

THE COMPETITIVE POSITION OF THE NEW EU MEMBER STATES IN TRADE IN FOOD INDUSTRY PRODUCTS

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Abstract

The aim of the paper is to present changes in the competitive position of seven New EU Member States (Bulgaria, the Czech Republic, Hungary, Lithuania, Poland, Romania and Slovakia) in their trade in food industry products, in the period of 2003-2013. For this, the synthetic trade competitiveness index (CI) was created, being the arithmetic average of two normalised indices of competitive position, that is trade coverage index (TC) and Balassa revealed comparative advantages index (RCA). The obtained results show that the strongest competitive position in trade in food industry products had Poland and Lithuania. They improved clearly their competitiveness during the EU membership. Comparative advantages in the world market had also Hungary (except for 2007) and Bulgaria (except for 2006-2008). Despite huge competitiveness growth after the EU accession, Romania failed to achieve competitive advantages in trade in food industry products and still occupied the last position among countries in question. The competitive position strengthened also in the Czech and Slovak export of food products; however, in 2013 they did not have comparative advantages in the world market.

Keywords

food industry, New EU Member States, competitiveness, competitive position

Introduction

Since the accession of the Czech Republic, Hungary, Lithuania, Poland and Slovakia (2004) and then Bulgaria and Romania (2007) to the European Union the trade in agri-food products (especially export) of these New EU Member States (so-called NMS) has been growing dynamically. During the first decade of the EU membership (2004-2013) Lithuania achieved the best result, followed by Slovakia and Poland. The Lithuanian agri-food export increased by 7.4 times, while the Slovak and Polish export by 6.1 times. The Czech export was nearly 5 times higher in 2013 than before its accession. The weakest growth was observed in Hungary as its agri-food export tripled over that period. As for two countries joined the EU in 2007, during the first seven years of the EU membership (2007-2013), the Rumanian agri-food export grew by 6.3 times, while the Bulgarian one by nearly 4 times. In 2013, the largest agri-food exporter was Poland (26.9 US billion), followed by Hungary (10.1 US billion), the Czech Republic (8.2 US billion), Romania (6.8 US billion) and Lithuania (6.2 US billion). The Bulgarian and Slovak agri-food export amounted to 5.2 US billion and 4.3 US billion respectively.

The aim of the paper is to present changes in the competitive position of seven New EU Member States (Bulgaria, the Czech Republic, Hungary, Lithuania, Poland, Romania and Slovakia) in their trade in food industry products in the period of 2003-2013.

The study is based on the trade data from the WITS – *World Integrated Trade Solution* database (Comtrade, HS – Harmonized System 2002), expressed in USD. Agri-food products are understood as products classified in chapters 01-24 of the Harmonised Commodity Description and Coding System (HS), while food industry products as products of three processing branches according to the Statistical Classification of Economic Activities

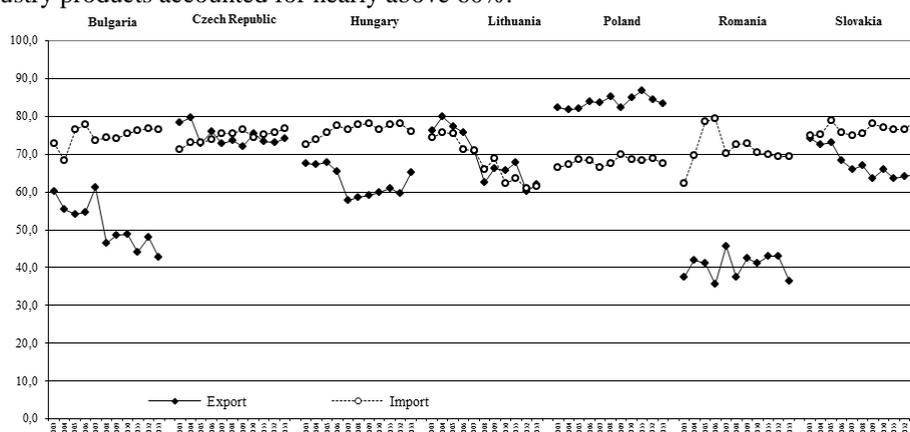
(NACE) Rev. 2., that is Production of food products (10), Production of beverages (11), Production of tobacco products (12).

