

## **EVALUATING THE INTERNATIONAL COMPETITIVENESS OF POLISH FURNITURE MANUFACTURING INDUSTRY IN COMPARISON TO THE SELECTED EU COUNTRIES**

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### **ABSTRACT**

The international competitiveness in the foreign trade of the Polish furniture manufacturing industry products in comparison to other EU countries is evaluated in the paper. Poland is the fourth largest furniture exporter in the world and the third in the EU. The source of the research material was the statistical database of the International Trade Centre (ITC). The years 2010-2017 were analysed in the research. The selected result-oriented indicators enabling the ex post determination of competitiveness were utilized. The Polish furniture exporters show a relatively large competitive advantage in the foreign trade. A high level of the conducted export specialization and a relatively favourable level of the relative import penetration index were noted. The lack of a relative advantage of the Polish furniture exports was observed in the cases of Estonia and Lithuania, i.e. in the countries where the furniture manufacturing industry is important for the national economy. The highest competitive advantage in terms of the furniture exports was obtained in relation to small countries, ones with a small share in the value generation of the EU furniture manufacturing. Poland has also demonstrated competitiveness in relation to its largest competitors from the EU, Germany and Italy.

**Key words:** international competitiveness, foreign trade, furniture manufacturing, EU countries.

### **INTRODUCTION**

International competitiveness and comparative advantage are important concepts in economic theory. While investigating the phenomenon of national competitiveness, the focus should not be on economy as a whole, but on certain industries and industrial segments (MILIĆEVIĆ *et al.* 2017). In that context, the competitiveness of industry means the ability to create value added in comparison to the same productive sectors in other countries, the ability to attract the factors of production in relation to other industries within the same country or other countries, and the ability to adjust industry to social-economic conditions (TOMING 2011).

Competitiveness of countries and industries on the world markets is the basis for the theory of international trade and economic growth. In many empirical studies, a positive relationship between trade openness and economic growth has been noticed (DOLLAR and KRAAY 2004; FREUND and BOLAKY 2008; JENKINS and KATIRCIOGLU 2010; KATIRCIOGLU

2010; KLASRA 2011; SBIA and ALROUSAN 2016).

The concept of international competitiveness is indeed a complex one, and it is closely related to a number of different aspects (FAGERBERG 1996; CANTWELL 2005). There are many definitions of competitiveness that cover various areas of activity and different levels of aggregation (KRUGMAN 1994; WILLOUGHBY 2000; AJITABH and MOMAYA 2004; SHAFAEI *et al.* 2009). For example, PORTER (1990) defined the competitiveness of a nation as the productivity with which a nation utilizes its human, capital and natural resources. ALTOMONTE (2012) defined external or international competitiveness as the ability to exchange the goods in which a country is abundant for the goods and services that in the same country are scarce.

The complexity of the issues relating to competitiveness requires a variety of methods for assessment. The indicators of competitiveness are classified in two basic groups: the indicators directed towards results and indicators directed towards determinants (DIETER and ENGLERT 2007). One popular measure for international trade competitiveness is Balassa (1979) index termed “Revealed Comparative Advantage” (RCA). RCA is an index that compares the export share of a given commodity or sector in a country with the export share of that commodity or sector in the world market. However, this index has been modified by many authors (VOLLRATH 1991; HADZHIEV 2014; LAURSEN 2015). The ever-evolving Balassa effect currently represents a cannon of research studies on competitiveness potential in the sphere of international trade as well as in the more broadly understood international exchange (MISALA 2011). This article used result-oriented indicators, which enable the ex-post detection of a competitive position.

The evaluation of international competitiveness applies also to forest-based industries, such as furniture manufacturing (HAN *et al.* 2009; RATAJCZAK 2009; ZHANG *et al.* 2012; HAJDÚCHOVÁ and HLAVÁČKOVÁ 2014; RATAJCZAK-MROZEK and HERBEĆ 2014; HAJDÚCHOVÁ *et al.* 2016; PAROBK *et al.* 2016; MALÁ *et al.* 2017; MILIĆEVIĆ *et al.* 2017). The level of competitiveness of enterprises, as well as the entire wood and furniture industries, is determined by external and internal factors. One of the most important factors affecting the growth and development of these industries is the limited availability of wood, which still remains one of the basic production raw materials. According to MYDLARZ *et al.* (2013) and HALAJ *et al.* (2018) the potential of the related sector depends mainly on the availability of raw material and the demand reported for wood and wood-based products. In addition, the research concerning wood-based industries, including the furniture manufacturing, highlights the importance of work efficiency for the growth and development of enterprises (MERKOVA *et al.* 2019, GRZEGORZEWSKA *et al.* 2019) and the impact of motivation and meeting employees’ needs on improving the performance and delivering it to required standard is fundamental (HITKA *et al.* 2020). Moreover, the knowledge, competences and decisions of managers in individual companies that determine implemented internationalization strategies are not without significance. This can influence the situation of the entire furniture industry, especially when medium and large enterprises are of great importance for the furniture market. DRÁBEK and HALAJ (2008) as well as SEDLIAČIKOVÁ *et al.* (2016) emphasized the increase in the efficiency of enterprises by making optimal decisions in the field of financial management, which are a prerequisite for the growth of enterprise results. As a consequence of the growing importance of environmental issues, including the deficit of raw wood materials, there is increased interest in sustainable development concepts. Wood processing should strive to increase its competitiveness by implementing modern management methods, utilising new technologies, or concentrating on large-scale production. There is also a need for optimal solutions, which reflect the principles of sustainable development (HAJDÚCHOVÁ *et al.* 2016, MALÁ *et al.* 2018). In this context, MALÁ *et al.* (2017) and WIĘCKOWSKA and GRZEGORZEWSKA (2019)

