Original Article

Poland's competitive position in foreign trade in sports articles and equipment with China and selected EU countries

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Published online: April 30, 2020

(Accepted for publication: April 15, 2020)

DOI:10.7752/jpes.2020.s2145

Abstract

In the conditions of globalization and the internationalization of economic processes, competitiveness is often considered in the context of the international market. Understood as the ability of effective and profitable placement of domestic products on foreign markets it is the subject of many analyzes and evaluations. This study focuses on analysing Poland's competitive position in foreign trade in sports articles and equipment in the time period 2010–2018. The research used statistical data obtained from the *ComExt* database from the resources of the Statistical Office of the European Communities (Eurostat). The analysis covered the CN 9506 article group, classified according to the Combined Nomenclature, i.e., 'Articles and sports equipment'. Selected quantitative measures were used for assessment, including indicators of revealed comparative advantages (RCA index according to the Grupp-Legler formula and LFI_{ij} indicator according to Lafay's formula) and the intensity of intra-industry trade (Grubel-Lloyd bilateral index). The balance of trade volume and the export coverage ratio were also analysed. The analyses show that in the years 2010–2018 there was a significant increase in trade in this type of goods in Poland. The value of imports increased almost threefold, while exports increased nine fold. The results of assessment of competitive position achieved in foreign trade in sports articles and equipment point to the diverse situation on individual foreign markets. The most unfavourable relations for Poland in trade in sports articles and equipment occurred in trade with China. The lack of advantage, in almost the entire period under review, was also observed in the case of trade exchange with France and Great Britain. A favourable situation, especially in recent years, occurred in trade with Germany, Sweden, Austria, and Czechia.

Key words: competitiveness, foreign trade, sports articles and equipment, Poland.

Introduction

The development of economic relations, mainly due to globalization processes and internationalization of processes, has created new operating conditions for individual companies, industries, sectors, and entire economies. The liberalization of trade, the growing importance of international companies and the greater opening of countries to foreign competition have resulted in increased interest in the issue of competitiveness (Cieślak et al., 2019).

Competitiveness is a concept commonly used by both researchers and practitioners of economic life. At the same time, it belongs to categories that are multi-faceted and, therefore, differently defined. Some authors, in the context of defining the concept of competitiveness, first distinguish between its levels. Therefore, they identify the competitiveness of enterprises, industries, national economies, and even of international economic groups (Rugman, Oh, & Lim, 2012). At the same time, they indicate a number of factors that affect the competitiveness of entities at each of the distinguished levels (Cheba & Szopik-Depczyńska, 2017). In particular, they are interested in factors that relate to the environment of business entities, such as the quality of national institutions supporting entrepreneurial environment and innovative potential (Kiseličková et al., 2019; Balcerzak & Pietrzak, 2016; Zygmunt, 2019; Jakimowicz & Rzeczkowski, 2019) or the level of development and effectiveness of financial markets affecting the ability to expand specific entities (Meluzin et al., 2017, 2018; Skalicka et al., 2019; Skare & Porada-Rochoń, 2019a, 2019b).

Under the conditions of globalization and internationalization of economic processes, competitiveness is often considered in the context of the international market. It is then understood as the ability to effectively and profitably locate domestic products on foreign markets. Competitiveness understood in this way is the subject of many analyses and assessments. Most often they concern products delivered by the food, textile or high technology industries (Szczepaniak, 2018, 2019; Vošta, & Kocourek, 2017; Karabag, Lau, & Suvankulov, 2014). The subject literature lacks papers that refer to a relatively narrow group of products, which are sports articles and equipment. These are products willingly purchased by buyers. They frequently become helpful or even necessary for them, because they are used to properly care for their physical condition, and thus comfort of life (Khan et al., 2012). Demand for this type of good sometimes results from specific trends and fashion in this

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area. Although these are specific products, generally purchased by a specific group of buyers, many companies, also in Poland, sell them successfully also on foreign markets. It is worth examining Poland's international competitive position in trade in sports articles and equipment. This study is therefore an attempt to fill the gap in this area.

