

THE ASSESSMENT OF EXPORT POTENTIAL OF AGRICULTURAL AND FOOD PRODUCTS IN THE VISEGRAD GROUP COUNTRIES IN THE YEARS 2005–2017

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ABSTRACT

The foreign trade in agricultural and food products is a significant reflection of an economic situation occurring in the current functioning of agriculture, food industry and its individual trades in a given country. It is worth considering how the export of Polish agricultural and food products may be compared with the Visegrad Group countries in this area. The article deals with an attempt to assess the export potential of agricultural and food products in the Visegrad Group countries in the years 2005–2017 using a modified index for an assessment of a level of competitiveness in a foreign trade, that is the Revealed Comparative Advantage Index – RCA – by Balassa. The results of the study prove that the export of agricultural and food products in the Visegrad Group countries is vulnerable to economic trends, there is a significant degree of competitiveness regarding export of the food products of animal origin in these countries, and the greatest level of competitiveness of the foreign trade in the food products of plant origin regarding cereals, and the trade in fruit and vegetables is less and less important.

Keywords: foreign trade, agri-food industry, the Visegrad Group

JEL codes: E24, J24

INTRODUCTION

The agri-food industry is one of the most important sectors of agribusiness in Poland and it not only decides of a qualitative and quantitative volume of production of food goods but is also a guarantor that ensures food safety for all the citizens. Many years of research conducted by the Institute of Agricultural and Food Economics in Warsaw proved that the agri-food industry in Poland during the last three decades is characterised by permanent growth and may be an example of gentle and conflict-free movement

of its entities from the socialist to market economy. It should be emphasised that the agri-food industry enterprises complied with the European Union requirements regarding quality, sanitary and veterinary standards in short time. The continuous improvement of the position of products manufactured by the Polish food producers on the domestic and international markets was the measurable, practical effect of these activities. Soon after the accession of Poland to the European Union, the Polish enterprises became very important food producers operating both on the domestic and international markets. They overcame

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various barriers on the European Union market which contributed to the improvement of the quality of produced food as well as to strengthening the competitive position among other producer countries. With time the Polish food became not only recognisable on the international markets, but also admired and now it is becoming to win its due brand. Detailed research and analyses regarding the conditions, types and level of value of Polish exports of agri-food products have been conducted for many decades by experts from the Institute of Agricultural Economics and Food Economy in Warsaw, National Research Institute and others. Among the authors we can mention: Urban and Mroczek (2011), Szczepaniak (2011), Nosecka (2014), Ambroziak (2018), Hajdukiewicz (2016) and Pawlak (2014).

THE AGRI-FOOD PRODUCTS EXPORT FROM POLAND

The development of agri-food industry in Poland was accompanied by, more and more noticeable by the producers and economists, export of Polish food, which was defined as a kind of phenomenon. Slowly changed the opinions that the main advantages of Polish products enabling them to compete on the European markets were price of these products and labour costs. The positive developments in the Polish agri-food industry contributed to work efficiency improvement, modernisation of production methods and development of products. Polish food and above all its features shortly achieved the quality of products made in highly developed European Union countries. Within just 15 years since the accession of Poland to the European Union a priority objective of agri-food producers functioning for and in food industry should be to preserve its position on the international arena and tackle all emerging threats that may limit the industry. Unfortunately, in Polish economy a number of adverse events have to be taken into account, such as: increasing labour costs resulting in growth of price of products or decreasing demand for food in the European Union countries. As a significantly beneficial activities may be considered a transfer of knowledge and innovation diffusion, which will facilitate the development

of a good brand of Polish food that should be not only recognised but also renowned as natural (Firlej, 2017). As an area of research in the presented study the countries belonging to the Visegrad Group were selected; since 15 February 1991 the Visegrad Group has been a regional form of co-operation of four of Central and Eastern Europe countries – Poland, the Czech Republic, Slovakia and Hungary, and the principles that guided its creation resulted from neighbourhood, similar geopolitical conditions, shared history, tradition, culture and values. The inspiration for V4 was the intensifying co-operation in the common transformation and development of free market economy as well as, in a longer term, participation in a process of European integration (Ministerstwo Spraw Zagranicznych, 2016). The main aim of the study was to present the situation of the export of Polish agricultural and food products in comparison with the selected Visegrad Group countries as well as an assessment of agricultural and food products export possibilities in the Visegrad Group countries in the years 2015–2017.