pointed out that new, more ecological products, open up new market opportunities for enterprises, and thus contribute to higher profits.

Poland is now one of the world's top furniture manufacturers and the fourth biggest furniture exporter in the world besides China, Italy, and Germany. The Polish furniture industry has one of the highest shares among all the sectors of the economy (GRZEGORZEWSKA and STASIAK-BETLEJEWSKA 2014; GRZEGORZEWSKA and WIEĆKOWSKA 2016a,b). Because the furniture industry plays a significant role in trade in Poland and Europe, the international competitiveness potential of the domestic furniture manufacturers on the foreign market is particularly important. Thus, in the present article a set of result-oriented indices was used to analyze and assess the changes in competitiveness of Polish furniture industry on international market.

## METHODOLOGY

The study evaluated international competitiveness of Poland in the foreign trade of the furniture industry products in comparison to other EU member states. The study was preceded by a discussion of results of foreign trade. The primary source of the research material was the International Trade Center database. The years 2010-2017 were analysed in the research.

Assessing the competitiveness of an industry is a complex process, and it can be analyzed from several perspectives. Among the methods for measuring the international competitiveness position ex post, quantitative indicators, which reflect the effects of utilizing factors of production, can be distinguished. These outcomes are a result of quantity, structure quality, and productivity of resources. They allow for the assessment of the general economic condition of the economy or a specific sector, especially when the situation in the foreign trade is taken into account (PAWLAK 2013). As emphasized SIRGMETS *et al.* (2019), competitiveness should be analyzed as a combination of indicators to provide an assessment that is as complete as possible. For this reason, a system of most popular indices evaluating the trade competitiveness of the sector and its commodities was adopted, as described below.

### *The Import Penetration Rate*

The Import Penetration Rate (MP) is the ratio between the value of imports to the supply on the internal market. Low values of the MP index are considered desirable and are recorded as follows (OECD 2011; FRONCZEK 2017),

$$MP = \frac{M}{Q-X+M} \quad (1)$$

where  $M$  is import,  $X$  is export, and  $Q$  is production.

### *The Specialization Indicator*

The Specialisation Indicator (SI) compares the share of a product in the export of country  $k$  with the share of this product in the world export. High values of the SI index indicate the existence of competitiveness of a given national economy or a selected sector. This indicator takes the following form (PAWLAK 2013),

$$SI_k = \frac{X_{ik}}{X_k} : \frac{X_{iw}}{X_w} \quad (2)$$

where  $X_{ik}$  is export of product  $i$  in country  $k$ ,  $X_k$  is total export of goods in country  $k$ ,  $X_{iw}$  is export product  $i$  worldwide, and  $X_w$  is total export of goods worldwide.

### *The Trade Coverage Ratio*

The Trade Coverage Ratio (TC), also referred to Export / Import Ratio, is the relation of the value of export of a given product (group of products) to the value of its import. The values of the TC indicator above 100 indicate export specialization of a given country in the considered area, which may lead to the conclusion that it has an advantage over its partners in this respect. This indicator takes the following form (LUBIŃSKI *et al.* 1995; PALUŠ *et al.* 2015; KUBALA and FIRLEJ 2019),

$$TC_{ik} = \frac{X_{ik}}{M_{ik}} \cdot 100\% \quad (3)$$

where  $X_{ik}$  is export of product  $i$  in country  $k$ , and  $M_{ik}$  is import of product  $i$  in country  $k$ .

### *The Relative Revealed Comparative Export Advantage Index*

One of the mostly used indicators for competitiveness of exports of a given country or sector is the Revealed Comparative Advantage Index (RCA). Although it should be mentioned that since then many researchers have attempted to refine this index. One of them is the Relative Revealed Comparative Export Advantage Index (XRCA) described by following equation (PAWLAK 2013; FROHBERG and HARTMAN1997),

$$XRCA_{ik} = \frac{X_{ik}}{X_{im}} : \frac{\sum_{j,j \neq i} X_{jk}}{\sum_{j,j \neq i} X_{jm}} \quad (4)$$

where  $X$  is export,  $i, j$  are product categories, and  $k, m$  are countries.

The index measures the competitiveness of a given product export from one country to another and is defined as the ratio of two quotients - the ratio of export of a given product in the country  $k$  to the export of this product in the country  $m$  and relation of general export of goods in both countries (excluding the analyzed product). Values above 1 suggest that the country has a competitive advantage in the considered product category, whereas values below 1 point to a competitive disadvantage (PAWLAK 2013).