The purpose of the work is to analyse and assess Poland's competitive position in foreign trade in sports articles and equipment. The study covered the turnover of goods belonging to the CN 9506 group –*Articles and sports equipment*, in the years 2010–2018. The work focused on assessing Poland's competitive position in relation to the most important partners in trade in this type of products. This group of trading partners included China and six European Union countries.

Material and methods

The research used statistical data obtained from the *ComExt* database from the resources of the Statistical Office of the European Communities (Eurostat). The analysis covered the CN 9506 article group, classified according to the Combined Nomenclature, *i.e.*, ‘Articles and sports equipment’. The study was carried out using a purposely selected set of quantitative measures of international *ex post* competitive position. To assess Poland's competitive position in foreign trade in products belonging to the indicated product group, indicators commonly used in the literature were applied. An analysis was made of the level of revealed comparative advantages and indicators of the intensity of intra-industry trade volume, as well as the analysis of the balance of trade volume and the trade coverage ratio.

Two complementary indicators of comparative advantages were used. The first is the RCA_{ij} indicator, according to the Grupp-Legler formula (Gehrke, & Grupp, 1994):

$$RCA_{ij} = \ln \left(\frac{m_{ij}}{m_{ij}^*} : \frac{X_j}{M_j^*} \right), \quad [1]$$

where:

x_{ij} – the value of exports of the i -th product (product group) to the j -th country,
 m_{ij} – the value of imports of the i -th product (product group) from the j -th country,
 X_j – the total value of exports to the j -th country,
 M_j – the total value of imports from the j -th country.

The second LFI_{ij} indicator is Lafay's (1992) formula:

$$LFI_{ij} = 100 \times \left(\frac{x_{ij} - m_{ij}}{x_{ij} + m_{ij}} - \frac{\sum_{i=1}^N (x_{ij} - m_{ij})}{\sum_{i=1}^N (x_{ij} + m_{ij})} \right) \times \frac{x_{ij} + m_{ij}}{\sum_{i=1}^N (x_{ij} + m_{ij})}, \quad [2]$$

where:

x_{ij} – the value of exports of the i -th product (product group) to the j -th country,
 m_{ij} – the value of imports of the i -th product (product group) from the j -th country.

The above ratios are interpreted the same way. A value greater than zero indicates the presence of the revealed comparative advantage, and also indicates its intensity. A negative indicator value means lack of comparative advantage.

Studies concerning the competitive position of the country on foreign markets also include analyses of the intensity of intra-industry exchange (Hoen, & Oosterhaven, 2006; Yu, & Qi, 2015; Yilmaz, & Karaalp-Orhan, 2015). Intra-industry trade, also referred to as two-way, involves the simultaneous export and import of products belonging to the same industry (industry, category of goods, commodity group). It develops particularly well in the field of diversified products, *i.e.*, of those that are available in many variants or varieties (Cieřlik, & Wincenciak, 2018).

These certainly include sports articles and equipment. In the case of diversified products, as a result of intra-industry exchange, there is a chance to obtain greater economies of scale that arise due to extending production series. Under such conditions, intra-industry trade usually develops as a result of intra-industry specialization.

The Grubel-Lloyd bilateral index (Grubel, & Lloyd, 1975) was used to assess the intensity of intra-industry exchange:

$$IT_{ij} = \frac{(x_{ij} + m_{ij}) - |x_{ij} - m_{ij}|}{(x_{ij} + m_{ij})}, \quad [3]$$

where:

x_{ij} – the value of exports of the i -th product (product group) to the j -th country,
 m_{ij} – the value of imports of the i -th product (product group) from the j -th country,

The above indicator takes values from the range $[0;1]$. The higher the IIT_{ij} value, the more intense intra-industry trade. This is most often the result of the country's intra-industry specialization in trade in a specific group of products.