MATERIALS AND METHODS

The main index used to assess the level of competitiveness in the foreign trade is the Revealed Comparative Advantage Index by Balassa – RCA (Balassa, 1965). The index is calculated in accordance with a formula:

$$RCA_i = \frac{X_{ij}}{\sum_{i=1}^n X_{ij}} : \frac{X_{iw}}{\sum_{i=1}^n X_{iw}}$$

where:

X_{ij} – export of i product by a given country j on m market;

X_{iw} – export of i product by a group of countries w on m market;

n – number of types of products.

According to the definition, the index determines the relative participation of a product group in an export of a given country to a participation of the same product group in an export of a comparative area. As presented in the interpretation, the value of the index

more than unity shall mean that the analysed country has a comparative advantage on the reference market. The value less than unity shall be interpreted as a lack of revealed comparative advantages in a trade of analysed product.

However, Balassa's competitiveness index has significant disadvantages due to the fact that it is bottom-up limited and its maximum values are unlimited, which may result in interpretation difficulties. This factor decides of difficulties in comparing competitiveness in marketing of different types of products. It is therefore appropriate to modify the formula as follows (Dalum, 1985; Laursen et al., 1985; Yeats, 1985):

$$RCA_k = \frac{RCA - 1}{RCA + 1}$$

where:

RCA_k – adjusted index of revealed comparative advantage;

RCA – relative comparative advantage index (Balassa's index).

The values of the adjusted index range from –1 to 1. The positive index values inform about the existence of the revealed comparative advantage in the export of a given product, negative values mean the lack of the advantage. At the same time the index

characterises the strength of the advantage. The values closer to unity indicate a greater advantage, the values approaching minus unity show a greater lack of advantage.

The main aim of the conducted studies was to present the level of competitiveness of a foreign trade of selected groups of agricultural and food products in the Visegrad Group countries, taking as a reference market the area of the European Union. The study is based on the statistical data regarding the international trade of the Czech Republic, Poland, Slovakia, Hungary and the European Union published by the International Trade Centre (ITC) for the years 2005–2017. In the conducted studies four groups of agricultural and food products were considered: meat and meat offal, dairy products, cereals, vegetables and fruit.

RESULTS AND DISCUSSION

In the years 2005–2017 in all the Visegrad Group countries there was an increase in the export of food products (Fig. 1). During that period the biggest growth of the food products export was in Poland by 386.5%, next in the Czech Republic (increase by 278.0%), in Hungary (increase by 259.8%) and in Slovakia (increase by 228.9%). The year 2009 is worth mentioning as the only year with a decrease in the level of export in all the Visegrad Group coun-

