RISKS FOR THE SUSTAINABLE ECONOMIC DEVELOPMENT OF THE VOLGA FEDERAL DISTRICT IN THE CONTEXT OF SANCTIONS IMPOSED ON IMPORT SUPPLIES

Marat Safiullin
Kazan (Volga Region) Federal University, Russia.
Center for Advanced Economic Research, Academy of Sciences of the Republic of Tatarstan, Russia.
C.p@tatar.ru

Leonid Yelshin
Center for Advanced Economic Research, Academy of Sciences of the Republic of Tatarstan, Russia. Center for Strategic Assessments and Forecasts, Kazan (Volga Region) Federal University, Russia. TISBI University of Management, Rússia.
leonid.yelshin@mail.ru

Almaz Mingulov
Kazan (Volga Region) Federal University, Kazan, Russia
almaz.mingulov@mail.ru

Abstract

The study aims to develop and test methodological approaches to the predictive assessment of the GRP of the Volga Federal District in the context of disruption of transnational import supply chains. The main research methods are correlation and regression analysis which form the basis for seeking relationships between ongoing changes in the regional economic sectors and the GRP. To cumulatively assess the impact of possible economic changes in the Volga Federal District on the formation of the GDP in the Russian Federation, the authors use structural analysis. The study results show the specifics of the economic growth of the Volga Federal District and their aggregate impact on the possible correction of the national economy of Russia in the context of limited supplies of critical imports. The estimates determine a possible slowdown in GDP dynamics by 0.17% within the framework of the projected values of the Volga Federal District's economic growth per the simulated restrictions on transnational supply chains. The most vulnerable to disturbances in foreign economic relations are industrial regions. The expected decrease in the GRP is estimated in the context of systemic transformations (about 1.4%), as opposed to regions with a less industrial economic structure.

Keywords: import substitution, sustainability of economic growth, forecasting, simulation modeling, adaptation mechanisms.

INTRODUCTION

Ever-tighter sanctions on the Russian economy predetermine risks for the sustainable development of its regions, especially those that are significantly integrated into the transnational supply chains of final and intermediate goods involved in the creation of added value. “In general, sanctions are a severance of integration and cooperative ties, a blow to the theory and practice of the international division of labor which ultimately reduces the costs of

products manufactured in the most favorable conditions" (Osipov et al., 2017, p. 33). Sanctions against the Russian economy imposed by several Western countries have made it impossible to maintain imports at the previous level. Logistics and cooperation ties are being transformed, which conditions the urgent task of finding models for leveling risks and ensuring the sustainable development of the most suffering sectors of the Russian economy (Safiullin & Yelshin, 2023). Studying the issues of import substitution in the Russian Federation is of great importance for understanding the development potential of economic sectors, factors influencing the effective implementation of the import substitution strategy, and methods to support import-dependent industries.

Considering the relevance of the issues, it is necessary to find effective mechanisms to adapt the Russian economy to major external challenges. However, they mostly focus on heuristic and descriptive methods of analysis, which do not allow an objective look at the upcoming changes within the framework of building appropriate predictive models.

In addition, the sustainable development of the Russian economy in the context of systemic transformations (including the pressure of sanctions on the national economy) is insufficiently studied. This is due to the position on the opportunistic component of such research, which does not predetermine its fundamental novelty. However, the growing number of sanctions against Russia and the resulting structural transformations in the socio-economic environment neutralize this approach and elevate the fundamental and applied significance of scientific work in the area.

To develop methodological approaches that show the features of modeling the economic growth of Russian regions in the context of structural disturbances in foreign economic relations, as well as based on the relevance of the issues, we need to solve the following tasks:

1. To determine disrupted foreign economic supply chains of the Volga Federal District by type of economic activity under sanctions;

2. To assess potential short-term economic damage and the economic security of regional systems in new economic conditions;

3. To forecast the Russian GDP dynamics in the context of a possible correction of economic growth in the Volga Federal District.

LITERATURE REVIEW

Academician L.I. Abalkin was one of the first Russian scholars to address sustainable economic development in the context of external pressure, which generates a high level of

restrictions on the import of technologies and goods. Abalkin (2000) claimed that "the state, especially in a force majeure, is forced to produce necessary items even at its own loss" (p. 75). This position emphasizes the priority of the country's economic security and the need to stimulate the policy of import substitution, especially during the acute phases of cyclical economic development.

I.I. Pichurin and D.V. Blinov (2014) highlight that "an increase in imports has never brought benefits to the Russian economy, and now it has reached such a scale that the very existence of Russia is under threat" (p. 20).

Modern studies on the development of territories under the influence of exports and imports are written by such authors as O.S. Sukharev (2023), M.R. Safiullin, M.R. Gafarov, and L.A. Yelshin (2022), V.Yu. Chernova (2017), N.Yu. Yaroshevich and V.V. Migunov (2023), M.N. Uvarova, N.V. Polshakova, and S.Yu. Grishina (2022), etc.

Import substitution and economic security under international economic sanctions are also reflected in the scientific works by D. Hoang and E. Breugelmans (2023), K. Karuppiah and B. Sankaranarayanan (2023), M. Koren, Y. Perlman, and M. Shnaiderman (2022), M. Bali and N. Rapelanoro (2021), M. Bas and V. Strauss-Kahn (2015), M. Kamidelivand, C. Cahill, M. Llop, F. Rogan, and B. O'Gallachoir (2018), P.R. Krugman, M. Obstfeld, and M. Melitz (2014), etc.