The revealed comparative advantage indicators RCA_{ij} and LFI_{ij} and the intra-industry exchange indicator were used to assess the competitiveness of the analysed product group in trade with the seven most important trading partners of Poland. The basis for selecting the countries that were included in this group was the volume of Poland's bilateral trade in sports articles and equipment in 2018. The group of countries with which Poland had the highest trade volume in sports articles and equipment in 2018 included China and six EU countries: Germany, Austria, the Great Britain, Czechia, Sweden, and France.

Results and discussion

In the years 2010–2018 there was a significant increase in Poland's trade volume in sports articles and equipment. The value of imports of this type of goods almost tripled, from EUR 120.5 million to EUR 343.5 million. Exports were even more dynamic, rising over the period considered from EUR 36.8 million to EUR 333.9 million (Table 1).

In the first three years of the analysis period, *i.e.*, just after the crisis that affected the world economy in 2008–2009, exports of sporting articles developed slightly better, which in 2010–2012 increased on average by 21.9% per year. During this time, imports increased by 11.6%. At the end of this period, Poland had a deficit in trade in sports articles and equipment of EUR 89.2 million. In 2013, mainly due to the turmoil on the currency market, the trade volume in this type of product clearly decreased (Table 1). A significant recovery started in the following year. The last year covered by the analysis turned out to be particularly beneficial for Poland in this respect. At that time, a large export value of products belonging to the category considered was recorded and it almost balanced the value of imports. Admittedly, there was still a negative trade balance, but only at the level of EUR 9.5 million. This translated into the trade coverage ratio of 97.2% in 2018. Therefore, it increased by almost 67 percentage points compared to the first year under analysis.

In the geographical structure of trade in this type of products, China dominated among Asian countries, mainly in imports, exports were only of marginal importance, and among the European Union countries the most important trading partners were Germany, Czechia, Great Britain, France, Sweden and Austria.

Table 1. Value and dynamics of foreign trade turnover of sports articles and equipment in Poland in the years 2010–2018

Specification	2010	2011	2012	2013	2014	2015	2016	2017	2018
Import									
Value (in mln EUR)	120.5	132.0	143.7	137.1	172.3	230.5	294.7	332.0	343.5
Previousyear =100	116.5	109.5	108.8	95.4	125.7	133.8	127.8	112.7	103.5
Year 2010 = 100	100.0	109.5	119.2	113.7	143.0	191.3	244.5	275.4	284.9
Export									
Value (in mln EUR)	36.8	46.0	54.4	58.0	84.0	147.0	177.8	229.5	333.9
Previousyear =100	122.5	125.2	118.2	106.6	144.8	175.1	120.9	129.1	145.5
Year 2010 = 100	100.0	125.2	148.0	157.7	228.3	399.8	483.4	624.1	908.0
Balance									
Value (in mln EUR)	-83.8	-85.9	-89.2	-79.1	-88.4	-83.5	-116.9	-102.4	-9.5
The level of covering the import by export (in %)	30.5	34.9	37.9	42.3	48.7	63.8	60.3	69.1	97.2

Source: Authors' own calculations based on Eurostat, <http://ec.europa.eu/eurostat/data/database>.

In trade with Poland's most important trade partner – Germany, for a long time Poland did not have any comparative advantages in the scope of goods covered by the CN 9506 group. Positive values of comparative advantage indicators appeared only in the last years of the examined period (see Table 2). In 2018, these indicators in trade in sports articles and equipment with Germany amounted to $RCA_{DEU_2018} = 0.60$; $LFI_{DEU_2018} = 0.06$, which means a significant improvement in the situation regarding the competitiveness of Polish products on the German market.