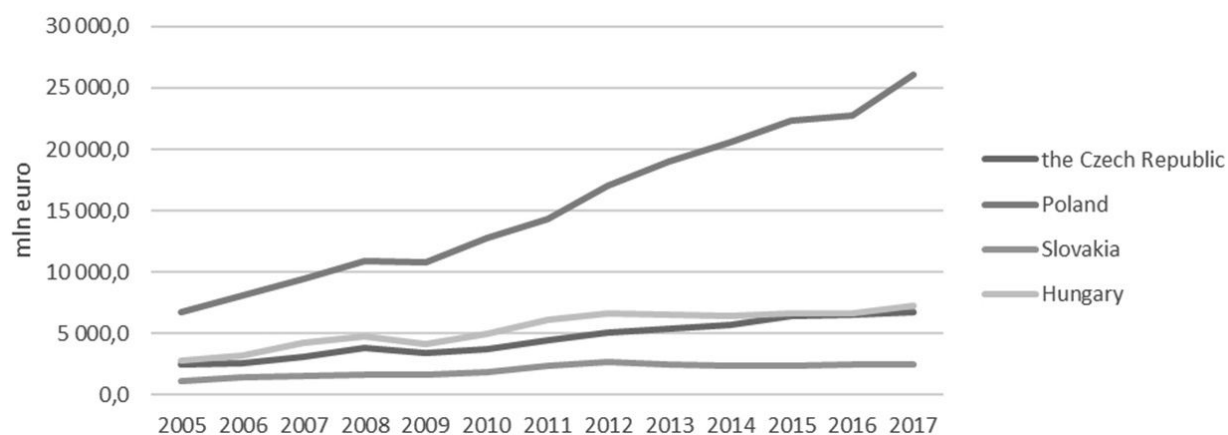


Figure 1. The amount of the export of agricultural and food products in the Visegrad Group countries in the years 2005–2007

Source: own studies based on the data of the International Trade Centre.

tries (the biggest in Hungary where the export value decreased by 12.6%, the smallest in Poland by 1.0%). The decrease proved the significant degree of vulnerability of the foreign trade of food products to the financial crisis.

It is generally acknowledged that the agri-food industry is competitive in a situation when a given country has the revealed comparative advantages. The level of the adjusted RCA index in the products of animal origin (Table 1) shows that in the group of meat and meat offal, in case of Hungary and Poland, in each studied year there is the competitive advantage in trade of these products but between 2017 and 2005 the level of competitiveness for Hungary decreased and increased for Poland. In case of the Czech Republic and Slovakia there is a lack of comparative advantages in trade of these products in the years 2005–2017 (in these countries in 2016 and 2017 the biggest negative values of the factor were noticed).

The opposite conclusions may be drawn after analysing the group of dairy products. In this group both Slovakia and the Czech Republic have the comparative advantages in the studied period (in case of Slovakia except 2012). However, it should be added that in the last years the values of the index was on the decrease to the level around the limit value deciding of the qualification to the specific group. Hungary in the years 2005–2017 showed a negative values of the indexes in spite of the fact that the value of the index between 2017 and 2015 increased by 0.102. Poland to 2010 showed the competitiveness in the foreign trade of dairy products. However, since then, there has been a trend of lesser and lesser importance in the circulation of dairy products.

In the second part of the study the groups of plant products are analysed, such as the cereals market and the fruit and vegetable market (Table 2). The significant level of competitiveness in the foreign trade in cereals is present in the Czech Republic, Hungary and

Table 1. The index of the relative comparative advantage in Poland in the studied groups of products of animal origin in the years 2005–2017 (reference area – EU market). The value of exports refers to the total value of trade with EU and non-EU countries

Year	Meat and meat offal				Dairy products			
	CZ	HU	PL	SK	CZ	HU	PL	SK
2005	-0.454	0.310	0.170	-0.162	0.159	-0.366	0.122	0.254
2006	-0.493	0.221	0.192	-0.344	0.243	-0.312	0.066	0.180
2007	-0.446	0.172	0.206	-0.346	0.249	-0.395	0.093	0.219
2008	-0.430	0.169	0.231	-0.341	0.195	-0.312	0.074	0.288
2009	-0.426	0.197	0.173	-0.437	0.183	-0.316	0.001	0.130
2010	-0.384	0.223	0.214	-0.170	0.158	-0.352	-0.019	0.133
2011	-0.406	0.184	0.232	-0.339	0.160	-0.337	-0.012	0.040
2012	-0.385	0.148	0.215	-0.270	0.127	-0.330	-0.036	-0.006
2013	-0.399	0.152	0.240	-0.291	0.120	-0.286	-0.042	0.089
2014	-0.418	0.179	0.208	-0.301	0.103	-0.281	-0.043	0.100
2015	-0.466	0.176	0.254	-0.358	0.053	-0.259	-0.089	0.099
2016	-0.501	0.197	0.248	-0.387	0.027	-0.248	-0.112	0.053
2017	-0.509	0.130	0.255	-0.500	0.049	-0.241	-0.075	0.061

Source: own studies based on the data of the International Trade Centre.