The structure of the paper is as follows. Section 1 presents the significance of the food industry products in the agri-food trade of the countries in question. Section 2 provides a brief survey of the empirical studies on competitiveness of the NMS in agri-food products (and thus food industry products). Section 3 presents methodology employed in the research studies. In Section 4 the competitive position of the NMS in their trade in food industry export was analysed. Section 5 focuses on the competitive position in individual sectors of the food industry. The paper ends with conclusions.

1. The significance of the food industry products in agri-food trade of the New EU Member States

1.1. Share of the food industry products in export and import

Food industry products were the major products in the export of the New EU Member States, however the significance of these products differed across countries in question after the EU accession. In the period of 2004-2013, the Polish agri-food export was dominated by food industry products (the share of 82%-86%). In the Czech Republic it consisted nearly three fourth of the food industry products in 2013 and was lower than before the EU accession. The downward trend was also observed in the Lithuanian, Hungarian and Slovak agri-food export with the share of the food industry products slightly below 65%. The lowest significance had the agri-food products in the Bulgarian and Romanian agri-food trade. In 2013, the food industry products accounted for 50% of agri-food export in Bulgaria and 39% of ones in Romania. In turn, the share of the food industry products in the agri-food imports of the analysed countries was similar to each other and oscillated between 70% and 80%. Only in Lithuania the share visibly decreased after the EU accession and in 2013 the food industry products accounted for nearly above 60%.



Source: Own calculations based on WITS-Comtrade.

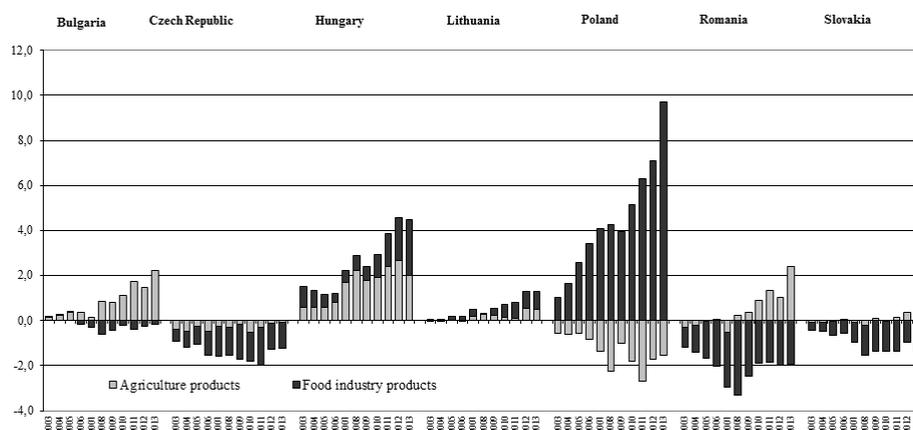
Fig. 1 Share of the food industry products in agri-food trade of the New EU Member States in 2003-2013

According to the previous studies, a high share of processed goods in agri-food export of a country is beneficial for its economy and may confirm the thesis on the export-oriented nature of the national food industry (Ambroziak and Szczepaniak, 2013). By exporting processed

products, producers gain much higher benefits from value added than by exporting only raw materials required for production of these products. Moreover, industrial food processing intended for export enables the better use of resources, and thus allows to gain economies of scale. The export of processed (final) products is also conducive to promoting the food sector of a country in external markets, which is more difficult to pursue by exporting agricultural raw materials or industrial semi-products used in secondary food processing. In turn, the import of raw materials (most frequently from other climate zones), and then processing them in the country, is more beneficial than the import of finished products, because it is conducive to improving the balance of foreign trade and also enables creation of greater value added, better use of the economic potential and job creation (Szczepaniak, 2012).

