
Agriculture in Poland in the context of trade restrictions between the European Union and the Russian Federation in 2010-2018

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Abstract

The economic sanctions imposed by the European Union in March 2014 on the Russian Federation were caused by Russia's unlawful annexation of Crimea, which exploited the political crisis in Ukraine. In response, Russian President Vladimir Putin issued a decree on August 7 prohibiting the importation of selected groups of agri-food commodities from countries that previously imposed sanctions. The article focuses on an attempt to describe the effects of the introduced trade restrictions on the functioning of the agricultural market in Poland. Spectral analysis, simple regression and comparative methods were used for the study. The study showed that the trade restrictions introduced had the character of structural changes in the export and import of Polish products, but did not significantly contribute to the functioning of the market itself. The trade restrictions introduced have contributed to a significant reduction in trade between Russia and Poland in 2014-2016 however, there is a gradual improvement in trade relations with Russia, the value of both imports and exports is steadily increasing with each subsequent year.

Keywords: embargo, Russia, agricultural products, apples

Introduction

The experience of the crisis of the first decade of the 21st century has shown that the policy of international relations in the European Union requires not only precise determination of economic goals and their subsequent monitoring, but also controlling the

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macroeconomic situation that has a real impact on activities in the region. The crisis showed the weakness of the Community indicating that it needs a new vision of long-term development⁴. Current economic events should, therefore, be subject to appropriate research that will help determine the impact of events on the shaping of the economic structure, as well as enable appropriate measures (including public policies) to be taken in the future.

In 2014, as a result of the ongoing Ukrainian crisis, in which the Russian Federation was involved, the economic relations between the European Union (including Poland) and Russia deteriorated. The consequence of which was the reduction of exports of some export goods - restrictive sanctions were introduced trade in meat and milk and their products, as well as fruits and vegetables⁵.

The article presents an attempt to capture the impact of the introduced embargo on the Polish agricultural market and the trade in agricultural products, thus providing information on the threats resulting from the deterioration of the geopolitical situation in the region of Europe.

Aim and research methods at work

The main purpose of the work was to present the impact of trade restrictions between the European Union and the Russian Federation on the functioning of agriculture in Poland. The study used spectral analysis (which served to determine the cyclicity of variables), simple regression and a comparative method of selected macroeconomic indicators such as: average prices of agricultural products, fruit and vegetable harvest, as well as export and import of selected products in relation to selected political and economic events . The study includes data for the period from 2010 to 2018. The selection of the research period was dictated by the occurrence of political events at that time, which translated into the functioning of the economies of the analysed country.

Causes of changes in relations between the European Union and the Russian Federation

On November 21, 2013, the largest wave of protests in Ukraine began since the country's independence in 1991. The reason for these protests was the postponement, by

⁴ Mierzejewski M., *Interwencjonizm na liberalnych rynkach. O zmianach w spojrzeniu na gospodarkę w reakcji na kryzys pierwszej dekady XXI wieku*, Rynek Społeczeństwo Kultura, nr 2(14), 2015.

⁵ Firlej K., Firlej Ch., Mierzejewski M., *Znaczenie sankcji gospodarczych dla bilansu handlu zagranicznego grupy Wyszehradzkiej w obszarze rolnictwa*, Stowarzyszenie Ekonomistów Rolnictwa i Agrobiznesu, Roczniki Naukowe, Tom XVIII, zeszyt 3, 2016, p. 53-54.

President Viktor Yanukovich, of a signature on the association law with the European Union⁶. At the peak moment (December 1, 2013), according to the Ukrainian media, the number of protesters in Kiev reached 800,000 demonstrators. A wave of pressure from the West and protesters led to the restoration of the 2004 constitution and expedited elections. On February 21, the police from Kiev were removed, and a day later, Yanukovich was dismissed from office. After the victory of the social movement called "Euromaidan", the trend of separatist activities in the Crimea has increased. As a consequence of these events, soldiers and the Russian fleet appeared near the peninsula⁷. On February 27, the separatists occupied the buildings of the parliament and government of the Crimean Autonomous Republic in Simferopol and the military airport in Sevastopol. On March 16, after the results of the referendum, Crimea and the free city of Sevastopol were joined to the Russian Federation⁸. These actions were defined as violations of international law and then condemned by Western states, which in response to the existing situation decided to suspend Russia's participation in the G8 group, and impose sanctions based on freezing the activists to contribute to the threat of Ukraine's independence, limiting trade and access to strategic technologies for this country⁹. August 7, 2014. President Vladimir Putin, in response to sanctions imposed on Russia in connection with the war in Ukraine, imposed an embargo on specific goods and raw materials, including in particular on foodstuffs representing about 15% of trade between Poland and Russia¹⁰.

