Article

Agricultural and Foodstuff Trade between EU28 and Russia: (Non)Uniformity of the Russian Import Ban Impact Distribution

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Abstract: The distribution of the impact of the Russian import ban on the EU28 countries is not uniform. The market shares and clustering of the EU28 countries changed before and after the introduction of the ban. Although the Russian import ban was introduced as a countermeasure to Western sectoral and individual sanctions, the ban's impact on EU28 economies is not parallel, and the impact is not evenly distributed among EU members. Cluster analysis shows that two groups of countries can be distinguished, with Group 2 having the most severe impact from the ban (on average, a decrease of 48% in the trade balance with Russia). Our results show that Germany, the Netherlands, Latvia, Lithuania, Italy and Poland are the countries which have experienced the largest Russian import ban impact and bear up to 63% of total EU28 losses due to the ban. Some of the countries (Austria, Hungary, Czechia) did not stop expanding trade after the import ban, and they could be the ones to see the first benefits once the ban is lifted.

Keywords: European Union; Russia; import ban; agricultural trade

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1. Introduction

Trade in agricultural commodities in Eurasia during the past decade has seen a remarkable event: in August 2014, Russia introduced a ban on imports of specific agri-food products from one of its most important trade partners, the European Union. As several years have passed since the inception of the import ban, it is now possible to assess the impact of the ban on the trade and economic performance of impacted countries.

The Russian import ban was introduced as a countermeasure to sectoral and individual restrictive measures imposed by the European Union, the United States and several other countries following the events at the East of Ukraine in 2014. The EU and the USA have imposed several packages of economic sanctions against Russia, including a ban on the transfer of specific technologies (including deep-water drilling), a ban on long-term financing for selected state-owned Russian banks and companies, the blocking of assets, and a ban on doing business with specified Russian companies. In response, Russia imposed a ban on the import of a specified list of foodstuff products for an initial period of one year. The ban has been extended every year since its inception. The scope of the ban included milk and dairy products, pork, poultry, beef, fish and crustaceans, vegetables, and fruits. Both episodes of economic sanctions can be classified as targeted sanctions [1,2].

While the introduction of a foodstuff import ban as a reaction to individual and sectoral sanctions might be seen as an inadequate response, it is important to look at the context of the events of 2014 and the position of both sides. Western sanctions against Russia have been partially targeted at entities involved in the Ukrainian events of 2014, and have partially had a broader character, such as a ban on the long-term financing of

top Russian state-owned banks by Western financial institutions. By applying economic sanctions, Western countries attempted to change the behavior of Russia, and therefore used economic coercion in a balanced way, in order to apply pressure that would not have too strong an effect on their own economies and would be just enough to convince Russia. Due to the specifics of the Russian economy, this economic pressure has been noticeable; however, it is not decisive. According to some estimates, depreciation of the national currency (ruble) due to decreased oil prices on world markets had an impact on GDP growth up to three times higher [3]. The European Union was one of the main exporters of foodstuff products to Russia in 2014, so imports from the EU were a sensitive target for Russian countermeasures.

Some researchers connect the topic of the Russian import ban with the topic of food security. However, in terms of Russian countermeasures, it is possible to consider the topic of food independence. As mentioned by [4], Russian authorities have a specific understanding of food security. From their perspective, a country that is dependent on the import of food can be considered vulnerable. Trading partners with the largest import shares may exercise force on the counterparty to enforce policies of interest or change the *modus operandi* of the partner. In the case of EU-Russia agricultural trade, the EU can be considered as such a trading partner.

There are three main reasons for the dominant position of the EU on the Russian market. The first reason is geographical: Russia has a land border with five EU member countries, namely Finland, Estonia, Latvia, Lithuania, and Poland. The second reason is historical: contemporary Russia is a descendent of the Soviet Union, one of the largest trade partners of the EU. The third reason is fully practical: the EU is one of the largest food producers and exporters in the world. The long-term unwillingness of Russian authorities to be in a vulnerable position relative to the dominant trading partner was established by the Russian Food Security Doctrine of 2010 [5] and re-enforced by the Food Security Doctrine of 2020 [6]. Both editions of the Doctrine set the levels of self-sufficiency in the production of, among other things, meat, milk, fish, potatoes, vegetables, and fruits at the 80% to 95% level.

It is important not to forget the protectionist nature of any import ban. Since Russia joined the World Trade Organization in 2012, the country has pledged to comply with the rules and principles of the organization. A protectionist policy would not conform to WTO principles; however, the WTO was not able to force Russia to lift the ban, because it can be classified as a security concern. Comparing the timing of the import ban and the Russian Food Security Doctrine makes one think that the introduction of the ban could be just an example of the good use of circumstances to enforce a protectionist policy.