Mechanisms for the sustainable development of economic systems in the context of systemic transformations are studied by leading Russian research institutions (Higher School of Economics (Institute for Statistical Studies, 2023), Central Economics and Mathematics Institute of the Russian Academy of Sciences (Ermakova et al., 2022), Center for Macroeconomic Analysis and Short-Term Forecasting (Tsentr makroekonomicheskogo analiza, 2023), Institute of Economics of the Russian Academy of Sciences (Koshovets, 2023), etc.).

Their scientific works present a wide range of methodological approaches to modeling and forecasting the economic growth of the Russian economy, including in the context of uncertainty. However, there are practically no methodological tools that show the features of modeling economic dynamics in the context of systemic transformations at the regional level. There are a few studies that reveal the features of regional economic growth in the context of import localization and large-scale disruption of foreign trade supply chains. This determines the need for further research in this area. These issues are especially urgent on the current agenda for regions of Russia facing external barriers to import supplies and searching for new cooperation chains in the context of sanctions.

Thus, the study aims to develop and test methodological tools for assessing and forecasting the development of constituent entities of Russia in the context of deglobalization and transformation of international relations and sanctions war, based on the design and simulation assessment of transnational import supply chains.

METHODS

The most important feature of assessing the impact of import restrictions on the sustainability of economic growth is the identification and systematization of commodity flows supplied to the region from abroad. A crucial aspect is the grouping of products according to their significance in terms of impact on the sustainable development of economic sectors and the region. An equally important methodological aspect is the grouping of imported goods based on their geography to understand the prospective sustainability of supplies. In a structured form, this approach can be represented as the following block diagram (Figure 1).

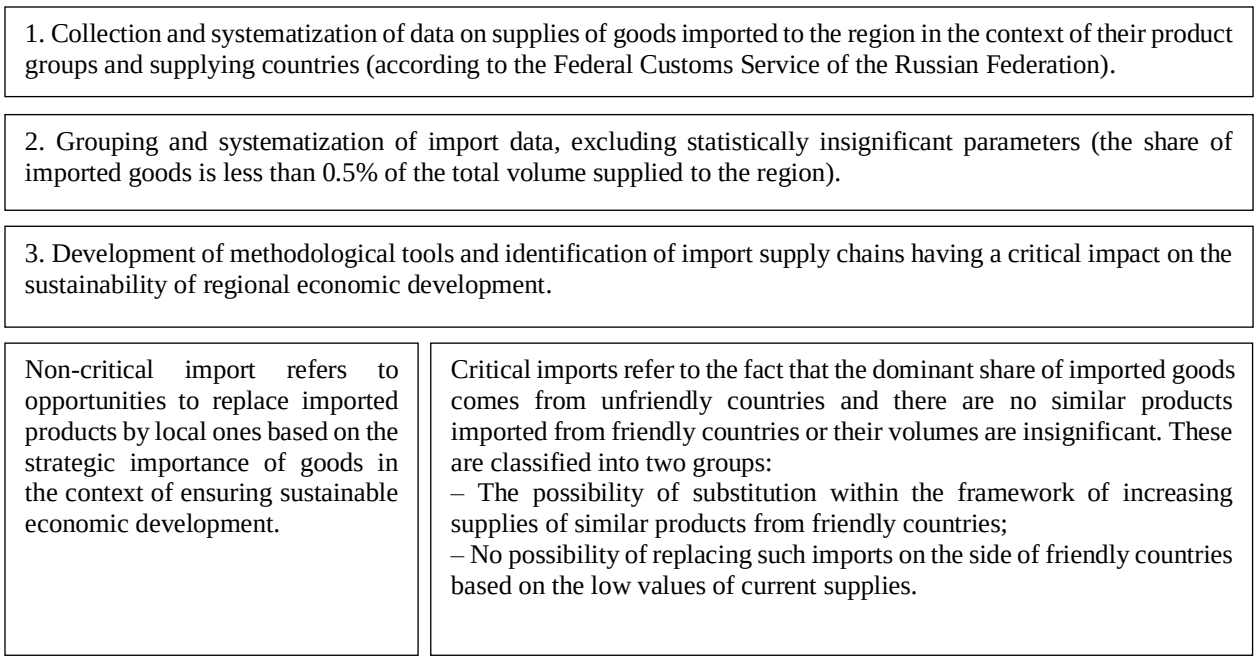


Figure 1. Methodology for the systematization and analysis of commodity flows imported from foreign countries and integrated into the process of creating added value

Our approach stipulates the need to divide the import of goods into critical and non-critical categories. To interpret these categories, it is recommended to explain their essence.

1. Non-critical imports mean wide opportunities for the replacement of foreign products by local ones as part of the reorientation of supply geography. This includes the import of goods that do not participate in the creation of final added value in the region.

2. Critical imports mean that the dominant share of goods comes from the so-called unfriendly countries with no preferential treatment.

In turn, critical imports are divided into two groups:

2.1 Imported goods for which it is possible to reconfigure the geography of supplies as part of building up trade relations with friendly countries (existing suppliers of similar products).

2.2 Imported goods that are difficult to replace with supplies from friendly countries based on the current volume of goods they supply to the region.

The information base for the subsequent assessments and calculations is retrieved from open federal statistical data (https://www.fedstat.ru) and the Federal Customs Service of the Russian Federation (https://customs.gov.ru/?ysclid=lkjs8fzbn133763475). The methodology includes a dynamic analysis of imports in the context of 97 product groups and supplying countries, a structural analysis of commodity items imported to the region, a comparative analysis of product groups and types of economic activity in the context of the region, and systematization of supply chains in the context of regional economic sectors.

The systematization of imports following the aspects presented above opens up opportunities to build economic models both at the industry-specific and regional levels with due regard to the simulation modeling of foreign supply chains. This research process is presented in a structured form in Figure 2.