Impact of geopolitical changes on the situation of the agricultural sector

In the scientific literature, the embargo is defined as a sanction on the import or export of products to a given country, the seizure of property or the ban on using foreign commercial vessels from territorial waters¹¹. The Russian embargo, which was introduced on August 7, 2014, included the ban on the importation of specific agri-food commodities by the Russian Federation for one year, and was extended over time. The scope covered goods originating

⁶Junko J., *Ukraina. 2 tys. ludzi zebrano się w Kijowie aby poprzeć umowę z UE*, Polska Agencja Prasowa, archive.is, download date: 21/04/2019.

⁷ Stępniewski T., Gil A., Szabaciuk A., Visvizi A., *Majdan 2014: Ukraina na rozdrożu*, Rocznik Instytutu Europy Środkowo-Wschodniej Studia Europejskie, 2015, p. 37.

⁸ Ibidem p. 46.

⁹ Zięba R., *Międzynarodowe Implikacje kryzysu ukraińskiego*, International Relations nr 2, 2015, p. 13-40.

¹⁰ Nacewska-Twardowska A., *Wpływ sankcji rosyjskich na wymianę towarową Polski*, Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu, 2015, p. 220-230.

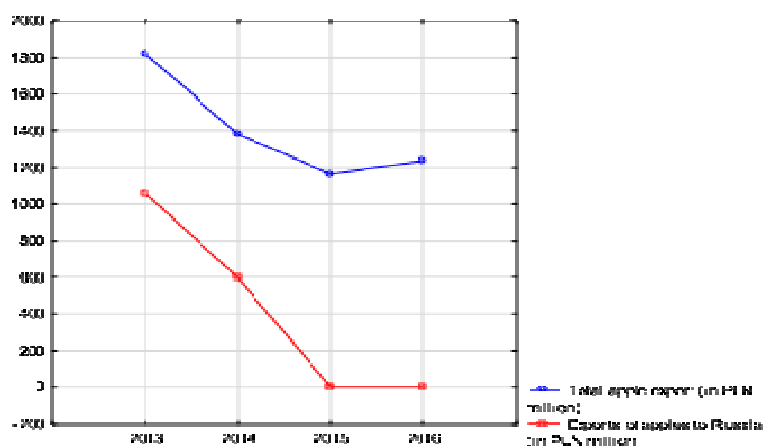
¹¹ Kwiecińska M., *Znaczenie i rola operacji reagowania kryzysowego dla międzynarodowego pokoju i bezpieczeństwa*, Obronność. Zeszyty Naukowe 1(13), 2015, p. 39-53.

not only from countries belonging to the European Union, but also countries such as the USA, Australia, Norway and Canada¹². Poland was exposed to the largest losses caused by the embargo on the fruit and vegetable market (ban on the export of apples, tomatoes, cabbage, mushrooms) and meat (ban on pork and poultry exports), which will be depicted later in the article.

It should also be borne in mind that changes in exports to Russia were also caused by other factors, such as: a decline in GDP dynamics¹³, weakening of the domestic currency¹⁴, and the ban on pork imports resulting from African Swine Fever (ASF)¹⁵.

Among Polish entrepreneurs, the greatest concern concerned the embargo on agricultural products, especially apples, due to the fact that the Federation was one of the leading importers of Polish apples. Pessimistic moods among farmers and representatives of the government concerned the effects of the introduction of the embargo, mainly losses resulting from unsold goods, as well as interest on loans taken. The immediate reaction of the European Union consisted in the launch of a marketing campaign aimed at finding new markets and intervention buying-in taking place throughout the European Union (PLN 302.3 million in 2014 and as much as PLN 658.3 million in 2015)¹⁶.

Chart 1. The level of apple exports in 2013-2016



Source: Own study based on data: stat.gov.pl, download date: 21/04/2019.