### *The Relative Import Penetration Index*

The Relative Import Penetration Index (MRCA) is defined as the ratio of two quotients: the ratio of import of a given product in the country  $k$  to the imports of this product in the country  $m$  and the relation of general import of goods in both countries (excluding the analyzed product) (PAWLAK 2013; FROHBERG and HARTMAN1997):

$$MRCA_{ik} = \frac{M_{ik}}{M_{im}} : \frac{\sum_{j,j \neq i} M_{jk}}{\sum_{j,j \neq i} M_{jm}} \quad (5)$$

where  $M$  is import,  $i, j$  are product categories, and  $k, m$  are countries.

A value above 1 is a sign of competitive disadvantage, and values below that are an indication of competitive advantages.

### *The Relative Trade Advantage Index*

The Relative Trade Advantage Index (RTA) is more complex than the other two factors (PAWLAK 2013; FROHBERG and HARTMAN1997). This index gives the difference between the XRCA and the MRCA,

$$RTA_{ik} = XRCA_{ik} - MRCA_{ik} \quad (6)$$

The indicator RTA is interpreted as follows:  $RTA < 0$  means comparative disadvantages in the industry (commodity group);  $RTA > 0$  means comparative advantages in the country for export commodities for that industry (or commodity group); and  $RTA > 1$  identifies the industry (commodity) as internationally competitive (PAWLAK 2013; FROHBERG and HARTMAN 1997).

### *The Trade Balance Index*

The Trade Balance Index (TBI) analyzes whether a country has specialization in export (as net-exporter) or in import (as net-importer) for a specific group of products (ECHEVARRIA 2008). This ratio is calculated as follows (WIDODO 2009),

$$TBI_{ij} = \frac{X_{ik} - M_{ik}}{X_{ik} + M_{ik}} \quad (7)$$

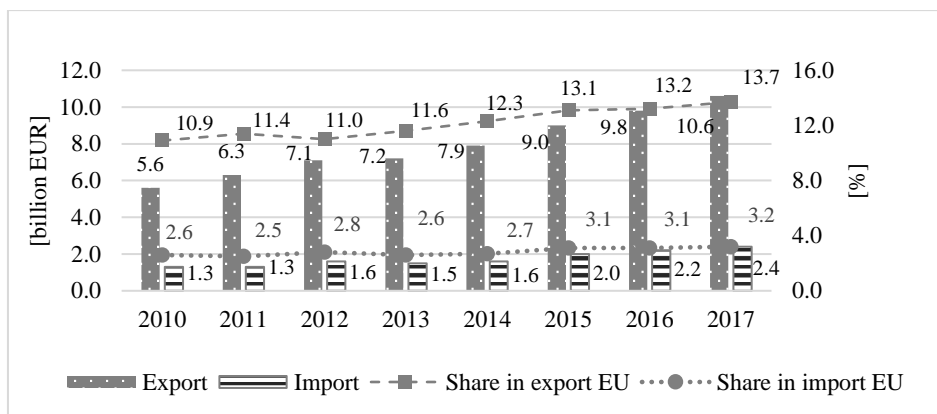
where  $X_{ik}$  and  $M_{ik}$  represent exports and imports of product  $i$  in country  $k$ , respectively.

Values of the index range from -1 to +1. Extremely, the TBI equals -1 if a country only imports, in contrast to the TBI equals +1 if a country only exports (WIDODO 2009). The values between 0 and 1 mean comparative advantage. In turn, values between 0 and -1 indicate that foreign trade is not advantageous. This indices shows the country's degree of specialization in exporting a particular product (PRASAD 2004; PAROBEK *et al.* 2016).

Moreover, the coefficient of variation (V) was employed, which allows for the determination of the differentiation level of the examined traits in a specified time. This coefficient is a relative measure of dispersion, the value of which is determined as the ratio of standard deviation to the arithmetic mean (ABDI 2010).

## **RESULTS AND DISCUSSION**

According to data from the International Trade Center, in 2010, the value of the global furniture exports reached EUR 104.7 billion. The export of the EU member states accounts for nearly half of this amount. The leader on the list of the EU furniture industry exporters was Germany. The value of the products of this industry, which arrived at the foreign market from Germany amounted to EUR 10.9 billion, which represented 21.4% of the EU export and 10.4% of the world export. Italy (EUR 9.3 billion) ranked second on the list of the EU furniture exporters. In 2010, in addition to Germany and Italy, Poland was an important exporter of furniture. The exports of the Polish furniture in value terms which was provided on the market, in the range of EUR 5.6 billion, representing 5.3% and 10.9% of the global and EU exports of these products, respectively (Fig. 1). Between 2010 and 2017, the global furniture industry export more than doubled and amounted to EUR 210.8 billion at the end of the analyzed period. Of this amount, EUR 77.8 billion was generated in the EU member states (52.8% more than in 2010), which constituted 36.9% of the world furniture export. This indicates that the importance of the EU countries in creating the value of global exports has decreased. Among the countries at the top of the ranking of exporters, Poland recorded the highest growth dynamics of the export value (191.6% corresponding to EUR 10.6 billion). On the other hand, the value dynamics of the furniture exported from the Italian and German markets was lower and amounted to 139.4 and 127.0% for Italy and Germany, respectively. The share of these countries in the value of the EU furniture export increased by 2.6%; therefore, together with Poland, they remained at the forefront of the largest furniture exporters.



