	-0.48	-1.04	-1.22	-0.82	-1.10
IT	1.77	1.40	0.51	0.18	0.24	0.17	0.52	0.24	0.31	0.10
PL	0.53	1.16	-0.61	0.09	-0.12	-0.17	-0.14	-0.36	-0.79	0.07
UK	0.20	0.18	-0.60	-0.58	-0.74	-0.80	-1.48	-1.82	-1.38	-1.44

Source: own compilation.

In turn, a lack of competitive advantages in trade in seats was recorded in the case of German exporters. However, it should be emphasized that Germany was a leader on the list of European furniture manufacturers and exporters and was also among the top importers of furniture products, including seats. In 2009, negative values of the RCA, RTA and TSI indicators were recorded, which

testifies to a lack of international advantage. Additionally, the RMA index was higher than the relative import advantage (RXA) index, which led to negative RC index values. A similar situation was observed in the UK, where imports of seats were three times as high as exports. Additionally, it should be highlighted that at the end of the analysed period, the situation of German exporters of seats deteriorated, which is again evidenced by negative values of all of the indicators analysed. In the UK, on the other hand, there was some improvement in the trends followed by the foreign trade competitiveness indicators, particularly the TSI, RCA1 and RC indicators. However, their values remained unsatisfactory.

The detailed analysis of international competitiveness in individual categories of furniture industry products demonstrates that Polish exporters were highly competitive in exports of upholstered seats with wooden frames. In 2009, the RCA index, indicating the comparative advantage of exports in this category, was positive and amounted to 12.34. Additionally, the RTA index was 10.64, which confirms the significant advantage of exports over imports of such seats. Moreover, the share of this product category in the value of the country's total exports was much higher than the global average. The RCA1 index for upholstered seats with wooden frames took a value above 1 ($RCA1 = 3.46$), indicating competitiveness at the international level. In the analysed period, the competitive advantage of Polish producers in trade in such furniture decreased, but it still remained at a relatively high level. Favourable values of the analysed competitiveness indicators for group 940161 were also achieved by Italy. However, it should be highlighted that exporters from that country also demonstrated a decrease in competitiveness, which is evidenced by lower values of the indicators RCA (2.76 against 4.52), RTA (1.13 against 2.69) and RC (0.55 against 0.98). There were no competitive advantages regarding upholstered seats with wooden frames in the other analysed countries. Nevertheless, while the situation in the Czech Republic and Germany further deteriorated over the period considered, as evidenced by the negative trends in the RCA, RTA, TSI, RCA1 and RC indicators, positive trends were observed for the UK. Undoubtedly, the percentage growth in the value of these furniture exports is significant; it exceeded the growth in corresponding imports in 2009-2019 (169% compared with 146%).

In 2009, among the analysed countries, only Italy and Poland showed a competitive advantage in exports of seats with wooden frames (the values of the RCA indicator were 1.68 and 1.39). However, the lack of competitiveness of the Polish furniture industry in relation to imports of these products resulted in negative values of the RTA and RC indicators. On the other hand, at the end of the analysed period, Polish producers recorded an improvement in competitiveness in foreign trade in product group 940169. By contrast, Germany, the UK and the Czech Republic did not show any competitive advantages in trade in seats with frames, although positive trends were noted for the first two of these countries, with exports growing significantly more than

imports (by 129.7% against 15.7% for Germany, and 253.8% against -1.4% for the UK). Polish producers were less competitive in the category of upholstered seats with metal frames. However, in the analysed period, the values of the calculated indicators improved, except for the RCA1 and TSI indicators. Again, the Czech Republic, the UK and Germany were generally characterized by a lack of competitive advantages in the case of seats with metal frames (groups 940171 and 940179), although the situation improved over the period under study.

Next, an analysis was made of the competitiveness of individual countries in foreign trade in products from group 9403 (other furniture and parts thereof). In 2009, Poland and Italy again achieved high competitive advantages, in terms of both exports and total foreign trade (Table 4). This is confirmed by RCA values above 3 (4.10 and 3.51, respectively) and by RTA values above 0 (2.42 and 2.01). A positive value of the RC index also indicates the relative competitive advantage of a country's furniture industry in this product group. Poland recorded a higher and more stable comparative advantage in the production of this type of furniture. The positive values of the TSI indicator showed that the furniture industry achieved a positive trade balance in this sector, and its level gradually increased in the Polish industry. In the analysed period, Poland improved its competitiveness in foreign trade in other furniture, while in Italy the situation was less favourable. Additionally, it should be noted that at the beginning of the period, positive tendencies in the competitiveness indicators for group 9403 were observed in the case of German exporters. In contrast, for seats, the values of the competitiveness indicators were unfavourable.

Poland and Italy had the highest levels of foreign trade competitiveness for wooden office, kitchen and bedroom furniture, as well as other wooden furniture. At the beginning of the analysed period, the Italian furniture industry achieved the highest values of all competitiveness indicators for groups 940330 (wooden furniture for offices) and 940340 (wooden furniture for kitchens). In 2019, however, Polish furniture manufacturers achieved a higher level of competitiveness. This stems from the fact that Polish exports of such furniture grew at a much higher rate than imports. The reverse tendency was observed in the Italian furniture industry – the value of wooden furniture for offices and kitchens imported into Italy significantly exceeded the value of exports of those products.