¹² Kapsdorferová Z., Sviridova O., *Impact of sanctions on agricultural policy in European Union and Russia*, Slovak University of Agriculture in Nitra

¹³ Białowas, T., *Główne czynniki spadku dynamiki handlu międzynarodowego w latach 2008–2015.*, *International Business and Global Economy*, 36, p. 114-127.

¹⁴ Gryczka M., *Wpływ zmian kursu walutowego na wartość eksportu towarowego wybranych krajów.*, *Przedsiębiorczość i Zarządzanie*, 19, p. 51-66.

¹⁵ Pasińska, D., *Zmiany w polskim handlu zagranicznym produktami wieprzowymi po wprowadzeniu przez Rosję embarga.*, *Problemy Rolnictwa Światowego*, Tom 17, zeszyt 2, 2017, p. 186-198.

¹⁶ Główny Urząd Statystyczny, *Produkcja i handel zagraniczny produktami rolnymi 2016 r.*, 2017.

Chart 1 showing the export of Polish apples clearly illustrates the impact of trade restrictions on the level of exports of this fruit. The export of apples to Russia in 2014 accounted for 43.24% of the total fruit exports, while in 2015 and 2016 it was only 0.02% and 0.01% respectively. The first year of embargo (2014-2015), apple exports to Russia decreased from 595.9 million. PLN (which accounted for over 1/3 of the whole export of this fruit) to 194.9 thousand. zł. The export of apples in general maintained a downward trend until 2015, after which the export of this fruit increased. This means that the exclusion of the Russian market did not affect negatively the whole export of this fruit by Polish fruit farmers. The already mentioned increase in total exports of apples from the level of 1167.4 million. PLN in 2015 to 1238,1 million. In 2016, exports to Canada, China and the countries of the Arabian peninsula were revived, and the increase in exports to Belarus, where Polish apples were purchased, was also significantly affected, and then they were re-exported to Russia¹⁷. The Russians also had to satisfy the demand for this fruit, at the same time applying the provisions contained in the embargo, so Polish apples were still exported to Russia, but with Belarusian labelling¹⁸.

The consumption of Polish apples was not large enough in relation to the size of the fruit harvest. This resulted in increased processing of this fruit into products such as apple concentrates and ciders, which are then successfully sold abroad¹⁹. According to Eurostat data, as much as 87% of apple concentrates produced are exported²⁰. In the July 2016 season - March 2017, 210.8 thousand were exported. tons of product, which is a nine percent increase to the same period of the previous year²¹. Worth noting are also changes in imports to Germany, the largest importer of concentrate, which decreased by 13% compared to the same period last year. The decrease was also noted in exports to the United Kingdom, where the difference is quite significant, because from the level of 19.5 thousand. tonnes, last year, fell to 14.1 thous. tons this year which means a decrease by as much as 28%²².

The prices and size of the pigs, but also cattle, and poultry in Poland are influenced by many factors such as meat prices on the world market and on foreign internal markets, the

¹⁷ Informacyjna Agencja Radiowa, *Białoruś: ujawniono schemat reeksportu polskich jabłek do Rosji*, download date: 21/04/2019.

¹⁸ Ibidem.

¹⁹ Kiereczyńska S. *Produkcja, eksport i ceny zagęszczonego soku jabłkowego a ceny skupu jabłek do przetwórstwa w Polsce*, Roczniki Naukowe Ekonomii rolnictwa i rozwoju obszarów wiejskich, tom 102, 2015, s. 74-81.

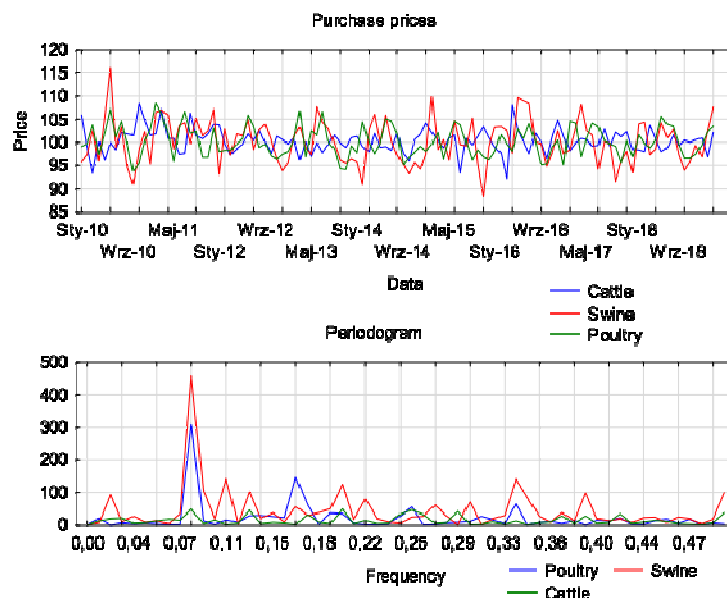
²⁰ Eurostat, ec.europa.eu/Eurostat, download date: 21/04/2019.