One unique feature of the EU-Russia economic sanctions case is that this is a confrontation between a country and a group of countries, represented by a supranational institution. The imposition of restrictive measures was done under the Common Foreign and Security Policy, under which the European Council (which consists of the heads of state or governments of all 28 member states) has a right to introduce such measures on behalf of the Union [7]. From this perspective, this economic confrontation consists of Russia on one side and the EU28 countries on the other. Due to the significant heterogeneity among European economies, it is probable that the impact of the Russian import ban on trade would be different for each member state. To the best of our knowledge, the existing literature covers the discussion about the level of uniformity of the Russian import ban impact distribution on the EU28 countries only to a limited extent.

The current paper attempts to assess the impact of the Russian import ban on trade between the EU28 countries and Russia. As part of the analysis, the paper attempts to categorize the EU28 countries in accordance with the impact of the ban using a cluster analysis framework. Furthermore, changes in trade shares and a scenario assessment are made in order to capture the impact on individual countries. Scenario estimation was chosen to reflect the complexity of the topic and because a wide range of assumptions need to be made. While some of these assumptions can be challenged, it is fair to admit

that the estimations presented in this paper can provide an insight into the trade and economic impacts of the ban for both parties. Scenario estimation is then used to estimate the possible GDP effect of the Russian import ban due to changes in the trade balance of the EU28 countries.

This study attempts to describe the distribution of the Russian import ban impact among the EU28 countries through the lenses of trade in both sanctioned and non-sanctioned product categories. In order to do this, we analyze the market shares and clustering of the EU28 countries in accordance with the trade flows with Russia before and after the introduction of the import ban and determine the level of the import ban impact as per optimistic and pessimistic scenarios. We argue that although the Russian import ban was introduced as a countermeasure to Western sectoral and individual sanctions, the ban's impact on EU28 economies is not parallel, and the impact is not evenly distributed among EU members.

Based on the results, we argue that during the period of 2009–2019, the grouping of EU28 countries with respect to the trade balance with Russia has changed, and part of this effect can be attributed to the import ban. Our estimation shows that the import ban had a greater impact than has previously been assessed in the literature on the topic. Unlike some of the existing works on the topic, our results show that Germany, the Netherlands, Lithuania and Poland are the countries who experienced the largest impact from the Russian import ban.

2. Literature Review

The Russian import ban of 2014 was introduced as a countermeasure to Western economic sanctions imposed in the same year against Russia. Multilateral economic sanctions have been under the scrutiny of different authors for decades. One of the first reviews of economic sanctions was produced by Galtung [8], where the author investigated the case of Rhodesia under international economic sanctions. Among other considerations, the author points out that it is naïve logic to think that comprehensive economic sanctions will cause economic damage to the target country, and therefore change its behaviour. Another important work on the topic of economic sanctions is the book *Economic Sanctions Reconsidered: History and Current Policy* [9]. The authors investigated 116 cases of economic sanctions, mostly imposed by the US, but also by other countries. Based on the analysis, the authors concluded that only around 34% of cases achieved their goals. While the methodology and data used in the study were later criticized [10], a discussion of whether comprehensive economic sanctions are an effective measure in international politics began. In part, it led to the introduction of so-called “smart sanctions” [1,2]. These, unlike the previously widespread comprehensive economic sanctions, are intended to damage specified individuals or organizations. Along with the Russian import ban, the European sanctions against Russia introduced in 2014 fall into the category of targeted sanctions. A detailed summary of the background of the Western sanctions against Russia and the Russian import ban has been provided in the literature on this topic [11–13]. Western trade sanctions against Russia covered trade in military technology and specialized equipment for oil and gas extraction, while the Russian Federation imposed a ban on the import of foodstuffs from sanctioning countries.

More economic literature has emerged on the topic of the effectiveness of the EU–Russia sanctioning regime. In one of the recent works on the topic, Belin and Hanousek [14] estimate the trade effects of Western sanctions and the Russian import ban using the differences-in-differences approach and come to the conclusion that Western sanctions had a very limited effect on the sanctioning and targeted economies, whereas the Russian import ban had a more significant effect. In line with previous studies on economic sanctions [15], the authors also conclude that governments in the sanctioning countries (Western countries) would design sanctioning policies so as to minimize the costs to domestic interest groups, while the targeted country's costs are likely to be substantially smaller, especially due to Russia's potential substitution of domestic producers.

Some authors point to the process of import substitution, which has been developing during the Russian import ban (see, for example, Deppermann et al. [16]), and therefore could have the potential to decrease the costs of the import ban for the Russian economy. Wengle notes that the domestic effects for the Russian economy vary by sub-sector, including increases in the production of pork and decreases in production for dairy, beef, and fish producers [17].

According to the evidence, the self-sufficiency of the Russian economy has risen. At the same time, Asian trading partners have replaced Western ones, and there is a high likelihood that this balance will not change if the Russian import ban is lifted [18]. There is evidence of a reduction in the transaction costs between Russia and its main non-EU trade partners in the pork trade, and an increase in the transmission of price changes over the long term [19]. Consumers could bear the largest burden of the import ban [20,21].