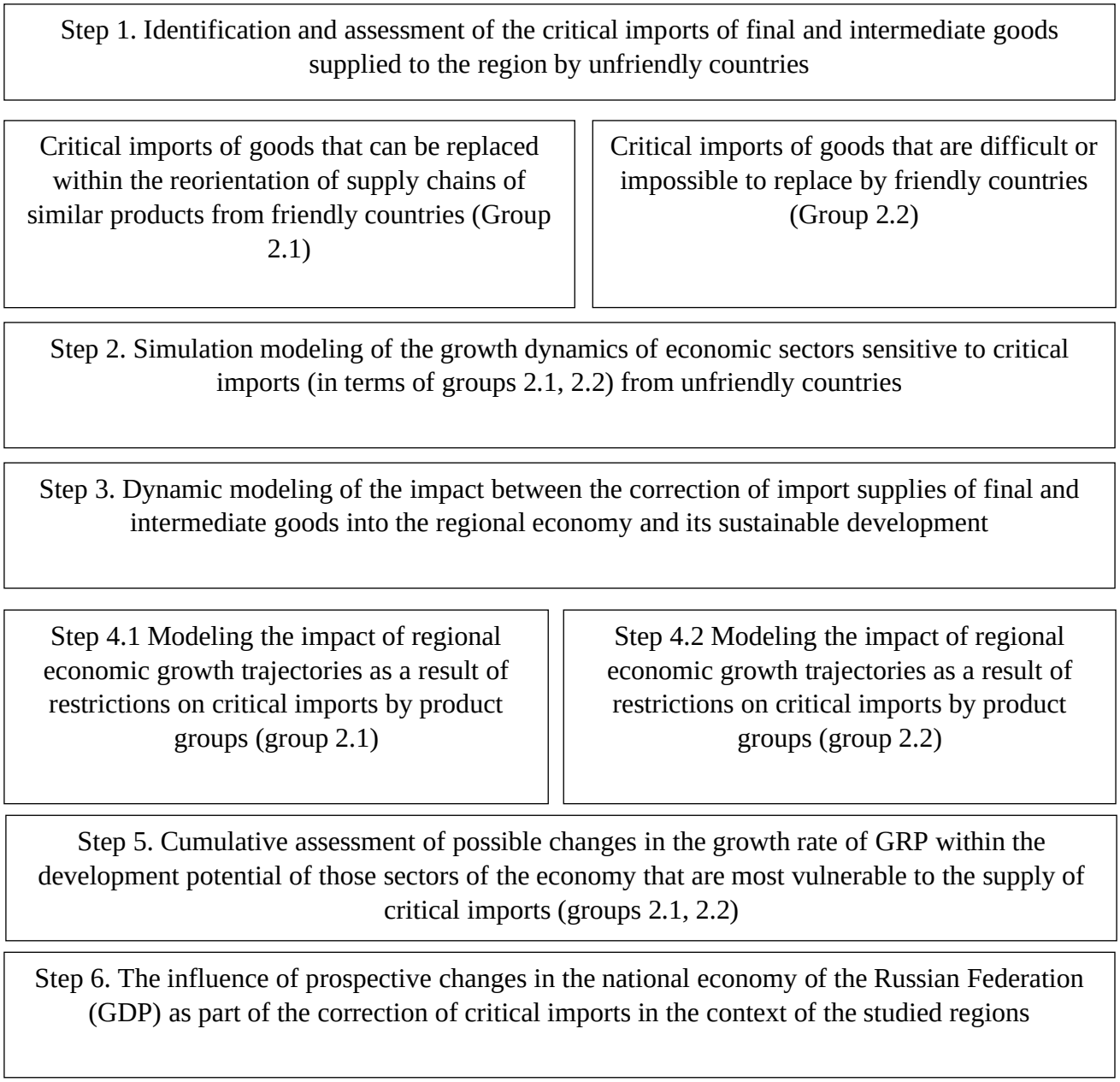
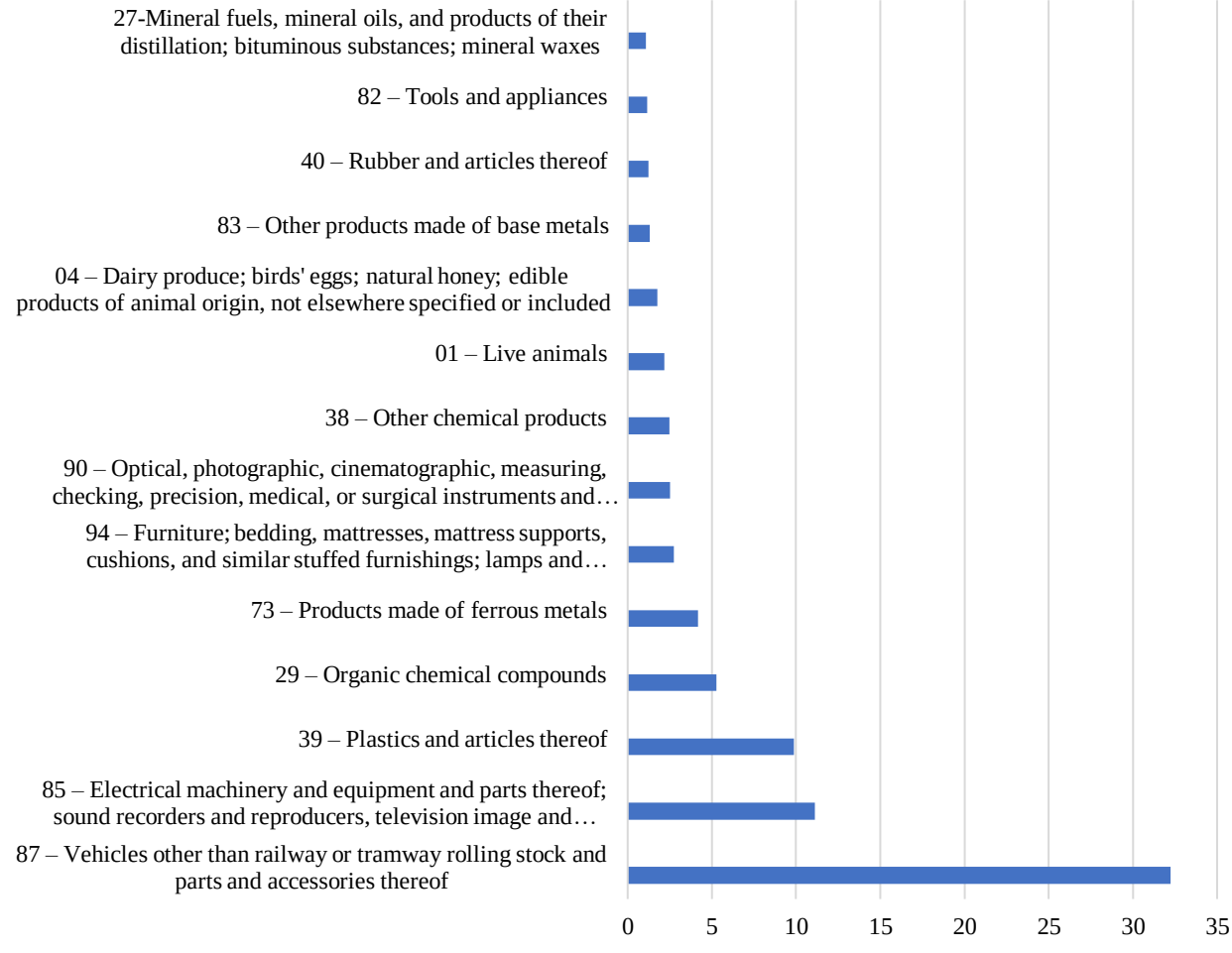


