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Agrarian import ban and its impact on the Russian and European Union agrarian trade performance

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Abstract: The main objective of the paper is to identify the impact of the Russian agrarian import ban on imports of certain agricultural products from Europe, Norway, Canada, the USA and Australia. The import ban particularly affected the import of competitive agricultural and foodstuff commodities into Russia. The ban was the result of the political and security tensions existing between the Russian Federation and the Western World, since early 2014. If we take into consideration the volume of the mutual trade and the importance of the mutual trade for each of the stakeholders mentioned above, it can be assumed that the main objectives of the Russian embargo was not to hurt the individual countries – especially the European Union, but rather to support domestic producers in order to achieve a higher level of self-sufficiency in basic agricultural products. It is evident that the objective of the applied import ban is to reduce the dependence of the Russian Federation on imports. This paper provides an analysis of the most affected product groups and products, especially in relation to the EU countries. The paper provides the following findings: The result of the applied import ban was a significant reduction of the Russian agrarian import value. The import ban also improved the overall competitiveness of the Russian agricultural trade, whilst on the other hand, the competitiveness of some commodity groups was reduced.

Keywords: agrarian and foodstuff products, embargo, self-sufficiency, trade balance

Foreign trade has a transformational function, i.e. it has an effect on the creation of internal economic balance, and growth function (Cooper 2002; Azgun and Ozbey 2010; Burianová and Belová 2012) that expresses a share in the international division of labour with the resulting effect of saving national labour and resources (Jeníček and Krepl 2009). In the recent years, the impact of the world economic environment, including the activities of international organisations, increased the differentiation of countries in the global agri-food system, the aggravation of contradictions between the trade liberalisation policies and the national agricultural protectionism.

Under the conditions of the unstable political situation, some countries are concerned about ensuring their own food security, considering the high level of import dependence as weaknesses (Kiselev et al. 2013; Junková and Matušková 2011). So they try to provide the maximum level of food self-sufficiency despite the fact, that they are often extremely unprofitable in the natural area, or under the given conditions of the market agriculture. However, the issue of the domestic market protection is closely related to the strategically important problem of food security (Beghin et al. 2003) that must guarantee access of all citizens and at any time to food in the amount required for an active healthy life.

Not only the economic globalisation, but also the social globalisation and political globalisation have significant effects on the agricultural support and protectionism (Garmann 2014). Simultaneously, the agrarian foreign trade balance is an important indicator of competitiveness of agrarian sector (Redding 1999). Hence, any political decisions about foreign trade bans have significant impacts on competitiveness of agri-food markets. One of the clearest examples of influence of the political situation on the international trade is the situation which arose in 2014 between Russia and a number of countries.

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At the beginning of 2014, the conflict in Ukraine led to the aggravation of international relations. A series of disagreements and mutual political pressure influenced the economic, including the foreign trade cooperation between Russia and a number of countries. In order to put pressure on Russia in the field of its foreign policy, the USA, the countries of the European Union, Australia, Norway, Japan, Canada and some other countries have adopted sanctions towards Russia. In response to these sanctions, on August 6, 2014, president Putin issued the Decree No. 560 "On Special Economic Measures to Protect Russia's Security", authorizing the Russian government, that administered a 1 year ban on the import of agricultural products, raw materials and food from Australia, Canada, Norway, the USA and the EU. The sanctions would have negative direct and indirect implications for the Russia's suppliers (Addy 2014). Direct implications consist in the drop of sales of the companies which export to the Russian Federation. Indirect implications would result in the oversupply of dairy and meat products, fruit and vegetables in the EU markets. The EU exporters will have to find new markets. On the other hand, from the Russian point of view, the ban on European and American food import may not be as beneficial for the Russian food and agricultural companies as it seems. Many of them are dependent on the imports of raw materials and unprepared for the unexpected expansion (Kobylyanskiy 2014). Alternatively, this is an obvious attempt to support domestic farmers and food producers, creating unfavourable conditions for the import and increasing self-sufficiency in basic agricultural products, which would be impossible within the WTO rules if the situation did not have the political context.

Russia plays a significant role in the current redistribution of political and economic power structures (Kašáková 2012). Changes in economy, the processes of globalisation and internationalisation have led to structural changes in Russian agriculture and Russian agricultural foreign trade. Svatoš et al. (2014) reveal that the value of imports was growing much faster comparing to the value of exports. The result is constantly increasing the negative trade balance. The Russian agrarian export commodity structure became more concentrated, on the other hand, the commodity structure of agrarian imports became more heterogeneous. In the recent years, the Russian Federation has strengthened the comparative advantages of agricultural export. We can find a group of products that includes 5% of the exported goods, but accounts for about 50% of the value of the total agricultural exports. Items in this group have a comparative advantage and a positive trade balance (Ishchukova, Smutka 2013). So, despite joining the WTO, Russia's trade policy is still protectionist. There is an ongoing pressure on the protection of the Russian market (Erokhin et al. 2014), to be directed on the decrease of the negative consequences of globalisation, on the support of the agrarian sector, on the use of competitive advantages of domestic manufacturers of the foodstuffs (Potapov 2007) and on the provision of food security (Mikhailushkin and Barannikov 2013).

Moreover, in 2010, the Russian president approved the Food Security Doctrine of the Russian Federation. The doctrine calls for the extensive import substitution. The Doctrine establishes the following minimum production targets as the share of the domestic production in the total supply of basic agricultural commodities: grain – 95%, sugar – 80%, vegetable oil – 80%, meat and meat products – 85%, milk and dairy products – 90%, fish products – 80%, potatoes – 95%, edible salt – 85%. These goals should be achieved by 2020 (Doctrine of Food Security of RF 2009).

Two weeks after the ban, the Russian prime minister Dimitri Medvedev signed a decree of the Government of the Russian Federation No. 830 that excluded from the list such products as dietary supplements, vitamins and minerals, flavours, concentrates of the proteins (animal and vegetable), that cannot be substituted by similar products produced in Russia.