**Fig. 2 Export and import of the Polish furniture industry in the years 2010-2017.**

Moreover, in 2010, the world furniture import was at the level of EUR 106.8 billion, marginally higher than the export, which resulted in a trade deficit in this area of products. Nearly half of this amount was generated by the EU member states. In the EU, the largest importers of the furniture industry products were Germany (EUR 11.2 billion), France (EUR 6.8 billion) and the United Kingdom (EUR 6.3 billion). The value of the furniture imports to these countries accounted for nearly 50% of the total worth of the EU import. In the Polish furniture industry, a noticeably lower import value of furniture was observed – EUR 1.3 billion, which accounted for 2.6% of the EU import.

In the years 2010 to 2017, the global furniture import increased by 86.4% to a level of EUR 199.1 billion. The export growth rate was significantly higher, which resulted in a positive furniture trade balance. In the EU member states, the import value dynamics of the furniture industry products was similar to the export. Thus, the trade surplus was at a similar level as at the beginning of the period. The value of the furniture imports in Poland increased more than twice in the considered period, i.e. to EUR 3.2 billion. However, in 2017, the country's share in EU furniture import remained at a low level of 2%. Furthermore, it is worth emphasizing that the Polish furniture industry has been showing a positive trade balance for many years, and in the studied period, its level increased twice, which also confirms the higher growth rate of the furniture export value in comparison to the import value.

The conducted analyses of the international competitiveness ability demonstrate that in 2010, Polish manufacturers and exporters showed a relatively high comparative advantage in the foreign trade, both in comparison to other EU countries and the world (Table 1). During this period, the value of export revenue in the Polish furniture industry exceeded the amount of the incurred import expenses four times, and the TC ratio equaled 443.06%. A high level of the implemented export specialization was also noted, which was measured by the SI index ( $SI = 4.78$ ). Moreover, a positive value of the trade balance index ( $TBI = 0.63$ ) and a favourable relative import penetration index ( $MRCA = 0.55$ ) were noted.

**Tab. 1 Selected result-oriented indices for Polish furniture industry in the years 2010–2017.**

Indicator	2010	2011	2012	2013	2014	2015	2016	2017	V
MP	0.55	0.93	1.00	1.56	1.64	1.59	1.58	1.94	34.54
SI	4.78	4.79	5.01	4.48	4.27	4.31	3.87	4.09	8.73
TC (%)	443.06	467.38	452.43	486.70	505.23	453.51	438.51	443.35	5.13
TBI	0.63	0.65	0.64	0.66	0.67	0.64	0.63	0.63	2.27

In 2010, the relative revealed comparative export advantage index (XRCA) and the relative import penetration index (MRCA) confirmed the high competitiveness capacity of Poland in relation to the world and the EU (Tables 2 and 3). The positive, but also relatively

high level of the RTA index is also noteworthy. Denoting the difference between the XRCA and MRCA indexes, the RTA index also takes into account the export and import situation of the country. It should be emphasized, however, that the situation concerning the individual EU member states varied (Table 4).

