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THE INTERNATIONAL COMPETITIVENESS OF POLISH AGRI-FOOD PRODUCTS ON THE NAFTA MARKET UNDER THE TRADE-LIBERALIZATION PROCESS*

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Abstract. Accession to the European Union as well as the ongoing process of liberalization of global agricultural trade changed the conditions for agri-food trade between Poland and NAFTA countries. The study is an attempt to define the significance of NAFTA countries in the Polish agri-food trade, to assess the competitive position of selected Polish agri-food products on this market in years 2004–2012 and to predict its level for the year 2020, assuming two simulation scenarios: the lack of liberalization (I) and liberalization of world agricultural trade (II). A deliberately selected set of *ex post* indicators of competitive position as well as agricultural sector equilibrium model CAPRI (Common Agricultural Policy Regionalised Impact) were used in the paper. The analysis showed that among non-EU countries this trade bloc is one of the most important trade partners for Poland. On this foreign market mainly Polish animal products and fruits and vegetables were competitive. The results of model simulations conducted for different groups of agri-food products showed that by 2020 a favourable competitive position on the NAFTA market might be expected in meat and meat products as well as in milk and dairy products.

Key words: Poland, NAFTA, foreign trade, agri-food products, liberalization of agricultural trade, simulations

INTRODUCTION

Agri-food trade plays an important role in Polish foreign trade and its significance in recent years has been increasing. After the Poland's accession to the European Union, the share of exports of agri-food products in all traded products increased from 8.4% to 12% while the share of imports rose respectively from 5.7% to 8.3%. As one of the few, this sector of the Polish economy generates a positive and steadily growing foreign trade balance (UNCTADStat, 2013). Although the Poland's foreign trade in agri-food products is mainly focused on exchange with other Member States of the European Union (see below), the role of non-Member States, including members of the North American Free Trade Agreement, in Poland's foreign trade in the agri-food sector is not without significance. For Polish manufacturers and exporters of food these countries are important partners not only due to the fact that the pulse which the accession to the EU has given to the trade development in Poland is beginning to fade out, and both trade creation and trade diversion effects, are decreasing, but also due to the fact that joining the European

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Union Poland was obliged to implement international agreements concluded or negotiated by the EU with each of the NAFTA countries separately. Nowadays such a trade agreement is signed only with Mexico[1]. Almost 80% of the agri-food imports from Mexico can access the European Single Market free of duties within the framework of this agreement, while Mexico has already liberalized 73% of agri-food products imported from the EU (Eleventh anniversary..., 2011). In relations with Canada[2] and the U.S.[3] in terms of agri-food trade, the provisions and obligations arising from the adoption of the Agreement on Agriculture at the forum of the GATT/WTO are applied.

From the point of view of the competitive situation of Polish manufacturers and exporters of food not only trade policies carried out by the EU and each of the NAFTA members is important, but also trade policies discussed at the World Trade Organization forum (WTO). Thus it seems to be justified to determine the potential impact of these decisions, but it should be remembered that due to the different instruments of market intervention and a diverse range of trade restrictions on individual agricultural markets, the impact of liberalization on the competitive position of producers in each sector may be different (Kita, 2014; Kiryluk-Dryjska and Baer-Nawrocka, 2013).

With a view that NAFTA is actually one of the largest exporters and importers of food in the world (UNCTADStat, 2013), the aim of the study is to determine the significance of NAFTA countries in the Polish trade in agri-food products, to assess the competitive position of selected Polish agri-food products on this market in 2004–2012 and to predict its level for 2020, assuming two simulation scenarios: the lack of liberalization (option I) and liberalization of world agricultural trade (option II).

MATERIAL AND METHODS

The study was conducted in two aspects: *ex post* and *ex ante*. The *ex post* analysis used the latest available statistical data from the database of the United Nations Conference on Trade and Development (UNCTAD). The study covered Polish foreign trade in agri-food products[4] within the North American Free Trade Agreement (NAFTA). The competitiveness of Poland's trade with NAFTA was assessed with use of a selected set of quantitative measures of international competitive position. The following indexes were calculated: Export Specialization Index (SI)[5], Import-Export Coverage Ratio (CR)[6], Relative Revealed Comparative Export Advantage Index (XRCA), Relative Import Penetration Index (MRCA), and Relative Trade Advantage

[1] The agreement entered into force in 2000 (OJ L 157, 30.6.2000). Then, with the enlargement of the EU with the new Member States two protocols were signed and new members also became a parties to the agreement (OJ L 66, 12.03.2005; OJ L 141, 02.06.2007).

[2] The negotiations of the EU-Canada trade agreement (CETA) were completed on 26 September 2014. Over 99% of tariffs between the two countries will be removed and new market access opportunities in services and investment will be created (Overview of FTA..., 2015).