Several estimations of the Russian import ban impact on trade between the EU28 and Russia have been made. For example, Liefert et al. report a decrease in average meat imports to Russia in 2014–2016 compared to 2011–2013 due to the import ban [22]. Boulanger et al. have estimated that the Russian import ban may result in a 5.7% decrease in milk prices in Finland and a 3.2% milk price decrease in Lithuania, while import flows may be redirected to New Zealand and Belarus [23]. Another study by Venkuvienė and Masteikiene suggests that the dairy and meat sectors are the most affected by the Russian import ban in Central and Eastern Europe [24]. The Visegrad group of countries (which includes the Czech Republic, Slovakia, Poland, and Hungary) saw a drop in milk prices and decreasing competitiveness in the dairy sector, which can be attributed to the Russian import ban. However, cheap imports and the elimination of milk quotas were also among the significant factors (see, e.g., [25–27]). German exports have experienced a limited impact from the ban; however, other important events, such as an EU-wide pork ban imposed by Russia in 2014, had a relatively greater impact [28]. Other possible effects of the Russian import ban, which have been noted in the literature, include a decrease in the revealed comparative advantage of EU exports to Russia [29], as well as increased integration of regional markets for cheese products, and more rapid price adjustments [30].

The Russian import ban has been extended every year since 2014, which leads some researchers to consider whether the ban will be lifted in the foreseeable future. In one of the most recent works, it is argued that the Russian import ban, in contrast to the European Common Agricultural Policy, has effectively substituted monetary support to agricultural producers via the price channel, and, as this is beneficial for the state budget, there is little incentive for the Russian government to lift the ban anytime soon [31]. Another consideration was proposed by Banse et al. [32]. The authors assessed several scenarios and concluded that removal of the Russian import ban would have no effect on EU agriculture, and a limited effect on Russian agriculture, while the creation of a free trade area between the EU and Russia would benefit European farmers more than Russian farmers.

Most of the studies related to the Russian import ban impact focus on the impacts on specific countries or country groups. However, the story of Western sectoral and individual restrictive measures (introduced in 2014 by several countries, including the EU28) and countermeasures (introduced by Russia) is complex. The declared motivation for the Western sanctions was to change the *modus operandi* of the Russian government; however, as shown previously (starting with Hufbauer et al. [9]), it is important to determine whether the imposed economic sanctions influenced the counterparty and helped to achieve the desired result. At the same time, the sanctions episode of 2014 can be characterized as a “many-to-one” sanctions game: with the group of EU28 countries on one side and Russia on the other. From this perspective, it is important to determine whether the impact of the Russian import ban is evenly distributed among the EU28 countries. This can help us to understand the effectiveness of the Russian import ban and to determine the prospects for changes in the ban regime, or even the economic prospects of Russia lifting the ban.

To the best of our knowledge, the existing literature on the topic of the Russian import ban does not provide answers to the questions raised above; the current study therefore

attempts to address these issues. Using trade data for the EU28 and Russia for the period before and after introduction of the import ban, we attempt to group the EU28 countries in accordance with their agri-food trade connections with Russia, define the impact of the ban in terms of trade changes, and identify the EU28 countries with the most significant ban impacts. Based on this data, we attempt to contribute to the ongoing discussion about whether the Russian import ban was an adequate and parallel response to the Western restrictive measures of 2014.

3. Materials & Methods

As a first step, we allocate the EU28 countries into clusters in accordance with the trade balance towards the Russian Federation. Cluster analysis is done using hierarchical agglomerative clustering (HAC) with Ward's linkage [33]. Despite the limitations of the method (discussed, for example, by Randriamihamison et al. [34]), it helps to define the groups of countries (clusters) that might have similar properties. In general, Ward's method defines the clusters by the optimal value of the objective function. The initial cluster distances are defined as follows:

$$d_{ij} = d(\{X_i\}, \{X_j\}) = \|X_i - X_j\|^2 \quad (1)$$

This represents the calculation of cluster distances using squared Euclidean distance.

The trade impact of the ban can be assessed by projecting the trade development of the pre-ban years (2009–2013) into the years after the introduction of the import ban (2015–2019). The year 2014 should be excluded because the import ban was introduced in the middle of the year, and therefore the results might be distorted. Two scenarios of the import ban impact are evaluated: an optimistic scenario and a pessimistic scenario. The optimistic scenario represents the lower level of the import ban impact, while the pessimistic scenario includes the effect of opportunity costs and, therefore, represents a higher level of the import ban impact.

The optimistic scenario involves the following assumptions:

1. Agri-food exports from the EU28 countries in the absence of the Russian import ban would be constant in the period 2014–2019.
2. Agri-food exports from the EU28 in 2014–2019 remain at the 2013 level.

The pessimistic scenario involves the following assumptions:

1. Agri-food exports from the EU28 countries in the period of 2014–2019 would rise.
2. Agri-food exports from the EU28 countries in the period of 2014–2019 would show the same average dynamic (increase or decrease) as in the period of 2009–2013.