Figure 2. Algorithm for studying the influence of critical imports on the prospects for regional economic growth and GDP dynamics

RESULTS AND DISCUSSION

The results show 14 main product groups supplied to the Republic of Tatarstan. This volume of imports accounts for 79.1% of the total volume of imported products into the region.

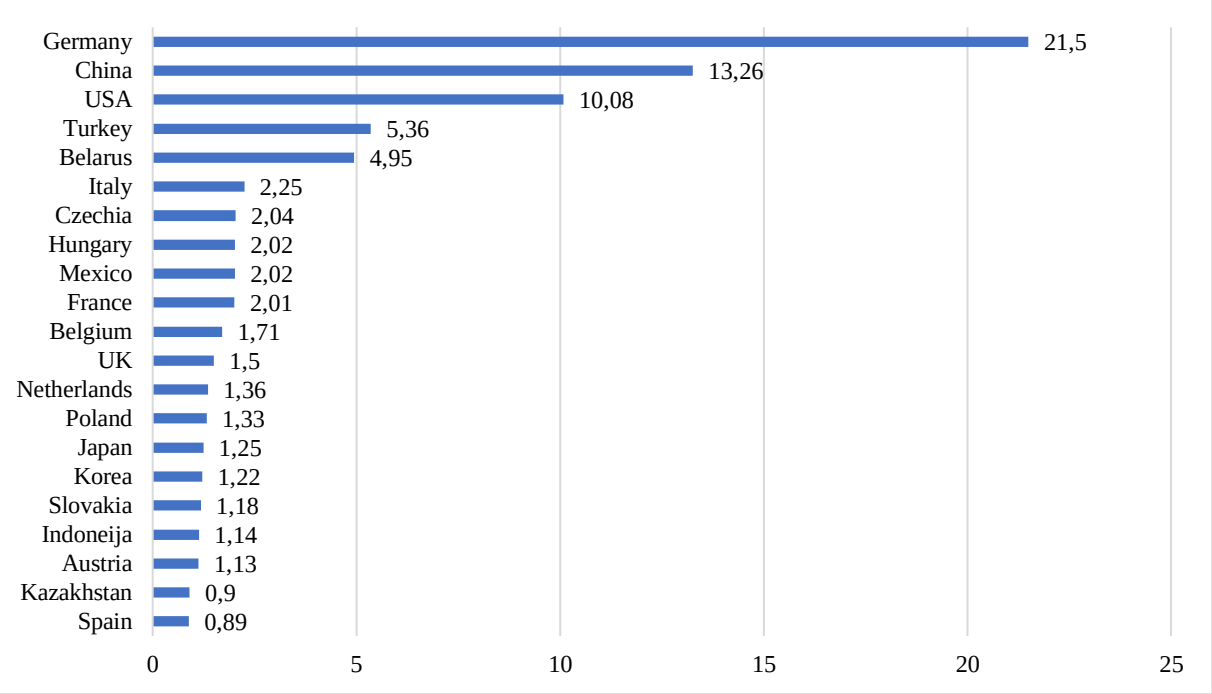
The results of processing statistical data indicate a significant dependence of the region on the supply of imported products (Table 1, Figures 3 and 4).



Source: calculated by the authors based on data from the Federal Customs Service of the Russian Federation

Figure 3. Share of imports to the Republic of Tatarstan by product groups, %

In conformity with the data presented, the unfriendly countries dominate the supply of foreign intermediate and final products to Tatarstan. According to data for 2021, they accounted for about 63.5% of all imports. There is a need to assess the region's dependence on external supplies and their possible replacement following the reorientation to friendly countries that have the potential to replace lost imports.