²¹ Ibidem

²² Ibidem

size of farms in other countries, as well as EU legislation on animal husbandry, such as the requirements for biosecurity, as well as the spread of ASF²³.

Chart 2. The average purchase prices for cattle, swine and poultry



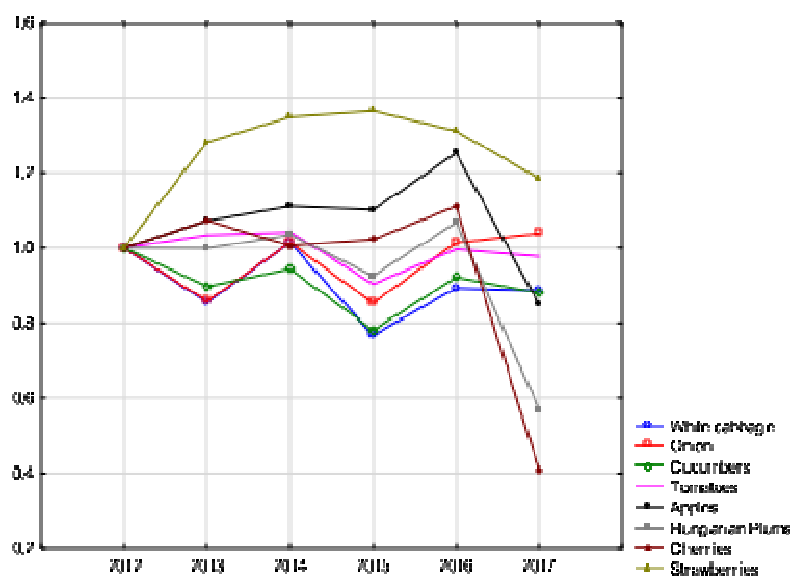
Source: Own study based on data: stat.gov.pl, download date: 21/04/2019.

Chart 2 shows the average prices of cattle, swine and poultry. The shape of the chart clearly shows the seasonality of meat prices, in the summer months prices are much higher. The biggest fluctuations are observed in the prices of pigs. This seasonality is associated with the occurrence of the phenomenon of pig holes and characteristic for the market under investigation²⁴. Chart 2 also presents the results of the spectral analysis of seasonal fluctuations, which confirms the observation of cyclicity indicating the occurrence of annual cycles (frequency of 0.07). Despite significant fluctuations, prices of cattle and poultry in the first half of 2018 are comparable to the same period of 2012. A significant drop in meat prices was also noticed after the introduction of the embargo by Russia in 2014.

²³ Sulima E., *Pogłowie trzody chlewnej, a ceny na rynku*, agrofakt.pl, download date: 21/04/2019.

²⁴ Mierzejewski M., Lampart M., *Analysis of Business Cycles in the Breeding of Pigs, Cattle and Poultry and their Relationship to the Causality of Wheat and Rye Cultivation in Poland*, Scientific Journal Warsaw University of Life Sciences – SGGW, 2018.

Chart 3. Index of crop changes in Poland (in thousands of tons)