1.2. Trade balance in food industry products

When it comes to the competitive position only two countries, which are the Czech Republic and Slovakia, recorded deficit in agri-food trade, mostly in food industry products. The deficit was noted permanently through the EU membership. Bulgaria also recorded deficit in trade in processed food, however it was covered by relatively large surplus in trade in agriculture products. Over the period in question, Hungary and Lithuania recorded trade surplus in both – food industry products and agriculture products. Romania reached the surplus in agriculture products after its accession to the EU, while it noted permanent deficit in food industry products. The best performer among the countries was Poland. Its trade surplus in food industry products increased above 10 times after the EU accession and amounted to 10.5 US billion in 2013. However, Poland recorded permanent deficit in trade in agriculture products.



Source: Own calculations based on WITS-Comtrade.

Fig. 2 Trade balance in food industry products and agriculture products in the New EU Member States in 2003-2013

2. Literature review

There are a number of research studies on the competitiveness of the New EU Member States in the export of the agri-food products, including food industry products. They covered all 12 New EU Member States (e.g. Bojnec and Fertő, 2008; Drábik and Bartová, 2008; Kiss, 2011; Török and Jámboř, 2013) or some of them: the Visegrad Countries (e.g. Jámboř, 2013a; Svatoš and Smutka, 2012), Hungary and Romania (Fogarasi, 2008), Lithuania and Latvia (e.g. Drábik and Bartová, 2007), Poland and Slovakia (Rytko, 2014), Romania (e.g.

Gavrilescu and Voicilaş 2014; Voicilaş, 2014) as well as Poland (e.g. Szczepaniak, 2012; 2014; Ambroziak and Szczepaniak, 2013; Ambroziak, Bułkowska and Szczepaniak, 2014; Wigier, 2014). Some authors analysed changes in the competitiveness of agri-food export in all EU countries, including New EU Member States, e.g. Bojnec and Fertő (2015a, 2015b) as well as Pawlak (2012). Moreover, the intra-trade specialization in agri-food trade (and food industry products) in the New EU Member States was analysed by Jámbor (2014a; 2014b; 2013b; 2013c), Jámbor, Balogh and Kucsera (2015), Fertő and Jámbor (2015) as well as Ambroziak, Bułkowska and Szczepaniak (2014).

3. Research method

For the purpose of the paper, the synthetic trade competitiveness index (CI) of the competitive position of the New EU Member States in export of food industry products was created. It was step-by-step process.

1. In order to create the synthetic trade competitiveness index, two indicators of the competitive position in trade were employed, namely trade coverage index (TC) and Balassa's revealed comparative advantages index (RCA). Trade coverage index was calculated according to the formula:

$$TC_{ij} = \frac{X_{ij}}{Y_{ij}},$$

where:

TC_{ij} – trade coverage index in trade in the i^{th} product group of the j^{th} country with the world,
 X_{ij} – export of the i^{th} product group (here: agriculture products, food industry products in total and by sectors) of the j^{th} country to the world,

M_{ij} – import of the i^{th} product group (here: agriculture products, food industry products in total and by sectors) of the j^{th} country from the world.

TC index determines the extent to which expenses on imported goods are covered by the revenue from their export. The TC index is used to study the relationship between the export and the import at the level of entire trade, sector or product. The TC index greater than 1 means that the export value exceeds the import value, thus the given country has the relative competitive advantage over partners..

Revealed comparative advantages indices were calculated according to the formula:

$$RCA_{ij} = \frac{X_{ij}}{\sum_{i=1}^N X_{ij}} : \frac{X_{iw}}{\sum_{i=1}^N X_{iw}}$$

where:

RCA_{ij} – revealed comparative advantage index in the j^{th} country export of the i^{th} product group to the world,

X_{ij} – the j^{th} export of the i^{th} product group (here: agriculture products, food industry products in total and by sectors) to the world,

X_{iw} – world export of the i^{th} product group,

N – number of product groups (here: total export).