Source: calculated by the authors based on data from the Federal Customs Service of the Russian Federation

Figure 4. Share of the country importing intermediate and final products to the Republic of Tatarstan, % of total imports (based on data for 2021)

Table 1. Imports to the Republic of Tatarstan by friendly and unfriendly countries (excluding non-critical imports (less than 0.5% of total imports to the region), million USD

Country	01 – Live animals	04 – Dairy produce; birds' eggs; natural honey; edible products of animal origin, not elsewhere specified or included	27 – Mineral fuels, mineral oils, and products of their distillation; bituminous substances; mineral waxes	29 – Organic chemical compounds	38 – Other chemical products	39 – Plastics and articles thereof	40 – Rubber and articles thereof	73 – Products made of ferrous metals	82 – Tools and appliances	83 – Other products made of base metals	85 – Electrical machinery and equipment and parts thereof; sound recorders and reproducers, television image and sound recorders...	87 – Vehicles other than railway or tramway rolling stock and parts and accessories thereof	90 – Optical, photographic, cinematographic, measuring, checking, precision, medical, or surgical instruments and apparatus...	94 – Furniture; bedding, mattresses, mattress supports, cushions, and similar stuffed furnishings; lamps and lighting fittings, not elsewhere...	Total	Share, % of the total imports into the region
Unfriendly countries																
Austria					0.017	5.996	0.484	1.266	0.113	0.188	16.697	14.052	2.786	0.136	41.7	1.13
Belgium			0.003	4.410	2.169	42.263	0.215	0.700	0.016	0.006	0.166	12.896	0.086	0.027	63.0	1.71
Hungary	17.034			4.607	0.016	7.467	0.979	0.304	0.004	0.247	28.516	14.439	0.555	0.001	74.2	2.02

Germany	16.605		7.615	12.317	10.479	47.403	7.210	35.504	3.749	18.300	97.517	486.399	29.578	18.370	791.0	21.50
Spain	0.016		0.002	0.424	0.285	5.905	0.687	1.578	0.173	1.492	4.966	17.070	0.267	0.010	32.9	0.89
Italy			1.217	4.321	9.883	23.714	2.065	9.882	0.844	1.248	7.205	16.061	4.811	1.638	82.9	2.25
Netherlands	19.791		0.271	1.544	2.092	9.086	0.989	2.760	0.034	3.750	1.678	3.058	3.670	1.492	50.2	1.36
Poland			12.536	0.233	1.882	5.211	1.830	0.919	0.205	0.381	4.939	17.556	0.247	3,099	49.0	1.33
Slovakia		23.168		7.725	0.033	0.613	1.148	0.226	0.070	0.129	3.096	6.837	0.337	0.054	43.4	1.18
UK			0.163	7.018	0.829	0.869	0.621	1.692	0.065	6.415	2.460	33.789	1.359	0.092	55.4	1.50
USA			1.133	16.997	56.191	8.331	4.367	9.922	0.837	0.843	12.169	216.014	6.454	37.737	371.0	10.08
France	6.640		0.064	5.392	0.465	18.572	1.547	2.361	0.185	1.343	14.096	12.844	9.677	0.887	74.1	2.01
Czechia	19.880			0.034	0.284	7.100	3.978	2.282	0.691	2.353	12.088	17.882	3.371	4.944	74.9	2.04
Japan				1.166	2.666	11.306	1.189	3.741	0.352	0.067	6.533	9.876	9.243	0.010	46.2	1.25
Total	79.966	23.168	23.004	66.188	87.291	193.837	27.308	73.137	7.338	36.763	212.126	878.772	72.438	68.496	1849.831	50.277
Share of products in total imports from unfriendly countries	4.3	1.3	1.2	3.6	4.7	10.5	1.5	4.0	0.4	2.0	11.5	47.5	3.9	3.7		
Friendly countries																
Belarus		19.032	13.237	0.906	0.550	11.365	1.394	17.171	0.041	0.617	28.920	84.399	1.905	2.698	182.2	4.95
Indonesia					0.064	41.555		0.089			0.013	0.003	0.092	0.012	41.8	1.14
Kazakhstan		21.828	2.075	0.027	0.030	2.803	0.117	2.673	0.008	0.001	3.166	0.033	0.156	0.013	32.9	0.90
China			0.001	118.994	2.026	71.245	11.523	45.321	26.191	5.337	116.447	60.230	15.878	14.574	487.8	13.26
South Korea			0.138	6.355	0.016	26.115	0.016	2.548	0.263	0.187	2.400	5.244	1.517	0.000	44.8	1.22
Mexico						1.785	2.143	0.682	0.004	0.290	38.289	30.320	0.685	0.004	74.2	2.02
Turkey		1.252	0.835	1.333	1.015	14.484	3.202	12.687	8.548	4.510	6.980	127.631	0.197	14.617	197.3	5.36
Total	0,000	42.111	16.286	127.615	3.701	169.351	18.396	81.172	35.054	10.942	196.217	307.860	20.430	31.918	1061.053	28.839
Share of products in total imports from friendly countries	0.0	4.0	1.5	12.0	0.3	16.0	1.7	7.7	3.3	1.0	18.5	29.0	1.9	3.0		

Source: calculated by the authors based on data from the Federal Customs Service of the Russian Federation https://customs.gov.ru/?ysclid=lkjs8fzbn13376347

Based on the assessments that systematize import supplies to the region according to several criteria (country of supply, commodity code listing, volumes), further iterations are presented below that allow us to classify imports of final and intermediate goods based on their criticality in terms of risks to the sustainable development of certain types of economic activity and the economic growth potential of the region (Table 2).