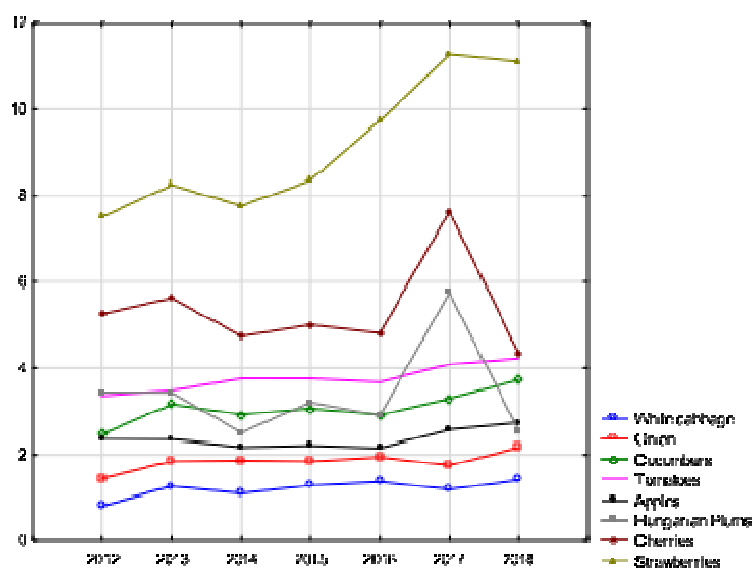


Source: Own study based on data: stat.gov.pl, download date: 21/04/2019.

Chart 3 shows the development of the dynamics of fruit and vegetable harvest in 2012-2017. The year 2012 was recognized as the base year (100%), the size of the sets in individual years is compared to the base year and expressed as a percentage. One of the main factors affecting the size of the harvest are weather conditions prevailing in a given period. As can be seen from the chart, the dynamics of fruit and vegetable harvests do not coincide with each other. The exception are the years 2015, where, with the exception of strawberries and cherries, the harvest of other fruits and vegetables was smaller than last year and 2016, when, in addition to strawberries, the harvest of all vegetables and fruits was significantly higher compared to the previous year. The aforementioned strawberry harvests show different tendencies from other vegetables and fruits, until 2015 there was a steady growing trend, while in 2016 and 2017 the harvest of this fruit was gradually decreasing. A significant drop in the fruit harvest in 2017 was caused by a wave of frosts in April and May, which caused losses, among others in apple, cherry and pear orchards, negatively affecting the fruit harvest. Not without significance was also a rainy summer, which favored the development of fungal diseases as well as pests²⁵. The most losses were observed in the case of cherries and plums, the harvest of which was nearly 60% lower than in the previous year, while the weather conditions described above did not affect the harvest of vegetables.

²⁵ Banaszkiwicz A., *Zbiory owoców 2017 - rok słabszy od ubiegłego*, agrofakt.pl, 2017, download date: 21/04/2019.

Chart 4. Average prices of fruit and vegetables obtained by farmers at marketplaces (per 1 kg)



Source: Own study based on data: stat.gov.pl, download date: 21/04/2019.

Chart 4 presents the prices of selected fruit and vegetables obtained by farmers at marketplaces in 2012-2018. The biggest fluctuations were observed in 2017, when prices of plums increased by nearly 98% in relation to the previous year, and cherries by about 60%. These sizes coincide with the losses in the harvest of this fruit this year, which were also estimated at around 60%. A different tendency in prices is shown by the prices of strawberries, which from 2014 achieved a dynamic growth that lasted until 2018, when for 1 kilogram of this fruit had to pay slightly less than last year. In the case of prices of other vegetables and fruits, a steady growing trend is observed with slight fluctuations.

In summary, changes in prices of selected agricultural products in most cases show a steady upward trend, which in part coincides with the steady rise in prices in the Polish economy in general. It should be noted, however, that there are exceptions as in the case of cherries and plums, whose prices in 2017 significantly increased due to losses caused by bad weather conditions. However, these exceptions are only one year old. It should also be noted that no reactions were observed in the number of harvests and prices of fruit and vegetables for geopolitical changes such as the Russian embargo.

The basic implication of introducing an embargo on selected international markets is to reduce the volume of imports and exports of selected goods. It is worth noting, however, that Poland belongs to those countries of the European Union, which are characterized by

strong links between economic growth and the Union's internal market, which also determines the size of the balance of international trade²⁶.