**Tab. 2 Relative Revealed Comparative Export Advantage Index for Polish Furniture Industry in the Years 2010–2017.**

Country	2010	2011	2012	2013	2014	2015	2016	2017	V
<b>World</b>	5.01	5.00	5.23	4.67	4.45	4.50	4.04	4.29	8.75
<b>EU28</b>	3.76	3.85	3.90	3.82	3.76	3.85	3.74	3.81	1.44
<b>Austria</b>	2.80	3.01	3.18	3.08	3.09	3.22	3.43	3.98	10.97
<b>Belgium</b>	6.70	7.29	8.28	8.75	9.27	10.41	10.18	10.40	15.98
<b>Bulgaria</b>	3.72	3.64	3.90	3.03	2.98	2.67	2.52	2.51	18.00
<b>Croatia</b>	1.83	1.83	1.76	1.72	1.49	1.46	1.42	1.52	10.69
<b>Cyprus</b>	5.85	4.35	9.02	4.60	9.99	8.06	8.16	11.06	32.39
<b>Czech Republic</b>	2.47	2.38	2.52	2.55	2.24	2.30	2.13	2.16	6.89
<b>Denmark</b>	2.14	2.16	2.26	2.13	2.18	2.16	2.04	2.08	3.11
<b>Estonia</b>	0.88	0.86	0.96	0.95	0.86	0.88	0.74	0.75	9.44
<b>Finland</b>	6.43	6.79	7.00	6.97	7.20	7.61	7.75	7.88	7.01
<b>France</b>	6.55	7.37	7.61	7.62	7.51	8.03	7.80	8.15	6.47
<b>Germany</b>	4.38	4.44	4.45	4.45	4.54	4.82	4.79	5.00	5.00
<b>Greece</b>	12.12	13.38	16.18	13.04	17.93	16.80	14.03	12.82	14.69
<b>Hungary</b>	3.82	3.85	3.58	3.22	3.07	3.30	3.33	3.54	8.12
<b>Ireland</b>	37.44	34.93	35.18	35.48	26.27	26.34	26.52	26.68	16.17
<b>Italy</b>	1.83	1.87	2.02	2.02	1.96	2.11	2.06	2.20	5.99
<b>Latvia</b>	2.32	2.41	2.66	2.46	2.20	2.35	2.32	2.11	7.07
<b>Lithuania</b>	0.96	1.00	1.06	0.96	0.93	0.86	0.78	0.76	11.42
<b>Luxembourg</b>	11.92	13.62	16.52	12.44	11.36	11.84	11.32	12.46	13.53
<b>Malta</b>	20.90	70.03	90.32	75.63	66.53	118.21	79.68	115.13	38.57
<b>Netherlands</b>	11.49	10.89	8.48	8.73	8.37	8.73	7.29	7.08	17.57
<b>Portugal</b>	1.80	1.82	1.93	1.86	1.82	1.77	1.68	1.70	4.63
<b>Romania</b>	1.56	1.62	1.70	1.51	1.44	1.46	1.42	1.49	6.28
<b>Slovakia</b>	2.52	2.72	2.95	3.06	2.83	2.88	2.89	3.08	6.35
<b>Slovenia</b>	1.41	1.45	1.51	1.20	1.26	1.47	1.57	1.48	8.94
<b>Spain</b>	5.11	5.54	6.14	5.85	5.42	5.64	5.42	5.21	6.08
<b>Sweden</b>	2.90	3.09	3.19	2.95	2.90	3.19	3.14	3.47	6.10
<b>United Kingdom</b>	9.23	9.42	9.51	8.71	9.44	8.19	7.65	7.25	10.20
<b>max</b>	37.4	70.0	90.3	75.6	66.5	118.2	79.7	115.1	-
<b>min</b>	0.9	0.9	1.0	0.9	0.9	0.9	0.7	0.8	-
<b>mean</b>	6.0	7.7	8.8	7.8	7.5	9.2	7.7	9.0	-
<b>st. deviation</b>	7.4	13.5	16.8	14.4	12.5	21.3	14.6	20.7	-

During this period, the comparative advantage index of Poland in relation to other EU countries was typically above 1, and in the case of as many as 19 countries, it was above 2.5, which confirms the strong competitiveness of the Polish furniture industry exports. The exceptions were Lithuania and Estonia, in relation to which, the relative advantage index of the Polish furniture exports was below 1 and equaled 0.96 and 0.88, respectively. In addition, the highest XRCA index was observed in Ireland, Malta and Greece. This means that in relation to these countries, Poland showed the highest competitiveness in the area of furniture export. These are small countries, which show a relatively low share of the furniture industry production value in the total industry value and a relatively low economic labour productivity. This is manifested in the lower average furniture production value per employee than it is recorded in other EU countries.

**Tab. 3 Relative Import Penetration Index for Polish Furniture Industry in the Years 2010–2017.**

Country	2010	2011	2012	2013	2014	2015	2016	2017	V
World	0.99	0.91	1.02	0.94	0.93	1.03	1.00	1.03	4.93
EU28	0.80	0.74	0.82	0.77	0.77	0.85	0.85	0.87	5.42
Austria	0.49	0.49	0.52	0.45	0.46	0.53	0.58	0.65	12.50
Belgium	1.02	1.00	1.10	1.07	1.02	1.28	1.42	1.46	16.03
Bulgaria	1.07	1.06	1.35	1.36	1.27	1.34	1.35	1.32	9.87
Croatia	0.50	0.51	0.53	0.52	0.56	0.65	0.67	0.70	14.01
Cyprus	0.38	0.40	0.45	0.51	0.59	0.72	0.75	0.87	30.62
Czech Republic	0.78	0.82	0.87	0.78	0.71	0.78	0.75	0.71	7.02
Denmark	0.53	0.45	0.49	0.48	0.48	0.53	0.53	0.56	7.33
Estonia	0.75	0.75	0.97	0.85	0.75	0.87	0.79	0.86	9.55
Finland	0.80	0.72	0.81	0.70	0.73	0.85	0.79	0.81	6.55
France	0.66	0.59	0.66	0.62	0.67	0.75	0.77	0.77	10.43
Germany	0.70	0.63	0.69	0.64	0.63	0.69	0.71	0.73	5.69
Greece	0.82	0.84	1.11	1.53	1.59	1.64	1.54	1.46	25.86
Hungary	1.37	1.41	1.33	1.16	1.03	1.04	1.06	1.03	13.88
Ireland	1.12	1.04	1.28	1.20	1.17	1.29	1.47	1.57	14.00
Italy	1.47	1.37	1.51	1.47	1.44	1.51	1.54	1.55	4.04
Latvia	0.75	0.71	0.83	0.65	0.66	0.80	0.83	0.88	10.96
Lithuania	1.08	1.26	1.48	1.27	1.12	0.95	0.91	0.88	18.56
Luxembourg	0.53	0.53	0.64	0.61	0.63	0.70	0.75	0.79	14.52
Malta	0.65	0.80	1.04	1.11	1.11	1.34	1.16	1.42	23.69
Netherlands	1.14	1.08	1.01	1.05	1.07	1.21	1.09	1.01	6.04
Portugal	0.74	0.74	0.77	0.84	0.92	0.97	0.92	0.88	10.44
Romania	1.04	1.13	1.18	1.09	1.03	1.16	1.17	1.16	5.30
Slovakia	0.77	0.75	0.76	0.68	0.66	0.68	0.64	0.58	9.73
Slovenia	0.58	0.56	0.62	0.40	0.43	0.54	0.59	0.53	14.49
Spain	0.92	0.78	0.96	1.02	1.03	1.11	0.98	1.02	9.86
Sweden	0.62	0.58	0.62	0.58	0.55	0.61	0.61	0.65	5.12
United Kingdom	0.73	0.66	0.77	0.74	0.67	0.74	0.72	0.80	6.41
max	1.5	1.4	1.5	1.5	1.6	1.6	1.5	1.6	-
min	0.4	0.4	0.5	0.4	0.4	0.5	0.5	0.5	-
mean	0.8	0.8	0.9	0.9	0.9	0.9	0.9	1.0	-
st. deviation	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	-