[3] A high level of protection of the EU and U.S. agricultural market resulted recently in the idea of the creation of a Transatlantic Free Trade Area (TAFTA) (Nowadays is Transatlantic Trade and Investment Partnership-TTIP). This FTA is not only to liberalize trade (under the auspices of the WTO), but also to eliminate the existing numbers of many non-tariff barriers (customs procedures, technical standards). This agreement would contribute to the elimination of all tariffs on transatlantic trade in industrial and agricultural products, including the most sensitive goods. The parties plan to align as much as possible and mutually accept their standards and procedures by negotiating an ambitious agreement on the requirements of phytosanitary and veterinary standards (European Union and United States..., 2013). Since July 2013 nine negotiation rounds have taken place. It is expected that the agreement between the U.S. and the EU (planned to be signed in 2015) will be the biggest bilateral agreement that have been ever negotiated.

[4] Products classified in Chapters 0, 1, 22 and 4 of Standard International Trade Classification SITC (Standard International Trade Classification).

[5] $$SI = \frac{X_{ik}}{X_k} : \frac{X_{iw}}{X_w}$$

X – export, i – product group, k – countries, w – the world/region

Index value above 1 means a specialization of the economy in a sector or commodity. This leads to the conclusion that the country has a comparative advantage over partners (Kita, 2014).

[6] $$CR = \frac{X_k}{M_k} \cdot 100\,\%$$

X – export, M – import, k – countries, w – the world/region

$CR > 100\%$ specify the specialization of the analyzed country, which determines the relative advantages over partners (Kita, 2014).

Index (RTA)[7], and Grubel-Lloyd Intra-Industry Trade Index (IIT)[8].

The *ex ante* analysis was carried out with the use of an agricultural sector equilibrium model CAPRI (*Common Agricultural Policy Regionalised Impact*) in order to make projections of the competitive position of Polish agri-food products on NAFTA by 2020. This model allows to analyse the impact of changes in agricultural policy on the agricultural sector in the European Union at national and regional level. The CAPRI model comprises two main modules: a supply module and a market module. The supply module consists of non-linear optimization models created for a group of representative farms. These models maximize farm income at fixed prices and at an optimal use of the production factors. Prices are the result of the market module assuming global market balances in the agricultural sector, taking into account bilateral trade flows. Prices in the model are therefore endogenous variables and allow studying the reaction of farms to changes in market equilibrium prices from the market module (Britz and Witzke, 2012). The CAPRI model determines the equilibrium for 50 primary and processed agricultural products, covering about 70 countries or country blocks in 40 trading blocks. In this research NAFTA and Poland were distinguished, as well as the following product groups: cereals, fruits and vegetables, oilseeds, oils and fats, sugar, meat, offal and meat products and milk and dairy products. A simulation was carried out in two variants. First one assumes that by 2020, there are no liberalization actions. Second variant assumes that liberalization of world agricultural trade will follow the proposals contained in the draft modalities negotiated at the WTO in December 2008. A total abolishment of all subsidies in the agri-food export was also assumed (Revised draft..., 2008). A band formula of customs tariffs reduction was applied, which defines all tariffs into four reduction bands, depending on their historical values. For each of the bands a different reduction coefficient is to be applied – the higher the level of customs tariffs, the higher that coefficient (Table 1).

[7] $$XRCA_{ik} = \frac{X_{ik}}{X_{im}} : \frac{\sum_{j,\, j \neq i} X_{jk}}{\sum_{j,\, j \neq i} X_{jm}}$$

X – export, M – import, i, j – product group, k, m – countries/region

It is considered that a country reaches a comparative advantage in terms of the product when the index values are greater than 1. Otherwise, country has not such advantage.

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

A country has a comparative advantage in terms of the goods when the value of the index is smaller than, but this advantage will not be achieved when the index is greater than 1.

$RTA_{ik} = XRCA_{ik} - MRCA_{ik}$,

A positive value of RTA suggests the competitive advantage of the country, negative values – a competitive disadvantages.

All these indexes are used to make a general evaluation.. Positive RTA index and XRCA index values larger than unity show high competitiveness (+). When the RTA index is negative, and the MRCA index is larger than unity, then the country shows no competitiveness (–). In other cases, the analysis' results are not definite (+/–) (Kita, 2014).

[8] $$ITT_k = \frac{(X_{ik} + M_{ik}) - |X_{ik} - M_{ik}|}{(X_{ik} + M_{ik})} \cdot 100\%$$

X – export, M – import, i, j – product group, k, m – countries/region

High values of the index, close to 100%, show the presence of intra-industry exchange. This reflects the ability of the exporting country to meet the needs of foreign customers, which in turn reflects its adaptability and competitiveness of its economy (Kita, 2014).

