WALENTY POCZTA
KAROLINA PAWLAK
University of Life Sciences
Poznan

WORLD AGRICULTURAL TRADE LIBERALISATION AND GROWTH PROSPECTS OF POLISH FOREIGN TRADE IN AGRI-FOOD PRODUCTS

Abstract

Some possible scenarios of Polish agri-food trade development until 2015 were presented in the paper. **Global Trade Analysis Project** *(GTAP), the computable general equilibrium model was used in the research. Simulation-based analysis was carried out in four variants differing in the level of the reduction of customs tariffs and referring respectively to: the position of the European Commission of 28 October 2005, motions of G-20 countries and the United States of America as well as the case, when the liberalisation of agricultural trade does not progress.*

It was shown that the increase of liberalisation tendencies in the world agricultural trade may lead to the decrease of export value and the increase of the value of agri-food import to/from Poland, and in consequence to the deterioration of the trade balance value. But it needs to be stressed that by 2015 it probably will not pose any significant threat to the positive foreign turnover balance in the Polish agri-food sector.

Introduction

Among numerous factors determining the level and structure of global agricultural trade, it is the liberalisation process in the international trade that merit particular attention. The most important decisions on the access to market, internal support and export subsidies have been taken during the Uruguay Round under GATT/WTO so far. The Agreement on Agriculture that was reached during this meeting initiated the process of reforms in the agricultural trade and national agricultural policies aimed at liberalisation of commerce between the signatories of the

Agreement. Its further progress was supposed to be decided upon during the subsequent negotiations; however, a new mandate for agricultural negotiations was adopted six years after the completion of the Uruguay Round, at the Ministerial Conference in Doha in November 2001. The completion of these new agricultural negotiations and the adoption of the detailed settlements as well as the final agreement were planned for the Ministerial Conference in Hong Kong in December 2005. Due to the differences in the negotiating positions of the main players in the Round, the objective has not been achieved yet. While seeking to answer to the question what influence the implementation of a new agricultural agreement would have on the Polish agri-food trade, this article presents potential development scenarios for trade in the agri-food sector with regard to the proposals of market access liberalisation put forward by the European Commission, G-20 countries and the USA as well as in the conditions of no further foreign trade liberalisation.

Methodology

The computable general equilibrium model of the Global Trade Analysis Project (GTAP) was used in the study. The general balance models are based upon the neoclassical assumption that the prices of goods, services and factors of production are free to move, keeping supply and demand in the market equilibrium [25]. The core of such models is the premise that in the long run the economy develops as a result of constant adjustments of demand and supply that occur as a consequence of structure changes of the product prices and production factors which are free to move. This structure informs the customers about the production costs of particular goods and services and compels the producers to allocate the production factors in accordance with the consumers' decisions [6, 16, 23]. This means that the general balance models are based upon strict assumptions concerning the rationality of operators' attitudes and market flexibility.

General balance models are an instrument that is frequently applied for measurement of medium- and long-term effects of markets integration and trade barriers elimination since – as proved by Sztaudynger [28] – international trade cannot be described by means of a simple model due to the complexity of mechanisms that occur therein (inter alia because of overlapping of consumption and production decisions). The GTAP model used in the study was formulated in 1992 by Hertel [10] and has been gradually developed. The database includes 87 regions having the open market structure (Fig. 1) and 57 sectors (product groups or products) of national economies [7][1].

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[1] An aggregation either by the model's author or other users can be adopted for the analyses or else an own one can be created so that it can meet the needs of the conducted study. The author's aggregation of product groups and countries was used in the analysis. The following product categories were selected: cereals; fruit and vegetable; oil seeds; oils and fats; sugar; meat, offal and meat products; dairy products; remaining plant raw materials; remaining unprocessed animal products; remaining food products; remaining products and services. The components of product groups were selected on the basis of GTAP Data Base 6.0. The aggregation of countries was made according to the three groups, i.e.: Poland, the other EU Member States (EU-26) and the remaining countries.