It is also worth emphasizing that in relation to the largest furniture manufacturers and exporters, i.e. Germany and Italy, the XRCA index for Poland was above 1. Moreover, the comparative advantage of our country was significantly higher in relation to Germany (XRCA = 4.38 versus XRCA = 1.83). In addition, it should be noted that the Polish furniture industry demonstrated a lack of competitiveness in the area of import in relation to five EU countries, which confirms the value of the MRCA index above 1. The highest values of the aforementioned index were observed in Italy (MRCA = 1.47) and Bulgaria (MRCA = 1.38).

The high competitiveness of the Polish furniture industry in the international exchange area at the beginning of the studied period was also confirmed by the positive values of the relative trade advantage index in comparison to all countries, except for Lithuania, where a negative index value was obtained (RTA = -0.12). In this respect, a relatively low advantage of Poland was noted in the cases of Estonia, Italy and Romania, where the RTA values were estimated at 0.14, 0.36 and 0.52, respectively. However, it should be emphasized that these values were positive. Moreover, the greatest competitiveness of the Polish furniture industry was found in relation to Ireland, Malta, the Netherlands, Luxembourg and Great Britain, which was evidenced by the highest values of the relative trade advantage index. It is



noteworthy that in this group, in addition to small countries of little importance for the activity of the EU furniture industry, there are also countries generating significant furniture sold production value, i.e. Great Britain or the Netherlands. In 2010, these countries produced furniture worth EUR 3.2 and 7.2 billion, respectively. Correspondingly, this accounted for 4 and 8% of the total EU furniture production.

**Tab. 4 Relative Trade Advantage Index for Polish Furniture Industry in the Years 2010–2017.**

Country	2010	2011	2012	2013	2014	2015	2016	2017	V
<b>World</b>	4.02	4.08	4.22	3.73	3.52	3.47	3.03	3.26	11.43
<b>EU28</b>	2.96	3.10	3.09	3.04	2.99	3.00	2.89	2.94	2.40
<b>Austria</b>	2.31	2.52	2.66	2.62	2.63	2.69	2.85	3.33	11.00
<b>Belgium</b>	5.67	6.28	7.19	7.68	8.25	9.13	8.76	8.94	16.47
<b>Bulgaria</b>	2.65	2.58	2.55	1.68	1.72	1.33	1.17	1.19	34.54
<b>Croatia</b>	1.33	1.32	1.23	1.20	0.93	0.81	0.74	0.82	23.61
<b>Cyprus</b>	5.46	3.95	8.57	4.09	9.40	7.34	7.41	10.19	33.38
<b>Czech Republic</b>	1.70	1.56	1.65	1.77	1.53	1.52	1.39	1.46	8.09
<b>Denmark</b>	1.61	1.72	1.77	1.65	1.70	1.63	1.51	1.52	5.55
<b>Estonia</b>	0.14	0.11	0.00	0.09	0.11	0.01	-0.05	-0.11	39.16
<b>Finland</b>	5.63	6.07	6.18	6.26	6.46	6.76	6.96	7.07	7.55
<b>France</b>	5.89	6.78	6.96	7.00	6.84	7.28	7.04	7.38	6.56
<b>Germany</b>	3.68	3.81	3.76	3.81	3.90	4.13	4.08	4.27	5.29
<b>Greece</b>	11.30	12.54	15.07	11.51	16.35	15.17	12.50	11.36	15.13
<b>Hungary</b>	2.45	2.45	2.26	2.06	2.04	2.26	2.27	2.50	7.59
<b>Ireland</b>	36.33	33.89	33.90	34.28	25.10	25.05	25.06	25.11	17.24
<b>Italy</b>	0.36	0.50	0.51	0.54	0.52	0.60	0.52	0.65	15.68
<b>Latvia</b>	1.57	1.70	1.83	1.81	1.54	1.56	1.49	1.24	12.08
<b>Lithuania</b>	-0.12	-0.26	-0.42	-0.31	-0.19	-0.09	-0.13	-0.12	-56.51
<b>Luxembourg</b>	11.40	13.08	15.88	11.83	10.72	11.14	10.57	11.67	14.42
<b>Malta</b>	20.25	69.23	89.27	74.52	65.42	116.88	78.52	113.71	38.81
<b>Netherlands</b>	10.35	9.81	7.47	7.68	7.30	7.52	6.21	6.07	19.69
<b>Portugal</b>	1.06	1.08	1.16	1.03	0.91	0.81	0.76	0.82	15.76
<b>Romania</b>	0.52	0.49	0.51	0.42	0.41	0.30	0.25	0.33	25.21
<b>Slovakia</b>	1.76	1.96	2.19	2.38	2.16	2.19	2.26	2.50	10.62
<b>Slovenia</b>	0.83	0.89	0.90	0.80	0.82	0.93	0.97	0.95	7.06
<b>Spain</b>	4.19	4.76	5.17	4.83	4.40	4.53	4.43	4.19	7.47
<b>Sweden</b>	2.29	2.51	2.57	2.37	2.35	2.58	2.54	2.82	6.70
<b>United Kingdom</b>	8.50	8.76	8.74	7.97	8.76	7.45	6.93	6.44	11.47
<b>max</b>	36.3	69.2	89.3	74.5	65.4	116.9	78.5	113.7	-
<b>min</b>	-0.1	-0.3	-0.4	-0.3	-0.2	-0.1	-0.1	-0.1	-
<b>mean</b>	5.2	6.9	7.9	6.9	6.6	8.3	6.8	8.1	-
<b>st. deviation</b>	7.4	13.5	16.8	14.3	12.4	21.2	14.5	20.6	-