The essence of the RCA index is to determine whether the share of a given commodity group in the export of a given country is higher/lower than the share of this commodity group in the world export to the specific market. When the index is greater than 1 (the share of the given commodity group in the export of a country is higher than the respective share in the world export) – a given country has revealed comparative advantage in the export to the specific market. Otherwise, when the index is lower than 1 (the share of the given commodity group in the export of the country in question is lower than the share of this product group in the

world export) – the analysed country does not have revealed comparative advantages in the export to the specific market.

2. The obtained indices were normalized using the following formulas:

$$nTC_{ij} = \frac{TC_{ij} - 1}{TC_{ij} + 1}$$
$$nRCA_{ij} = \frac{RCA_{ij} - 1}{RCA_{ij} + 1}$$

The normalised indices (nTC_{ij} and $nRCA_{ij}$) take values between -1 and 1 with 0 as a reference point. In both cases the value between -1 and 0 means that a given country does not have competitive advantages in trade in a given product group. In turn, the value of each index between 0 and 1 indicates the competitive advantages of a given country in trade in a given product group.

3. The synthetic trade competitiveness index (CI) was created using the following formula:

$$CI = \frac{nTC_{ij} + nRCA_{ij}}{2}.$$

The CI index takes value between -1 and 1 with 0 as a reference point. The value of the CI index between -1 and 0 means that a given country does not have competitive advantages in trade in products, while the CI index value between 0 and 1 indicates the competitive advantages of a country in trade in these products.

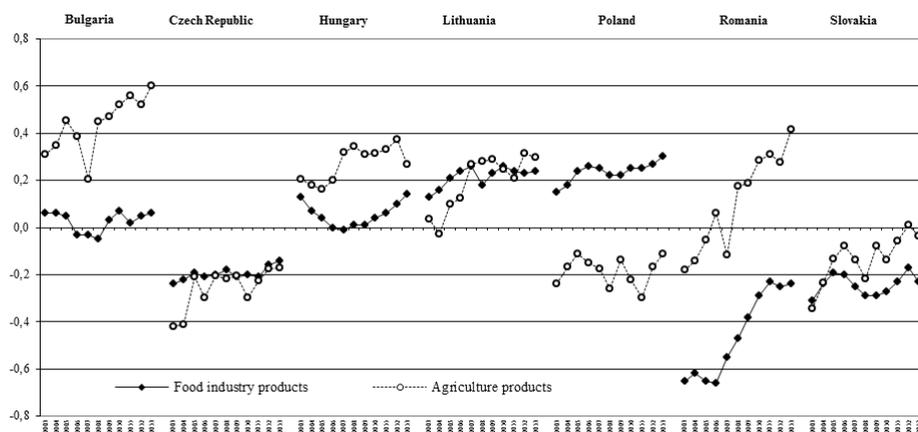
The CI indices were calculated for the New EU Member States' trade in agriculture products, food industry products in total and 17 food industry sectors, which were singled out for the purpose of the paper. These sectors included the following classes of production according to NACE Rev. 2: meat (10.11, 10.12, 10.13), fish (10.20), fruit and vegetable (10.31, 10.39), fats (10.41, 10.42), dairy (10.51, 10.52), milling and starch (10.61, 10.62), bakery and pasta (10.71, 10.72, 10.73), sugar (10.81), confectionery (10.82), coffee and tea (10.83), concentrates (10.84, 10.85, 10.86, 10.89), feedstuffs (10.91, 10.92), spirit (11.01), wine (11.02, 11.03, 11.04), brewing (11.05, 11.06), non-alcoholic beverages (10.32, 11.07) and tobacco sector (12.00). Then, using the correspondence tables, products from the HS trade classification have been assigned to the individual food industry sectors.