Table 2. The relative comparative advantage index in Poland in the studied groups of products of plant origin in the years 2005–2017 (reference area – EU market)

Year	Cereals				Fruit and vegetables			
	CZ	HU	PL	SK	CZ	HU	PL	SK
2005	0.442	0.641	-0.241	0.359	0.061	-0.418	0.093	0.180
2006	0.363	0.698	-0.306	0.569	0.084	-0.358	0.043	0.109
2007	0.336	0.739	-0.467	0.487	0.100	-0.441	0.073	0.114
2008	0.187	0.663	-0.652	0.233	0.043	-0.343	0.061	0.179
2009	0.370	0.650	-0.094	0.526	0.032	-0.334	0.004	0.014
2010	0.260	0.644	-0.332	0.373	0.035	-0.369	-0.032	0.002
2011	0.363	0.614	-0.425	0.399	0.024	-0.351	-0.020	-0.075
2012	0.363	0.626	-0.162	0.370	-0.010	-0.379	-0.012	-0.120
2013	0.252	0.559	-0.120	0.299	-0.010	-0.336	-0.030	-0.014
2014	0.316	0.573	-0.027	0.417	-0.031	-0.338	-0.063	-0.014
2015	0.285	0.602	-0.019	0.459	-0.088	-0.331	-0.128	-0.037
2016	0.336	0.595	0.005	0.516	-0.120	-0.342	-0.147	-0.073
2017	0.384	0.681	-0.112	0.549	-0.094	-0.316	-0.130	-0.056

Source: own studies based on the data of the International Trade Centre.

Slovakia (in 2017 the adjusted comparative index is about from the level of 0.384 for the Czech Republic to the level of 0.681 for Hungary). In case of Hungary in 2007 there was the highest level of the index in all the considered groups of products in the Visegrad Group countries amounted to 0.739. In Slovakia, since 2013 there has been a gradual increase of the level of competitiveness of the trade in this type of product (from the level 0.299 in 2013 to the level 0.549 in 2017).

As for the fruit and vegetable products, since 2012 there has been a lack of comparative advantage in the foreign trade in these products in all the Visegrad Group countries. The lowest level of the index in all the studied years was noticed in Hungary (the value of the index is around from -0.441 to -0.316).

Conducting the study of a pace of changes of the comparative advantage (Fig. 2) and at the same time the level of competitiveness in the studied groups of agricultural and food products it should be noticed that in case of the products of animal origin the for-

ign trade in meat and meat offal became more important in Poland and the foreign trade in dairy products became more important in Hungary (increase by respectively 50.0 and 34.2% between 2017 and 2005). In the remaining cases there is a decrease in a pace of changes, the biggest in case of meat and meat offal in Slovakia and in case of dairy products in Poland (the decrease respectively by 208.6 and 161.5% between 2017 and 2005).

In the studied groups of products of plant origin (Fig. 3) in case of cereals the increase of the level of competitiveness was noticed in Hungary, Poland and Slovakia (the biggest pace of changes between 2017 and 2005 was in Poland and amounted to 53.5%). In case of the fruit and vegetable products the improving situation was in Hungary. In the remaining countries there was a significant drop of the adjusted comparative index between the year 2017 and 2005, the biggest in the Czech Republic and Poland (respectively by 254.1 and 239.8%).