From 2010 to 2017, the relative revealed comparative export advantage index (XRCA) below 1 was observed only in Estonia and Lithuania, demonstrating Poland's lack of competitiveness in this area. These countries were characterized by the largest average share of the furniture production value in relation to the value of the domestic industry production, which confirmed the important role of the furniture industry in the total industry in these states. The importance of furniture export in relation to the total value of the exported goods was also significant. At the same time, it is worth emphasizing that these countries were characterized by a lower value of furniture production per employee.

In 2017, Poland once again obtained the largest competitiveness advantage in the export of furniture in relation to Malta and Greece, i.e. small countries with a minor share in the generated EU furniture production value. The Polish furniture industry demonstrated a significant comparative advantage in the area of export in comparison to countries belonging

to the group of the largest exporters, i.e. France (XRCA = 8.15), UK (XRCA = 7.25), or the Netherlands (XRCA = 7.08). The value of this index was very high, which proves the strong competitiveness of the Polish furniture on the foreign market. Poland improved its competitive position in the furniture industry export field in relation to the first of these countries, whereas a negative trend was noted with respect to the other countries.

Furthermore, the international competitiveness of the export of Polish furniture in relation to the largest competitors, i.e. Germany and Italy, increased, as confirmed by the increase of the XRCA index during the studied period (from 4.38 to 5.00 and 1.83 to 2.20, respectively). During the considered period, the competitiveness of the Polish furniture industry decreased in the area of import. Since 2015, no comparative advantage in relation to the global furniture importers was observed, which was confirmed by the average MRCA index value above 1. Moreover, there was an increase in the number of countries, in relation to which the relative import penetration level of the Polish furniture industry decreased. Notably, in 2010, the lack of this advantage was observed in relation to 8 countries. Seven years later, these countries were joined by Greece, Malta, and Spain. A positive downward trend of the MRCA index calculated for Poland was found in relation to countries such as the Czech Republic, Hungary, Lithuania, the Netherlands, Slovakia, and Slovenia; however, these changes were only marginal.

The analysis of international competitiveness demonstrated that as early as 2010, Poland showed a comparative trade advantage in relation to the whole world (RTA = 4.02) and the EU countries (RTA = 2.96). Considering the EU member states, the Polish furniture industry was highly competitive. With respect to the furniture trade, Poland obtained the highest comparative advantage in relation to countries with the highest values of the relative comparative export advantage index, i.e. Ireland, Greece, Malta, and the Netherlands. This situation applied to the entire analyzed period, and it should be stated that the international competitiveness in this area increased in relation to the first two countries, while different trends were noted for the remaining two. In years 2010 to 2017, the changes in the level of international competitiveness of Poland in the furniture trade in relation to the analyzed EU countries were varied. Relative to the largest furniture exporters among the EU member states, i.e. Germany and Italy, the comparative advantage in the furniture industry trade has increased (from 3.68 to 4.27 and 0.36 to 0.65, respectively). Positive trends were also observed when comparing the competitiveness of the Polish furniture industry with the French one (RTA increase from 5.89 to 7.38). The analysis of the competitiveness of the German forestry sector against the background of international wood markets also confirmed the greater comparative advantage of Poland with respect to finished wood products (DIETER and ENGLERT 2007). The comparison of Poland with the leading European countries in furniture trading reveals that they all display relatively similar value added characteristics; however, the domestic value added content of the Polish exports is generally lower. A greater openness to trade is particularly revealed in the case of Germany. In Italy, the data on the ownership and size of exporting companies indicate greater possibilities of appropriating created value (AUGUSTYNIAK and MIŃSKA-STRUZIK 2018).

