

Katarzyna Kita, Karolina Pawlak

Poznań University of Life Sciences, Poland

THE POTENTIAL EFFECTS OF THE LIBERALIZATION OF WORLD AGRICULTURAL TRADE FOR THE AGRI-FOOD SECTOR IN MERCOSUR¹

SKUTKI POTENCJALNEJ LIBERALIZACJI ŚWIATOWEGO HANDLU ROLNEGO DLA SEKTORA ROLNO-ŻYWNOŚCIOWEGO MERCOSUR

Key words: foreign trade, export, import, agri-food products, liberalization of agricultural trade, MERCOSUR

Słowa kluczowe: handel zagraniczny, eksport, import, produkty rolno-spożywcze, liberalizacja handlu rolnego, MERCOSUR

Abstract. Some possible scenarios of development of trade, production, demand and prices in the agri-food sector of the Common Market of the South (MERCOSUR) are presented in the paper. A mathematical model of general equilibrium *Global Trade Analysis Project (GTAP)* was used to make trade forecasts. The results of the analysis showed that the escalation of global agri-food trade liberalization may lead to a growth in the export and import of animal products and sugar and, consequently, may result in an increase in prices and a drop in demand for these goods.

Introduction

Foreign trade is one of the most important factors determining the economic development of countries and international relations. Diversification of production, in individual countries and the entities within their borders, or production specialization are the basic premises for trade. In the agri-food sector, far more than in other sectors of the national economy, this specialization is conditioned by the availability, quality and, above all, the efficiency of production factors, including natural resources. A further liberalization of global agricultural trade is an important factor determining the development of international trade and future competitive advantages of the agri-food sector.

The Common Market of the South (Mercado Commun del Sur – MERCOSUR), which was founded in 1991 by the presidents of Brazil, Argentina, Paraguay and Uruguay under the Treaty of Asuncion², is currently the fourth largest food exporter, following the European Union, NAFTA and ASEAN. In 2011, the share of this region in global agri-food export amounted to almost 10%, while 92% of more than USD 130 billion earned from export of domestic goods was achieved in third country markets. This indicates a relatively greater trade creation than diversion effect³. A relatively high significance of the agri-food

¹ The article was written as part of the research project *Competitiveness of the Polish agri-food trade on non-EU markets in the context of international trade's theories* (UMO-2012/05/N/HS4/00279) granted by the National Science Centre (Narodowe Centrum Nauki).

² About MERCOSUR see: Chwiej [2010], Duchnowska [2009] Manzetti [1990] and Carson [2000]. From July 2012 Venezuela is also a member of MERCOSUR. It is worth mentioning that firstly, Venezuela's accession agreement to MERCOSUR had already been signed in mid-2006, but the country had not gained full membership in the trade bloc (Paraguay did not ratify the Agreement), and secondly - in July 2012 Paraguay was suspended in membership rights, as a consequence of the impeachment of President F. Lugo. Paraguay membership in MERCOSUR is suspended until the restoration of democracy in this country is achieved – to the results of elections planned for April 2013 [*Mercosur suspends...* 2012] In December 2012, Bolivia signed an application for accession to MERCOSUR (it must be ratified by all members of the trade bloc) [*Bolivia signs...* 2012]. Chile (since 1996), Bolivia (since 1996), Peru (since 2003), Ecuador and Colombia (since 2004) are associated members with MERCOSUR (benefiting from the free trade area).

³ Among others intraregional trade is hindered by: a low level of implementation of MERCOSUR law into national law and hence its subsequent noncompliance by members, unilateral trade restrictions which are not consulted with other members, the phenomenon of double taxation of goods from third countries and many non-tariff barriers [*Trade measures...* 2012].

sector in regional export is observed in this part of the world, where agri-food products provide 37% of total commodity export revenues. But as far as food import is concerned, the signatories of the Asuncion Treaty spend it on only slightly more than 4% of the total import expenses [UNCTADStat⁴, <http://unctadstat.unctad.org/ReportFolders/reportFolders.aspx>, 07.03.2013 own calculation], which indicates a relatively high level of food self-sufficiency. Abundant natural resources and a relatively big and strong agricultural sector, with production capacity meeting the food needs of the internal market and providing an agri-food products surplus that can be exported abroad, create export opportunities of this trade bloc, often known as “granary of the world”⁵.

Having these facts in mind, the possible effects of a potential liberalization of the world agricultural trade for the agri-food sector in MERCOSUR are presented in the paper.