The function of aggregated demand in a closed market region – i.e. having no connection with the global economy by means of trade flows – is comprised of three integral components: consumption expenditure of households (PRIVEX), public expenditure (GOVEX) and savings (SAVE). The only source of income for households is constituted by the remuneration for assets and services rendered to the producers (VOA ENDW). The enterprises generate the final goods from the assets and services provided by households, and from indirect goods purchased from other producers (VDFA). Afterwards, they sell them satisfying both the consumption demand and the investment demand of households and institutions of the public sector (VDPA, VDGA, REGINV), and derive profits from it. The national economy in the open economy model is open to trade and thus there are trade partners in the model structure who represent the import side of the national economy, being at the same time an outlet market for the generated commodities and services as well as a source of revenues from export (VXDM). The total payments for import purchases (consumption and investment ones) refer to the three sources: national households (VIPA), public sector institutions (VIGA) and producers (VIFA).
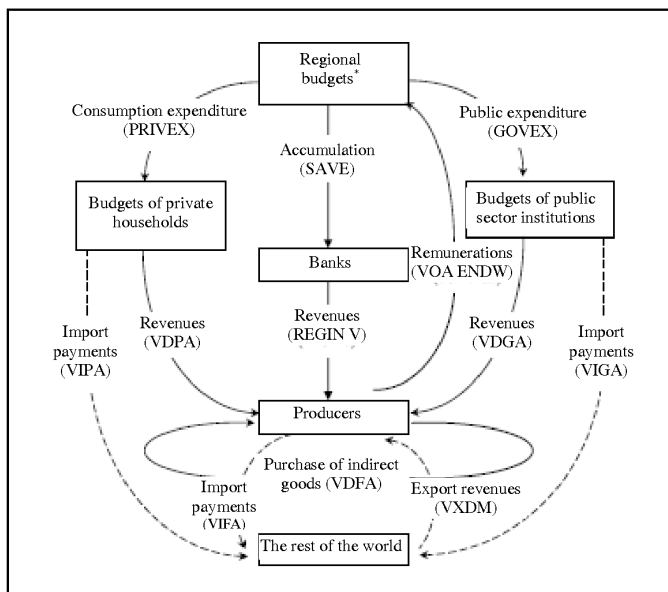

Fig. 1. Open economy model without state interventions

* The sum of budgets of private households and public sector institutions in a region covered by the GTAP data base; the information in brackets contains the original English symbols applied in the GTAP model; solid lines regard circulation in a closed economy, while the broken ones mean flows related to the opening of an economy.

Source: On the basis of [11].

The use of the model for the purpose of forecasting the trade development consists in the creation of simulation scenarios and defining the influence of simulated exogenic variables on the volumes of import and export of specific products (product groups or sectors of the national economies). It should be emphasised that the application of the GTAP model in the agri-food sector research in Poland constitutes an innovatory element. The outcomes of completed simulations are not only of cognitive value, but they also allow for the information gap to narrow down that exists in the methodology and practice of conducting research on the implementation outcomes of WTO provisions for the Polish agri-food trade.

For the purpose of defining the development perspectives of the Polish foreign trade in agri-food products, simulation scenarios have been formulated that include the following exogenic variables (Table 1 and 2)[2]:

– the population in Poland, in the other EU Member States (EU-26) and in the remaining countries in the world, as a carrier of labour factor resources as well as the determinant of the number of consumers in the territory of a country [31];

– the volume of the gross domestic product in Poland, the EU-26 states and the remaining countries in the world, constituting a synthetic measure of the value of the production generated in the economy annually [15].

– the production volumes of cereals, oil seeds, meat and milk in Poland, the EU-26 states and the remaining countries in the world which determine the demand for imported products and the level of export orientation; in the case of Poland and the remaining EU Member States, the limited capabilities of agricultural production growth resulting from the applicable production quotas and para-quotas had to be taken into consideration;

– the productivity of land and labour resources in the agriculture of Poland and the EU-26 Member States since under the conditions of free flow of commodities, services, capital and labour, an effective competition is possible *inter alia* thanks to high economic efficiency of the existing productive resources [2];

– the amount of customs tariffs and export subsidies in the global agricultural trade.

As regards the liberalisation of foreign trade, the simulations were carried out in four variants that differed in terms of the level of customs tariff reductions. The first variant assumed a customs tariff reduction resulting from the proposal of the European Commission of 28 October 2005. Since this proposal had been rather strongly criticised by the remaining WTO partners claiming that the concessions included therein were not sufficient, both the second and third variant assumed a higher level of customs tariff reduction advocated by the G-20 country group[3] and the USA.

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[2] The creation of GTAP model requires estimating of the dynamics of the designed variables and introducing them in the model in relative terms. The year 2006 was used in the calculations as a reference year.