Following the results, the list of critical goods that are difficult to replace in the existing supply chains by partner countries is as follows:

– Live animals (FEACN code 01)/OKVED 2 “Volume of agricultural products of all agricultural producers”;

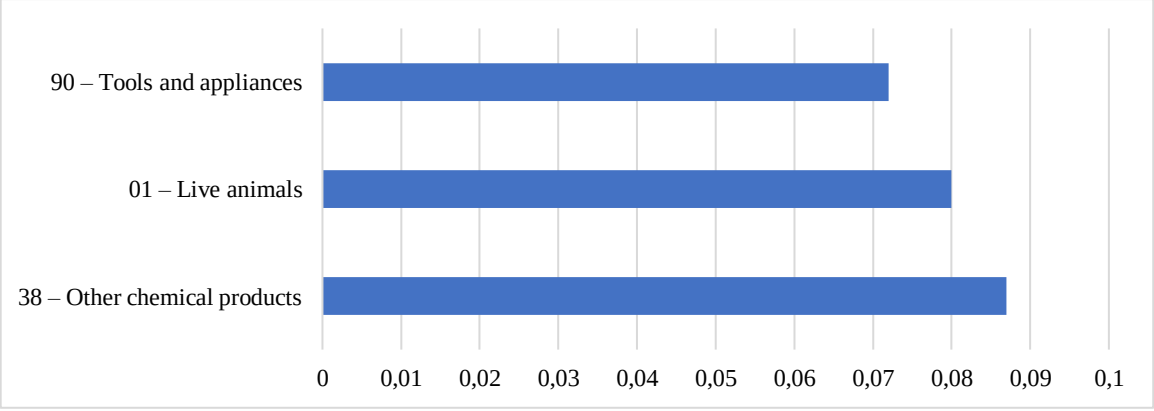
– Other chemical products (FEACN code 38)/OKVED 2 “Production of chemical substances and chemical products”;

– Optical, photographic, cinematographic, measuring, checking, precision, medical, or surgical instruments and apparatus; parts and accessories thereof (FEACN code 90)/OKVED 2 “Production of computers, electronic and optical products”.

Figure 5 shows the value of critical imports, 239.7 million USD in total.

Table 2. Import of goods from unfriendly countries to the Republic of Tatarstan according to the level of their impact on the sustainable development of the regional economy

	01 – Live animals	04 – Dairy produce; birds' eggs; natural honey; edible products of animal origin, not elsewhere specified or included	27 – Mineral fuels, mineral oils, and products of their distillation; bituminous substances; mineral waxes	29 – Organic chemical compounds	38 – Other chemical products	39 – Plastics and articles thereof	40 – Rubber and articles thereof	73 – Products made of ferrous metals	82 – Tools and appliances	83 – Other products made of base metals	85 – Electrical machinery and equipment and parts thereof; sound recorders and reproducers, television image and sound recorders...	87 – Vehicles other than railway or tramway rolling stock and parts and accessories thereof	90 – Optical, photographic, cinematographic, measuring, checking, precision, medical, or surgical instruments and apparatus; parts and accessories thereof	94 – Furniture; bedding, mattresses, mattress supports, cushions, and similar stuffed furnishings; lamps and lighting fittings, not elsewhere
Critical/non-critical import	2	2	1	2	2	2	2	2	2	1	2	1	2	1
Changing geographic supply chains	2.2	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.2	2.1	2.2	2.2	2.1
1 – Non-critical import of goods														
2 – Critical import of goods														
2.1 – Possibility of import substitution by changing the geography of supplies (reorientation of supply chains to friendly countries)														



Source: developed by the authors based on data from the Federal Customs Service of the Russian Federation

Figure 5. Volumes of critical imports supplied to the Republic of Tatarstan from unfriendly countries (conditional group 2.2), million USD

Critical imports that can be substituted as part of strengthening partnership trade relations of Tatarstan with friendly countries (existing suppliers of similar products to the region) shall include:

– Dairy produce; birds' eggs; natural honey; edible products of animal origin, not elsewhere specified or included (FEACN code 04);

– Organic chemical compounds (FEACN code 29);

– Plastics and articles thereof (FEACN code 39);

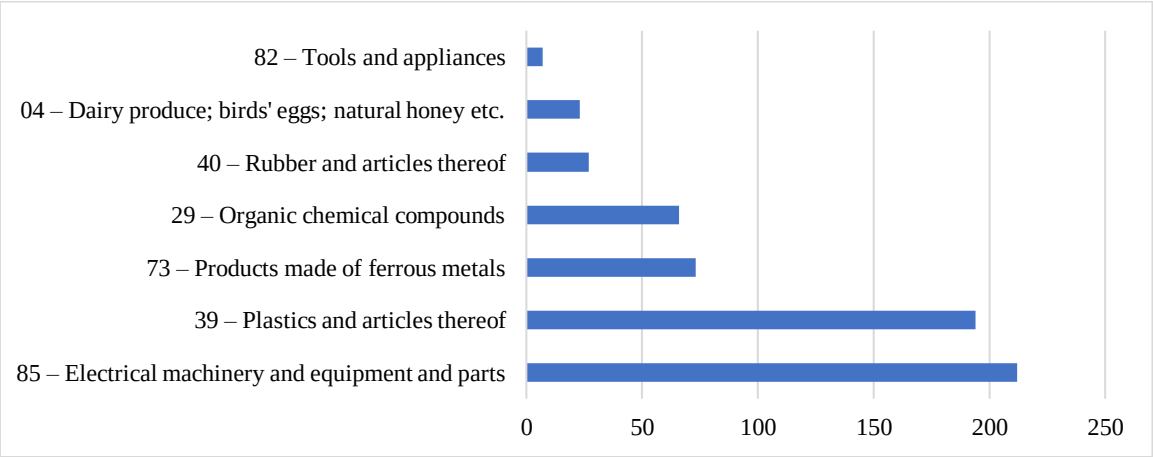
– Rubber and articles thereof (FEACN code 40);

– Products made of ferrous metals (FEACN code 73);

– Tools and appliances (FEACN code 82);

– Electrical machinery and equipment and parts thereof; sound recorders and reproducers, television image and sound recorders and reproducers, and parts and accessories of such articles (FEACN code 85).