Material and methods

The study used a mathematical model of general equilibrium called the *Global Trade Analysis Project* (GTAP)⁶, created in 1992 in the Global Trade Analysis centre and functioning in the Department of Agricultural Economics at Purdue University. The GTAP model database comprises of 129 regions characterised by an open economy structure and 57 sectors (groups of products or products) of national economies. For analyses, it is possible to assume the aggregation suggested by the author of the model or other users, or to create one’s own aggregation adjusted to the needs of the conducted research. An original aggregation of the model database was used in the study. The following product groups were distinguished: cereals, fruits, vegetables and nuts, oilseeds, oils and fats, sugar, meat, offal and meat products, milk and dairy products, other plant raw materials, other non-processed animal products, other food products, other products and services. The aggregation of countries came down to eight groups – the most important regional trade blocs participating in the global agricultural market, including MERCOSUR.

In terms of foreign trade liberalization, a simulation was carried out in two variants, differing in the degree of reduction of customs tariffs. At first, it was assumed that the 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

Table 1. Agricultural tariff cuts proposals in *Modalities on Agriculture* on 6 December 2008

Tabela 1. Propozycje redukcji cel na artykuły rolne zawarte w *Modalities on Agriculture* z dnia 6 grudnia 2008 roku

Tiers/ <i>Pasmo redukcyjne ad valorem</i> [%]	Cuts/ <i>Proponowana redukcja cla</i> [%]	Tiers/ <i>Pasmo redukcyjne ad valorem</i> [%]	Cuts/ <i>Proponowana redukcja cla</i> [%]
developed countries/ <i>kraje rozwinięte</i>		developing countries/ <i>kraje rozwijające się</i>	
(0;20>	50	(0;30>	2/3 of the cut for developed countries/2/3 <i>stawki redukcji proponowanej dla krajów rozwiniętych</i>
(20;50>	57	(30;80>	
(50;75>	64	(80;130>	
Over/ <i>Powyżej 75</i>	70	over/ <i>powyżej 130</i>	

Source: own elaboration based on *Revised draft... 2008*

Źródło: opracowanie własne na podstawie *Revised draft... 2008*

⁴ Agri-food products classified in Chapters 0, 1, 4 and 22 of the Standard International Trade Classification (SITC).

⁵ The commanding country in MERCOSUR is Brazil, which represents over 70% of the surface of MERCOSUR, 80% of the population and 70% of GDP of this trade bloc. The second largest economy is Argentina responsible for 25% of MERCOSUR’s GDP [Inter-American... 2013]. Both countries are one of the largest food producers in the world. They are leaders in corn production. Brazil is the world’s largest exporter of beef and poultry. It is also the largest producer of sugar. In turn, Argentina is a major centre of milk production, also specializing in the cultivation of soybeans, sunflowers and tea [Kita 2012].

⁶ General equilibrium models are the most widely used tools to measure the medium- and long-term effects of the integration of markets and the elimination of trade barriers. See: [Pawlak, Poczta 2011]. On the one hand, GTAP is based on the adequately adapted Leontief’s input-output matrix, on the other – on the assumption of Walras equilibrium. See: [Gadomski, Owsiniński 2008].

also assumed [*Revised draft...2008*]. A band formula of customs tariffs reduction was applied, which provides for the division of all tariffs into four reduction bands, depending on their value. For each of the bands a different reduction coefficient is to be applied – the higher the level of customs tariffs, the higher the coefficient (Tab. 1). The second simulation variant assumed a full multilateral liberalization of world agricultural trade, namely a total elimination of customs tariffs and export subsidies.

The extrapolation of changes in trade, prices, production and demand for the major agri-food products in trade blocs was made by means of Gragg's nonlinear estimation⁷.

Liberalization of world agricultural trade – consequences for the agri-food sector in the Common Market of the South (MERCOSUR)

Simulation calculations with the use of the GTAP model suggests that the progressive liberalization of global agricultural trade can lead to a significant increase of export of meat, offal and meat products, as well as sugar from MERCOSUR. In case of full multilateral liberalization of agricultural trade (variant II), income from the export of these two commodity groups may rise by 222% and 76%, respectively (Tab. 2). At the same time MERCOSUR can strengthen its competitive position on the global cereals market. In addition, Argentina, Brazil, Paraguay, Uruguay and Venezuela could become a major exporter of dairy products. The increase of the export value of this product group may range from 14% – as a result of the implementation of the *draft modalities* from the end of 2008 (variant I) – to up to 20% in the case of full, multilateral liberalization of agricultural trade.

