

# STATISTICAL MULTIVARIATE ANALYSIS OF INDICATORS RESPONDING TO SANCTIONS AND COUNTERSANCTIONS CONCERNING THE RUSSIAN FEDERATION: THE RUSSIAN BUSINESS PERSPECTIVE

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## Abstract

The paper aims to assess how Russian businesses have been impacted by the sanctions and countersanctions and their opinions on the issue. Businesses listed in the RBK Group's rating of 500 major Russian companies were addressed. From the surveyed companies that traded with the European Union before 2014 and are currently engaged in trade with this entity, it was made evident that the impact on businesses and their overall attitude regarding the sanctions and countersanctions differ significantly. For the investigation of relationships among twelve indicators, we applied correlation, factor and cluster analyses. By factor analysis, we obtained two factors. We can distinguish two groups of indicators according to the evaluation of sanctions or countersanctions. In the dendrogram obtained by hierarchical cluster analysis, we can distinguish two main groups of indicators that correspond to two factors obtained by factor analysis. It can be stated that sanctions are a more serious issue for the surveyed companies than countersanction. On the other hand, the research shows that the Russian Federation's largest businesses would be mostly inclined to remove sanctions.

**Key words:** Russian businesses, European Union, sanctions, factor analysis, cluster analysis

**JEL Code:** C38, F13, M16

## Introduction

As of autumn of 2020, the sanctions against the Russian Federation imposed by some foreign countries as a condemnation of the annexation of the Crimean Peninsula were still in force. Their validity has been extended several times. The countersanctions launched by the Russian Federation have not changed either.

In 2019, a survey among Czech businesses trading with the Russian Federation (Hinčica et al., 2020) was conducted. Its main conclusion was that sanctions and countersanctions impacted negatively on most of the surveyed companies. It was also found

out that removing both the sanctions and countersanctions would be widely appreciated by the Czech business sector involved in trading with the Russian Federation. Since there is still little empirical evidence on how sanctions and countersanctions are perceived by businesses affected by the imposition of such restrictions and the sanctioning measures are always maintained, we decided to continue in the above-mentioned research. The aim of this paper is to assess how Russian businesses have been impacted by the sanctions and countersanctions and their opinions on the issue. We decided to address Russian businesses trading with the European Union. This block of countries is among the sanctioning parties, though the information on how Russian companies were affected and their opinions are scarce.

## **1 Literature review**

The literature on sanctions and countersanctions keeps growing. Still, authors typically refrain from collecting primary data, which can be considered as a significant research gap. The predominant use of secondary data does not enable a better picture of these measures' real impact on the business standing in the countries applying or being the target of the measures. Herein, we only comment on some of the most recent research. The summary of research dating back to or before 2019 is well elaborated by Korhonen et al. (2018) and Korhonen (2019).

So far, it has usually been assumed that sanctions and countersanctions brought either significant or some negative impact on both sides of the political conflict, i.e., the Russian Federation and the countries targeting the Russian Federation, while the Russian Federation being the side that was hurt more. On the other hand, some authors (e.g., Barseghyan, 2019) admit there could also be a positive aspect of sanctions and countersanctions such as the Russian agriculture sector's boost. Manushin (2019) even claims that the overall mid-term result of sanctions and countersanctions for the Russian trade turnover and balance is rather positive than negative. However, e.g., Vorotnikov et al. (2019) pointed to significant falls in trade with some EU members for the period 2014 to 2018.

In the past two years, there have been authors who only focused on the effect of sanctions. An example can be Deuber (2019) who believes the negative effect of Western financial market and banking sector sanctions has not lasted for a long time as the Russian and foreign investors got used to the new environment. Nusratullin et al. (2021) also point to the decreasing impact of sanctions on the Russian economy. Another paper worth mentioning, although from the field of political sciences, is that of Portela et al. (2020). This team of

authors tried to investigate the reasons behind the persistence of EU sanctions on Russia. They concluded that the consensus on keeping the sanctions in force depends primarily on the interaction between the Council and domestic politics.

In the same period, we register growing attention to the effect of countersanctions, especially towards the above-mentioned Russian agriculture sector. Kotyrlo and Zaycev (2020) admit the boom of Russian agriculture has not been steady for the whole federation since 2014. They also claim that it might not necessarily be attributable only to the imposition of countersanctions, but also to the governmental supporting programs. Pospieszna et al. (2020) add that that the protectionist strategy aiming at food production has been carefully selected but eventually only partially successful. In turn, Volchkova and Kuznetsova (2019) investigated the impact of countersanctions targeting imported agricultural products on Russian consumers. The two authors calculated a loss for Russian consumers totaling almost 5 million EUR every year in the period 2014–2018, whereas Belarussian importers have been the party gaining the highest benefit from the measures. Skrypnik and Shakleina (2019) argue that counter-sanctions measures led to increased domestic prices and, subsequently, to an increase in poverty in the country. However, some pieces of research working with secondary data must be considered with a lot of caution because the outputs they present may only correspond to specific scenarios and can, therefore, be seen more as estimations.