[3] The WTO G-20 group is comprised of the following countries: Argentina, Bolivia, Brazil, Chile, China, Cuba, Egypt, Guatemala, India, Indonesia, Mexico, Nigeria, Pakistan, Paraguay, Philippines, Republic of South Africa, Tanzania, Thailand, Venezuela, Zimbabwe.

The band formula of customs tariff reduction[4] was applied assuming that all customs tariffs were divided into four reduction bands depending on the amount thereof. The different reduction coefficients were applied to each of these bands – the higher the customs tariff level, the higher the coefficient (Table 2). As regards the reduction of export subsidies, all three variants assumed the abolition of all subsidies to food exports. The period 2009-2013 was set as the period for implementation of liberalisation objectives.

The fourth simulation variant was based upon the assumption of absence of further liberalisation of the global agricultural trade.

Table 1

Population, GDP, production of basic agricultural commodities and productivity of land and labour resources in agriculture in Poland, the EU-26 countries and the remaining countries in the world in 2006 and a forecast for 2010 and 2015

Specification	Unit	2006	2010	2015	2010	2015
		absolute figures			2006=	100
Poland						
Population	million people	38.1	38.4	38.1	100.7	100.0
GDP	USD billion	338.7	418.0	495.9	123.4	146.4
Cereals	million tons	21.8	26.4	28.4	121.1	130.3
Oil seeds	million tons	1.7	1.7	1.7	100.0	100.0
Meat	million tons	3.5	3.6	3.8	102.9	108.6
Milk	million tons	12.0	12.1	12.1	100.7	100.7
Land productivity	USD thousand/ha	1.3	1.4	1.5	107.4	117.8
Labour productivity	USD thousand per capita	10.7	11.0	11.5	103.6	108.4
Remaining EU Member States						
Population	million people	453.6	453.7	455.2	100.0	100.4
GDP	USD billion	14,203.0	16,268.5	18,698.3	114.5	131.7
Cereals	million tons	220.8	264.0	271.5	119.6	123.0
Oil seeds	million tons	18.4	28.7	32.9	156.0	178.8
Meat	million tons	38.6	38.9	39.4	100.8	102.1
Milk	million tons	135.5	136.5	136.1	100.7	100.5
Land productivity	USD thousand/ha	2.3	2.4	2.6	104.5	110.5
Labour productivity	USD thousand per capita	36.6	43.5	56.1	118.9	153.1
Remaining countries in the world						
Population	million people	6,101.1	6,361.8	6,737.2	104.3	110.4
GDP	USD billion	33,920.2	38,978.2	46,218.1	114.9	136.3
Cereals	million tons	1,978.5	1,897.1	2,026.4	95.9	102.4
Oil seeds	million tons	272.2	291.5	328.1	107.1	120.5
Meat	million tons	230.8	240.1	256.8	104.0	111.3
Milk	million tons	506.3	516.6	566.9	102.0	112.0

Source: [I, 8, 12, 13, 14, 22, 24, 32], calculations of the author.

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[4] Reductions concern the most-favoured-nation tariffs (MFN). In the course of implementation process of reduction obligations, the WTO members will have the right to introduce the smaller reduction of custom duties for sensitive commodities than the level resulting from the band reduction formula. Because of the lack of sensitive commodity lists, this issue is not included in the analysis.

Table 2

Average MFN tariff bindings and customs tariff reduction for the analysed product groups according to the proposal of the European Commission of 28.10.2005, G-20 countries and the USA

Product groups	**Average MFN customs tariff binding***	Customs tariff reduction (%)		
		The European Commission	G-20	USA
Cereals	41.5	45.0	55.0	75.0
Fruit, vegetable	16.0	35.0	45.0	55.0
Oil seeds	0.0	0.0	0.0	0.0
Oils and plant fats	13.1	35.0	45.0	55.0
Sugar	150.2	60.0	75.0	85.0
Meat, offal and meat products	38.2	45.0	55.0	65.0
Dairy products	70.9	50.0	65.0	85.0
Remaining plant raw materials	23.1	35.0	55.0	65.0
Remaining unprocessed animal products	29.8	35.0	55.0	65.0
Remaining food products	20.4	35.0	55.0	65.0

* The arithmetic mean for the combined nomenclature sub-items subject to customs tariffs; in the case of specific custom duties the *ad valorem* equivalent has been calculated.

Source: Author's own compilation based on the data of the Common Customs Tariff [9].