This paper aims to find out how the Russian anti-sanctions, that put a ban on the imports of certain agricultural products from Europe, Norway, Canada, the USA and Australia, affected the structure of its agri-food imports. Taking into account the small share of agricultural products in the total value of European agricultural exports to Russia, it can be assumed that the main objective of the Russian embargo was not to hurt the European economy, but rather to support domestic producers in order to achieve the high level of self-sufficiency in the basic agricultural products, to reduce the import dependence of the country and the negative balance of foreign trade.

MATERIALS AND METHODS

The objective of this study is to find out how the Russian anti-sanctions, which put a ban on imports of

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certain agricultural products from Europe, Norway, the USA, Canada and Australia, affected the structure of trade in agricultural products and the situation in the Russian domestic markets .

During the study, data of the Russian Customs' monthly statistics provided by the Federal Customs Service of Russia for the period 2013 and 2014 were examined in detail in relation to the individual countries and regions.

The Russian Customs statistics use the Classification of Commodity Nomenclatures for foreign economic activity of the Customs Union – TNVED CU based on the international Harmonized Commodity Description and Coding System (HS) of the World Customs Organisation.

The list of the banned products was prepared in accordance with the country's import substitution objectives. The needs of the Russian producers regarding the materials for their own production were taken into account. For example, products such as fish fry and live breeding animals were not included in the list.

The Regulation designates the following foodstuffs as prohibited (per the Customs Classifications):

– Fresh and frozen meat (beef, pork, poultry meat and its "by-products"). Mutton and goat meats are not included in the list
– Meat salted, dried, smoked or pickled in brine, including mutton, lamb and goat meats
– Fish and fish "by-products", shellfish, molluscs and other water invertebrates (live, fresh, refrigerated, frozen, salt-cured, dried, smoked or pickled in brine, fish meal), including boiled or steamed shellfish in shells, as well as heat treated fish, shellfish, molluscs and other water invertebrates which were subsequently smoked
– Milk and dairy products
– Vegetables, edible roots and tubers (fresh, chilled, frozen, canned, dried)
– Fruits and nuts (fresh, chilled, frozen, canned, dried)
– Sausage and like products made of meat, meat "by-products" or blood (including those made from mutton, lamb or goat meats);
– Food products and supplements containing certain amounts of malt extract, milk or vegetable fat as specified in the Customs Classifications, including certain dietary supplements and cooking ingredients
– Food products, not containing milk fats, sucrose, isoglucose, glucose and starch, or containing less than 1.5% milk fat, 5% sucrose or isoglucose, 5% glucose or starch.

The analysis is based on the simple statistical methodology of the time series analysis. Indicators such as the import dependency ratio and the import to export ratio were also calculated.

Self-sufficiency ratio (SSR)

The level of self-reliance for certain types of agricultural products is determined by the percentage of agricultural production, to the consumption of the country.

Self-sufficiency in agricultural products reflects the extent to which domestic production in the country is able to meet the domestic consumption of the country or its regions.

In general, the algorithm for calculating the food self-sufficiency ratio can be represented by the following formula:

$$SSR = \frac{\text{Production}}{\text{Amounts of Domestic Supply}} \quad (1)$$

$$\text{Amounts of Domestics Supply} = \text{Amounts of Domestics Production} + \text{Amounts of Imports} - \text{Amounts of Exports} + \text{Changes in Stock} \quad (2)$$

Import dependency ratio (IDR). In the course of the analysis of the food situation of a country, an important aspect is to know how much of the available domestic food supply has been imported, and how much comes from the country's own production.

$$IDR = \frac{\text{Imports}}{\text{Amounts of Domestic Supply}} \quad (3)$$

In the analysis, there will be an estimation of the gap left by the European exports to Russia. It will be carried out by the individual product groups (in accordance to 2-digits classification of HS). The real difference between the values of the European agricultural exports to Russia in 2014 to 2013, as well as the estimated difference between the real value of the EU agricultural exports and the hypothetical value in the case of maintaining the growth rate of the previous periods, will be calculated and compared.

In the final part of the paper, the Lafay index (LFI) will be used for a brief analysis of the comparative advantage of products included in the ban. The index considers a difference between each item of the normalised trade balance and the overall normalised trade balance.

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For a given country *i*, and for any given product *j*, the Lafay index is defined as:

$$LFI_j^i = 100\left(\frac{x_j^i - m_j^i}{x_j^i + m_j^i} - \frac{\sum_{j=1}^{N}(x_j^i - m_j^i)}{\sum_{j=1}^{N} x_j^i + m_j^i}\right)\frac{x_j^i + m_j^i}{\sum_{l=1}^{N} x_j^i + m_j^i} \quad (4)$$

where x_j^i and m_j^i represent exports and imports of product *j* of country *i*, towards and from a particular region or the rest of the world, respectively, and *N* is the number of items. Positive values of the Lafay index indicate the existence of comparative advantages in the given item; the larger the value, the higher the degree of specialisation (Zaghini 2003).

RESULTS AND DISCUSSION

Before we assess the impact of sanctions on the structure of the Russian foreign trade and the impact of sanctions on this structure, it is necessary to analyse and identify the position of Russia in the international market of agricultural products and foodstuffs at the moment of the introduction of anti-sanctions. This will help us to estimate the possible and actual losses for the country's economy caused by the imposition of import restrictions. In Table 1, we can observe changes in the production of agricultural products in the Russian Federation over the past decade.