4. The competitive position in trade in food industry products

The strongest competitive position in trade in food industry products had Poland, followed by Lithuania. During the EU membership the trade competitiveness indices in both countries clearly increased, that is by 0.15 point in Poland and by 0.11 point in Lithuania. The development path of the competitive position was similar in these countries. After the EU accession (till 2007) the trade competitive indices grew except for 2008 (fall in both countries) and 2011-13 (stabilization in Lithuania).

In contrary to Poland and Lithuania, trade competitive indices in Hungarian trade in food industry products in the first years after the EU accession significantly decreased, thus Hungary lost its competitive advantages in the world market in 2007. Despite strengthening competitive position in food products trade since 2008, Hungarian food industry products were less competitive in 2013 than before the EU accession.

Except for three years (2006-2008), Bulgaria also had comparative advantages in trade in food industry products. As for synthetic trade competitiveness index, it occupied fourth position among countries in question.



Source: Own calculations based on WITS-Comtrade.

Fig. 3 The synthetic trade competitiveness indices (CI) in trade in agriculture and food industry products of the New EU Member States in 2003-2013

The weakest competitive position before the accession had Romania. Despite huge competitiveness growth after the EU accession, Romania failed to achieve competitive advantages in trade in food industry products and occupied penultimate place among the countries. Slovakia was the worst performer in the group in 2004-2013 and a lack of visible tendency in competitiveness development was observed there. In turn, the synthetic trade competitiveness indices increased significantly in the Czech trade in food industry products, however the Czech Republic failed to reach the comparative advantages over that period.

5. The competitive position in individual food industry sectors

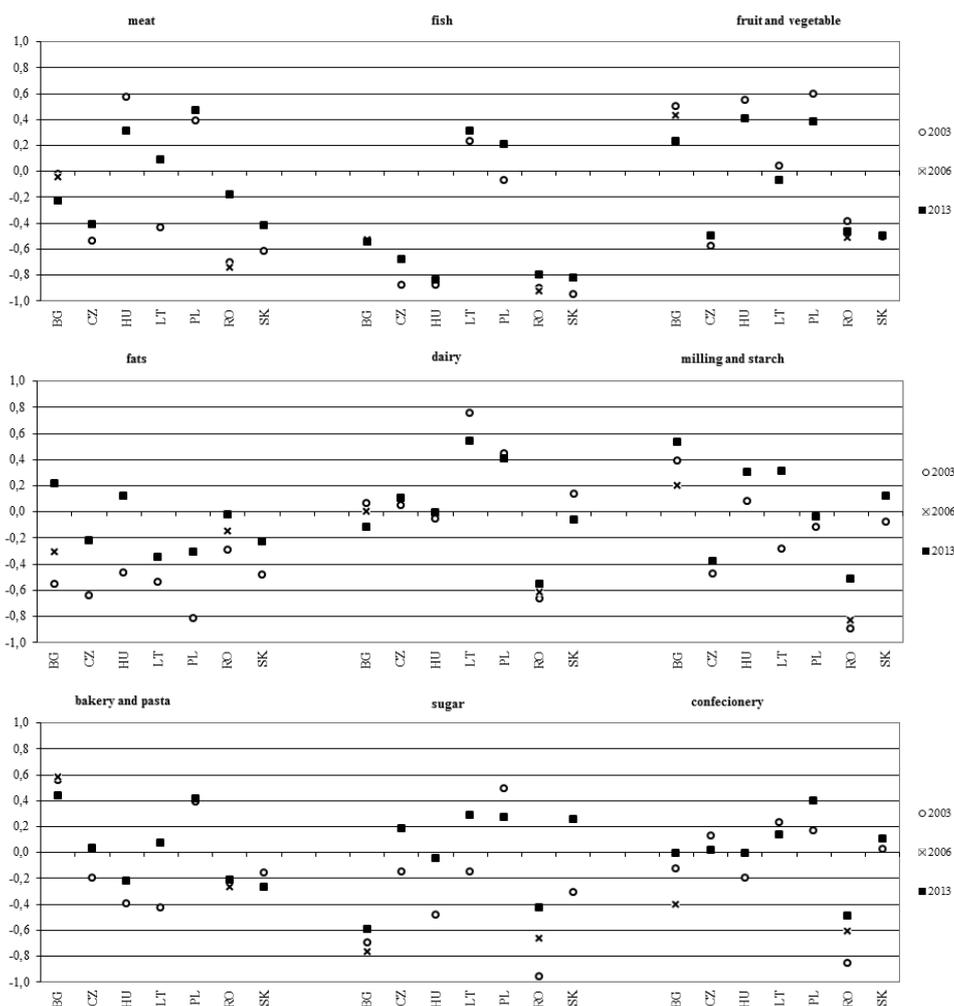
In 2013, Poland and Hungary had the strongest competitive position in the export of meat industry products among the NMS. Being the EU membership Poland improved its competitiveness in meat products (mainly due to rapid development of a poultry sector), while Hungarian position deteriorated. Since 2010 Lithuania also gained the competitiveness in meat products trade in the world market. The remaining countries have not enjoyed the comparative advantages, although the meat industry products became much more competitive (except for Bulgaria) after the EU accession.