The simulations have been carried out in a short- and medium-term perspective regarding the situation in 2010 and 2015 respectively. The extrapolation of trade values in the Polish agri-food sector has been made by means of Gragg's non-linear estimation method[5]. Export and import values resulting from the GTAP model have been corrected with regard to the geographical structure of trade and the shaping of euro exchange rate against US dollar. US dollar is the model currency and in the current GTAP database the exchange rate of 2001 is used when – as opposed to the contemporary situation – US dollar was stronger than euro. Therefore, the final values of trade flows have been calculated as weighted arithmetic means where the weights were the trade shares of the countries of the euro area and the remaining countries in the analysed agri-food product groups as well as euro and US dollar exchange rates. It was assumed that the shares of EU Member States in export and import of particular product groups from/to Poland in 2010 and 2015 would be maintained at the level of 2007 [21]. Euro exchange rate against US dollar was fixed on the basis of average annual exchange rates of NBP (National Bank of Poland) for 2007 (EUR 1 = USD 1.3672) [13].

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[5] The non-linear estimation constitutes a general adjustment procedure used for estimating any type of relation between a dependent (or explained) variable and the independent variables [26]. The estimation errors are then smaller than in the case of the linear estimation.

Development perspectives of the Polish foreign trade in agri-food products

According to the forecasts, the revenues from export of agri-food products from Poland in 2006-2010 may rise from 31% (in the case of market access liberalisation according to the proposal of the USA – 3rd variant) to 38% (in the case of absence of further trade liberalisation – 4th variant) reaching USD 13.9 billion and USD 14.7 billion respectively (Table 3). At the same time, an increase in the import expenditures by 30% can be anticipated to the level of USD 10.3-10.7 billion under the conditions of progressing liberalisation of agricultural trade (variants 1-3) and an increase by slightly above 20% to the amount of USD 9.9 billion in the case of absence of further customs tariff reduction (4th variant).

The probability of reaching the simulated trade turnover values in 2010 seems to be confirmed by the results of trade in agri-food products achieved until 2007 and a decreasing growth rate of trade after the accession of Poland to the EU. According to the preliminary data of the Ministry of Economy, the export value of agri-food products from Poland in 2007 amounted to EUR 10.0 billion (USD 13.7 billion[6]) and the import value amounted to 8.6 billion (USD 10.9 billion) [27]. Furthermore, after an increase in the revenues from the export of agri-food products by nearly 36% in 2005 in comparison with 2004, the growth rate of export in 2006 and 2007 amounted to less than 22% and 17% in relation to previous years [21, 27]. Taking into account the anticipated relatively strong position of zloty in the currency market [17], the development of exports is expected to be slower due to lower price competitiveness of Polish products. It should be also taken into consideration that the shaping of the euro exchange rate against US dollar will be extremely important for the outcomes of the conducted forecast. US dollar is the model currency, but 3/4 of exports of agri-food products from Poland are sent to the euro zone. A possible appreciation of US dollar against euro may, therefore, contribute to the stabilisation – or even lowering – of the current Polish export value of agri-food products expressed in US dollars. It should be pointed out as well that the exploitation of the country's export potential depends to a great extent on the acceptance of Polish products by food industry, trade and foreign consumers. At the moment, this acceptance is noticeable at the level of industry and trade, however, a positive opinion on the Polish agri-food products of the final recipients can assure an increase in the foreign sale thereof and a higher added value in export.

A decreasing growth rate of trade turnover can be observed also on import side. Expenditure for the purchases of food products from abroad in the second year of Poland's membership to the EU increased by 25% and in the following years by approximately 20% in comparison with the preceding years [21, 27]. The forecasts indicate a clear acceleration of the trend towards import expenditure reduction and the decline in agri-food import value in 2010 as compared with 2007. This forecast does not confirm the concerns expressed occasionally about the excessive inflow of the imported food to the Polish market which would cause Poland to become a net importer of agri-food products again.

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[6] Values calculated according to the average annual exchange rate of US dollar against euro on the basis of NBP records [13].