FOREIGN TRADE IN AGRI-FOOD PRODUCTS BETWEEN POLAND AND NAFTA

From 2004 to 2012 Poland had a negative trade balance in agri-food products with third countries, while in trade with NAFTA countries Poland remained a net exporter (Table 2). NAFTA members, as one of the major recipients of Polish agri-food products from outside the European Union, assured from 7% to 12% of revenues gained in this area and – despite a moderate increase in the export value in absolute terms – the importance of this trade block in the structure of Polish exports of agri-food products to the third countries showed a declining trend (Table 2). On a global scale, the importance of NAFTA in total Poland's agri-food exports remained small and did not exceed 2%. In 2012, the revenues from agri-food exports in this direction reached $ 370 million, 70% higher compared to the year of accession. As far as imports of agri-food products from NAFTA countries are concerned, Polish expenditures in years 2004–2012 increased by 150% to $ 323 million and the share of this trade block in the structure of Polish imports from third countries stood at 6% (Table 2).

Table 1. Range of tariffs cuts according to Revised draft..., 2008
Tabela 1. Propozycje redukcji ceł na artykuły rolne zawarte w Revised draft..., 2008

Tiers (%) Pasmo redukcyjne ad valorem (%)	Cuts (%) Proponowana redukcja cła (%)	Tiers (%) Pasmo redukcyjne ad valorem (%)	Cuts (%) Proponowana redukcja cła (%)
developed countries kraje rozwinięte			developing countries kraje rozwijające się
(0;20>	50	(0;30>	⅔ of the cut for developed countries ⅔ stawki redukcji proponowanej dla krajów rozwiniętych
(20;50>	57	(30;80>	
(50;75>	64	(80;130>	
over 130 powyżej 130	70	over 130 powyżej 130	

Source: own elaboration based on Revised draft..., 2008.
Źródło: opracowanie własne na podstawie Revised draft..., 2008.

Table 2. Poland's agri-food trade with NAFTA, the EU and third countries in 2004–2012 (million USD, %)
Tabela 2. Handel artykułami rolno-spożywczymi Polski z NAFTA, UE i krajami trzecimi w latach 2004–2012 (mln USD, %)

Partner	2004		2012		
	mln USD	share in agri-food trade (%) udział w handlu rolno-spożywczym	mln USD	share in agri-food trade (%) udział w handlu rolno-spożywczym	2004 = 100 (%)
exports – eksport					
NAFTA	216.1	3.5	369.1	1.7	170.8
Third countries – kraje spoza UE	1 720.5	27.8	5 134.2	23.8	298.4
The EU – UE	4 472.1	72.2	16 396.8	76.2	366.6
World – Świat	6 192.6	100.0	21 531.0	100.0	347.7
imports – import					
NAFTA	122.1	2.4	323.0	2.0	264.5
Third countries – Kraje spoza UE	1 868.0	37.2	5 269.8	33.1	282.1
The EU – UE	3 150.6	62.8	10 634.9	66.9	337.5
World – Świat	5 018.6	100.0	15 904.7	100.0	316.9
trade balance – saldo					
NAFTA	45.3		78.2		
Third countries – kraje spoza UE	–147.5		–135.7		
The EU – UE	1 321.5		5 761.9		
World – Świat	1 174		5 626.2		

Source: Kita, 2014; own elaboration based on UNCTADStat, 2013.
Źródło: Kita, 2014; opracowanie własne na podstawie: UNCTADStat, 2013.

In 2004–2012 the most important group of products in the structure of Poland's agri-food trade with NAFTA were fruits and vegetables, which provided from 14.6% to 20% of revenues obtained in this region and absorbed almost one fifth of Polish expenditures on agri-food products (Table 3). The increase in imports, on the one hand, is a consequence of the limitations of area, climate and production in Poland, but on the other – of the growing demands of Polish consumers. This means that in this case imports have a complementary nature, which from the point of view of consumers can be interpreted as a positive fact – mainly due to enrichment of market offer. It is worth noting that even though after the accession to the EU, Polish horticultural products faced higher tariffs rates in exports to Canada and the USA (Kita, 2014), the value of exports to NAFTA has increased since 2004 nearly by 150% to the level of $ 76 million (Table 3). It seems to be important especially from the point of view that Poland in the European and world horticultural exports matters as a supplier of frozen fruits and concentrated fruit juices, and these are the main products from this commodity group exported to the markets of Americas[9].