The minimal amount of empirical research is an obstacle for confirming or rejecting the suggested conclusions or results of studies using secondary data. It then means that politicians and institutions do not get a clear image of the consequences their measures represent for the business sector, and, subsequently, to citizens of the affected countries. This paper will shed more light on the perception of the restrictive measures. It will aim at major Russian companies, and, contrary to the existing empirical research, it will deal both with sanctions and countersanctions.

## **2 Research design and results**

We decided to use the questionnaire we had launched for our survey on sanctions and countersanctions in 2019 (Hinčica et al., 2020) and changed some of its questions to adapt it for the purpose of this new survey. We decided to access the list named “RBK 500” published regularly by the Russian company RBK. This list includes businesses born in Russia and businesses set up in the country by foreign companies. The rating, contrary to the number shown in the name, included 620 companies. It was possible to reduce the list by excluding

companies marked by RBK as foreign ones or as diversified holdings. Still, in reality, some companies referred to as “Russian” register trails of foreign involvement (foreign capital, etc.), so we decided not to discriminate and contacted all the 620 companies.

The RBK list does not include any contact details, so we had to browse companies’ websites to obtain email addresses. In five cases, companies were not showing any website, and for some of the companies, we could not find anything other than just a postal address. Therefore, we received an email contact for 611 companies. Wherever it was possible, we collected all email addresses pointing to possibly useful contacts (e.g., a sales director) because our experience says that contacting solely no-name emails such as “info@...” might not be the right approach. As the number of collected email contacts was over 1,000, we had to be careful to ensure that we received just one answer from every company (a warning was used in the request for answering). Due to the extremely low willingness to reply, we contacted the companies in three different waves, in July–August, September, and October 2020. On November 20, 2020, we finished the collection of answers. In total, we received 50 responses (a response rate of 8.1%), but only 32 (5.2%) were relevant for our survey because we wanted to get an insight from companies having experience with trading with the European Union both before and after 2014 and still actually trading with the European Union. The structure of the companies is presented in Table 1.

**Tab. 1: Frequencies of the companies according to the categories of grouping variables**

Trade activities with the European Union involve	Number of companies	The annual turnover in the last fiscal year	Number of companies
services	16	≤ EUR 2 million	1
products	15	≤ EUR 10 million and more than 2 million EUR	1
both	1	≤ EUR 50 million and more than 10 million EUR	14
The number of employees in the last fiscal year was	Number of companies	over 50 million EUR	16
51–250	8		
251 and more	24		

Source: own research

Table 2 shows the percentages of individual valid answers on the four-point ordinal scale for individual subquestions of the meritorious question; see Annex. We use abbreviated names for subquestions (furthermore referred to as “questions”) in the table. We can see that for questions related to sanctions, there is usually approximately the same share of answers “rather agree” and “rather disagree” (or there is a small difference). For questions related to countersanctions, there is almost always a predominance of responses “rather disagree”. The

only exceptions are answers concerning Sanctions\_perception a Countersanctions\_perception and the last two questions regarding abolishing the restrictive measures. Simultaneously, for these four questions, there are fewer valid answers than for other questions.

**Tab. 2: Percentages of individual valid answers for individual questions**

Question	Strongly agree	Rather agree	Rather disagree	Strongly disagree	No. of valid answers
Sanctions_profit	21.9	28.1	<b>34.4</b>	15.6	32
Countersanctions_profit	3.3	10.0	<b>56.7</b>	30.0	30
Sanctions_no of cust	12.9	29.0	<b>35.5</b>	22.6	31
Countersanctions_no_of_cust	0.0	13.3	<b>46.7</b>	40.0	30
Sanctions_differently	6.5	<b>45.2</b>	38.7	9.7	31
Countersanctions_differently	0.0	10.3	<b>69.0</b>	20.7	29
Sanctions_difficult_trading	28.1	<b>34.4</b>	31.3	6.3	32
Countersanctions_difficult_trading	6.7	10.0	<b>60.0</b>	23.3	30
Sanctions_perception	8.3	4.2	<b>50.0</b>	37.5	24
Countersanctions_perception	4.3	0.0	<b>52.2</b>	43.5	23
Sanctions_change_m	6.3	40.6	<b>50.0</b>	3.1	32
Countersanctions_change_m	0.0	10.0	<b>73.3</b>	16.7	30
Sanctions_change_p	9.4	<b>50.0</b>	37.5	3.1	32
Countersanctions_change_p	0.0	12.9	<b>71.0</b>	16.1	31
Like_to_abolish_sanctions	<b>59.1</b>	27.3	9.1	4.5	22
Like_to_abolish_countersanct	27.3	18.2	18.2	<b>36.4</b>	11