Table 3

Polish foreign trade in agri-food products in 2006 and a forecast for 2010 and 2015

Product groups	Export			Import			Balance		
	2006	2010	2015	2006	2010	2015	2006	2010	2015
Variant 1 – Proposal of the European Commission of 28.10.2005									
Cereals	189.1	251.7	245.0	238.6	234.2	191.5	-49.5	17.5	53.5
Fruit, vegetable	684.5	897.8	877.7	1,074.8	1,212.6	1,060.6	-390.3	-314.8	-182.9
Oil seeds	51.0	47.1	26.5	129.9	146.9	133.7	-78.9	-99.9	-107.1
Oils and fats	251.0	303.2	257.9	464.8	635.7	616.6	-213.8	-332.5	-358.7
Sugar	330.8	188.1	186.4	138.0	191.4	179.7	192.8	-3.3	6.8
Meat, offal and meat products	1,785.7	2,647.5	3,200.6	511.9	762.0	604.7	1,273.8	1,885.5	2,595.9
Dairy products	1,150.4	1,827.6	1,104.4	175.8	284.0	326.1	974.6	1,543.6	778.4
Remaining plant raw materials	88.8	135.1	146.6	234.9	289.9	256.6	-146.1	-154.8	-110.0
Remaining unprocessed animal products	435.5	607.0	599.4	105.1	135.3	122.5	330.4	471.7	476.9
Remaining food products	5,733.2	7,377.6	7,158.6	4,998.1	6,389.1	6,115.6	735.1	988.5	1,043.0
TOTAL	**10,700.0**	**14,282.6**	**13,803.2**	**8,071.9**	**10,281.2**	**9,607.4**	**2,628.1**	**4,001.5**	**4,195.7**
Variant 2 – Proposal of the G-20 countries									
Cereals	189.1	251.6	244.1	238.6	235.0	192.4	-49.5	16.6	51.6
Fruit, vegetable	684.5	888.4	868.1	1,074.8	1,213.6	1,061.7	-390.3	-325.2	-193.6
Oil seeds	51.0	47.6	26.8	129.9	146.4	133.2	-78.9	-98.8	-106.3
Oils and fats	251.0	304.9	259.1	464.8	639.4	621.0	-213.8	-334.5	-361.9
Sugar	330.8	166.0	164.8	138.0	195.0	183.1	192.8	-29.0	-18.3
Meat, offal and meat products	1,785.7	2,577.1	3,059.6	511.9	813.9	652.2	1,273.8	1,763.2	2,407.3
Dairy products	1,150.4	1,829.9	1,084.2	175.8	311.8	365.0	974.6	1,518.1	719.2
Remaining plant raw materials	88.8	135.9	147.2	234.9	299.3	265.4	-146.1	-163.4	-118.3
Remaining unprocessed animal products	435.5	604.5	596.4	105.1	136.6	123.7	330.4	468.0	472.8
Remaining food products	5,733.2	7,319.7	7,098.3	4,998.1	6,508.8	6,233.1	735.1	810.8	865.2
TOTAL	**10,700.0**	**14,125.6**	**13,548.5**	**8,071.9**	**10,499.7**	**9,830.9**	**2,628.1**	**3,625.9**	**3,717.7**

Product groups	Export			Import			Balance		
	2006	2010	2015	2006	2010	2015	2006	2010	2015
Variant 3 – Proposal of the USA									
Cereals	189.1	249.9	241.4	238.6	238.6	196.2	-49.5	11.4	45.3
Fruit, vegetable	684.5	878.2	858.0	1,074.8	1,216.5	1,064.4	-390.3	-338.4	-206.3
Oil seeds	51.0	48.2	27.2	129.9	145.9	132.7	-78.9	-97.8	-105.5
Oils and fats	251.0	305.8	259.6	464.8	644.8	627.1	-213.8	-339.0	-367.5
Sugar	330.8	154.4	153.6	138.0	197.6	185.6	192.8	-43.2	-32.0
Meat, offal and meat products	1,785.7	2,498.7	2,914.3	511.9	875.6	707.7	1,273.8	1,623.0	2,206.6
Dairy products	1,150.4	1,819.0	1,047.4	175.8	361.9	432.2	974.6	1,457.1	615.2
Remaining plant raw materials	88.8	136.9	148.1	234.9	303.8	269.5	-146.1	-166.9	-121.4
Remaining unprocessed animal products	435.5	602.1	593.6	105.1	137.0	124.1	330.4	465.1	469.6
Remaining food products	5,733.2	7,288.1	7,064.5	4,998.1	6,574.5	6,296.5	735.1	713.6	768.0
TOTAL	**10,700.0**	**13,981.2**	**13,307.7**	**8,071.9**	**10,696.3**	**10,035.9**	**2,628.1**	**3,284.9**	**3,271.9**
Variant 4 – Absence of further liberalisation									
Cereals	189.1	278.1	264.6	238.6	229.6	187.8	-49.5	48.6	76.8
Fruit, vegetable	684.5	949.8	920.7	1,074.8	1,202.9	1,053.3	-390.3	-253.0	-132.6
Oil seeds	51.0	45.3	25.5	129.9	143.9	131.2	-78.9	-98.7	-105.7
Oils and fats	251.0	300.0	256.5	464.8	621.1	601.0	-213.8	-321.1	-344.5
Sugar	330.8	380.7	377.2	138.0	181.3	170.2	192.8	199.4	207.0
Meat, offal and meat products	1,785.7	2,875.6	3,768.1	511.9	603.8	457.1	1,273.8	2,271.9	3,311.0
Dairy products	1,150.4	1,639.9	1,129.5	175.8	226.4	241.3	974.6	1,413.5	888.2
Remaining plant raw materials	88.8	135.7	145.9	234.9	277.2	245.2	-146.1	-141.5	-99.2
Remaining unprocessed animal products	435.5	627.8	615.8	105.1	133.6	121.2	330.4	494.2	494.6
Remaining food products	5,733.2	7,484.4	7,262.3	4,998.1	6,235.6	5,969.7	735.1	1,248.8	1,292.6
TOTAL	**10,700.0**	**14,717.3**	**14,766.1**	**8,071.9**	**9,855.3**	**9,177.9**	**2,628.1**	**4,862.0**	**5,588.2**