Table 1. Poland's trade exchange in 2010 – 2018

Year	Value of goods imported by country of origin (PLN '000)						
	China	Czech Republic	Germany	France	Great Britain	Italy	Russia
2010	50448680	20261745	117305921	23165150	14656790	30532906	54864222
2011	54220993	23223009	139088626	26012894	16339239	33622322	75225693
2012	57582925	23801404	138180033	25306530	15841913	34010074	91046914
2013	61127085	24054257	142161243	25041258	17184053	34940341	79577666
2014	73454353	25363820	155187271	26371260	18239586	39762124	72726843
2015	85748368	25805479	169612139	27792839	20081725	39906118	53735263
2016	94235246	28467954	183201468	31273682	20354951	43722073	45337870
2017	103676744	31745148	203580504	34159487	21140130	46868005	55934479
2018	111555177	32828464	215270964	35037363	23301730	48192364	70751894
Year	Value of goods export (PLN '000)						
	China	Czech Republic	Germany	France	Great Britain	Italy	Russia
2010	4920763	28773242	125550685	32571328	30205032	28528749	20135197
2011	5537798	34837089	145764185	34205600	36014165	29752636	25109241
2012	5707579	38129664	151747738	35403612	40830367	29273551	32261966
2013	6660522	40110275	162547870	36366899	42137720	27957726	34069326
2014	7044422	44844147	182470668	38792053	44201900	31477771	29311011
2015	7609880	49834099	203544299	41595137	50608767	36303326	21418366
2016	7511845	52800996	220024260	44215822	53436889	38300195	22694586
2017	8766367	56810929	242585939	49691259	56818721	43225391	26352672
2018	9028305	59808114	264763089	52061123	58227367	43216073	28830835

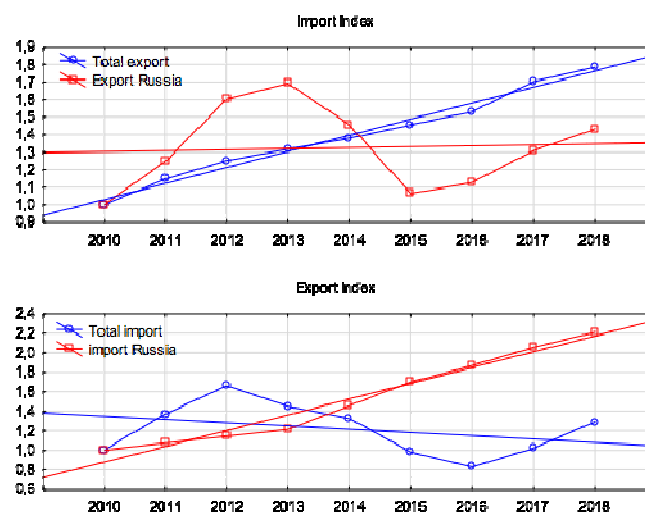
Source: Own study based on data: stat.gov.pl, download date: 21/04/2019.

The largest trading partner of Poland is Germany (table 1), both the largest importer and exporter for Poland. Over 20% of Polish exports of agri-food products are found by German buyers in the Federation. One of the key factors for which export with Germany is at such a high level is the neighbourhood, which means relatively lower transport costs and

²⁶ Mierzejewski M., *Stabilność makroekonomiczna Polski na tle krajów Unii Europejskiej w latach 2007 – 2017*, Zeszyty Naukowe WSES w Ostrołęce, 2018.

shorter waiting times for products. This is a very positive accent, especially considering short-shelf life goods such as fruits and vegetables. Since the introduction of the embargo on Polish agricultural products (2014-2018), exports to Germany have steadily increased. There is a significant impact of geopolitical changes related to the crisis in Ukraine, embargo and sanctions on trade relations between the Russian Federation and Poland. Although imports of goods show a downward trend already from 2012, the largest collapse is visible in 2014-2016. In the case of goods exports, this crisis is much more visible, as in 2015, compared to the previous year, exports decreased by nearly 25 percent. What is worth noting is the gradual improvement in trade relations with Russia, as the values of both imports and exports increase with each subsequent year. It is also worth mentioning the steady increase in the import and export of goods between Poland and each of the countries listed in the table.

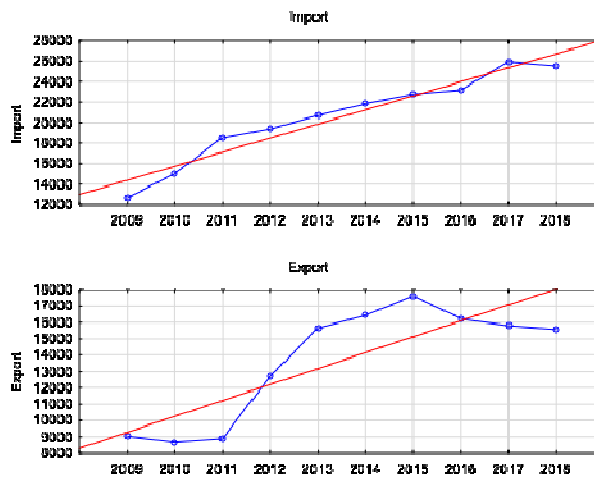
Chart 5. Changes in the value of imports and exports in 2010-2018



Source: Own study based on data: stat.gov.pl, download date: 21/04/2019.