Beverages as well as coffee, tea and spices had also a significant share in the structure of Poland's agri-food trade products with this region (Table 3). Relatively large significance of these products on the exports side is a result of the fact that they have been enjoying a great popularity on foreign markets for several years[10]. The United States is the world's largest recipient of Polish spirits – nearly half of the Poland's supply of these goods dedicated to foreign markets is exported to U.S. (UNCTADStat, 2013), while Mexico – under the concessions granted on the basis of the agreement signed with the EU – ensures those goods a duty-free market access. In turn, the importance of this commodity group in Poland's imports from NAFTA is a consequence of the fact that Poland – for geographical reasons that limit own production – naturally faces the necessity of bringing some of these goods from abroad[11].

As far as animal products are concerned, in 2004–2012 Poland exported to NAFTA mainly meat and meat products. The value of exports of this commodity group reached the level of $ 37–46 million, constituting between 12% to 17% of the revenues gained from the sale of Polish agricultural products and food in this region (Table 3). It is worth noting that the U.S. is one of the main markets for Polish pork (Polski handel zagraniczny..., 2004–2008; Analiza wybranych zagadnień..., 2009–2013), and in 2007 they abolished the ban on imports of Polish pork and decided to consider Poland as a country free of classical swine fever. A similar decision was made by the U.S. government in 2009 in relation to the Polish poultry meat[12]. As far as beef is considered the end of the 20-year-old "trade war" between the EU and the United States and Canada[13], may be, with no doubt, an opportunity for the Polish meat sector. Until recently, 100 % customs duties on products originating from the EU[14] (including Poland) like juices, cheese, chocolate, jams, or chewing gum used by U.S. were the outcomes of this "trade war". In 2009, the parties of dispute signed a provisional agreement, under which the U.S. agreed not to impose new sanctions on European agri-food products. Parties also agreed that the U.S. would not increase the level of existing sanctions against the EU and would eliminate all of them within four years. In turn, the EU would guarantee duty-free access to its market for high-quality beef and would increase import quotas from the current 20 000 tons to more than 45 000 tones[15] (Kita, 2014).

[9] On the global market of fresh horticultural products position of Poland is important in the export of apples and onions. Poland is the largest exporter of apples in the world and the third, after China and the U.S., manufacturer of these goods (Polska trzecim największym..., 2013).

[10] Poland mainly re-exports these goods. See: Kowalczyk, 2012; Papierosy, wódka, kawa..., 2012.

[11] Thus, the trade balance on a global scale is definitely negative. See: Analiza wybranych..., 2013.

[12] Nowadays (January 2014 r.) 13 pork processing enterprises are authorized to export to the U.S. and 15 – to Canada (after fulfillment of the veterinary requirements). See: Kita, 2014.

[13] The beef dispute began in 1988. The EU banned imports of beef produced with the use hormones stimulating growth of cattle. In 1996, the countries most affected by the European ban, namely the United States and Canada, questioned the decision of the EU to the World Trade Organization (WTO). As a result, in 1999 sanctions on a number of products exported from the EU were implemented in U.S. and Canada (with a value of $ 116.8 million and 11.3 million of Canadian dollars per year). These sanctions were authorized by the WTO.

[14] Excluding Great Britain.

[15] Formally, the quotas were increased on August 2012.

Table 3. Poland's agri-food trade with NAFTA and commodity structure in 2004–2012 (million USD, %)
Tabela 3. Obroty i struktura towarowa polskiego eksportu i importu wybranych artykułów rolno-spożywczych do/z krajów NAFTA w latach 2004–2012 (mln USD, %)