Source: [21], GTAP simulations and author's calculations on the basis of Tables 1 and 2.

On the basis of the conducted simulations, it can be anticipated that the value of export of agri-food products will be maintained at the level of 2010 in the medium-term perspective (until 2015) while assuming an absence of further agricultural trade liberalisation (4th variant). The slight decrease in the export value amounting maximally to 5% is expected in the case of progressing trade liberalisation (variants 1-3). As regards import, the expenditure for foreign food purchase is expected to decrease by slightly above 6% in 2010-2015 irrespective of the advancement of liberalisation process concerning the access to agricultural markets (Table 3)[7]. In consequence, after a significant improvement in the balance of trade turnover in the agri-food sector recorded in 2006-2010 irrespective of the simulation variant, a further considerable increase in the value of the generated trade surplus can be expected solely in the conditions of abandonment of the efforts towards the liberalisation of the global agricultural trade. The implementation of liberalisation concessions announced at the WTO forum might stabilise the trade balance in the agri-food sector at the level ranging from approximately USD 3.3 billion to slightly above USD 4.0 billion, depending on the level of customs tariff reduction – the higher the reduction of customs tariffs, the lesser the trade surplus (Table 3).

It should be pointed out that the 4th simulation variant, based upon the assumption of absence of further foreign trade liberalisation, indicates higher export values and simultaneously lower import values of agri-food products sent from/to Poland. Therefore, it can be stated that lowering the protection level of the internal EU market, whose integral part is the Polish market, will lead to an increase in the import of food and agricultural raw materials to Poland. This aspect is indicated *inter alia* by M. Brzóska [4] and it is regarded by R. Urban [29, 30] as a specific type of threat for domestic food producers posed by the countries with low production costs. Therefore, the reduction of export subsidies may lead to a decrease in the export volume of agri-food products which confirms the assumptions of A. Czyżewski and A. Poczta [5]. A decrease in the profitability of Polish food export to the markets characterised by low level of prices as a result of abolishing the export subsidies is predicted also by R. Urban [30] and J. Plewa [19].

The results of the analyses prove that the liberalisation of foreign trade increases the competition intensity which may cause the loss of a part of the market by the farmers and processing entities from the EU Member States including Poland. However, it is worth mentioning that it will not pose any serious threat for the positive trade balance in the Polish agri-food sector until 2015. It should be underlined that these findings are in accordance with the opinions expressed by J. Bossak, W. Bieńkowski [3] and J. Plewa [19].

The highest dynamics of export and import values in the period until 2010 in all realised simulation variants were for meat, offal and meat products as well as

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[7] It should be pointed out that the differences in trade turnover values in 2015 between variants 1-3 are insignificant and oscillate around 1.5 percentage points on export side while in imports they constitute 0.4 percentage points only.

dairy products. As regards the former group of products, the revenues from export are expected to increase from approximately 40% (3rd variant) to 60% (4th variant) in 2006-2010, reaching the value of USD 2.5-2.9 billion respectively. At the same time, an increase in the import value is expected by 50% to 70% in the case of intensification of liberalisation trends in the global agricultural trade (variants 1-3) or by less than 20% when assuming no further customs tariff reduction (4th variant). In such a situation, the import values of this product group would range from USD 876 million in the case of implementation of the liberalisation scenario according to proposal put forward by the USA, to USD 604 million under current conditions of access to the agricultural markets (Table 3).