As shown in Chart 5, the value of Poland's trade exchange with the Russian Federation in relation to the shaping of changes with other markets indicates clear changes resulting from the introduction of trade restrictions. This change was more clearly visible in the case of exports, which in 2016 reached the minimum value in the audited period, thus reaching the level below the value from 2010.

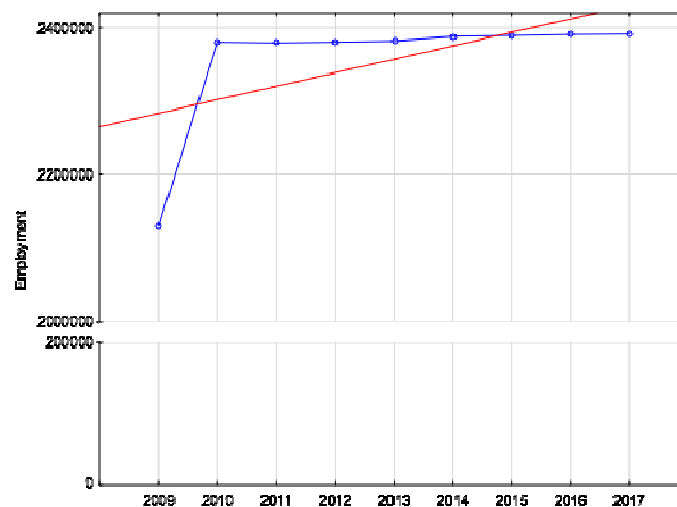
Chart 6. Changes in the volume of imports and exports of Polish agricultural products in 2009 - 2018 (PLN million)



Source: Own study based on data: stat.gov.pl, download date: 21/04/2019.

The data presented in Figure 6 indicate an upward trend in both Polish exports and imports of agricultural products. In the case of values related to exports, one can notice a higher annual variation in value - after removing the upward trend from the data, the standard deviation value for the volume of import was 1045.33339, while for exports, it was 1928,09809. The increased volatility of agricultural exports in relation to imports indicates that the volume of imports to Poland is less dependent on the global market situation. In the case of exports, a slowdown in its growth in 2014-2018 can be noted which may suggest the impact of the introduced embargo.

Chart 7. Employment in agriculture



Source: Own study based on data: stat.gov.pl, download date: 21/04/2019.

The size of employment in agriculture in the examined period of introducing the embargo did not change rapidly, as illustrated in Chart 7. The average value in the analyzed years was 2 357 124, and the standard deviation 85 038. In addition, in 2010-2018 a stable increase in employment in agriculture was observed, which indicates that the introduced trade regulation did not affect the shaping of the number of people working in agriculture.

Summary

The purpose of the article was to describe the effects of economic sanctions and embargoes imposed on the functioning of the agricultural sector in Poland. Data on average prices of agricultural products, fruit and vegetable harvest as well as export and import of selected products and countries were analyzed. The following conclusions have been drawn from the work:

1. The trade restrictions introduced have contributed to a significant reduction in trade between Russia and Poland in 2014-2016, which is particularly evident in the example of apple exports, which from the level of PLN 1.06 billion in 2013 fell to PLN 0.172 million in 2016. However, there is a gradual improvement in trade relations with Russia, the value of both imports and exports is steadily increasing with each subsequent year.
 2. Geopolitical changes did not affect the export and import of Polish goods, including agricultural products. The observed trends of increasing trade exchange have not been disturbed by the introduction of an embargo. The Russian embargo also did not affect employment in agriculture, which since 2010 has remained at a stable level.
 3. Prices of agricultural products remain at a stable, slightly increasing level. A few fluctuations in the prices of agricultural products are noticed due to significant losses in harvest due to bad weather conditions or from seasonality.
 4. Due to a significant decline in trade with Russia, the Polish government in cooperation with the European Union discovered new markets, thanks to which farmers' losses were much smaller than without government intervention. In addition, the discovery of new markets extends Poland's export capabilities.
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