The pessimistic scenario assumes the calculation of the export growth ratio for each year of observation, which is done as follows:

$$\delta_{it} = \frac{X_{it}}{X_{i(t-1)}} \quad (2)$$

where δ_{it} —export growth ratio for country i in year t ; X_{it} , $X_{i(t-1)}$ —export of goods to Russia for country i in year t and in the previous year, respectively.

The geometric mean of the export growth rate for each country is calculated for the period of 2009–2013 and is used to calculate the export loss or benefit according to the pessimistic scenario.

Data for the analysis comes from the UN COMTRADE database (export and import values for the EU28 countries and Russia) and covers the period of 2009–2019. The analysis is done for all categories of agri-food trade HS01-HS24 on the two-digit group level. Descriptive statistics of the dataset are shown in Table 1.

Table 1. Descriptive statistics of the dataset.

Variable	N of Observations	Min	Average	Max	Standard Deviation
Export	60568	0	5,509,416.54	760,274,339	25,136,126.53
Import	36661	0	5,133,994.51	2,107,156,976	39,628,289.16

The study attempts to measure the distribution of the import ban impact among the EU28 countries through the lens of export loss or benefit. Estimation of the import ban impact distribution is done in order to accept or reject the following hypothesis: the Russian import ban impact can be characterized as parallel to the Western sectoral and individual restrictive measures of 2014 in terms of trade losses of the EU28 countries.

4. Results

Cluster analysis of the EU28 countries, based on the values of the trade balance with Russia, has shown that in 2009, this group of countries could be split into two main groups, and each of these groups can then be sub-divided into several clusters. Results of the cluster analysis for the year 2009 based on Ward's method are shown in Figure 1. In general terms, the first group consists of countries which experienced higher percentage changes in trade balance but had relatively smaller values of trade with Russia, while the second group represents the largest EU exporters, which experienced a significant impact from the Russian import ban. Interestingly, except for Latvia (which increased its agri-food trade balance with Russia by 119% between 2009 and 2019), there was no movement between these groups in 2009 and 2019. Countries inside each group are shown in Table 2.

Figure 1. Cluster analysis of the EU28, based on the value of the trade balance with Russia, for the year 2009. Source: Authors' own calculations based on UN COMTRADE data.

Table 2. Grouping of the EU28 countries according to the agri-food trade balance in 2009 and 2019.

Group	2009	Agrifood Trade Balance with Russia in 2009, Average, International Dollars	2019	Agrifood Trade Balance with Russia in 2019, Average, International Dollars	% Change
Group 1	Austria, Bulgaria, Croatia, Cyprus, Czechia, Estonia, Finland, Greece, Hungary, Ireland, Latvia, Luxembourg, Malta, Portugal, Romania, Slovakia, Slovenia, Sweden	87,325,208.50	Austria, Bulgaria, Croatia, Cyprus, Czechia, Estonia, Finland, Greece, Hungary, Ireland, Luxembourg, Portugal, Romania, Slovakia, Slovenia, Sweden	67,182,209.67	−23.06%
Group 2	Belgium, Denmark, France, Germany, Italy, Lithuania, the Netherlands, Poland, Spain, United Kingdom	685,197,584.20	Belgium, Denmark, France, Germany, Italy, Latvia, Lithuania, the Netherlands, Poland, Spain, United Kingdom	353,653,565.20	−48.39%

As can be seen from Table 2, Group 1 consists of EU28 countries having a smaller agri-food trade balance with Russia, while Group 2 consists of countries with larger agri-food trade balances. The average GDP in Group 1 is also significantly lower than the average GDP in Group 2, for both years. At the same time, the percentage change in the average trade balance in Group 1 was significantly lower than in Group 2 (23.06% and 48.39%). The absolute decrease in Group 2 was also larger. From this perspective, countries in Group 2 experienced a greater import ban impact than countries in Group 1.

Several clusters of countries can be identified for the year 2009. The first cluster consists of a relatively large group of countries with a small trade balance value with Russia. All of these countries are relatively small, open economies, such as Luxembourg, Malta, Croatia, Slovakia, Slovenia, Romania, Bulgaria, the Czech Republic (Czechia), Ireland, Cyprus and Sweden. The trade balance in agri-food trade for these countries varied between negative 2.8 million USD (Cyprus) and positive 69.3 million USD (the Czech Republic). There are several similarities among these countries. None of these countries share a common border with Russia. None of them was part of the Soviet Union (like Latvia, Estonia and Lithuania), although some of these countries had close trade connections with the Soviet Union at some point in their history (figure examples include Romania, Bulgaria, the Czech Republic and Slovakia). Except for Cyprus and Malta, which have a negative trade balance, the positive trade balances of these countries are driven by the prevalence of exports to Russia over imports from Russia; however, the absolute values of exports are smaller than for other countries in the EU28 group.

On average, countries in cluster 1 experienced a trade balance decrease of 109.1% in agri-food trade with Russia during 2009–2019. Interestingly, there is a mixed change in trade balances in cluster 1 countries. Some of them (Croatia, Czechia, Romania, Slovenia) showed an increase in their agri-food trade balance with Russia. Additionally, all cluster 1 countries remained in the same cluster in 2019 (Figure 2), except for Czechia (which moved into cluster 2) and Malta (which showed the largest change in percentage terms and was excluded from the analysis as an outlier).