As regards dairy products, an increase in the export value in 2006-2010 can be expected within the range from 60% (variants 1-3) to slightly over 40% (4th variant), i.e. to the level of USD 1.8-1.6 billion. Their import value is expected to double from USD 176 million in 2006 to USD 362 million in 2010 provided that the concession of the USA is accepted or to increase by approximately 60%, 80% and 30% respectively in the case of implementation of the proposals put forward by the European Commission, G-20 countries or when no further agricultural trade liberalisation is assumed (Table 3). It should be pointed out that dairy products constitute one of few product groups which in a short-term perspective could become a beneficiary of the global liberalisation of agricultural trade. According to the simulation the export values which are achieved despite the reduction of export subsidies would be higher by USD 200 million than under the conditions of maintaining the status quo. It could encourage starting an export specialisation in this scope, irrespective of the results of WTO negotiations. It should be added that, irrespective of the price conditions of exchange and with the amount of the milk raw material limited by the volume of milk quotas granted to Poland, the growth in the revenues from export seems possible solely through the increase in a degree of processing of products exported from Poland[8].

When comparing the results of fourth simulation variant with the results of trade in meat and milk product in 2007[9] it can be stated that the convergence of prices in Poland and the remaining EU Member States and – as mentioned above – a strong Polish zloty may cause the price competitiveness of the products exported from Poland to decrease and thus the growth rate of the foreign sale thereof to decline as well. On the other hand, if the prices of these goods are maintained at the same level or even rise on the EU and the global markets,

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[8] In 2006 50% of the total volume of dairy products exported from Poland was represented by powdered milk and cream, i.e. the products that are characterized by low level of processing and generate nearly 40% of revenues from the export of this product group. A low level of processing of dairy exports is indicated by the cost of 1 ton of dairy products exported from Poland in the milk equivalent. It amounts to 367 USD/t and it is approximately two times lower than in Denmark (755 USD/t), Netherlands (618 USD/t), Austria (615 USD/t) or Belgium (560 USD/t). To find more information on this subject see [20].

[9] The export value of meat products in 2007 amounted to approximately EUR 1.9 billion (USD 2.6 billion), and the import value – EUR 637 million (USD 873 million). The export of dairy products amounted to EUR 1.2 billion (USD 1.7 billion) and import – EUR 280 million (USD 380 million) [27].

a reduction of import of the analysed product groups might occur in the coming years. With regard to the volume of the national production potential and a relatively high level of self-sufficiency in the scope of meat and dairy products, it can be expected that the share of domestic production in satisfying the demand on the internal market will increase.

In a medium-term perspective (until 2015) it can anticipated that a further increase in the export value of meat, offal and meat products will be recorded, although its dynamics will be slower than in 2006-2010, as well as a decrease in the import expenditure by 20% in the case of progressing agricultural trade liberalisation (variants 1-3) to 25% in the case of abandonment of further efforts towards this objective, in relation to 2010 (Table 3). In consequence, the positive trade balance of the meat sector is expected to gradually improve in 2006-2015.

According to the completed forecasts, the export of dairy products after 2010 will decrease whereas the import will increase all the more when the level of customs tariff reduction is higher. Therefore, it can be concluded that the liberalisation of foreign trade may lead to the loss of the share of the market by milk producers and processing enterprises from Poland in favour of suppliers from countries with lower production costs, i.e. Australia, New Zealand, South America, North America or Ukraine. In consequence, after an increase in the trade surplus in the dairy sector recorded in the short-term perspective, the deterioration of the trade balance generated by this branch can be expected until 2015 (Table 3).

However, Poland is still expected to be the net exporter of dairy products. It should be pointed out that the estimates by M. Pietrzak and P. Szajner [18] also indicate that the trade gap between export and import will narrow down and the positive balance of foreign trade in dairy products will be maintained until 2013[10].