There was an increase in the group of vegetables and meat products. The production of fruit and fish

Table 1. Production, consumption and import dependency of the Russian Federation in the basic agricultural products, thousand tonnes

	2000	2010	2013	2014*	2000	2010	2013	2014*	2000	2010	2013	2014*
	Grain				Vegetables				Fruits and berries			
Production	65.4	61.0	92.4	104.2	11 359	13 278	16 109	16 885	2 969	2 474	3 380	3 524
Private consumption	0.1	0.1	0.1	0.1	11 476	14 426	15 712	–	4 659	8 242	9 180	–
Industrial consumption	62.9	64.3	64.5	67.8	1 403	1 662	1 996	–	612	728	975	–
Consumption per capita, kg*	117	120	118	–	79	101	109	–	32	58	64	–
Import	4.7	0.4	1.5	1.0	2 273	3 158	2 817	2 998	2 640	6 780	7 201	6 376
Export	1.3	13.9	19.0	30.1	169	543	658	680	47	56	139	82
Self-sufficiency ratio	103%	93%	140%	151%	86%	80%	88%	–	56%	27%	33%	–
Import dependency ratio	7%	1%	2%	1%	17%	19%	15%	–	50%	75%	70%	–
	Meat and meat products				Milk and milk products				Fish and crustaceans			
Production	4 446	7 167	8 545	8 911	32 259	31 847	30 529	30 553	4 047	4 179	4 296	4 215
Private consumption	6 564	9 871	10 812	10 730	31 317	35 237	35 633	35 311	2 619	3 207	2 800	–
Industrial consumption	57	37	51	48	5 205	4 271	3 742	3 528	849	456	414	–
Consumption per capita, kg	45	69	75	75	213	248	249	246	17.9	21.2	22.0	–
Import	2 095	2 855	2 480	1 902	4 718	8 159	9 445	8 995	922	1 504	884	757
Export	35	97	117	135	507	460	628	629	1 513	2 019	1 509	1 333
Self-sufficiency ratio	67	72	79	83	88	81	77	79	154	130	133	–
Import dependency ratio	32%	29%	23%	18%	13%	21%	24%	23%	26%	41%	24%	–
Import to Export ratio	45%	70%	75%	75%	9%	18%	15%	14%	0.65%	0.7%	0.5%	0.6%

*For grain table represents the consumption of bread, bakery products and cereals per capita

Source: Russian Federal State Statistics Service (2015), Faostat database (2015)

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has been relatively stable, while the production of dairy products fluctuated significantly during the period under consideration.

Data in the tables show a high import dependency ratio in all groups of agricultural products under the ban. The highest level of import dependency is in the sector of fruits and berries, mostly due to the natural climatic condition.

For many years, despite the fact that the country has a positive balance of foreign trade in general, in the field of agricultural products and foodstuffs Russia has been a stable net importer. In the commodity structure of foreign trade, the share of food and agricultural raw materials accounts for about 13.5% of imports and 3% of exports. In the recent years, however, the level of self-sufficiency of the Russian Federation in the some basic agricultural products has tended to increase.

The country's plan to achieve self-sufficiency in all basic food products, as announced in 2010 by the Prime Minister Dimitri Medvedev, was an important part of the agricultural policy up to 2020. However, the high goal to achieve 85% of self-sufficiency in meat products and 90% in milk and dairy products had not been achieved at the moment of the imposition of anti-sanctions.

By the end of 2013, imports accounted for 23% of the total consumption of meat and meat products, 24% of milk and dairy products, 33% fruit and 15% vegetables. Thus in the case of import restriction, the country may be under the threat of food shortages. Three main ways can be identified to avoid this threat:

(1) Import substitution by domestic products. Russian authorities have repeatedly stated that the restriction could create a favourable environment for the development of the domestic production, protecting local producers from the Western competitors.

(2) Export reductions. Given the fact that Russia is a net importer in most agricultural products (the only surplus is in the fish trade flows), the deficit of the internal market cannot be compensated by reducing the export from the country. In the recent years, Russia has frequently resorted to restrict grain exports. In late 2014, the Russian government decided to introduce export duties from February 1st on wheat, to the amount of 15% of the customs value plus 7.5 EUR, but not less than 35 EUR per tonne. It is expected that this measure will help to stabilise the situation in the domestic market and to reduce grain prices, which in turn will help to create a more stable food base for the development of animal husbandry.

(3) Orientation to the new markets and new suppliers of agricultural products. In the short term, the only solution that can prevent a deficit in the domestic food market is to shift to other suppliers of agricultural products.

In order support domestic farmers, in 2015, Russia plans to increase the level of the government support for farmers. This concerns subsidies for the perennial fruit plantings (1.98 billion RUB), for the construction of fruit storage (1.2 billion RUB), the development of animal husbandry (9.27 billion RUB), the development of crop production (18.8 billion RUB), the creation of new of centres of genetic selec-

Table 2. The value of Russian imports of the banned products in 2013, million USD

	2013												Total
	1	2	3	4	5	6	7	8	9	10	11	12	
Total agricultural products:	2 852	3 462	3 589	3 827	3 419	3 376	3 320	3 104	3 270	3 976	4 324	4 644	43 164
from all countries													
from countries under sanctions	1 182	1 550	1 561	1 671	1 401	1 434	1 430	1 440	1 419	1 789	1 962	2 042	18 881
Banned products from:													
all countries	1 609	1 826	1 919	2 044	1 980	1 880	1 736	1 565	1 670	2 030	2 275	2 600	23 135
countries under sanctions	609	739	744	822	708	707	692	691	659	795	886	955	9 007
including													
EU	*447*	*542*	*536*	*606*	*533*	*546*	*514*	*500*	*481*	*566*	*611*	*642*	6 525
AUSTRALIA	*7*	*10*	*11*	*13*	*12*	*13*	*14*	*13*	*12*	*17*	*27*	*33*	182
CANADA	*16*	*33*	*34*	*42*	*34*	*17*	*20*	*23*	*26*	*34*	*45*	*50*	373
NORWAY	*87*	*90*	*97*	*87*	*77*	*81*	*77*	*93*	*83*	*111*	*125*	*140*	1 146
UNITED STATES	*51*	*64*	*66*	*75*	*52*	*51*	*67*	*63*	*56*	*68*	*79*	*89*	781

Source: Federal Customs Service of Russia (2015)

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Table 3. The product structure of the banned imports in 2013