Figure 2. Cluster analysis of the EU28, based on the value of the trade balance with Russia, for the year 2019. Source: Authors' own calculations based on UN COMTRADE data.

The second cluster of countries in 2009 consists of Greece, Portugal, Latvia, Austria, Hungary, Estonia, and Finland. The average GDP in this cluster is higher than average GDP in cluster 1. Three countries have an increased agri-food trade balance with Russia: Austria (by 0.005% of 2019 GDP), Hungary (by 0.008% of 2019 GDP) and Latvia (by 0.615% of 2019 GDP). The largest loss of trade in relation to GDP is registered for Estonia, which lost a value of trade equivalent to 0.431% of 2019 GDP between 2009 and 2019. Clusters 3 and 4 are composed of Germany and the Netherlands, respectively. These two countries have the largest positive value of agri-food trade balance with Russia; however, in the period of 2009–2019, the trade balance decreased by 51.45% in the case of Germany and by 31.39% in the case of the Netherlands. Both countries were still the largest players in agri-food trade with Russia in 2019. After the introduction of the import ban, these countries lost a significant portion of their trade; however, as will be seen, their shares in EU28 agri-food trade with Russia have increased.

An interesting picture of changes in the grouping of EU countries can be seen in the smaller cluster distances. Six groups of countries can be defined after the introduction of the import ban, and each of the groups has special features when it comes to agri-food trade. Countries in the first group have a significant maritime shipping industry (Belgium, Spain, France, Denmark and the UK). A common feature of the countries in the second group (Latvia, Lithuania, Italy and Poland) is that a significant part of their agri-food trade with Russia was within the scope of the ban, while their agri-food trade balance with Russia was not the largest one. Considering the size of the economy of these countries, they

can be considered the real bearers of the import ban impact. As will be shown later, these countries also have the largest share of EU28 trade losses due to the Russian import ban.

The third and fourth clusters consist of one country—the Netherlands and Germany, respectively—and can be called clusters of large players. These two countries had the largest values of agri-food trade with Russia before the ban, and their decreases in the agri-food trade balance were most dramatic in absolute values, but not in percentage terms. The fifth group of countries (Austria, Hungary, Czechia and Estonia) experienced a significantly smaller impact on agri-food trade, and three of them (Austria, Hungary and Czechia) managed to increase their share on the Russian agri-food market after the ban (as shown in Figure 3). The last, sixth group, consists of countries with relatively small changes in their agri-food trade balance with Russia.

Figure 3. Shares of the EU28 countries in the agri-food imports of Russia. Source: Authors' own calculations based on UN COMTRADE data.

The import ban has disrupted supply chains of agri-food exports from the EU to Russia, and one might expect several possible scenarios of changes in market shares in the sanctioned product categories for EU exporters. As the import ban covered several 4-digit product categories, as well as 6-digit product categories, changes in market shares at the 2-digit product level can be multidirectional. The market share of an EU exporter-country is thus dependent on total imports for the 2-digit category, level of import substitution for the given category by domestic production, and level of import substitution by other countries, mostly outside of the scope of the ban. Domestic import substitution has a decreasing effect on the market share of EU exporters, and some authors note the ongoing process of import substitution by domestic producers after the introduction of the import ban [16,17]. Substitution of import flows by countries outside of the scope of the ban is another important factor. Other authors also note that for some categories, Asian exporters have replaced Western ones on the Russian market [18], and this new balance might be difficult to challenge in case the Russian import ban is lifted.

Changes in market share can lay the foundation for future developments in trade between EU countries and Russia. If the Russian import ban is lifted, it is fair to expect that countries with higher market shares would use this advantage to regain trade volumes and increase their trade balances with Russia. Table 3 reports changes in the shares of individual countries in EU28-Russian trade for sanctioned and non-sanctioned product categories. For all products, several countries managed to increase their share after the import ban. These countries are Austria (from 2.0% in 2013 to 3.3% in 2019), Bulgaria (from 0.5% to 1.0%), Czechia (from 0.8% to 2.1%), Germany (from 14.1% to 16.5%), Hungary (from 2.3% to 3.0%), Italy (from 5.9% to 8.9%), Latvia (from 4.3% to 6.8%), the Netherlands (from 12.8% to 15.4%), Portugal (from 0.4% to 0.8%), Romania (from 0.4% to 0.8%), Slovenia (from 0.3% to 0.6%), Sweden (from 0.8% to 1.6%) and the United Kingdom (from 1.4% to 2.4%). The largest gain in market share (increase of 3%) was seen by Italy. Before the introduction of the import ban, Germany and the Netherlands held the largest shares in EU28 agri-food trade with Russia. Five years after the introduction of the ban, these two countries together still hold more than 31% of the share, and both countries managed to increase their share in overall agri-food categories, as well as in sanctioned products.