Among the analysed countries, Poland also showed the highest level of competitiveness for other wooden furniture and its parts. Additionally, Poland strengthened its comparative advantage, as evidenced by, among other things, an increase in RTA (from 5.43 to 5.74 and from 2.00 to 2.51) and RC (from 1.65 to 1.71 and from 0.70 to 0.90).

The Czech furniture industry demonstrated its competitive advantage in the export of wooden furniture for offices and components of wooden furniture. This

Table 4. Competitiveness indicators for EU countries in selected furniture product groups (class 9403) in 2009 and 2019

Country	RCA		RTA		TSI		RCA1		RC	
	2009	2019	2009	2019	2009	2019	2009	2019	2009	2019
9403 – Furniture and parts thereof, n.e.s.										
CZ	1.01	1.03	-0.93	-1.12	0.13	0.18	0.18	0.25	-0.66	-0.74
DE	1.26	1.08	0.16	-0.03	0.18	0.12	0.16	0.05	0.18	-0.01
IT	3.51	2.84	2.01	1.24	0.70	0.70	1.76	1.63	0.92	0.60
PL	4.10	4.46	2.42	2.83	0.64	0.69	1.61	1.68	0.88	1.03
UK	0.45	0.46	-0.39	-0.44	-0.67	-0.65	-1.18	-1.17	-0.63	-0.67
940330 – Wooden furniture for offices										
CZ	0.72	1.61	0.13	0.94	0.22	0.44	0.37	0.84	0.19	0.88
DE	0.91	0.85	-0.37	-1.22	0.33	0.10	0.49	0.02	-0.31	-0.89
IT	3.32	2.35	2.73	1.43	0.86	0.69	2.63	1.59	1.79	0.95
PL	3.10	4.74	2.19	3.62	0.76	0.79	2.10	2.10	1.22	1.47
UK	0.49	0.68	0.23	0.15	-0.46	-0.38	-0.56	-0.40	0.65	0.25
940340 – Wooden furniture for kitchens										
CZ	0.30	0.43	-2.60	-2.10	-0.44	-0.35	-1.26	-0.83	-2.28	-1.78
DE	4.10	4.14	1.13	1.10	0.88	0.91	2.65	2.90	0.65	0.60
IT	4.85	4.62	3.05	2.31	0.89	0.91	3.19	2.90	1.11	0.75
PL	1.45	1.49	0.09	0.87	0.63	0.69	1.64	1.67	0.02	0.88
UK	0.29	0.24	-8.22	-6.28	-0.74	-0.53	-1.35	-0.79	-3.39	-3.31
940350 – Wooden furniture for bedrooms										
CZ	0.74	0.90	0.43	-0.88	0.01	0.28	-0.06	0.46	0.89	0.58
DE	1.05	0.61	-1.00	-1.20	0.23	-0.18	0.27	-0.54	-0.66	-1.06
IT	1.88	1.39	0.88	-1.17	0.70	0.54	1.77	1.09	0.65	0.38
PL	4.16	5.62	3.40	0.64	0.82	0.84	2.38	2.42	1.70	1.62
UK	0.25	0.14	-0.13	-0.12	-0.86	-0.89	-2.17	-2.43	-0.41	-1.11
940360 – Wooden furniture (excluding for offices, kitchens and bedrooms, and seats)										
CZ	0.74	0.66	-0.68	-0.40	-0.09	-0.04	-0.24	-0.19	-0.65	-0.47
DE	0.76	0.62	-1.00	-1.03	-0.16	-0.23	-0.52	-0.65	-0.85	-0.99
IT	3.28	2.59	1.69	0.47	0.66	0.68	1.60	1.55	0.77	0.20
PL	6.70	7.03	5.43	5.74	0.79	0.81	2.24	2.23	1.65	1.71
UK	0.36	0.43	-0.59	-0.45	-0.74	-0.74	-1.49	-1.51	-0.97	-0.71
940390 – Parts of furniture, n.e.s.										
CZ	1.75	1.43	0.58	0.54	0.29	0.19	0.52	0.28	0.39	0.48
DE	1.39	1.25	-0.10	-0.58	0.01	0.01	-0.16	-0.16	0.00	-0.34
IT	5.52	5.18	3.69	3.51	0.69	0.77	1.73	1.91	1.16	1.18
PL	3.86	4.24	2.00	2.51	0.37	0.49	0.88	1.04	0.70	0.90
UK	0.47	0.38	-1.09	-1.58	-0.63	-0.72	-1.04	-1.44	-1.20	-1.64

Source: own compilation.

is confirmed by the values of the indices of relative comparative advantage of exports (RCA) and relative trade advantage (RTA), as well as the positive values of the TSI index, indicating a positive balance of trade in this group of products (see Table 1). What is more, the comparative advantage of exports and trade increased in the case of wooden office furniture. On the other hand, Germany, the EU's leading exporter of furniture products, had no comparative advantage in trade in wooden bedroom furniture, other wooden furniture and their components, as shown by the RTA and RCA indicators. Furthermore, negative trends in competitiveness indicators were noted in these product groups. From the above, it can be concluded that the level of competitiveness of German exporters of such furniture decreased in comparison with other EU countries. Out of all of the surveyed countries, the least favourable situation in the international exchange of furniture industry products was recorded for the UK. Unfavourable values of the competitiveness indicators and, in most cases, negative tendencies in the analysed period were identified in almost all of the analysed groups of furniture.