The total value of critical imports within conditional group 2.1 to Tatarstan amounts to 603.7 million USD and is presented in Figure 6.



Source: developed by the authors based on data from the Federal Customs Service of the Russian Federation

Figure 6. Total value of critical imports supplied from unfriendly countries to the Republic of Tatarstan (conditional group 2.2), million USD

Concerning non-critical imports, their total volume in Tatarstan was about 1,007.0 million USD in 2021 (Table 3).

Table 3. Distribution of import flows supplied to the Republic of Tatarstan following their criticality from the viewpoint of ensuring the economic security of the region's development, million USD

	01 – Live animals	04 – Dairy produce; birds' eggs; natural honey; edible products of animal origin, not elsewhere specified or included	27 – Mineral fuels, mineral oils, and products of their distillation; bituminous substances; mineral waxes	29 – Organic chemical compounds	38 – Other chemical products	39 – Plastics and articles thereof	40 – Rubber and articles thereof	73 – Products made of ferrous metals	82 – Tools and appliances	83 – Other products made of base metals	85 – Electrical machinery and equipment and parts thereof; sound recorders and reproducers, television image and sound recorders and reproducers, and parts and	87 – Vehicles other than railway or tramway rolling stock and parts and accessories thereof	90 – Optical, photographic, cinematographic, measuring, checking, precision, medical, or surgical instruments and apparatus; parts and accessories thereof	94 – Furniture; bedding, mattresses, mattress supports, cushions, and similar stuffed furnishings; lamps and lighting fittings, not elsewhere	**Total**	**Share of the corresponding import category in the total volume supplied from unfriendly countries, %**
Critical import	80.0				87.3								72.4		239.7	13.0
Possible import substitution by friendly countries		23.2		66.2		193.8	27.3	73.1	7.3		212.1				603.1	32.6
Non-critical import			23.0							36.8		878.8		68.5	1,007.03	54.4

Source: developed by the authors based on data from the Federal Customs Service of the Russian Federation

The results serve as the basis for such an important research stage as assessing the possible development of the most vulnerable sectors of the regional economy as a result of the total localization of the so-called critical imports.

The sequence of calculations and estimates based on them are presented below (as exemplified by the type of economic activity "Production of chemicals and chemical products"). Dynamic series for 2010-2021 were used as the database. Priority was given to models that consider the non-linear relationship between the critical imports and the growth parameters of the economic activity under study. This approach corresponds to the opinions of several Russian scholars (Ermakova et al., 2022; Koshovets, 2023; Tretyak, 2018).

The estimates and the logarithmic model are presented in Formula 1.

$$\mathrm{LnPC} = \mathrm{Ln}(3.05) + 0.0096 * \mathrm{LnCI} \quad (1)$$

(t-statistic = 4.371; P-value for an exogenous factor is 0.001, etc.)

where PC is the production of chemicals and chemical products, annual growth rates;

CI is the import of final and intermediate goods consumed in the sector of the economy under study, billion rubles.

Having transformed the resulting equation from a logarithmic form into a power function, the following logarithmic model was constructed:

$$\mathrm{PC} = 1.151 * CI^{0.0076} \quad (2)$$

The analysis demonstrates a situation in which a reduction in imports of the "Other chemical products (FEACN code 38)" from the commodity code listing by 1% creates the preconditions for a slowdown in the economic sector "Production of chemicals and chemical products" by 0.0076%. Thus, if we consider a negative scenario of a complete ban on foreign supplies of final and intermediate goods from unfriendly countries (-100% of current values), the type of economic activity under study might decrease by 0.76%.

The results laid the basis for modeling predictive estimates of the impact of adjusting the growth of individual sectors of the economy on the overall dynamics of the region's GRP.

Following the research algorithm (Figure 2), it is proposed to form predictive estimates of GRP on the cumulative effects of changes in growth rates in individual sectors of the economy based on non-linear logarithmic functions. The key task is to determine the values of regressors in non-linear functions characterizing the influence of the type of economic activity on the dynamics of GRP for the subsequent accumulation of these parameters to determine the cumulative effect.

To demonstrate this approach, we used the example of such type of economic activity of Tatarstan as "Production of chemicals and chemical products". Subsequently, we implemented the corresponding research iterations and presented the results. To build the model, we used time series data for 2010-2021.

The resulting logarithmic model that evaluates the relationship between the time series under study is presented in Formula 3.

$$\mathrm{LnGRP} = \mathrm{Ln}\,(2.76) + 1.0023\mathrm{LnPC} \quad (3)$$

(R2 = 0.78; t-statistic = 4.876; P-value for an exogenous factor is 0.044, etc.)

where GRP is the GRP of Tatarstan, growth rate in % compared to the previous year;

PC is the production of chemicals and chemical products, growth rate in % compared to the previous year.