Table 3. Shares of individual countries in EU28 agri-food trade with Russia. Source: Authors' own calculations based on UN COMTRADE data.

Country	Sanctioned Products				Non-Sanctioned Products				All Products		
	2013	2015	2019		2013	2015	2019		2013	2015	2019
Austria	2.2%	2.2%	3.1%	Up	1.7%	2.2%	3.3%	Up	2.0%	2.2%	3.3%
Belgium	4.4%	2.4%	3.2%	Down	2.2%	2.6%	3.3%	Up	3.6%	2.5%	3.2%
Bulgaria	0.2%	0.3%	0.6%	Up	0.9%	1.1%	1.2%	Up	0.5%	0.8%	1.0%
Croatia	0.2%	0.3%	0.2%	Stable	0.0%	0.2%	0.2%	Stable	0.1%	0.2%	0.2%
Cyprus	0.2%	0.0%	0.0%	Stable	0.0%	0.0%	0.0%	Stable	0.1%	0.0%	0.0%
Czechia	0.5%	1.8%	2.0%	Up	1.3%	1.6%	2.2%	Up	0.8%	1.6%	2.1%
Denmark	7.4%	5.0%	4.5%	Down	2.5%	1.5%	1.2%	Down	5.5%	2.6%	2.3%
Estonia	1.6%	1.9%	5.7%	Up	6.0%	5.9%	1.7%	Down	3.3%	4.6%	2.9%
Finland	4.5%	2.1%	1.6%	Down	2.4%	2.3%	1.4%	Down	3.7%	2.2%	1.5%
France	4.9%	4.0%	3.8%	Down	8.5%	7.1%	6.3%	Down	6.3%	6.1%	5.5%
Germany	13.4%	20.1%	20.6%	Up	15.4%	16.0%	14.7%	Down	14.1%	17.3%	16.5%
Greece	1.9%	0.3%	0.3%	Down	0.8%	1.0%	0.4%	Down	1.4%	0.7%	0.4%
Hungary	1.9%	3.2%	2.6%	Up	2.9%	3.5%	3.2%	Up	2.3%	3.4%	3.0%
Ireland	2.9%	2.0%	0.9%	Down	0.3%	0.4%	0.4%	Stable	1.9%	0.9%	0.5%
Italy	4.7%	6.4%	6.9%	Up	7.8%	7.3%	9.7%	Up	5.9%	7.0%	8.9%
Latvia	1.3%	1.3%	0.4%	Down	9.0%	8.1%	9.7%	Up	4.3%	5.8%	6.8%
Lithuania	13.9%	7.7%	4.8%	Down	8.5%	9.9%	9.1%	Up	11.8%	9.2%	7.8%
Luxembourg	0.1%	0.3%	0.0%	Stable	0.0%	0.0%	0.0%	Stable	0.1%	0.1%	0.0%
Malta	0.0%	0.0%	0.0%	Stable	0.0%	0.0%	0.0%	Stable	0.0%	0.0%	0.0%
Netherlands	11.2%	21.0%	18.2%	Up	15.3%	12.4%	14.1%	Down	12.8%	15.2%	15.4%
Poland	13.8%	7.7%	9.0%	Down	5.9%	7.4%	7.6%	Up	10.8%	7.5%	8.0%
Portugal	0.3%	0.6%	0.3%	Stable	0.6%	0.5%	1.0%	Up	0.4%	0.5%	0.8%
Romania	0.0%	0.1%	0.1%	Stable	0.9%	1.3%	1.2%	Up	0.4%	0.9%	0.8%

Table 3. Cont.

Country	Sanctioned Products				Non-Sanctioned Products				All Products		
	2013	2015	2019		2013	2015	2019		2013	2015	2019
Slovakia	0.3%	0.7%	0.6%	Up	0.3%	0.1%	0.2%	Stable	0.3%	0.3%	0.4%
Slovenia	0.3%	1.0%	1.5%	Up	0.1%	0.1%	0.1%	Stable	0.3%	0.4%	0.6%
Spain	6.0%	3.2%	2.6%	Down	3.4%	5.2%	5.0%	Up	5.0%	4.5%	4.2%
Sweden	0.8%	2.5%	4.1%	Up	1.0%	0.5%	0.5%	Down	0.8%	1.2%	1.6%
United Kingdom	1.1%	2.1%	2.6%	Up	2.0%	2.0%	2.4%	Up	1.4%	2.1%	2.4%

The largest decrease in trade share can be attributed to Lithuania (a 4% decline in the share in overall agri-food trade), followed by Denmark, with a 3.2% decline. The case of Denmark is especially remarkable, as the country experienced a 51.45% decline in their agri-food trade balance in 2009–2019.

An individual country's share in EU28–Russia trade could be important if the Russian import ban is lifted; however, has the ban stopped the banned countries from expanding their market share in non-banned categories? Figure 3 reports the changes in agri-food market share of the EU28 countries on the Russian market.