The results of this research mostly confirm the conclusions of previous studies, although it should be noted that those studies concerned the furniture industry in general, and in most cases individual product groups were not analysed. The high level of competitiveness of the Polish furniture industry in general has been confirmed in many empirical studies [Han et al. 2009; Augustyniak and Mińska-Struzik 2018; Ratajczak 2009]. The competitiveness of the Polish furniture industry stems from the relatively low prices of its products. However, these products are often sold under the brands of foreign importers. Every year, international markets account for almost 90% of the sold production value of Polish furniture [Grzegorzewska and Stasiak-Betlejewska 2014]. The volume of trade of the furniture industry in Poland exceeds all other low-tech branches of manufacturing industry [Grzegorzewska and Więckowska 2016, 2017]. Moreover, Ratajczak [2009] concluded that Poland's comparative advantages increase with the level of processing of wood products. Wanat et al. [2020] emphasized that in creating competitiveness the role of resource criteria is weakening, and the importance of qualitative criteria is growing, including in particular cooperation, building relationships and industry cooperation networks. The competitiveness of the Czech industry was also pointed out by Sujová et al. [2015c]. According to a quantitative analysis, the comparative advantages of the industry increased through growth in positive values of net exports. However, the furniture industry lost this potential because of lower prices, a decrease in the quantity of exported commodities or an increase in imports of furniture commodities [Sujová et al. 2015c]. Bojnec and Fertö [2014], on the other hand, found that certain EU-13 countries (Poland and the Czech Republic) displayed a comparative advantage in trade in finished wooden products, including furniture. Dieter and Englert [2007], Han et al. [2009] and Vu et al. [2019] reported the lower efficiency of the German wood and furniture industry. One of

the key reasons for this situation indicated in those studies was the lower demand of the domestic market. Low manufacturing costs and the cheap workforce in Eastern Europe, Asia or Latin America contribute to the lower competitiveness of German enterprises [Vu et al. 2019]. Vu et al. [2019] also noted that the British wood industry lacked comparative advantages. The UK, like France, is a net importer of furniture. During the period analysed, the furniture trade deficit in these countries deepened.

Conclusions

The research enabled the determination of the level of international competitiveness of the furniture industry in selected EU countries which have been leading exporters of such products for many years. It can be concluded that the highest comparative advantages in trade in furniture were achieved by producers and exporters from Poland and Italy, which was confirmed by the favourable values of the analysed result-oriented indicators. The above applies both to product group 9401 (seats whether or not convertible into beds, and parts thereof) and group 9403 (furniture and parts thereof, n.e.s.). In addition, the competitiveness of the Polish furniture industry improved during the analysed period. A particularly evident comparative advantage was achieved in Polish foreign trade in the following product groups: wooden furniture for bedrooms (940350), wooden furniture, excluding for offices, kitchens and bedrooms, and seats (940360), and parts of furniture, n.e.s. (940390). At the end of the period, the values of the RCA index exceeded 4, indicating a strong comparative advantage.

The Polish furniture industry specializes in exports, as internal demand is relatively small compared with firms' production potential; therefore most of the furniture produced is sold on foreign markets [Grzegorzewska and Stasiak-Betlejewska 2014]. Nevertheless, the value and brand recognition of these products needs to be improved.

On the other hand, a lower level of competitiveness of the furniture industry was noted in the case of Germany, one of the largest exporters of furniture in the world. In the UK as well, unfavourable values of the competitiveness indicators and negative tendencies in the analysed period were recorded for almost all of the analysed groups of furniture. However, it should be noted that both the volume and the value of furniture imports to these countries are significant, which contributes to their foreign trade deficits.

The countries in question should focus on, on the one hand, improving the competitiveness of the product groups which represent a considerable share in global export. On the other hand, they should aim to increase the competitiveness of highly-processed products, which can provide a greater value added per product unit. It is worth aiming for some specialization in exports that will generate considerable revenues. However, more and more frequently, the

development path of foreign trade should also focus on satisfying the needs of customers in various areas, benefiting also from the emerging opportunities in other product groups. Countries should look for new sources of competitive advantage. In Poland, for example, special attention must be paid to improving labour efficiency and increasing levels of remuneration in the furniture industry, in view of the reported deficits in employee numbers.

It is of great importance to optimize the production structure in the furniture industry, and to ensure government support for the industries and product groups which promise favourable trends and for those that need to improve their competitiveness.

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Acknowledgements

The research was carried out under the project “Internationalization of Polish furniture companies – conditions and strategies for building competitive advantage” (No. DEC-2019/03/X/HS4/01342), financed by the National Science Centre Poland.

Submission date: 7.10.2020

Online publication date: 15.10.2021