As regards plant products, apart from oil seeds and sugar, in the variants assuming a progressing liberalisation of agricultural trade, an increase in the export value is expected in 2006-2010, but the export growth rate in the plant production sector will be probably lower than in the sector of animal production (Table 3). The highest increase in the revenues from export ranging from 30% in the case of progressing trade liberalisation (variant 1-3) to approximately 40-47% in the case of abandonment of further reduction of barriers to the free trade in agricultural products (4th variant) in relation to 2006 may concern cereals as well as fruit and vegetable. The export value of the former product group would amount then to approximately USD 250 million (variants 1-3) to USD 280 million (4th variant) whereas for the latter group it would reach nearly USD 900 million (variants 1-3) to almost USD 950 million (4th variant). An increase in the import value of plant products to Poland[11] is

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[10] These authors assume that due to production limits by means of quota system, the forecast concerning foreign trade in milk and dairy products depends on the growth rate of consumption. The results obtained by them refer to the situation in which milk consumption in global terms will increase in 2013 to 10.2 billion l, i.e. approximately by 9% – according to the so called slow consumption growth scenario. In the situation of a faster increase in the consumption to 10.8 billion l, i.e. approximately by 15% M. Pietrzak and P. Szajner predict that Poland may become a net importer of milk and dairy products [18].

[11] Excluding cereals in the simulation variant 1, 2 and 4.

expected in 2006-2010 as well, however, a decrease in the values of both export and import of plant products is expected in the medium-term perspective. It seems that the loss of the share of the market by the Polish producers can be explained primarily by the growing competition of cheaper products of comparable quality from the Central and Eastern Europe and Asia, particularly including Bulgaria, Romania and China.

The simulation results concerning the trade in oil seeds and sugar should be taken into consideration too. The revenues from export of oilseeds from Poland may decrease in 2010-2015 even by 45% from approximately USD 45-48 million in 2010 to USD 25-27 million in 2015 (Table 3). Furthermore, it should be pointed out that the differences in the export and import values in the particular years between the analysed simulation variants are insignificant which results from the duty-free import of these product groups to the EU, including Poland, just before the implementation of any liberalisation concessions (Table 2).

Assuming an absence of further agricultural trade liberalisation, an increase in the sugar export value can be expected from USD 330 million in 2006 to USD 380 million in 2010 and an increase in the import value from less than USD 140 million to over USD 180 million (Table 3). The liberalisation of the access to the market may cause a radical deterioration of the trade results of the sugar sector. The export value in this situation may decrease by approximately 50% until 2010, while the import value may increase by approximately 40% in relation to 2006 leading to the trade deficit. The decrease of sugar exports in the conditions of customs tariff reduction and export subsidies can be interpreted as a result of the growing competition of the countries producing cane sugar that is cheaper than the one made from a beetroot.

According to the conducted research, a negative trade balance in the entire analysed period may be recorded in Poland, apart from sugar, in relation to all plant raw materials, with the exception of cereals, oils and fats. It should be pointed out that this deficit is determined, to a great extent, by the complementary nature of the production structures and in consequence of the export and import offers for fruit, vegetable, oil seeds, oils and fats in Poland and its trade partners. The growing import of these products does not pose a direct threat for the national producers until 2010, but it is a kind of the necessary import.

Conclusions

To summarise, it ought to be stated that the incentive to trade development, provided by Poland's accession to the EU is slowly fading away. It can be expected that the export and import values of agri-food products from/to Poland may increase until 2010 in comparison with 2006, but their growth rate will probably be decreasing. On the other hand, a decrease in the trade turnover value in the agri-food sector is anticipated in 2010-2015. Hence, after a considerable improvement in the trade balance recorded until 2010, in the medium-term perspective, either a stabilisation of the trade balance can be expected under the conditions of progressing liberalisation of the global agricultural trade

or a slower growth of the trade balance in the conditions of no further reduction of customs tariffs and export subsidies. The prepared forecasts allow us to conclude that the situation in the coming years will be probably more difficult for the Polish producers and exporters, when they lose their price and cost advantages in the Single European Market and – according to variants assuming the implementation of new liberalisation concessions – the competition of producers from outside the EU increases.

The intensification of the liberalisation tendencies in the global agricultural trade may lead to the loss of the share of the market by farmers and processing enterprises from Poland and, in consequence, it may cause a decrease of the export value and an increase of the import value of agri-food products from/to Poland. However, it should be pointed out that it does not pose any serious threat for the positive trade balance in the Polish agri-food sector until 2015.

The relatively highest export potential and simultaneously lowest level of import penetration can be observed in the animal products market. Therefore, it may be stated that moving in the direction of such an export specialisation should help Poland to maintain the position of a net exporter of agri-food products. Due to the complementary production structures, Poland will probably remain a net importer of plant raw materials until 2015, apart from cereals, oils and fats.

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