Relatively small negative changes can be expected in the export of oilseeds, as well as oils and fats, but a greater reduction in export revenues may take place as a result of full multilateral elimination of customs tariffs and export subsidies (Tab. 2). The reduction in the level of MERCOSUR's market protection may cause an import growth of most commodity groups

Table 2. Changes in values of exports and imports of major groups of agri-food products in MERCOSUR in the conditions of liberalization of world agricultural trade – changes in comparison with the state resulting from maintaining the existing level of tariff protection of markets

Tabela 2. Zmiany wartości eksportu i importu ważniejszych grup produktów rolno-żywnościowych w MERCOSUR w warunkach liberalizacji światowego handlu rolnego – zmiany w porównaniu ze stanem wynikającym z utrzymania obecnego poziomu ochrony celnej rynków

Product group/ <i>Grupy produktów</i>	Export [%, FOB prices]/ <i>Eksport [%; ceny FOB]</i>		Import [%, CIF prices]/ <i>Import [%; ceny CIF]</i>	
	I	II	I	II
Cerals/ <i>Zboża</i>	4.36	23.56	9.90	25.77
Oilseeds/ <i>Nasiona i owoce oleistych</i>	-2.51	-5.52	-0.33	-1.24
Fruits, vegetables and nuts/ <i>Owoce, warzywa i orzechy</i>	5.92	5.12	6.94	15.95
Oils and fats/ <i>Oleje i tłuszcze</i>	-6.15	-12.92	11.63	36.51
Sugar/ <i>Cukier</i>	29.91	76.88	24.88	69.40
Meat, offal and meat products/ <i>Mięso, podroby i przetwory mięsne</i>	109.06	222.46	18.87	48.63
Milk and dairy products/ <i>Mleko i produkty mleczarskie</i>	14.06	20.01	38.60	141.35

I – the liberalization of world agricultural trade according to *modalities* on 12/06/2008/*liberalizacja światowego handlu rolnego według modalities z dnia 6.12.2008*, II – full multilateral liberalization of world agricultural trade/*pełna multilateralna liberalizacja światowego handlu rolnego*

Source: GTAP simulation

Źródło: Symulacje GTAP

⁷ Nonlinear estimation is a general adjustment procedure which is used for the estimation of any type of dependence between the dependent variable (being discussed) and independent variables. Estimation errors in this method are smaller than in the case of linear estimation.

Table 3. Changes in volume of production, demand and prices paid by private households for major agri-food products in MERCOSUR in the conditions of liberalization of world agricultural trade – changes in comparison with the state resulting from maintaining the existing level of tariff protection of markets

Tabela 3. Zmiany wielkości produkcji, popytu i cen płaconych przez prywatne gospodarstwa domowe za podstawowe artykuły rolno-spożywcze w MERCOSUR w warunkach liberalizacji światowego handlu rolnego – zmiany w porównaniu ze stanem wynikającym z utrzymania aktualnego poziomu ochrony celnej rynków

Product group/Grupy produktów	Production/ Produkcja		Demand/ Popyt		Prices/ Ceny	
	I	II	I	II	I	II
Cereals/Zboża	1.69	6.99	-0.18	-0.43	3.37	7.57
Oilseeds/Nasiona i owoce oleistych	-4.44	-9.46	-0.14	-0.28	2.75	5.59
Fruits, vegetables and nuts/Owoce, warzywa i orzechy	0.33	-1.07	-0.19	-0.36	3.41	6.80
Oils and fats/Oleje i tłuszcze	-4.34	-9.47	-0.05	-0.03	1.63	3.03
Sugar/Cukier	8.43	21.18	-0.02	0.00	1.51	2.95
Meat, offal and meat products/ Mięso, podroby i przetwory mięsne	24.99	48.87	-0.45	-0.93	3.08	6.43
Milk and dairy products/Mleko i produkty mleczarskie	-0.91	-4.33	0.04	0.30	1.30	1.84

Explanation/Objaśnienia: see tab. 2/patrz tab.2

Source: GTAP simulation

Źródło: Symulacje GTAP

(except oilseeds) – the larger the growth, the greater the range of tariff cuts will be realised. The simulations showed that MERCOSUR countries can expect the most dynamic changes in import expenditures on milk and dairy products, as well as sugar. The import value of these products may increase from 25% to 39%, in case of the implementation of the liberalization proposals of December 2008 (variant I) and from 69% to 141%, as a result of full, multilateral liberalization of world agricultural trade. The projected rapid development of MERCOSUR's agri-food trade may not only be a consequence of production capacity, but also the location rent, as well as the cost and price advantages, enabling member states to increase market share and strengthen their competitive position in the world market.

The projections showed that the elimination of export subsidies and customs tariffs may contribute to changes in production (Tab. 3). On the one hand, progressive liberalization can lead to import growth and thus, to a decline in domestic production. Such effects can be expected mainly in the oils and fats, as well as oilseeds market. On the other hand, the countries of MERCOSUR, benefiting from free access to markets of other countries within preferential trade areas, are likely to increase the volume of export, resulting in an increase in production. Just as in the field of trade, the biggest changes can be expected in sugar, as well as meat, offal and meat products markets. Depending on the scale of liberalization, the production of these product groups can grow from about 8% to 21% and from 25% to 49%, respectively. The results of the simulations suggest that the implementation of liberalization proposals from December 2008 would not significantly affect the volume of production of fruits and vegetables, which is reflected in the complementary structure of internal production and import of this commodity group, and this, in turn, from the point of view of availability of products on the internal market, indicate the necessity of import made by MERCOSUR. It should be noted that regardless of growth or fall of domestic production, consumers in MERCOSUR countries are likely to have to deal with an increase in agricultural prices – the greater they are, the higher the tariff cuts will be. Moreover, due to rising prices, consumer demand in MERCOSUR countries may be limited, but the drop should not exceed 0.2% – in the case of partial and 0.4% – in the case of full, multilateral liberalization of world agricultural trade⁸.