In almost the entire period under examination, a fairly favourable situation in terms of shaping comparative advantages in trade in sports articles and equipment occurred in trade with Sweden. In 2018, bilateral indicators of trade volume with this country were at the level of $RCA_{SWE_2018} = 0.94$; $LFI_{SWE_2018} = 0.12$. A fairly favourable situation, especially at the end of the examined period, also occurred in trade with Austria and Czechia ($RCA_{AUT_2018} = 0.44$; $LFI_{AUT_2018} = 0.06$ and $RCA_{CZE_2018} = 0.08$; $LFI_{CZE_2018} = 0.01$). Although the indicators for these two countries reached positive values in the last year under analysis, it cannot be said that there was a lasting improvement in the competitive position of Polish goods covered by the CN 9506 group sold on the Austrian and Czech markets.

In the whole period under scrutiny, a very unfavourable situation in the area of shaping comparative advantages in trade in sports articles and equipment occurred in trade with China (Table 2). The worst situation in this respect occurred at the beginning of the period analysed. In 2010, the bilateral indicators of revealed comparative advantages in trade with this country were at a very low level, in particular the Lafay index, and they amounted to $RCA_{CHN,2010} = -6.18$; $LFI_{CHN,2010} = -0.11$. In the last year under analysis, the competitive position of Chinese goods on the Polish market was still strong. However, it should be emphasized that it slightly weakened compared to the first years covered by the analysis. Indicators of comparative advantages in trade of the CN 9506 product group reached the following values: $RCA_{CHN,2018} = -2.44$; $LFI_{CHN,2018} = -0.08$.

In the time period 2010–2018, negative values of comparative advantage indicators also dominated in trade with France and Great Britain. In 2018, the indicators of revealed comparative advantages in trade with these countries amounted to $RCA_{FRA,2018} = -1.53$; $LFI_{FRA,2018} = -0.18$ and $RCA_{GBR,2018} = -0.92$, $LFI_{GBR,2018} = -0.06$.

Table 2. Bilateral indexes of the revealed comparative advantage RCA_{ij} and LFI_{ij} and intra-industry trade IIT_{ij} in trade in sports articles and equipment in Poland in the years 2010–2018

Index	2010	2011	2012	2013	2014	2015	2016	2017	2018
Austria									
RCA_{AUT}	-2.82	-2.93	-1.91	-1.76	-0.88	0.21	-0.31	0.05	0.44
LFI_{AUT}	-0.06	-0.08	-0.06	-0.06	-0.04	0.02	-0.03	0.01	0.06
IIT_{AUT}	0.09	0.07	0.21	0.23	0.46	0.98	0.77	0.99	0.80
China									
RCA_{CHN}	-6.18	-4.26	-5.35	-4.25	-3.71	-3.11	-4.17	-3.24	-2.44
LFI_{CHN}	-0.11	-0.11	-0.13	-0.11	-0.11	-0.10	-0.11	-0.11	-0.08
IIT_{CHN}	0.00	0.01	0.00	0.01	0.01	0.01	0.00	0.01	0.02
Czechia									
RCA_{CZE}	-1.18	-0.98	-0.34	0.18	1.13	0.35	0.55	-0.30	0.08
LFI_{CZE}	-0.03	-0.02	-0.01	0.00	0.02	0.01	0.02	-0.02	0.01
IIT_{CZE}	0.57	0.68	0.99	0.72	0.34	0.58	0.52	0.92	0.74
Germany									
RCA_{DEU}	-1.10	-1.01	-1.02	-1.28	-0.78	-0.06	-0.07	0.19	0.60
LFI_{DEU}	-0.03	-0.03	-0.03	-0.03	-0.03	-0.01	-0.01	0.02	0.06
IIT_{DEU}	0.43	0.47	0.49	0.42	0.61	0.97	0.96	0.91	0.71
France									
RCA_{FRA}	-1.79	-1.61	-1.67	-1.49	-1.55	-1.51	-1.58	-1.43	-1.53
LFI_{FRA}	-0.10	-0.10	-0.09	-0.10	-0.11	-0.13	-0.15	-0.14	-0.18
IIT_{FRA}	0.37	0.40	0.41	0.47	0.45	0.46	0.42	0.49	0.46
Great Britain									
RCA_{GBR}	-0.70	-0.49	-0.66	-0.27	-0.42	-1.14	-1.32	-0.86	-0.92
LFI_{GBR}	-0.01	-0.01	-0.01	0.00	-0.01	-0.05	-0.09	-0.05	-0.06
IIT_{GBR}	0.97	0.88	0.89	0.72	0.79	0.86	0.78	0.99	0.97
Sweden									
RCA_{SWE}	0.80	0.02	0.22	-0.24	0.23	0.31	1.53	-0.01	0.94
LFI_{SWE}	0.01	0.01	0.01	-0.01	0.01	0.01	0.03	0.01	0.12
IIT_{SWE}	0.55	0.94	0.86	0.94	0.81	0.79	0.31	0.92	0.49