	EU		Australia		Canada		Norway		USA		Total	
	million USD	%	million USD	%	million USD	%	million USD	%	million USD	%	million USD	%
02 – Meat	1 548	24	130	72	247	66	0	0	357	46	2 282	25
03 – Fish	216	3	1	1	119	32	1 142	100	76	10	1 554	17
04 – Milk	1 738	27	44	24	0	0	4	0	0	0	1 787	20
07 – Vegetables	935	14	0	0	3	1	0	0	8	1	946	11
08 – Fruits	1 519	23	7	4	2	1	0	0	231	30	1 759	20
16, 19, 21 – Food prep.	568	9	0	0	2	1	0	0	108	14	679	8
Total	6 525	100	182	100	373	100	1146	100	781	100	9 007	100

Source: Federal Customs Service of Russia (2015)

tion in the livestock sector (about 12 billion RUB), co-financing of the expenditure obligations relating to the compensation of interest rates on the long-term, medium-term and short-term loans for small farms (7.618 RUB).

In December 2014, the Russian government also adopted a law on the support of enterprises engaged in processing of the agricultural products. Thus, the state subsidised interest rates on loans, which were previously only available to farmers, and which can now be used by other companies engaged in processing of the agricultural products.

The import ban can be considered as another way of supporting domestic famers and foodstuff producers. The extent of the effects of the measure can be firstly estimated by its value share and the share in the total value in 2013 (see details Table 2).

In 2013, according to the Federal Customs Service of Russia, the value of imports affected by the ban 2014 was 9.1 billion USD in value terms, including 6525 million USD from EU countries, 1146 million USD from Norway, 781 million USD from the USA, 373 million USD from Canada and 182 million USD from Australia (see details Table 3).

Looking at the structure of imports, which fell under the ban, in relation to the individual countries or regions, we can draw the following conclusions. In relation to the EU countries, the most affected commodity groups are milk (27%) and fruits (23%). In relation to Australia, 72% of banned imports are meat and meat products, in relation to Canada – meat (66%) and fish (32%), for the USA – meat (46%) and fruits (30%). In relation to Norway, 100% of all affected commodities are fish and crustaceans.

A consequence is that anti-sanctions imposed by the Russian government have led to a situation where Russia had to substitute 21% of food imports from other sources (for details see Table 4).

The next step is to highlight the main changes in the structure of the Russian agri-food imports and

Table 4. The share of banned products in the Russian agricultural imports in 2013, in %

	2013												Total
	1	2	3	4	5	6	7	8	9	10	11	12	
Total agricultural products: from all countries	100	100	100	100	100	100	100	100	100	100	100	100	100
from countries under sanctions	41	45	44	44	41	42	43	46	43	45	45	44	44
Banned products:													
from all countries	56	53	53	53	58	56	52	50	51	51	53	56	54
from countries under sanctions	21	21	21	21	21	21	21	22	20	20	20	21	21
including													
EU	*16*	*16*	*15*	*16*	*16*	*16*	*15*	*16*	*15*	*14*	*14*	*14*	15
AUSTRALIA	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*1*	*1*	0
CANADA	*1*	*1*	*1*	*1*	*1*	*0*	*1*	*1*	*1*	*1*	*1*	*1*	1
NORWAY	*3*	*3*	*3*	*2*	*2*	*2*	*2*	*3*	*3*	*3*	*3*	*3*	3
UNITED STATES	*2*	*2*	*2*	*2*	*2*	*1*	*2*	*2*	*2*	*2*	*2*	*2*	2

Source: Federal Customs Service of Russia (2015)

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Table 5. The value of Russian agricultural imports in 2014 (million USD)

	2014												Total	2014 to 2013	Aug–Dec 2014 to Aug–Dec 2015
	1	2	3	4	5	6	7	8	9	10	11	12			
Total agricultural products:	2,97	3,46	3,71	3,56	3,42	3,39	3,35	2,98	3,04	3,41	3,14	3,29	39,72	–3,45	–3,46
from all countries															
from countries under sanctions	1,26	1,59	1,56	1,44	1,34	1,32	1,39	969	880	978	822	879	14,43	–4,45	–4,12
Banned products:															
from all countries	1,62	1,82	1,96	1,87	1,93	1,91	1,82	1,34	1,33	1,55	1,51	1,67	20,31	–2,83	–2,75
from countries under sanctions	597	715	695	685	665	669	694	204	56	50	38	53	5,12	–3,89	–3,59
including															
EU	414	503	484	*485*	*444*	*454*	*451*	*111*	*36*	*34*	*30*	*34*	3481	–3,044	–2,56
AUSTRALIA	*21*	*26*	*18*	*16*	*8*	*8*	*5*	*1*	*0*	*0*	*0*	*0*	103	–79	–101
CANADA	*31*	*53*	*54*	*43*	*67*	*48*	*73*	*23*	*1*	*0*	*0*	*0*	394	21	–154
NORWAY	*87*	*73*	*85*	*76*	*83*	*69*	*72*	*22*	*6*	*3*	*0*	*5*	582	–564	–516
UNITED STATES	*44*	*60*	*54*	*64*	*61*	*89*	*94*	*46*	*13*	*13*	*8*	*14*	559	–222	–261

Source: Federal Customs Service of Russia (2015)

then to find which countries will cover the country's demand for agricultural and food products.

As seen in Table 5, trade flows from the EU to Russia related to the banned products had declined significantly by the end of 2014. A small proportion of the goods imported from the EU and the USA was included in the group 2106909200, 2106909804, 2106909805, 2106909809 – Other food preparations. There are several commodities in these groups that were excluded from the ban list (dietary supplements, vitamins and minerals, flavours, concentrates of the proteins – animal and vegetable). In this analysis, it was not possible to separate these commodities from the customs statistics even on the 10-dights level of the HS classification.

The analysis of the statistical data indicates that the imposition of economic sanctions significantly affected the foreign trade between the considered countries and the Russian Federation.