⁸ With the exception of meat, offal and meat products, where a fall in demand could be higher and reach 0.45% and 0.93% respectively.

Summary

The results of the analysis showed that MERCOSUR countries, having cost and price advantages, resulting mostly from lower labor costs and/or location rent, may be the beneficiaries of the further liberalization process. Using free access to markets of trading partners (especially developed countries), MERCOSUR member states may increase the volume of agricultural production and export. In turn, the increase in prices of major food products can contribute to a slight decline in effective demand. It should also be noted that more dynamic changes in trade, production, demand and prices would be revealed in case of the implementation of a more advanced liberalization scenario.

Bibliography

- Bolivia signs Mercosur incorporation protocol and becomes sixth member*, 8 December 2012, <http://en.mercopress.com/2012/12/08/bolivia-signs-mercocor-incorporation-protocol-and-becomes-sixth-member>, access 13.03.2012.
- Carson J. 2000: *On the Road to Southern Cone Economic Integration*. Journal of Intraamerican Studies and World Affairs, vol. 42, issue 1, pp. 23-42.
- Chwiej E. 2010: *Mercosur – Organizacja regionalnej współpracy gospodarczej w Ameryce Południowej*. Universitas, Kraków.
- Duchnowska E. 2009: *Perspektywy utworzenia strefy wolnego handlu UE-Mercosur*, Wspólnoty Europejskie nr 4(197), s. 25-35.
- Gadomski J., Owsiniński J.W. 2008: *Ekonometryczny model do badania wpływu unijnej i krajowej polityki rolnej na wyniki polskiego rolnictwa. Założenia i wstępne analizy*, [W:] A. Kowalski, M. Wigier (red.), *Rozwój sektora rolno-spożywczego w Polsce na tle tendencji światowych*, Raport Programu Wieloletniego 2005-2009 nr 101, IERiGŻ-PIB, Warszawa.
- Inter-American Development Bank – Statistics and Databases*, <http://www.iadb.org/en/research-and-data/statistics-and-databases,3161.html>, accessed 16.02.2013.
- Kita K. 2012: *Konkurencyjność polskiego sektora rolno-spożywczego w handlu z Mercosur*, UE w Katowicach, w druku.
- Manzetti L. 1990: *Argentine-Brazilian Economic Integration: An Early Appraisal*. Latin American Research Review, vol. 25, issue 3, pp. 109-140.
- Mercosur suspends Paraguay over Lugo impeachment*, 29 June 2012, <http://www.bbc.co.uk/news/world-latin-america-18636201>, access 13.03.2012.
- Pawlak K., Poczta W. 2011: *Międzynarodowy handel rolny. Teorie, konkurencyjność, scenariusze rozwoju*. PWE, Warszawa.
- Revised draft modalities for agriculture*, TN/AG/W/4/Rev.4, WTO, 6.12.2008.
- Trade measures stepped up in MERCOSUR*, Monthly newsletter INTAL, N° 190 – June 2012, Inter-American Development Bank, www.iadb.org, access 21.03.2013.
- UNCTADStat, http://unctadstat.unctad.org/ReportFolders/reportFolders.aspx?sCS_referer=&sCS_ChosenLang=en, access 07.03.2013.

Streszczenie

Przedstawiono możliwe scenariusze rozwoju wymiany handlowej, produkcji, popytu i cen w sektorze rolno-spożywczym Wspólnego Rynku Południa (MERCOSUR). W badaniach wykorzystano matematyczny model równowagi ogólnej Global Trade Analysis Project (GTAP). Wyniki analizy wskazują, że nasilenie tendencji liberalizacyjnych w światowym handlu rolnym może spowodować w państwach zrzeszonych w MERCOSUR wzrost wartości eksportu i importu produktów pochodzenia zwierzęcego oraz cukru, a w konsekwencji wzrost cen i spadek popytu na te towary.

Correspondence address
 MSc Katarzyna Kita, Ph.D Karolina Pawlak
 Poznań University of Life Sciences
 Department of Economics and Economic Policy in Agribusiness
 28 Wojska Polskiego St., 60-637 Poznań
 phone: +48 61 848 75 76
 e-mail: kita@up.poznan.pl, pawlak@up.poznan.pl