Group of products Grupa produktów	2004		2012		2004		2012	
	exports				imports			
	$ mln mln USD	%	$ mln mln USD	%	$ mln mln USD	%	$ mln mln USD	%
Food and live animals, including: Żywność i zwierzęta żywe, w tym:	161.2	74.6	293.0	79.4	91.9	75.3	229.9	71.2
Live animals Zwierzęta żywe	0.8	0.4	2.5	0.7	0.6	0.5	0.8	0.2
Meat and meat preparations Mięso i jego przetwory	37.4	17.3	46.9	12.7	3.5	2.9	0.3	0.1
Dairy products and eggs Produkty mleczarskie i jaja	24.2	11.2	15.5	4.2	1.5	1.2	6	1.9
Fish, crustaceans, molluscs and preparations thereof Ryby i przetwory rybne	19.9	9.2	46.6	12.6	19.2	15.7	39.3	12.2
Cereals and cereal preparation Zboża i przetwory zbożowe	11.4	5.3	17.1	4.6	7.5	6.1	2.5	0.8
Fruits and vegetables Owoce i warzywa	31.6	14.6	76.3	20.7	23.9	19.6	59.7	18.5
Sugar, sugar preparations and honey Cukier, wyroby cukiernicze i miód	8.7	4.0	18.2	4.9	0.8	0.7	1.5	0.5
Coffee, tea, cocoa, spices, and manufactures thereof Kawa, herbata, przyprawy	15.6	7.2	48.9	13.2	4.4	3.6	7.8	2.4
Feedstuff for animals Pasza dla zwierząt	0	0.0	0.1	0.0	4.7	3.8	84.1	26.0
Miscellaneous edible products and preparations Inne produkty spożywcze	11.5	5.3	20.8	5.6	25.7	21.0	27.9	8.6
Beverages and tobacco, including: Napoje i tytoń, w tym:	54.7	25.3	75.8	20.5	25.7	21.0	88.2	27.3
Beverages Napoje	54.7	25.3	73.2	19.8	11.3	9.3	49.1	15.2
Tobacco and tobacco manufactures Tytoń i wyroby z tytoniu	0	0.0	2.6	0.7	14.4	11.8	39.1	12.1
Oil seeds and oleaginous fruits Nasiona roślin oleistych	0	0.0	0.1	0.0	2.4	2.0	2.3	0.7
Animal and vegetable oils, fats and waxes Oleje pochodzenia roślinnego i zwierzęcego	0.2	0.1	0.3	0.1	2	1.6	2.6	0.8
Total Ogółem	216.1	100.0	369.1	100.0	122.1	100.0	323	100.0
The share of agri-food trade in total trade Udział handlu rolno-spożywczego w całkowitym handlu towarowym	10.1	x	7.2	x	4.9	x	5.5	x

Source: Kita, 2014; own elaboration based on UNCTADStat, 2013.
Źródło: Kita, 2014; opracowanie własne na podstawie: UNCTADStat, 2013.

It is also worth noting that since accession to the EU, Poland's revenues from sale of milk and dairy products on the NAFTA market decreased by 35% and at the end of 2012 amounted to $ 15.5 million USD (Table 3). As the result in 2012, comparing to 2004, the share of this group in the structure of Polish exports was smaller by 7 percentage points. Such a situation may be the effect of relatively high tariffs applied by the members of NAFTA to agri-food products imported from abroad[16]. In addition, access of dairy products to American markets is hindered by tariff quotas or import licenses – especially in the case of cheese, butter, milk powder and ice cream[17].

The competitive position of selected Polish agri-food products in trade with NAFTA and scenarios of changes in the level of their competitiveness for 2020.

The results of analysing the competitive position shows that in 2012 Poland generated the highest comparative advantage in trade with NAFTA in meat and meat products, as well as milk and dairy products. Comparative advantages indexes (XRCA > 1, RTA > 1), a relatively high degree of export specialization (SI > 1) and a significant positive trade proved balance (CR > 100%) (Table 4). It worth highlighting that both commodity groups in total agri-food exports from Poland to NAFTA accounted in 2004–2012 from 17% to 28.5% (Table 3). At the same time, it should be remembered that in terms of meat products NAFTA countries provide about 15% of supply globally[18], and its revenues from sales of these products on the world market are from 85% to more than 2 times higher than its expenditures on imports. That enables the NAFTA to generate a relatively high positive trade balance in this area. As far as dairy products are concerned, a relatively low – compared to the other groups of food products – intensity of intra-industry trade measured by the IIT was observed. In 2012, the IIT index did not exceed 50%, which indicates a relatively low degree of overlapping streams of import and export in this sector. Such a situation may arise from the fact that trade in dairy products with NAFTA is carried out or within the quotas (USA – different types of cheese exported to the U.S.) or only under special permits-approvals (various types of cheese exported to Canada (Kita, 2014).

With regard to the projected competitiveness of Polish meat and dairy products, conducted simulations show that by 2020 in case of the implementation of the liberalization proposals of December 2008 (variant II), as well as in a situation in which there are no liberalization actions (variant I) Poland will maintain a comparative advantage on the markets of NAFTA members. This is confirmed by the positive indicators of revealed comparative advantage evaluated generally (RTA > 0, XRCA > 1) and by positive values of export specialization (SI > 1), which, however, in 2020 may be little lower than in 2012. Moreover, in both scenarios a higher value of CR index may be also expected compared to 2012, which means that Poland may generate a positive trade balance in this area. Chances for exports growth of these commodity groups to NAFTA may be however weakened by the growing competition from countries which are the largest producers and exporters of dairy and meat products, and where production costs are lower[19]. This can be confirmed by the simulated reduction of scale of intra-industry trade (IIT) in the meat and dairy sector between Poland and NAFTA.

[16] According to WTO estimates, the average MFN tariff for dairy products in 2011 in the U.S. was – 19.1%, and in Canada and Mexico, respectively, 246.8% and 63% (Tariff Profiles, 2012).