As shown in Figure 3, some countries have increased their share in the agri-food imports of Russia. Interestingly, sorted by import share before the ban, the countries in the lower part of the list are countries which increased their share of Russian agri-food imports, while the larger players, such as Germany and the Netherlands, have seen it reduced. At the same time, among the large players, Italy and Latvia experienced significant decreases in their shares immediately after introduction of the ban but increased their shares from 2.11% to 2.18% and from 1.52% to 1.62%, respectively, in 2013–2019. Similar cases of expansion despite the presence of the ban are evident for the United Kingdom, Sweden and Czechia. As can be concluded, some countries have not stopped expanding their market share on the Russian market, and thus could be the ones to see the first benefits once the ban is lifted.

Calculation of the cumulative impact of the Russian import ban (Table 4) shows that Germany, Lithuania, Poland, and the Netherlands experienced the largest losses in both scenarios. The losses for these countries are higher in the case of the pessimistic scenario. In fact, these three countries experienced the largest losses in both the optimistic and pessimistic scenarios. In the existing literature, Lithuania and Poland have been noted as the countries with the largest price decreases on the domestic market due to the Russian import ban [23]. The current study complements these findings with the fact that conditions for Germany and the Netherlands were also challenging, and these countries experienced a serious impact from the ban. Not only have these countries lost the trade benefits they have already achieved, but the Russian import ban has also caused a loss in terms of an opportunity cost. It is possible to call this group of countries “the established players”. Interestingly, Germany and the Netherlands increased their share of EU28 trade with Russia after the ban.

Three other countries—Ireland, Italy, and Latvia—represent another case. The losses of these countries are significantly higher in the pessimistic scenario than in the optimistic scenario. These countries experienced opportunity cost losses, which are mainly due to the fact that they had an optimistic dynamic in their trade balance with Russia before the ban and were expected to continue along the same trajectory if the import ban had not been introduced. Ireland, Italy and Latvia can be called “rising stars” in agri-food trade with Russia; however, their ascent was stopped by the ban.

Table 4. Cumulative impact of the Russian import ban on agri-food trade of the EU28 with Russia for the period 2014–2019, in current USD (selected countries). Source: Authors’ own calculations based on UN COMTRADE data.

Country	Optimistic	Pessimistic	% Share in EU28 Loss		
			Share in 2013	Share in 2015	Share in 2019
Austria	−655,631,861	−1,453,770,364	2.04%	2.22%	3.26%
Belgium	−1,968,408,172	−1,992,102,665	3.56%	2.54%	3.22%
Bulgaria	−87,371,552	−163,476,826	0.46%	0.84%	0.98%
Croatia	−14,543,637	−81,019,681	0.14%	0.24%	0.22%
Cyprus	−94,754,927	−170,914,449	0.12%	0.01%	0.02%
Czechia	6,839,270	−462,848,718	0.81%	1.62%	2.10%
Denmark	−3,856,508,395	−6,895,348,038	5.54%	2.62%	2.26%
Estonia	−1,334,791,477	−2,830,113,075	3.28%	4.60%	2.94%
Finland	−2,420,167,772	−3,822,425,229	3.72%	2.21%	1.46%
France	−3,125,065,265	−4,894,619,560	6.28%	6.11%	5.53%
Germany	−5,862,778,214	−7,398,142,705	14.15%	17.32%	16.53%
Greece	−989,150,345	−2,414,243,277	1.45%	0.73%	0.36%
Hungary	−726,688,000	−2,176,206,365	2.30%	3.38%	2.98%
Ireland	−1,326,519,932	−9,202,753,078	1.92%	0.90%	0.52%
Italy	−1,919,115,589	−7,013,932,214	5.90%	7.03%	8.86%
Latvia	−1,099,572,875	−8,780,190,659	4.25%	5.84%	6.78%
Lithuania	−6,766,020,361	−20,761,354,978	11.81%	9.15%	7.76%
Luxembourg	−45,109,566	−51,465,360,484	0.08%	0.10%	0.00%
Malta	−156,038	−2454	0.00%	0.00%	0.00%
Netherlands	−5,302,820,306	−8,460,532,856	12.79%	15.19%	15.40%
Poland	−6,247,839,785	−16,801,439,432	10.80%	7.50%	8.01%
Portugal	−96,093,993	−772,186,139	0.42%	0.51%	0.76%
Romania	69,742,970	−1,478,618,984	0.36%	0.88%	0.84%
Slovakia	−114,917,324	−336,495,500	0.27%	0.30%	0.35%
Slovenia	−24,742,318	−155,389,813	0.25%	0.41%	0.57%
Spain	−2,629,868,169	−4,636,541,240	5.02%	4.53%	4.23%
Sweden	−173,195,293	−713,624,328	0.85%	1.16%	1.62%
United Kingdom	−415,970,868	−522,481,801	1.44%	2.07%	2.43%
Total	−47,221,219,794	−95,389,796,146	100.00%	100.00%	100.00%

An important view of the import ban impact can be achieved by looking into the shares of individual countries in the total EU28 losses due to the import ban (Table 4). Germany and the Netherlands account for almost 32% of total EU28 losses. Italy, Latvia, Lithuania and Poland are members of the second group as per the cluster analysis (Figure 2). Based on these facts, these countries can be considered the main bearers of the Russian import ban impact. Taken together, these six countries received 63.33% of total EU28 losses due to the ban. In comparison to previous studies (e.g., [19,23]), which mainly highlighted Germany, Lithuania, Latvia and Poland as the main receivers of the import ban impact, it is possible to conclude that the group of highly impacted countries can be enlarged by Italy and the Netherlands, while the 22 other EU countries experienced a significantly smaller impact.