Having transformed the resulting equation from a logarithmic form into a power function, the following logarithmic model was constructed (Formula 4):

$$GRP = 1.015 * PC^{1.0023} \quad (4)$$

Guided by this research algorithm, similar estimates were for other sectors of the economy of Tatarstan which were included in the riskiest group in terms of the level and profile of the supplied product range from unfriendly countries (Table 4).

Table 4. Dependence between the GRP of the Republic of Tatarstan and the possible adjustment of the economic sectors falling into the critical group

FEACN code	OKVED-2	Elasticity coefficient in a non-linear logarithmic function (coefficient of the regressor of equation 2)	Estimated growth rates in the economic sector, %	Estimated GRP growth rates*, %
1	2	3	4	5
Critical import (group 2.2)				
Live animals (FEACN code 01)	Volume of agricultural products of all agricultural producers	0.567	-0.37	-0.410
Other chemical products (FEACN code 38)	Production of chemicals and chemical products	1.0023	-0.96	-0.962
Optical, photographic, cinematographic, measuring, checking, precision, medical, or surgical instruments and apparatus; parts and accessories thereof (FEACN code 90)	Production of computers, electronic and optical products	0.439	-0.293	-0.329
Total expected decrease in GRP dynamics				**-1.701**

Note: Calculated as the product of the regressor value of equation 4 by the predicted value of the decline in economic growth. Source: compiled by the authors

The results of constructing models and the calculations reveal threats to the sustainable development of the region in the context of ongoing disturbances in the supply of imported products and raw materials. In conformity with the results of simulation modeling and in the absence of mechanisms for replenishing critical imports supplied from unfriendly countries in 2021, the cumulative decrease in the dynamics of GRP could reach around 1.7%.

These estimates open up possibilities of studying the impact of changes in the national economy of Russia (GDP) within the correction of critical imports of goods in the regions under consideration. At this research stage, the solution was found through a structural analysis of the

contribution of the constituent entity of Russia to the formation of GDP. Applying the outlined sequence of calculations for other regions of the Volga Federal District, we the corresponding estimates and presented them in consolidated form in Table 5.

Table 5. GRP by constituent entities of the Russian Federation (2021) (at current prices; million rubles)

No.	Constituent entity of the Russian Federation	GRP	Share in GDP, %	Estimated GRP growth rates, %	Estimated GDP decline rates, %
1	Republic of Bashkortostan	2,000,037.9	1.7	1.08	0.018
2	Mari El Republic	221,991.0	0.18	0.39	0.001
3	Republic of Mordovia	298,023.1	0.25	0.71	0.002
4	Republic of Tatarstan	3,454,700.0	2.85	1.7	0.048
5	Udmurt Republic	841,936.2	0.69	0.84	0.006
6	Chuvash Republic	392,957.9	0.32	0.71	0.002
7	Perm Territory	1,740,525.3	1.44	1.21	0.017
8	Kirov Region	481,407.0	0.40	0.52	0.002
9	Nizhny Novgorod Region	1,888,121.4	1.56	1.59	0.025
10	Orenburg Region	1,394,280.3	1.15	0.68	0.008
11	Penza Region	537,290.0	0.44	0.49	0.002
12	Samara Region	2,122,537.2	1.75	1.66	0.029
13	Saratov Region	1,005,800.9	0.83	0.95	0.008
14	Ulyanovsk Region	498,806.3	0.41	1.09	0.004
	GDP of the Russian Federation	**121,182,987.5**	**100.0**		**0.173**

Source: compiled by the authors based on data of the Federal State Statistics Service

CONCLUSIONS

The estimates indicate risks of disrupting the sustainable development of the Volga Federal District in the context of ongoing disturbances in the supply of critical imports. The highest risks are common to regions with a high level of industrial development. For example, the regions of the Volga Federal District with a high share of industrial production (the Republic of Tatarstan, Ulyanovsk Region, Perm Territory, Samara Region, Republic of Bashkortostan, and Nizhny Novgorod Region) have higher risks of a decrease in the GRP than regions with a different economic structure. According to these estimates, an average slowdown in industrialized regions is about 1.4% as part of the correction of critical imports. Other regions have more stable dynamics within the framework of the scenario under consideration.

The study results prove the risks of a slowdown in the Russian economy in the event of a total restriction of critical imports to the Volga Federal District by 0.17%.

The research algorithm is characterized by the fact that it creates estimates based on short-term forecasts. Restrictions on critical imports do not mean that the corresponding type of economic activity will completely cease. This is due to many factors, including the availability of current and operational reserves, the rebuilding of transnational supply chains, etc. However, in the absence of effective mechanisms for the import substitution of critical products and final or intermediate goods, the potential for developing import-dependent sectors of the economy in the medium term might be exhausted. Thus, import substitution programs within the framework of reorienting the geography of supplies, building up scientific and technological potential, and developing domestic production bases in critical areas are the highest priority tasks for the Russian economy and its regions. Their solution will ensure not only the sustainable development of the most dependent types of economic activity on import supplies but will also form the basis for strengthening their global competitiveness with the prospects of implementing a policy of export-oriented import substitution. This will also create the potential to strengthen the competitiveness of sustainable development at both the regional and national levels.

The proposed research algorithm does not consider inter-sectoral relationships which can also have a cumulative impact on the economic growth of regions and the national economy. For example, changes in one sector of the economy might cause transformations in the related industries, which will entail structural changes in the economy and affect the dynamics of regional economic growth. To understand the operational consequences caused by disturbances in the field of foreign economic relations, our research algorithm can adequately solve the problems posed in this study and offer possible directions for adaptation to the ongoing structural transformations.

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