As for the fish industry products, Lithuania took a lead during the EU membership, recording permanent positive CI indices. Poland achieved comparative advantages in the export of fish products in 2004 and then the Polish competitive position strengthened. It was an effect of progressive Poland's specialization in salmon processing (on the basis of imports of raw salmon) and export of smoked salmon (Ambroziak, Bułkowska and Szczepaniak 2014). The remaining countries did not have the comparative advantages in the export of fish industry products, although the CI indices grew after the EU accession.

All countries in question, excluding the Czech Republic, lost their competitiveness in the export of fruit and vegetable industry products during the EU membership. In 2013, Hungarian producers and exporters were the most competitive in the world market, followed by Polish and Bulgarian ones. After the EU accession, Lithuania lost its comparative advantages in the export of fruit and vegetable products.

Before the EU accession, all the countries did not have comparative advantages in the export of fats industry products. Due to significant improvement of competitive position during the

EU membership, two countries, that is Bulgaria and Hungary achieved comparative advantages in the export of fats products. In 2013, among the countries in question, the last position occupied Lithuania.



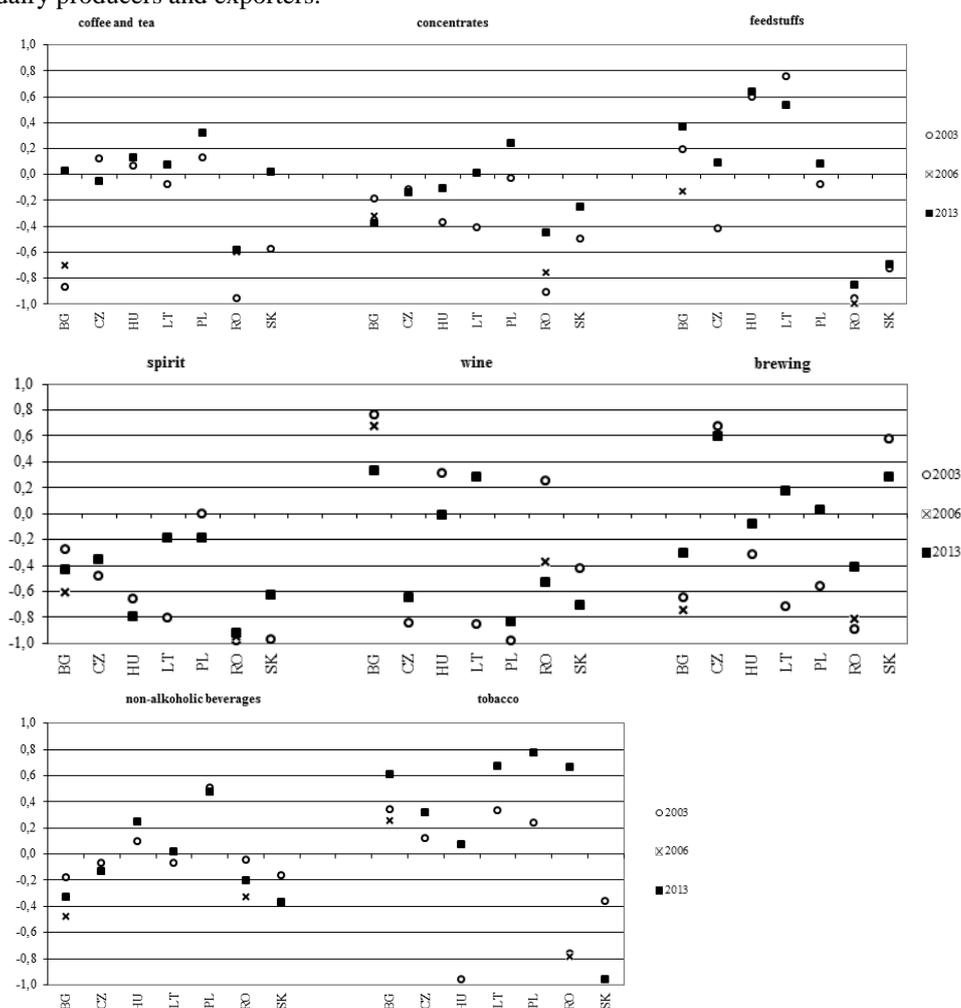
Source: Own calculations based on WITS-Comtrade.

Fig. 4 The synthetic trade competitiveness indices in the NMS' trade in food industry sectors (1)

Changes in the countries' competitive position in the export of the dairy products were different. During the EU membership, Poland and Lithuania deteriorated their competitive position², however, the Polish and Lithuanian dairy products were the most competitive in the world market among the NMS in 2013. Positive CI indices recorded also the Czech Republic. The competitive position of Bulgaria and Slovakia in the export of dairy products