Based on the existing literature on the Russian import ban, it is possible to connect the changes in Russia/EU agri-food trade and production shift in Russia. Part of the

agricultural production growth in Russia in the mid-2010s can be attributed to import ban impact [17]; however, production increase coincided with depreciation of ruble which made EU agri-food imports less competitive on the Russian market, providing domestic producers with a less competitive environment and opportunity to compensate for decreasing supply. Increase in domestic production should also be considered together with the introduction of Russian Food Security Doctrine in 2010 [5] and its reinforcement with the 2020 version [6]. The Doctrine establishes minimum domestic production shares (or in other words, levels of self-sufficiency) for a specified list of the products, such as grain (95%), sugar (80%), meat and meat products (85%) and milk and dairy products (90%). The coverage of the import ban list is very similar to the products covered by the Doctrine. From this perspective, the import ban has served as an incentive to increase levels of self-sufficiency [4,18], which, from the point of view of Russian authorities, can be one of the most important achievements in terms of food security [4].

One of the limitations of the current study is the focus on countries of the European Union. While these countries were indeed important agri-food trading partners for Russia before Western restrictive measures were imposed, the introduction of the Russian import ban has evoked the trade diversion effect. Trading partners on both sides of the economic sanctions were forced to find new trading partners relatively quickly. There is evidence that European exporters have managed to find new export destinations relatively quickly [35]; however, there is still an open question about the trade effects in the countries outside of sanctions scope. These questions are still being answered by future studies.

Another limitation of the study is the primary focus on macro-level. Western economic sanctions against Russia, as well as the Russian import ban, are restrictive economic policies which prescribe individual economic agents to either adjust the behavior in accordance with the ruling or face punitive measures. The impact of these measures on individual firms can be different. Partially, heterogeneity of import ban impact on a micro-level has been described, for example, by Wengle [17], who reported multidirectional impacts on agri-food industries, and by Venkuvienė and Masteikiene [24], who reported that dairy and meat sectors of the Central and Eastern European countries have suffered the most from the Western sanctions and import ban. At the same time, the question of the linkage between firm size and import ban impact is still open, as well as the linkages to the rural development on both sides of the sanctions. All in all, the financial impact of the ban on individual industries or firms represents an opportunity for future research.

5. Conclusions

The impact of the Russian import ban was not uniform for the EU28 countries. Two large groups of countries can be defined: countries in Group 1 saw a 23% decrease in their agri-food trade balance with Russia, while Group 2 experienced a decrease of 48%. Allocation of the import ban effect on agri-food trade is not even, and some of the larger players have experienced a lesser impact than the smaller ones. Examples of such a contrast are Germany (together with the Netherlands, the largest agri-food trading partner of Russia) and Lithuania, which experienced significant losses; however, the losses for Lithuania were relatively more severe. At the same time, the largest losses after the import ban are seen among the countries of Group 2 (Germany, the Netherlands, Lithuania, and Poland). The same group of countries received the largest share of total EU28 losses due to the ban, and these countries can therefore be considered as the main bearers of the impact of the ban.

The speed at which the trade balances of the EU28 countries adapted to the Russian import ban suggests that a potential lifting of the ban could entail a quick re-balancing of EU28 trade with Russia. The analysis shows several candidate countries that could quickly receive the first benefits once the ban is lifted. These countries are Italy, Latvia, Czechia and Sweden, as these are countries that have expanded their agri-food trade with Russia, even after the introduction of the import ban.

From the perspective of potential economic damage to the sanctioned countries, the Russian import ban has brought specific challenges to the EU28 countries, which enacted

restrictive measures against Russia in connection with the events of 2014. From this perspective, the introduction of the ban has achieved its declared goal. On the other hand, it is still an open question whether the ban has actually affected countries whose political position in the EU allows them to influence the policy of the Union towards Russia. From this perspective, the effectiveness of the import ban can be questioned, and the Russian import ban could be another case of economic sanctions which did not completely fulfil their initial purpose.

The results of the current study can also be generalized in relation to the topic of economic sanctions. Changes in trade patterns (structure, geography) and favorable effects on Russian agricultural production are confirmed, as well as food security effects. From this perspective, the Russian import ban can provide an example of specific trade-production framework. The questions of stability, sustainability and resource efficiency of such framework are still to be answered by future studies.

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