Source: own research and calculation

The numbers of valid answers reveal that companies preferred not to express their opinion regarding abolishing sanctions or countersanctions. This is especially visible in the case of countersanctions where 21 respondents selected the option “We don’t know”. On the other hand, we see that those companies that did not select the “We don’t know” option in the penultimate question would mostly agree with the abolishment of sanctions. We also see that a majority of those who did not select the “We don’t know” option in the last question would maintain the countersanctions. However, given the low numbers of answers providing a certain level of agreement, it is impossible to estimate whether Russian businesses would appreciate the removal of the sanctions first because the sanctions were imposed first, and, if this does not happen, they would prefer the existence of the countersanctions as the retaliatory measure.

The results insinuate Russian companies have been less affected by the imposition of countersanctions than by sanctions. On the other hand, we do not see that most respondents would be strongly influenced by the imposition of sanctions. However, we cannot overlook those relatively high percentages of businesses (around 40 to 50%) that claim to have been

affected in losing customers, profit, or a different kind of loss due to the sanctions. Moreover, the results indicate most Russian companies (over 60%) would agree that trading with the EU has become difficult, which probably results in the change of their business procedures and, less importantly, in their business model's change.

We also analyzed relationships among the answers by a correlation matrix using Kendall's tau-b. The values higher than 0.7 are shown in Table 3. We can see that the highest correlation was found for the pair of questions Countersanctions\_change\_p and Countersanctions\_change\_m followed by the pair of questions Sanctions\_change\_p and Sanctions\_change\_m.

**Tab. 3: Values of Kendall's tau-b (correlation coefficients)**

Relation	Value	No. of valid answers
Countersanctions_change_m × Countersanctions_change_p	0.811	30
Sanctions_change_m × Sanctions_change_p	0.775	32
Sanctions_profit × Like_to_abolish_sanctions	0.734	22
Sanctions_profit × Sanctions_no_of cust	0.731	31
Countersanctions_no_of_cust × Like_to_abolish_countersanct	0.715	11
Sanctions_perception × Countersanctions_perception	0.708	23

Source: own research and calculation

Moreover, we analyzed whether the answers to the four-point scale questions depend on the grouping variables: the type of activity, size, and turnover of the company (all grouping variables were recoded into two categories). The number of companies is small, so we applied exact tests (designed for small samples) in contingency tables. We found two cases of dependence on the type activities at the 5% significant level. For Countersanction\_profit, dependence was found according to the linear-by-linear association (P-value 0.018 for the two-sided test), the likelihood ratio, and the uncertainty coefficient (P-value 0.045 for both tests). For Like\_to\_abolish\_countersanct, dependence was found according to the linear-by-linear association (P-value 0.048 for the two-sided test but there are only 11 valid answers). In the case of both questions, companies trading with products selected only answers with "disagree". Moreover, we found dependence of Sanctions\_no of cust on the turnover according to the Goodman and Kruskal tau (P-value 0.036). In this case, for the lower turnover the ratio between agreement and disagreement was 8 : 7, and for the higher turnover the ratio was 5 : 11.

Besides, we investigated if it is possible to identify any groups of questions. We omitted the questions Sanctions\_perception a Countersanctions\_perception and the last two questions regarding abolishing the restrictive measures due to low numbers of valid answers.

Thus, we obtained a dataset with answers from 27 companies: trade activities with the European Union involve services in 14 cases, while 13 companies trade with products; 5 companies had 51–250 employees in the last fiscal year, and 22 companies had more employees; 13 companies had the annual turnover in the last fiscal year less than (or equal to) 50 million EUR, and 14 of companies had a higher annual turnover.

We applied factor and cluster analyses based on correlation coefficients. For factor analysis, we used principal component analysis as the extraction method and the Varimax rotation method with Kaiser normalization. We found two factors that explain more than 66% of the variance. We can distinguish two groups of questions according to the evaluation of sanctions or countersanctions.

In the case of cluster analysis, we use hierarchical clustering with the complete linkage method. In Figure 1, the similarity among questions is displayed in the dendrogram. We can distinguish two main groups of questions that correspond to two factors obtained by factor analysis. Moreover, we can identify relationships among variables in detail. Three pairs of the highest correlated questions are in Table 3 although correlations are calculated based on a different number of companies (the other pairs in Table 3 include the questions omitted in cluster analysis). We can also identify more groups of questions, e.g., four significant groups.

Both in the case of the research based on a questionnaire survey conducted with Czech companies (Hinčica et al., 2020) and in the case of this research, the companies mostly expressed that they would welcome the lifting of sanctions, in 70% of cases in Czech companies and in 59% of cases in Russian companies.