The value of Russian imports dramatically decreased. In December 2014, Russia imported by 25% less commodities, than in the December 2013. In 2014, the total import of the Russian Federation decreased by 9% in relation to 2013.

We can assume that this was not only caused by the ban on the importation of food, but also by the depreciation of the rouble, which made the imported commodities more expensive, as well as the overall negative impact of economic sanctions and political tensions, the loss of purchasing power within the population, and other factors which contributed to the decline in demand for imports.

Agricultural imports in the second half of 2014 dropped significantly. At the beginning of the year, the imports were at the level of the previous year, but in November and December, they decreased by 27% and 29% compared to the same period of the previous year.

As a result of the import ban, the share of the selected countries in the Russian agrarian import territorial structure was reduced (2013 vs. 2014): the EU (28% vs. 17%), Norway (5% vs. 3%), etc. On the other hand the share of some other countries increased (for details see Figure 1).

The increase in the imports of agricultural products was observed, predominantly, in those countries which have bilateral agreements with Russia or a simplified customs regime under the conditions of its membership in international organisations. For example, Belarus and Russia are members of the Eurasian Economic Community, which simplifies the nature of trade among these countries (for details see Table 6).

According to the results of the calculations, the gap in the Russian food imports caused by the ban was not completely filled by exports from other countries. As a result, the total Russian imports of agricultural products decreased from 43 164 million USD to 39 715 million USD, i.e. by 8%.

In relation to Belarus, the imports of agricultural products increased by 275 thousand tonnes,

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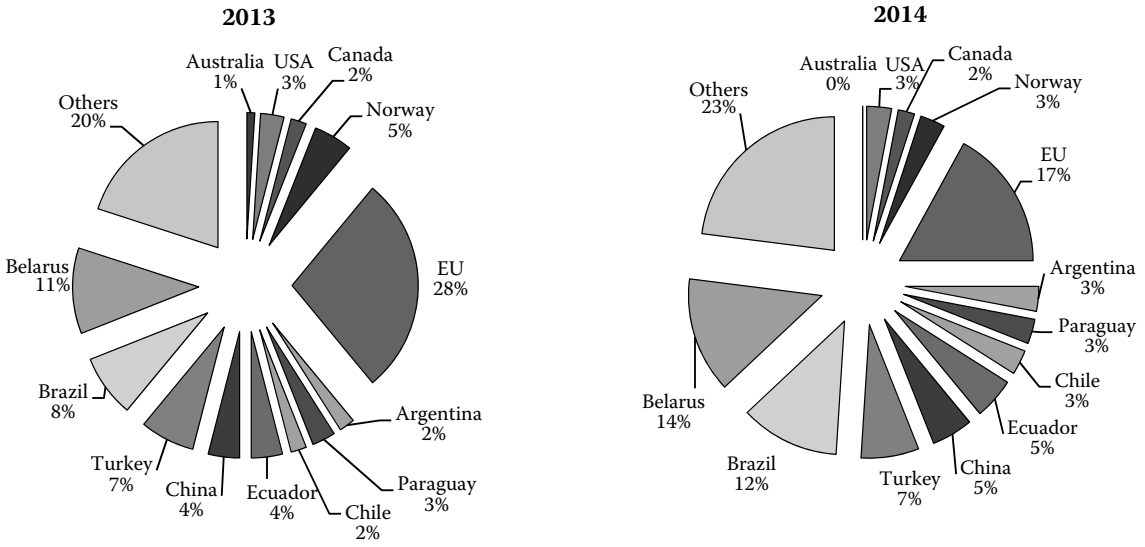

Figure 1. Territorial structure of Russian imports of banned products in 2013/2014

Source: World Trade Centre (2014) and Federal Customs Service of Russia (2015)

mainly due to the increase in the import of fruits by 149.9 thousand tonnes (predominantly apples and pears by 117 thousand tonnes), and vegetables by 82.3 housand tonnes (tomatoes by 17.8 thousand tonnes, cabbages by 26 thousand tonnes, frozen vegetables by 11.4 thousand tonnes).

Imports from Serbia have also increased due to the import of apples and pears (by 55.5 thousand tonnes) and pig meat (by 15 thousand tonnes).

There was also an increase in imported citrus fruits from Turkey (by 100 thousand tonnes), potatoes from Egypt (by 180 thousand tonnes), etc.

In the next section, we will focus on Russia's agricultural imports from European countries, as they were much more influenced by the Russian sanctions than for example America or Canada. It is also important to consider the change in the structure of imports of certain product groups, both in terms of value and quantity because the increase in the value of imported products may be due to an increase in prices or the rouble depreciation).

Quantities and values of the individual products will be analysed in order to distinguish the most affected items in the EU market (for details see Tables 7–11).

In 2014, the total value of the EU vegetables exports to Russia decreased by 33% in terms of value and by 31% in terms of the quantity. The most affected products are tomatoes (decreased by 105 thousand tonnes), potatoes (decreased by 105 thousand tonnes or more than twice). This sector was affected primarily because the sanctions were adopted in the peak harvesting season, and the EU producers had to react very quickly to prevent the losses. That in turn increased the price pressure on the European market.