[17] For example, the import of milk and cream to the U.S. is regulated by Import Milk Act. To bring them to the United States, FDA approval is required. To get this approval, a fulfillment of more than 20 forms is needed, and still approval covers only one delivery of milk or cream.

[18] A free trade agreement that is being negotiated by the EU with the United States rises concerns among European manufacturers of poultry meat. They claim that the liberalization of trade with the United States would increase the supply of poultry on the EU market causing a drop of its prices, especially since the U.S. is one of the largest producers of this commodity group in the world, and exports of poultry meat from the United States to the EU has been stopped almost 17 years ago (it was associated with high sanitary standards that are applied on European market). Such market opening could also make difficult the current, positive situation of Polish exporters of poultry meat who are booming on foreign markets (Umowa o wolnym handlu UE-USA..., 2013).

[19] A very rapid growth of pork production in observed in China. In other Asian countries as well as in Brazil and India a production of pork is also growing. A beef production is increasing in Oceania and South America. The world leader in the production of poultry meat are the United States, but significant role on the global market play also China and Brazil (Produkcja i handel mięsem na świecie..., 2012). In terms of production and exports of milk and dairy products the leaders are: Australia, New Zealand or countries from South America, where the rich resources of the factors of production, together with the favourable natural conditions determine the low production costs.

For fruit and vegetables, the competitive position is not definite. In 2012 Poland did not generate an export specialization (SI < 1) nor the relative comparative advantage for exports (XRCA < 1). A positive aspect of competitiveness of this sector on NAFTA market are values of exports exceeded by almost 50% the values of imports (CR = 144%) (Table 4). This seems to be significant enough that the access of European, including the Polish, fruit and vegetables to the markets of the North American Free Trade Agreement market is not subject to any tariff preferences. Moreover in the Polish agri-food exports in this direction fruits and vegetables accounted for 20% (Table 3), and these American countries, among non-EU countries, were the Poland's second most important recipient of these commodity group (UNCTADStat, 2013). Johnsonn (2014) points out that on the U.S. market, the European fruits and vegetables due to lower costs of production and processing[20] are still cheaper than the domestic products of this sector. A high degree of overlapping flows of exports and imports in fruit and vegetable sector was also observed. In 2012, the index of intra-industry trade (IIT) was at level of 90%.

Such an intra-industry nature of the exchange contributes to the wider range of products offered on the markets and meet the needs of the consumers (Kita, 2014). Projections made for 2020 indicate that Poland may record a negative balance of trade in fruit and vegetables, and become a net importer of fruit and vegetables[21]. Both simulation scenarios may contribute to the deterioration of the CR index (Table 4). However, such a situation may not necessarily prejudge about the weak competitive position of Polish horticultural products in NAFTA region. A deficit may be a consequence of high intensity of intra-industry trade, which in this case would be higher in the situation consisting on the absence of liberalization (Table 4). At the same time the predicted for 2020 deterioration of the competitive position of Polish fruits and vegetables reflected by decreasing revealed comparative advantage indexes (XRCA, RTA) and lowering degree of export specialization (SI < 1) might be caused by the strong trade relations (including fruits and vegetables) between the United States and China[22] as well as by trade preferences granted by the U.S. to other countries within the framework of the signed trade agreements[23].

Oil seeds and oils and fats were product groups with an unfavourable level of comparative advantage in trade with NAFTA in 2012. This is confirmed by the results of general evaluation (XRCA, MRCA, RTA) and smaller than 100% CR index, indicating the scale of the trade deficit (Table 4). Both commodity groups are characterised by the lack of export specialization (SI < 1). This may be due to the fact that exports of oilseeds and oils and fats to NAFTA practically does not exist (Table 3), and over 95% of the exports of these groups of products is directed to the markets of the EU (UNCTADStat, 2013). With regard to oils and fats, it is worth to highlight Poland is a net importer and is more interested in imports, especially of oils from plants grown in other climate. Projections made for 2020 lead to the conclusion that both scenarios – lack of liberalization steps as well as gradual elimination of tariffs under the provisions of the WTO – may contribute to the growth of selected indicators of competitiveness in trade with NAFTA (Table 4). A significant improvement can be expected especially in oilseeds trade balance (CR > 100%) as a consequence of which Poland would reach the position of net exporter. It confirms Kapusta (2011) predictions, who argues that due to the increasing global consumption of vegetable fats and the growing global demand for oilseeds Poland could become a major exporter of these seeds, especially that Poland participates in global trade in rapeseeds[24]

[20] This is possible thanks to Common Agricultural Policy, in particular thanks to such instruments as: export subsidies or direct payments. According to the reform of the common organization of fruit and vegetables market, export subsidies for horticultural products have been removed in January 2008. Earlier, export subsidies covered among others: tomatoes, almonds, hazelnuts, walnuts, oranges, lemons, fresh grapes, apples, apricots, peaches, nectarines, dried grapes and concentrated orange juice. Subsidies were also dedicated for sweeteners contained in the processed fruit and vegetable products. This applied to raw and white sugar, isoglucose, glucose (Kita, 2014).