Source: Authors' own calculations based on Eurostat, <http://ec.europa.eu/eurostat/data/database>.

An analysis of the intensity of intra-industry exchange in Polish foreign trade in sports articles and equipment shows that in the entire period covered by the study, the highest Grubel-Lloyd indexes were achieved in trade with Great Britain. In the time period 2017–2018, almost all trade in the CN 9605 commodity group with this country was of intra-industry nature ($IIT_{GBR,2017} = 0.99$; $IIT_{GBR,2018} = 0.97$). The lowest level of the trade index with Great Britain was recorded in 2013 ($IIT_{GBR,2013} = 0.72$), but it was still quite high when compared to other trading partners.

Grubel-Lloyd's relatively high indexes were also recorded especially in recent years - in trade with Austria and Czechia. They amounted respectively to $IIT_{AUT,2017} = 0.99$, $IIT_{AUT,2018} = 0.80$ and $IIT_{CZE,2017} = 0.92$, $IIT_{CZE,2018} = 0.74$. In trade with the other countries of the European Union, intra-industry exchange existed but in most years of the examined period was of lesser importance (see Table 2), whereas the situation in intra-industry exchange in trade with China was quite different.

Analysis of the Grubel-Lloyd index level for the time period 2010–2018 shows that there is virtually no intra-industry trade in sports articles and equipment with this country. The index oscillates around zero throughout the entire period studied. This is the result of a huge disproportion in the volume of imports and exports with China. In competition with this country, Poland along with other countries of the world have been in a much weaker position for many years.

Conclusions

Under the conditions of globalization and internationalization of economic life, competitiveness is most frequently referred to the international market and considered as the ability to effectively and profitably locate domestic products on foreign markets. In this context, the willingness of domestic buyers to buy imported products is also important. Export-import relations in trade in a particular group of goods are the basis for assessing the competitive position of the country in trade in these goods.

The study assesses Poland's competitive position in trade in sports articles and equipment. The analyses show that in the years 2010–2018 there was a significant increase in trade in this type of goods in Poland. The value of imports increased almost threefold, while exports increased ninefold.

The results achieved in foreign trade in sports articles and equipment as well as the assessment of Poland's competitive position in this area indicate a diverse situation on individual foreign markets. The most unfavourable relations in trade in products belonging to the CN 9605 group occurred in trade with China. Exchange with France and Great Britain also stood out in that respect. A favourable situation, especially in recent years, occurred in trade with Germany, Sweden, Austria and the Czechia.

Improving the competitive position on some foreign markets that are important for Poland and maintaining, and preferably strengthening, the already developed competitive advantages are certainly a challenge for entities involved in the production and sale of sports articles and equipment. In this context, it is important not only to search for new sales opportunities for goods on foreign markets, but also to strengthen promotional activities so that Polish products are recognized and bought on foreign markets.

Acknowledgement

The paper was developed as part of the project 'Positive social change in the organization as a factor of company involvement in the implementation of sustainable development'. The project was financed by the National Science Centre, decision no DEC-2017/25/B/HS4/01113.

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