In contrast, the competitive position of the country in this area has decreased relative to ten countries, as evidenced by the decrease in the values of the RTA index. This group includes the countries included in EU-13, which show a positive furniture trade balance, namely Bulgaria, Croatia, the Czech Republic, Estonia, Latvia and Romania. The decrease in the comparative advantage in the area of furniture trade in relation to the Czech Republic, which is the fourth largest exporter of the furniture industry products among the EU countries, is noteworthy. An important competitor of Poland among the European countries is also Romania, where in recent years, the furniture production and the furniture export have

increased significantly, primarily due to industry restructuring and large investments in new technologies (BURJA and MÄRGINEAN 2013).

In addition, the highest significance of the furniture industry in the total industry was observed for Lithuania and Estonia, which were characterized by a high growth rate in the area of furniture production and export. In these countries, one in ten people who worked in the industry field worked in the furniture industry. Research demonstrates that the other EU13 countries also exhibit a comparative advantage in the wood-based industries (ZHELEV 2013); however, it should be noted that the competitiveness indicators for those countries are lower than in Poland. According to PAROBK *et al.* (2014), with the exception of the pulp and paper industry, the Slovak forest industry producing final higher added value wood commodities such as furniture, construction timber, etc. is often still unable to compete on the European market. The present article confirms the comparative advantage of the Polish furniture industry against Slovakia. In the considered period, the RTA increased from 1.76 to 2.50.

Despite the relatively good competitiveness of Poland in the furniture trade compared to other EU countries, there is a need to improve the production capacity and seek new ways of building competitive advantage on the external market. The existing strengths of the Polish furniture manufacturers, i.e. the high quality of the products and relatively low labour costs compared to the Western competitors, may prove insufficient in the future, particularly when taking into consideration the relatively low work efficiency in this industry in comparison to the countries included in the EU15 group. Similarly, the weakness of the competitiveness of the wood processing industries in other East and South European countries can be seen in the fact that the competitive advantage is visible in the favourable prices, not in manufacturing complex products with high value added. Business and development, which are based only on the strategy of low costs and cheap final products are increasingly less sustainable for the enterprises, which aspire towards improvement of the competitiveness (MILIĆEVIĆ 2017). However, price, next to product quality and design, remains one of the most important factors influencing consumer decisions in the furniture industry (KOZAK *et al.* 2004; MOTIK *et al.* 2003; LOUČANOVÁ *et al.* 2015). In addition, PALUŠ *et al.* (2012) pointed out that the materials from which furniture is made are of important to consumers because of ecological properties, environmental appropriateness, renewability and naturalness. The study carried out by RATAJCZAK (2009) founded that the Polish comparative advantages change with the level of wood products processing. Thus, there should be more investment in the R&D activities, in case of the furniture industry, particularly in the design and/or marketing and sales activities, including the creation of good access routes to distribution channels (AUGUSTYNIAK and MIŃSKA-STRUZIK 2018). In turn, SMARDZEWSKI (2009) estimated that the exchange rate has an impact on the level of competitiveness of the Polish furniture industry. The importance of exchange rate fluctuations that determine foreign trade and the competitiveness on the domestic economy as well as individual economic entities on the international market have been emphasized by BOSE (2014) and BOSTAN *et al.* (2018). However, this situation may be short-term, so a competitive advantage should be built on a wide spectrum of both internal and external factors. The support of government agencies for the furniture industry is not without significance.

## CONCLUSION

The Polish furniture manufacturers and exporters exhibited a relatively large international competitiveness in the foreign trade in relation to both other EU countries and the world. The value of the export revenue in the Polish furniture industry was four times higher than the value of the incurred import expenses. A high level of implemented export

specialization and a relatively favourable level of the relative import penetration were also noted. The situation varied in relation to the individual EU member states. The lack of relative export advantage was observed in the cases of Estonia and Lithuania, i.e. countries for which the furniture industry is significant for international exchange and the national economy. Poland had the largest competitive advantage in the area of furniture export in relation to small countries, ones with a minor contribution to the generated EU furniture production value.

The Polish furniture industry has shown a significant comparative advantage in the area of export and foreign trade in comparison to the largest competitors, i.e. Germany and Italy, as confirmed by the increase of the XRCA and RTA indexes during the studied period. Despite relatively high competitiveness of Poland in the furniture trade in comparison to other EU countries, there is a need to improve the production capacity and seek new ways of building competitive advantage on the external market. It is necessary to expand the current research and conduct scientific investigations which will be directed towards the optimization of productive and exporting structure of furniture industry, aimed at further increase of competitiveness on foreign market.

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