² However, in the period of 2004-2006, the competitive position of Polish dairy products exporters increased, but since 2007 the downward trend was observed.

worsened after the EU accession and these countries failed to achieve the comparative advantages in export. The weakest competitive position in the world market had Romanian dairy producers and exporters.



Source: Own calculations based on WITS-Comtrade.

Fig. 5 The synthetic trade competitiveness indices in the NMS' trade in food industry sectors (2)

All countries in question improved their competitiveness in the export of milling and starch industry products during the EU membership. In 2013, Bulgaria took a lead, followed by Hungary, Lithuania and Slovakia. The lowest CI indices recorded the Czech Republic and Romania. Although the competitive position improved in Poland, it failed to achieve competitive advantages in the export of milling and starch products.

After the EU accession only Bulgaria and Slovakia lost in the competitiveness in their export of bakery and pasta industry products. However, in 2013 Bulgarian bakery and pasta products were the most competitive in the world market among the NMS. The strong competitive

position had also Poland, followed by Lithuania and the Czech Republic. The last two countries achieved the comparative advantages after the EU accession.

As for the sugar industry products, only Poland deteriorated its competitive position, however, it had still the strong competitive position in the export of such products in 2013. The Lithuanian, Slovak and Bulgarian sugar food industry products was also competitive in the world market. These countries achieved comparative advantages in the export during the EU membership.

After the EU accession, Poland got ahead of Lithuania and in 2013 it became the most competitive in the export of confectionery industry products among the NMS, followed by Lithuania and Slovakia. In Bulgaria, Hungary and the Czech Republic, the CI indices were closed to 0, while the weakest competitive position was recorded in the Romanian export of confectionery products.