[21] Pawlak and Poczta, 2011 come to similar conclusions.

[22] Kita, 2014.

[23] This applies to the free trade area established with Canada and Mexico, but also with Chile, Australia, Peru, and the countries of Central America and other types of trade agreements in which the parties grant each other trade concessions (i.e. the U.S. vs. Argentina, Brazil, Ecuador and Thailand).

[24] Until economic transformation, Poland was a major exporter of rapeseed. In the second half of the 80s nearly 40% of production was allocated for export and in 90s it was over 50%. This situation has changed not only as the result of a decrease in the harvest of rapeseed, but also as a result of the growth of its processing in the oil-processing enterprises, which, in turn, was a consequence of rapid growth in demand and production of vegetable fats and oils (Rosiak, 2005).

Table 4. Competitiveness of agri-food products produced in Poland on NAFTA market in 2012 and projections for 2020
Tabela 4. Konkurencyjność produktów rolno-spożywczych produkowanych w Polsce na rynkach krajów NAFTA w roku 2012 i projekcja na 2020 rok

SI			CR (%)			XCRA			MRCA			RTA			General evaluation Ocena sumaryczna			ITT (%)		
2012	I	II	2012	I	II	2012	I	II	2012	I	II	2012	I	II	2012	I	II	2012	I	II
meat, offal and meat products																				
1.74	↓	↓	244.43	↑	↑	1.92	↓	↓	1.45	↓	↓	0.47	↑	↑	+	+	+	58.07	↓	↓
cereals																				
0.50	↓	↓	169.21	↓	↓	0.46	↓	↓	0.70	↑	↑	–0.24	↓	↓	+/–	+/–	+/–	61.70	↑	↑
oilseeds																				
0.04	↑	↑	34.28	↑	↑	0.29	↑	↑	2.63	↓	↓	–2.35	↑	↑	–	–	–	51.06	↓	↓
sugar																				
1.51	↑	↑	137.56	↑	↑	1.54	↑	↑	0.84	↑	↑	0.70	↓	↓	+	+	+	84.37	↓	↓
fruits and vegetables																				
0.95	↓	↓	144.05	↓	↓	0.94	↓	↓	0.67	↑	↑	0.19	↓	↓	+/–	+/–	+/–	89.18	↑	↓
milk and dairy products																				
3.37	↓	↑	320.05	↑	↑	3.86	↑	↑	0.88	↑	↑	2.98	↑	↑	+	+	+	47.02	↓	↓
oils and fats																				
0.10	↑	↑	43.03	↑	↑		↑	↑	1.21	↑	↑	–0.76	↓	↓	–	–	–	59.39	↓	↓

Dark grey box – unfavourable value of the index in terms of competitive position,
Light grey box – favourable value of index from the point of view of the competitive position
Source: Kita, 2014; UNCTADStat, 2013; own simulation using CAPRI model.
Pole ciemnoszare – niekorzystna pozycja konkurencyjna z punktu widzenia wartości wskaźnika
Pole jasnoszare – korzystna pozycja konkurencyjna z punktu widzenia wartości wskaźnika
Źródło: Kita, 2014, UNCTADStat, 2013; symulacje własne z wykorzystaniem modelu CAPRI.

and domestic surplus of these goods are intended, inter alia, for technical oils and biofuels.

In 2012 cereals produced in Poland were characterised by a relatively weak competitive position on NAFTA market (Table 4). Lack of export specialization in this field (SI < 1) and not definite results of the general evaluation (XRCA < 1, RTA < 0) might be caused by the fact that in the structure of exports of agri-food products from Poland to NAFTA countries, this commodity group is a group of minor importance. It might be also caused by a strong competitive position of NAFTA on the global cereals market – for example, in 2011, about 25% of world trade of cereals was made by this trade block (Kita, 2014). By 2020, a deterioration of the competitive position of Polish cereals on NAFTA markets can be expected. Projections show that the level of the comparative advantages (RTA < 0, XRCA < 1) as well as the values of SI index may be lower than in 2012 (Table 4).