Table 6. Top 8 countries by the increase of the quantity of exports to Russia

Country	Value, million USD					Quantity, thousand tonnes				
	2013	2014	2014 to 2013			2013	2014	2014 to 2013		
			million USD	%	changes in share of total			thousand tonnes	%	changes in share of total
Belarus	2,495	2,819	324	13%	+3.1%	1,185	1,460	275	23%	+2.9%
Turkey	1,520	1,518	–2	0%	+0.9%	1,188	1,426	238	20%	+2.6%
Egypt	355	437	82	23%	+0.6%	435	612	177	41%	+1.7%
China	979	1,118	138	14%	+1.3%	851	983	132	15%	+1.5%
Brazil	1,972	2,426	454	23%	+3.4%	508	629	121	24%	+1.2%
Serbia	150	293	143	96%	+0.8%	131	219	88	67%	+0.8%
Israel	346	368	21	6%	+0.3%	322	394	72	22%	+0.8%
India	95	152	57	60%	+0.3%	54	96	42	79%	+0.4%

Source: Federal Customs Service of Russia (2015)

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Table 7. EU vegetables exports to Russia

	Value, in millions of USD				Quantity, thousand tonnes			
			2014 to 2013				2014 to 2013	
	2013	2014	million USD	%	2013	2014	thousand tonnes	%
EU exports of vegetables to Russia	935	631	–304	–33	905	627	–278	–31
EU exports of banned vegetables to Russia	935	631	–304	–33	905	627	–278	–31
0701 – potatoes	50	18	–32	–64	92	19	–73	–79
0702 – tomatoes	292	186	–105	–36	211	132	–79	–37
0703 – onions, shallots, garlic, leeks	56	67	11	19	86	118	32	37
0704 – cabbages, cauliflower, kale	85	71	–14	–17	118	107	–11	–9
0705 – lettuce and chicory	47	34	–13	–28	33	23	–10	–29
0706 – carrots, turnips & other edible roots	51	30	–21	–41	91	51	–40	–44
0707 – cucumbers and gherkins	57	28	–29	–51	35	17	–18	–52
0708 – leguminous vegetables, fr or chill	0.04	0.03	–0.01	–19	0.02	0.02	0.00	5
0709 – vegetables nesoi	205	128	–78	–38	121	73	–49	–40
0710 – vegetables (raw or cooked by steam)	77	57	–20	–26	111	80	–31	–28
0711 – vegetables, temporarily preserved	0.00	0.01	0.01	x	0.00	0.02	0.01	x
0712 – vegetables, dried, whole, cut	9.2	5.5	–3.7	–40	2.8	2.2	–0.6	–20
0713 – leguminous vegetables, dried shelled	5.4	6.7	1.3	23	3.5	4.2	0.7	19

Source: Federal Customs Service of Russia (2015)

The main EU suppliers for vegetables were the Netherlands, Poland, Spain, and Belgium. After the introduction of the ban, these imports were replaced by imports from countries such as Egypt (+200 thousand tonnes), China (+132 thousand tonnes), Turkey (+109 thousand tonnes) and Belarus (+81 thousand tonnes).

In 2014, the total Russian imports of vegetables increased by 379 thousand tonnes compared to 2013.

In the first place, the Russian ban affected the perishable products sector. For several EU countries, Russia is traditionally an important destination for the EU fruit and vegetables. Russia represented about 30% of the EU

Table 8. Fruits exported from the countries of the European Union to Russia

	Value, in millions of USD				Quantity, thousand tonnes			
			2014 to 2013				2014 to 2013	
	2013	2014	million USD	%	2013	2014	thousand tonnes	%
EU exports of fruits to Russia	1 520	1 016	–504	–33	1 538	1 000	–538	–35
EU exports of banned fruits to Russia	1 519	1 016	–504	–33	1 538	1 000	–538	–35
0801 – coconuts, brazil nuts & cashew nuts	0.23	0.13	–0.10	–45	0.02	0.01	–0.01	–63
0802 – nuts nesoi	5.43	2.75	–2.68	–49	0.69	0.3	–0.39	–57
0803 – Bananas and plantains	0.06	0.04	–0.03	–40	0.01	0.01	0.00	–36
0804 – dates, figs, pineapples, avocados	2.55	1.05	–1.50	–59	0.5	0.18	–0.32	–64
0805 – citrus fruit	147	88	–60	–40	134	75	–59	–44
0806 – grapes	61	8	–53	–86	33	4	–29	–88
0807 – melons and papayas	2.9	2.4	–0.5	–17	2.5	2.2	–0.3	–14
0808 – apples, pears and quinces	706	486	–220	–31	984	649	–335	–34
0809 – apricots, cherries, peaches, plums	327	270	–56	–17	217	176	–41	–19
0810 – fruit nesoi	224	131	–93	–42	118	63	–56	–47
0811 – fruit & nuts (raw or cooked by steam)	34	21	–13	–38	47	29	–17	–37
0812 – fruit & nuts temporarily preserved	0.1	0.0	–0.1	–100	0.2	0.0	–0.2	–100
0813 – fruit dried nesoi	8.6	4.5	–4.2	–48	0.8	0.5	–0.3	–43

Source: Federal Customs Service of Russia (2015)

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Table 9. Meat exports from the countries of the European Union to Russia

	Value, in millions of USD				Quantity, thousand tonnes			
			2014 to 2013				2014 to 2013	
	2013	2014	million USD	%	2013	2014	thousand tonnes	%
EU exports of meat and meat products to Russia	2 125	363	–1 762	–83	843	162	–681	–81
EU exports of banned meat to Russia	1 548	239	–1 309	–85	472	97	–376	–80
0201 – meat of bovine animals, fresh or chilled	68	39	–29	–43	14	8	–6	–41
0202 – meat of bovine animals, frozen	77	67	–10	–13	18	18	0	1
0203 – meat of swine (pork)	1 305	71	–1 233	–95	365	19	–346	–95
0207 – meat & ed offal of poultry	95	59	–36	–37	72	49	–24	–33
0210 – meat & ed offal salted, dried	3.6	0.8	–2.8	–78	0.6	0.1	–0.5	–87

Source: Federal Customs Service of Russia (2015)

fruit exports in 2013. The main products concerned are apples, peaches, nectarines, pears. The main EU suppliers for fruits were Poland, Spain, Greece, Italy and Belgium. In 2014, the EU fruit exports to Russia decreased by 33% in terms of value and by 35% in terms of quantity. These imports have been replaced by the imports from countries such as Turkey (+105 thousand tonnes), Belarus (+144thousand tonnes) and Serbia (+64 thousand tonnes).

For pig meat, the EU exports to Russia have been banned since February 2014 due to the sanitary ban (SPS – African Swine fever). If we do not take into account the volume of the banned pig meat, the losses by the Russian sanctions were relatively insignificant.