As for the coffee and tea industry products, Poland had the strongest competitive position during the whole post-accession period. In 2013, Hungarian, Lithuanian, Slovak and Bulgarian export of coffee and tea processed products were also competitive in the world market. Despite large improvement of the competitiveness, Romania failed to achieve comparative advantages in the export of such products.

After the EU accession, the CI indices in the mostly NMS' export of concentrates industry products significantly grew, however in 2013, only Poland had strong competitive position in the export of such products. In Lithuania, the CI index amounted to slightly above 0.

In 2013, Hungary had the strongest competitive position in the export of feedstuffs industry products, followed by Lithuania, which lost its leadership during the EU membership. Bulgarian feedstuffs products were also competitive in the world market. The Czech Republic and Poland managed to achieve competitive advantages in their trade in feedstuff products after the EU accession, while Romania and Slovakia failed to gain such advantages. During the EU membership, all the countries did not have the comparative advantages in trade in spirit industry products, albeit Lithuania and Slovakia improved their competitiveness significantly. Despite the deteriorating competitiveness after the EU accession, Bulgaria had still the strongest competitive position in the export of wine industry products in 2013, followed by Lithuania, where the CI indices visibly grew in the period in question. In turn, Hungary and Romanian wine products lost their competitiveness in 2013. Even though the CI indices in Poland grew after the EU accession, its wine products were still uncompetitive in the world market. As for brewing industry products, in 2003 only the Czech Republic and Slovakia had strong competitive position. During the EU membership, their competitiveness deteriorated; however, they had still comparative advantages in 2013. In the analysed period, Polish and Lithuanian brewing products became competitive. Despite the significant improvement, Bulgaria, Hungary and Romania failed to achieve comparative advantage in export.

Among the NMS, Poland had the strongest competitive position in the export of non-alcoholic beverages after the EU accession. In 2013, Hungarian and Lithuanian non-alcoholic beverages were also competitive in the world market. Bulgaria, the Czech Republic, Romania and Slovakia deteriorated their competitive position, and in 2013 they did not have comparative advantages in the export of non-alcoholic beverages. As for the tobacco industry products, in 2013 they were the most competitiveness products in the NMS export. Only Slovakia failed to manage competitive position in tobacco products export. The strongest competitive position had Poland, Lithuania and Romania, followed by Bulgaria, the Czech Republic and Hungary.

Conclusions

Research study shows that the strongest competitive position in trade in food industry products had Poland, followed by Lithuania. During the EU membership the synthetic trade competitiveness indices in both countries clearly increased. Hungary (except for 2007) and Bulgaria (except for 2006-2008) had also comparative advantages in the world market. Despite huge competitiveness growth after the EU accession, Romania failed to achieve competitive advantages in trade in food industry products and still occupied the last position among the NMS. After the EU membership, the Czech Republic and Slovakia also strengthened their competitive position in export of food products; however, in 2013 they did not have comparative advantages in the world market.

Similar findings arise from the competitiveness analysis by food industry sectors. In 2013, Poland had competitive advantages in the export of 13 (out of 17) food industry sectors; the most competitive ($CI > 0.3$) were tobacco, non-alcoholic beverages, meat, bakery and pasta, dairy, confectionery, fruit and vegetable as well as coffee and tea industry products. In Lithuania 14 food industry sectors were competitive (e.g. tobacco, dairy, feedstuff, fish as well as milling and starch products), 8 sectors in Hungary (e.g. feedstuff, fruit and vegetable, meat as well as milling and starch products) and Bulgaria (e.g. tobacco, milling and starch, bakery and pasta, feedstuff and wine products). The Czech Republic had competitive advantages in 7 food industry sectors (the most in the brewing and tobacco products), while Slovakia in 5 food industry sectors (the most in brewing and sugar industry products). Among food industry sectors in Romania, only tobacco products were competitive in the world market.

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