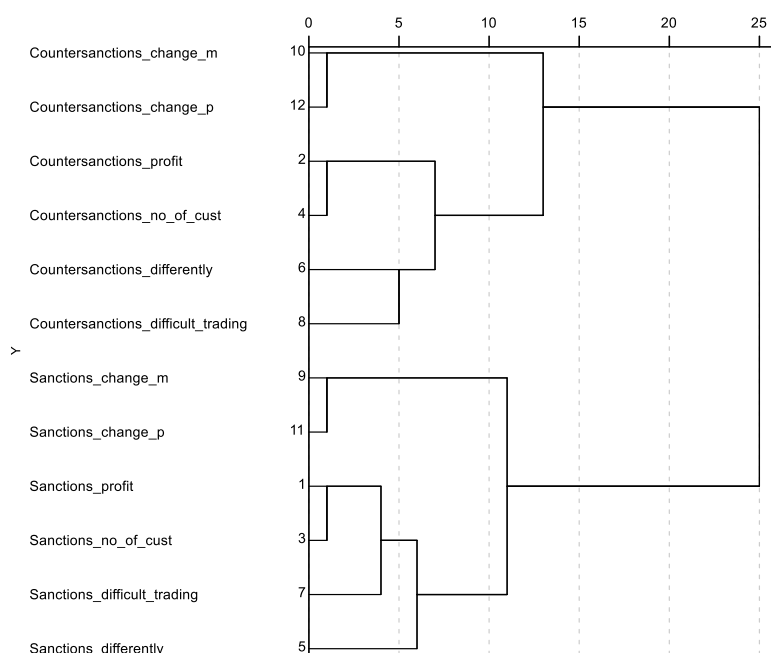
## **Conclusion**

The low number of respondents certainly limits this paper's outputs. Although we contacted over 600 businesses, we only received 32 replies relevant to our research after four months of collecting answers and two reminders. Due to its partial sensitiveness, the survey was anonymous, so we could not intervene more if two reminders were not sufficient – we do not know who replied or not, and we cannot bother the companies more.

This survey reveals the opinions of major Russian businesses only. Smaller companies were not selected due to the impossibility of getting access to a relevant database. Anyway, the list of major Russian companies was extensive, and we can say that the companies from this list contribute the most to the move of Russian foreign trade, so selecting only this segment of the Russian business sphere has been worth using for our research. On the other

hand, we found it extremely difficult to distinguish between those businesses that could be considered purely “Russian” and partly or mostly owned by foreign entities. The RBK 500 list indicates which companies are foreign-owned, but we did not discriminate because we found the criteria for such selection unclear. On the other hand, the survey companies’ ownership structure could significantly impact the opinions provided.

**Fig. 1: Dendrogram based on 12 questions**



Source: own research and analysis

The questionnaire’s results indicate that sanctions are seen more as a problem for major Russian companies than countersanctions. This is also the main finding of our survey. Moreover, we can expect that major Russian businesses would appreciate the removal of sanctions more than the removal of countersanctions. Based on the cluster and factor analyses, we also need to stress that there is a clear difference in the way respondents reacted to the questions regarding sanctions and questions regarding countersanctions.

Although the results are not numerous given our long-lasting efforts deployed to collect answers, we believe our research adds some new information to the continuing discussion about how sanctions and countersanction affect real business life. The research gap described at the beginning of this paper has been, though, reduced only limitedly.



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## **Annex – The meritorious question**

Indicate on a scale of 1 to 5 (1 = strongly disagree, 2 = rather disagree, 3 = I do not know, 4 = rather agree, 5 = strongly agree) how much you agree with the following statements:

- a) We have incurred damages by the sanctions in terms of profits.
- b) We have incurred damages by the countersanctions in terms of profits.
- c) We have incurred damages by the sanction in terms of customer volume.
- d) We have incurred damages by the countersanctions in terms of customer volume.
- e) We have incurred damages by the sanctions in a way other than in terms of profits or customer volume.

- f) We have incurred damages by the countersanctions in a way other than in terms of profits or customer volume.
- g) After the imposition of sanctions, trading with the Russian Federation has become more difficult (e.g. due to a tougher legislation) for our company.
- h) After the imposition of countersanctions, trading with the Russian Federation has become more difficult (e.g. due to a tougher legislation) for our company.
- i) The sanctions have had an impact on how people perceive our products/services.
- j) The countersanctions have had an impact on how people perceive our products/services.
- k) After the imposition of sanctions, we have had to change our business model.
- l) After the imposition of countersanctions, we have had to change our business model.
- m) After the imposition of sanctions, we have had to change our company processes.
- n) After the imposition of countersanctions, we have had to change our company processes.
- o) We would like to see the sanctions abolished soon.
- p) We would like to see the countersanctions abolished soon.

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