Russia increased imports of meat from Brazil (by 122 thousand tonnes), Belarus (by 20 thousand tonnes), Turkey (by 18 thousand tonnes), Argentina (by 22 thousand tonnes) and Serbia (by 14 thousand tonnes).

In relation to the EU countries, the volume of imports of fish was not significant (114.7 ths. tonnes in 2013). The main supplier of fish from the countries under the ban was Norway (286 ths. tonnes). In general, fish exports from the EU to Russia decreased by 41%. At the same time, an increase in imports of fish was observed from Iceland (by 30 thousand tonnes), China (by 17 thousand tonnes), and Chile (by 16 thousand tonnes). The total Russian fish imports decreased by 129 thousand tonnes.

The most affected dairy products are cheese (decreased by 124 000 tonnes or 48% of 2013) and butter (13 000 tonnes or 36%). The banned dairy products amounted to 9% of the total exported EU milk production. The most affected countries are Finland and the Baltic countries, where the Russian market represented about 90% of cheese exports).

Imports of milk and dairy products from countries under the ban have been replaced by the imports from

Table 10. Fish exports from the countries of the European Union to Russia

	Value, in millions of USD				Quantity, thousand tonnes			
			2014 to 2013				2014 to 2013	
	2013	2014	million USD	%	2013	2014	thousand tonnes	%
EU exports of fish and crustaceans to Russia	216.1	128.6	–87.6	–41	114.7	73.0	–41.7	–36
EU exports of banned fish to Russia	216.1	128.6	–87.6	–41	114.7	73.0	–41.7	–36
0301 – fish, live	1.7	1.0	–0.7	–39	0.1	0.0	–0.1	–62
0302 – fish, fresh or chilled	35.8	8.2	–27.6	–77	5.5	1.0	–4.5	–83
0303 – fish, frozen	129.7	88.0	–41.7	–32	99.9	65.8	–34.1	–34
0304 – fish fillets & other fish meat	6.8	5.7	–1.2	–17	1.7	1.9	0.1	7
0305 – fish, dried, salted etc., smoked etc.	1.2	0.7	–0.6	–46	0.1	0.0	0.0	–60
0306 – crustaceans, live, fresh etc., and cooked	29.8	18.1	–11.7	–39	6.3	3.7	–2.6	–41
0307 – molluscs & aquatic invertebrates	11.0	6.9	–4.2	–38	1.1	0.6	–0.5	–47

Sources: Federal Customs Service of Russia (2015)

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Table 11. Dairy products exports from the countries of the European Union to Russia

	Value, in millions of USD				Quantity, thousand tonnes			
			2014 to 2013				2014 to 2013	
	2013	2014	million USD	%	2013	2014	thousand. tonnes	%
EU exports of dairy products to Russia	1 897	1 251	–647	–34	444	276	–168	–38
EU exports of banned milk products to Russia	1 738	1 009	–729	–42	417	234	–183	–44
0401 – milk and cream, not conc. or sweetened	73	55	–18	–25	41	29	–12	–30
0402 – milk and cream, conc. or sweetened	98	42	–57	–58	25	10	–15	–60
0403 – buttermilk, yogurt, kephir etc	65	46	–19	–29	31	20	–11	–35
0404 – whey & milk products nesoi,	43	30	–13	–31	24	16	–8	–33
0405 – butter and other fats and oils derived from milk	184	122	–62	–34	35	23	–13	–36
0406 – cheese and curd	1 275	714	–560	–44	262	137	–124	–48

Source: Federal Customs Service of Russia (2015)

countries such as Argentina (+ 11 thousand tonnes), Belarus (+ 4 thousand tonnes) and Kazakhstan (+ 18.5 thousand tonnes).

The dairy industry was one of the most exposed to the downward pressure on prices.

In the final part of this analysis, there is an estimate of the gap left by the European exports to Russia (Tables 12 and 13).

Firstly, we will calculate the real difference between the values of the European agricultural exports to

Table 12. Estimation of the real decrease in the European exports to Russia

	2010	2011	2012	2013	2014	Losses (2014 to 2013)		AVG growth rate 2010–2013	Expected value of imports in 2014	Losses to expected imports	
						million USD	%			million USD	%
02 – Meat	1 355	1 521	1 382	1 563	237	1 326	85	5	1 648	1 411	86
03 – Fish	281	244	207	204	129	76	–37	–10	184	55	30
04 – Milk	1 496	1 458	1 491	1 790	1 009	781	–44	7	1 908	899	47
07 – Vegetables	781	1 009	845	968	631	336	–35	9	1 056	425	40
08 – Fruits	1 282	1 534	1 687	1 671	1 016	655	–39	10	1 831	815	45
16, 19, 21– Food prep.	528	634	710	865	460	405	–47	18	1 020	560	55
Total	5 723	6 399	6 322	7 061	3 481	3 579	–51	7	7 585	4 104	54

Sources: Federal Customs Service of Russia (2015)

Table 13. Estimation of the real decrease in the European exports to Russia in the second half of 2014

	Aug/Dec 2012	Aug/Dec 2013	Aug/Dec 2014	Losses (2014 to 2013)		Growth rate 2012–2013	Expected value of imports in 2014	Losses to expected imports	
				million USD	%			million USD	%
02 – Meat	608	772	11	762	99	27	981	–970	99
03 – Fish	85	75	2	73	97	–12	66	–64	97
04 – Milk	668	836	39	797	95	25	1 047	–1 008	96
07 – Vegetables	271	343	11	331	97	27	434	–423	97
08 – Fruits	632	501	33	468	93	–21	397	–364	92
16, 19, 21 – Food prep.	232	273	150	124	45	18	322	–173	54
Total	2 495	2 800	245	2 554	91	12	3 142	–2 896	92

Source: Federal Customs Service of Russia (2015)

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Russia in 2014 to 2013. Then, we will calculate the growth of the value of imports for the individual product groups for the period 2010–2013 and extrapolate this trend for 2014, in order to estimate the difference between the real value of the EU agricultural exports and the hypothetical value had growth rate remained the same as in the previous periods.