As far as the competitive position of sugar on the markets of NAFTA is considered, the results of the simulations are positive, however, due to the fact that the projections made for this sector exclude sugar preparations and confectionery[25], these results should be treated with a certain distance. Anyway, it is worth indicating

[25] Sugar preparations are mainly exported from Poland to NAFTA. In this region (especially in Canada and the USA) Polish sugar preparations are bought by "Polish people living in America" (Kita, 2014).

that the implementation of both I and II simulation scenario may result in 2020 in an increase of a positive trade balance and in a decline of the intensity of intra-industry trade in the sugar sector (Table 4). This may be conditioned by national and European supply situation[26] – it is predicted that in 2017 the quota system will be eliminated.

CONCLUSIONS

The results of the study lead to the conclusion that in the years 2004–2012 the role of NAFTA countries in Polish agri-food trade remains small, with a downward trend. This may indicate that trade creation and trade diversion effects caused by the adoption by Poland of the *acquis communautaire* in the field of trade policy is still found – 66–75% of agri-food trade Poland realizes with the European Union. But among non-EU countries NAFTA is one of the most important trade partners for Poland. Positive trade balances in agri-food products are due not only to "Polish people living in America" interested in the Polish food, but also to the fact that the Polish agri-food products meet to the growing needs of foreign consumers. These products are the products of the quality and have a lower price than prices offered by competitors.

The favourable competitive position on the NAFTA market is observed in animal products and in fruits and vegetables. Moreover, these commodity groups play an important role in the structure of Polish exports to this region, although NAFTA (Canada and the U.S.) apply a number of non-tariff barriers when it comes to access to its market (especially to products of animal origin). Fats and oils as well as oilseeds – those with the smallest share in Poland's agri-food export to NAFTA – are the groups with the lowest comparative advantages on this foreign market.

The results of model simulations conducted for different groups of agri-food products show that by 2020 a favourable competitive position on the NAFTA market may be expected in meat and meat products as well as in milk and dairy products. This will take place both in the scenario based on lack of liberalization, as well as in scenario concerning the implementation of liberalization proposals from December 2008. In turn, negative changes in competitive position may be expected in relation to Polish fruit and vegetables. It is predicted that in 2020 a lack of export specialization may deepen and the negative trade balance may be observed.

It seems that in the context of the emergence of cheaper manufacturers of agri-food products from other regions of the world (including those with favorable agro-climatic conditions) on the global agricultural market, the presence of Polish food in NAFTA will be not so much a result of price and cost advantages, but rather of factors of non-economic nature, related to the quality and appropriate promotional campaigns.

[26] The EU is a net importer of sugar, and exports from Poland is hindered by competition from other Member States. At the same time, there are arbitrarily set by the WTO export limits. In 2012, for the EU, this limit was 1.37 million tons, and overproduction in the EU amounted to 5.3 million tones (Analiza wybranych zagadnień..., 2013).

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MIĘDZYNARODOWA POZYCJA KONKURENCYJNA POLSKICH PRODUKTÓW ROLNO-SPOŻYWCZYCH NA RYNKU PÓŁNOCNOAMERYKAŃSKIEGO UKŁADU O WOLNYM HANDLU W WARUNKACH LIBERALIZACJI ŚWIATOWEGO HANDLU ROLNEGO

Streszczenie. Przystąpienie do Unii Europejskiej, a także trwający proces liberalizacji światowego handlu rolnego zmieniły warunki handlu rolno-spożywczego między Polską a krajami NAFTA. Artykuł wskazuje na znaczenie krajów NAFTA w polskim handlu rolno-spożywczym, prezentuje wyniki pozycji konkurencyjnej wybranych produktów rolno-spożywczych produkowanych w Polsce na rynku NAFTA w latach 2004–2012 oraz przewidywany jej poziom w roku 2020, w zależności od przyjętego w badaniu scenariusza symulacyjnego: liberalizacji i braku liberalizacji światowego handlu rolnego. W opracowaniu wykorzystano celowo dobrany zestaw ilościowych mierników międzynarodowej pozycji konkurencyjnej *ex post*, a projekcje wykonano przy wykorzystaniu modelu równowagi cząstkowej CAPRI. Analiza wykazała, że wśród krajów spoza UE NAFTA jest jednym z najważniejszych partnerów handlowych Polski w zakresie sektora rolno-spożywczego. Na tym rynku zagranicznym konkurencyjne były polskie produkty pochodzenia zwierzęcego oraz owoce i warzywa. Wyniki symulacji modelowych przeprowadzonych dla różnych grup produktów rolno-spożywczych wykazały, że do 2020 roku korzystną pozycję konkurencyjną na rynku NAFTA utrzymają produkty pochodzenia zwierzęcego.

Słowa kluczowe: Polska, NAFTA, handel zagraniczny, produkty rolno-spożywcze, liberalizacja handlu rolnego, symulacje

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