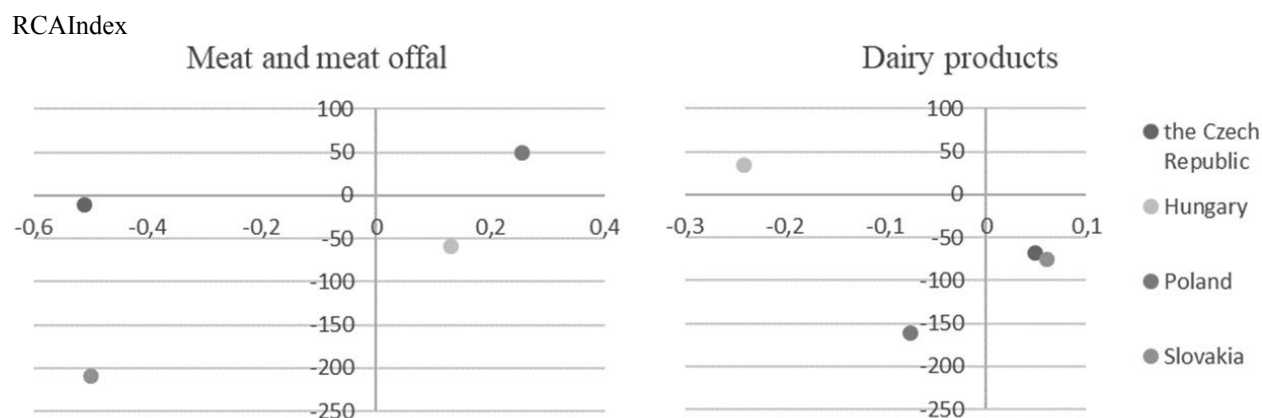


Figure 2. The RCA index in the export of products of animal origin in 2017 in the Visegrad Group countries and its changes compared to 2005 (reference area – EU market)

Source: own studies based on the data of the International Trade Centre.

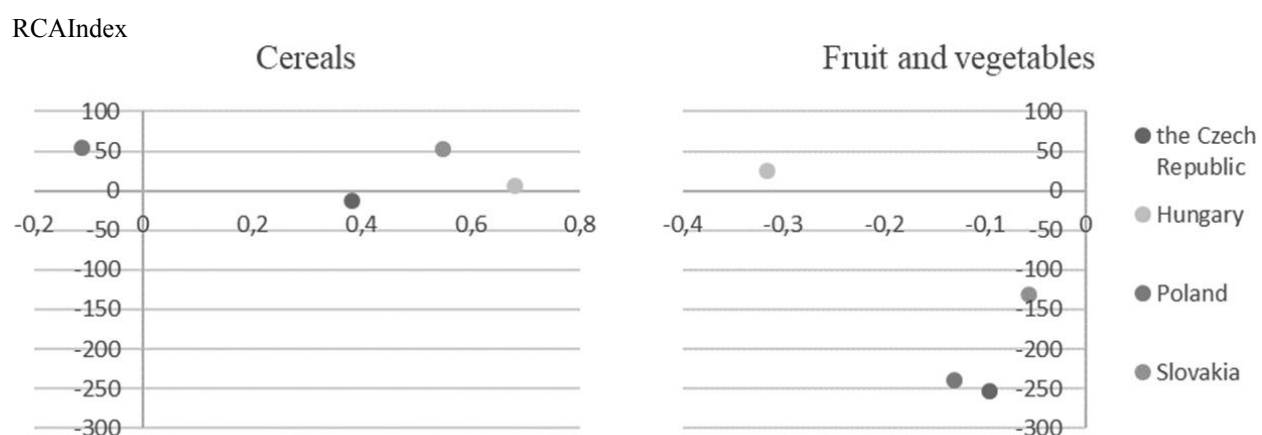


Figure 3. The RCA index in the export of products of plant origin in 2017 in the Visegrad Group countries and its changes compared to 2005 (reference area – EU market)

Source: own studies based on the data of the International Trade Centre.

CONCLUSIONS

The studies regarding the situation of the export of Polish agricultural and food products compared with the selected Visegrad Group countries and the export possibilities of food products in these countries in the years 2015–2017 enabled to formulate the following conclusions and proved that:

- the export of agricultural and food products in the Visegrad Group countries is vulnerable to economic fluctuations;
- there is a significant degree of competitiveness of the export of agricultural and food products of animal origin in the Visegrad Group countries. In the years 2005–2017 there was the comparative advantage in the marketing of meat and meat offal in case of Hungary and Poland and in case of dairy products in each studied year the trade in these products was competitive in Slovakia and in the Czech Republic;
- in case of agricultural and food products of plant origin the highest level of competitiveness

in the Visegrad Group countries in the foreign trade was in cereals where the significant level of the comparative advantages was noticed in the Czech Republic, Hungary and Slovakia. The less and less important was the marketing of fruit and vegetables (the negative values of the index in all the Visegrad Group countries since 2012);

- in the studied period in case of products of animal origin the importance of the export of dairy products declined the most, and in case of the products of plant origin – cereals (in both cases in three Visegrad Group countries a negative pace of changes was noticed).

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