As can be seen from the results of the calculations, in the recent years there has been an upward trend of growth in the imports of agricultural products in almost all commodity groups (except for fish and crustaceans). In average, the imports grew by 7% per year. Therefore, had Russia not banned the exports of agricultural products, its value would be 7585 million USD. Thus, taking into account the forgone benefits, the reduction in the import value amounted to 4104 million USD.

However, in this analysis it would be useful to calculate the change not only for the whole year, but for the period of sanctions, that is from August to December 2014, compared to the corresponding period of the previous year. Thus, we will ignore the influence of changes in the value of imports that could have taken place in the first half of the year and were not related to the imposition of sanctions.

In this calculation, we estimate the change in the second half of 2013 with respect to the second half of 2012. During this period, the imports of agricultural products increased by 12%. In addition, when comparing the data of the previous table, it can be seen that from the 3579 million USD of the import reduction in 2014, only 2554 million USD occurred in the second half of the year, that is, were directly caused by the imposition of sanctions. Taking into account the expected growth in the import value, the estimated losses in imports from the EU countries amounted to 2896 million USD.

In the final part of this paper, we will estimate how the competitiveness of Russian products in the international market has changed in 2014 compared to 2013.

For this purpose, the LFI index of comparative advantages will be calculated for each product group under the ban (Appendix A).

According to the results of the calculations, among the products under the ban, the items having comparative advantage are:

– 0303 – fish, frozen (LFI = 11.83)
– 0304 – fish fillets & other fish meat (LFI = 1.92)
– 0305 – fish, dried, salted etc., smoked etc. (LFI = 0.10)
– 0306 – crustaceans, live, fresh etc., and cooked (LFI = 3.37)
– 0307 – molluscs & aquatic invertebrates (LFI = 0.14)
– 0401 – milk and cream, not conc. or sweetened (LFI = 0.12)
– 0403 – buttermilk, yogurt, kephir etc (LFI =0.55)
– 0713 – leguminous vegetables, dried shelled (LFI = 1.4)
– 0811 – fruit & nuts (raw or cooked by steam) (LFI = 0.13)
– 1601 – sausages, similar prdt meat (LFI = 0.41)

The increase in comparative advantage was observed in 14 product groups from the 48 under consideration. The most significant growth was in the group **0306 – crustaceans, live, fresh etc.** The most significant decline was in the following product groups: **0202 – frozen meat of bovine animals** (LFI index decreased by 0.33), **0303 – frozen fish** (LFI index decreased by 0.55) and **0701 – potatoes** (LFI index decreased by 0.26).

Thus, despite the growth of comparative advantages in several product groups, in relation to most of the products we observed a decrease in the value of LFI index in 2014 compared to 2013.

CONCLUSION

Based on the analyses presented in the paper, we can draw the following conclusions. The ban definitely affected the individual industries and the individual countries of the European Union. According to the dynamics of import volumes for 2014, and also in comparison with the data of 2013, we can observe a significant reduction in the value of the total Russian imports as well as the imports of agricultural products and foodstuffs.

The most affected products were perishable vegetables (imports from countries under sanctions decreased by 274 thousand tonnes) and fruits (imports decreased by 567 thousand tonnes).

In relation to the total value of trade flows between the EU and Russia, however, the share of the affected goods is small and represented only about 4.2% of the European exports. So, from the economic point of view, the Russian ban did not hurt the European economy. It was more influenced by the indirect effects of the ban associated with an increase in the supply of goods, and hence the price pressures in the domestic market.

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In Russia it had the opposite effect, when the imposition of sanctions reduced competition in the domestic market, which in combination with other factors, such as rouble depreciation, and an increase of transaction costs (contracting, customs control), resulted in a drastic increase in food prices. At the end of 2014, Russia experienced an inflation rate of 11.36%, which is almost double the level it was in 2013 (6.45%). At the same time, there was observed a rapid growth in food prices, amounting to 14.1% (in 2013 only 2.66%).

Thus, the imposition of sanctions can be considered, on the one hand, as a demonstrative response to the unfriendly policy in Europe, the USA and other countries. On the other hand, this is an obvious attempt to support domestic farmers and the agricultural producers, creating favourable conditions for imports, and supporting self-sufficiency in basic agricultural products under the WTO rules.

The real decline was for about 3579 million USD, but taking into account the expected losses in the export volumes, the decline was more significant and represented 4104 million USD. It was also discovered that from the 3579 thousand USD of the import reduction in 2014, only 2554 USD (2896 USD, taking into account potential losses) occurred in the second half of the year, and were directly caused by the imposition of sanctions.

The gap left by the European exports to Russia was not completely covered by imports from the unaffected countries, thus increasing the risk of deficits in the Russian food market.

According to the calculation of the LFI index, the most significant growth of comparative advantage was in the group **0306 – crustaceans, live, fresh etc.** The most significant decline was in the following product groups: **0202 – frozen meat of bovine animals** (LFI index decreased by 0.33), **0303 – frozen fish** (LFI index decreased by 0.55) and **0701 – potatoes** (LFI index decreased by 0.26).

Thus, despite the growth of comparative advantages in several product groups, in relation to most of the products we observed a decrease in the value of the LFI index in 2014 compared to 2013.

Predicting the further development of the Russian market of agricultural products, we can say that Russian farmers and food producers, under favourable conditions and with the artificially limited competition, will increase the domestic agricultural production, leading to the achievement of the country's long term goal of self-sufficiency in agricultural products.

However, it is necessary to take into account the negative impact of such a policy on consumers caused by the rising food prices, and as a consequence, a rising inflation rate and declining real incomes of the population. The import substitution policy will lead to positive results only if it is well balanced, not just caused by the political ambitions, but aiming to improve the welfare of all segments of the population.

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