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The impact of economic sanctions on the industrial regions of Russia (the case of Sverdlovsk region)

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ABSTRACT

Relevance. The turbulence of the global economy and pressure from sanctions have become a serious challenge for the Russian economy. Industry is hit the hardest as it is involved in the international division of labor and creation of value chains, unlike other branches of material production. It is, therefore, necessary to conduct in-depth research on these processes in order to provide Russian industrial regions with effective strategies to adapt to this new geo-economic reality.

Research objective is to identify trends and prospects for the development of Russian industrial regions in the context of international sanctions pressure. A particular focus is made on the case of Sverdlovsk region, which has a high concentration of mining and manufacturing enterprises.

Data and methods. The study applies a systematic approach by using methods of structural, statistical and comparative analysis. Statistical materials of relevant ministries and departments of the government of Sverdlovsk region as well as the data from international databases comprise the empirical basis of the study. The results of the survey of 50 managers from 12 logistics companies of Sverdlovsk region have been analyzed as well. The survey was carried out from January, 2022 to August, 2022.

Results. The study has shown the complex effects of the international economic sanctions on the trajectory and dynamics of the development of the industrial sector in Russia. The study describes the scenarios of the industrial development of Sverdlovsk region involved in the process of import substitution and transformation of logistics and value chains.

Conclusions. These findings can be of interest to policy-makers on the national and regional levels as well as businesses involved in import substitution programs.

KEYWORDS

sanctions, old industrial region, import substitution, logistics chains, Russia, Sverdlovsk region, industrial and territorial structure of economy

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Влияние экономических санкций на промышленные регионы России (пример Свердловской области)

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АННОТАЦИЯ

Актуальность. Турбулентность мировой экономики и санкционное давление стали серьезным испытанием для российской экономики. Сильнее всего страдает промышленность, поскольку она вовлечена в международное разделение труда и создание цепочек создания стоимости, в отличие от других отраслей материального производства. Поэтому необходимо провести углубленное исследование этих процессов, чтобы обеспечить промышленные регионы России эффективными стратегиями адаптации к этой новой геоэкономической реальности.

Цель исследования – выявить тенденции и перспективы развития промышленных регионов России в условиях международного санкционного давления. Особое внимание уделено Свердловской области с высокой концентрацией горнодобывающих и производственных предприятий.

КЛЮЧЕВЫЕ СЛОВА

санкции, старопромышленный регион, импортозамещение, логистические цепочки, Россия, Свердловская область, отраслевая и территориальная структура экономики

Данные и методы. В исследовании применяется системный подход с использованием методов структурного, статистического и сравнительного анализа. Эмпирическую базу исследования составляют статистические материалы профильных министерств и ведомств правительства Свердловской области, а также данные международных баз данных. Также проанализированы результаты опроса 50 руководителей 12 логистических компаний Свердловской области. Опрос проводился с января 2022 г. по август 2022 г.
Результаты. Исследование показало комплексное влияние международных экономических санкций на траекторию и динамику развития промышленного сектора России. В исследовании описаны сценарии промышленного развития Свердловской области, связанные с процессом импортозамещения и трансформации логистических и стоимостных цепочек.
Выводы. Эти выводы могут быть интересны политикам на национальном и региональном уровнях, а также бизнесу, участвующему в программах импортозамещения.

ДЛЯ ЦИТИРОВАНИЯ
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经济制裁对俄罗斯工业区的影响
（以斯维尔德洛夫斯克州为例）

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摘要
现实性：全球经济动荡和制裁压力已成为俄罗斯经济的严峻考验。与其他物质生产部门不同，工业受到的影响最大，因为它参与了国际劳动分工和价值链的创造。因此，有必要对其进行深入研究，以便为俄罗斯工业区提供有效战略，以适应这一新地缘经济现实。
研究目的：在国际制裁压力的背景下，确定俄罗斯工业区发展的趋势和前景。文章特别关注采矿和制造企业高度集中的斯维尔德洛夫斯克州。
数据与方法：该研究采用结构分析法、统计分析法和比较分析法。研究的实证基础是斯维尔德洛夫斯克州政府相关部委的统计资料，以及来自国际数据库的数据。我们还对斯维尔德洛夫斯克州的12家物流公司的50名经理进行了调查。该调查于 2022 年 1 月至 2022 年 8 月进行。
研究结果：该研究表明，国际经济制裁对俄罗斯工业部门的发展和活动产生了复杂的影响。它还描述了斯维尔德洛夫斯克州工业发展的情况，这与进口替代、物流及价值链的转变有关。
结论：这些发现可能会引起国家和地区层面的政治家以及参与进口替代计划企业的兴趣。

关键词
制裁、老工业地区、进口替代、物流链、俄罗斯、斯维尔德洛夫斯克州、经济部门和地域结构

致謝
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Introduction

Under the pressure of sanctions and the overall turbulence in the world economy, the Russian financial sector, oil and gas industries, and almost all the enterprises of the military industrial complex are struggling to find strategies to adapt to this new reality. It is obvious that the sanctions policy, according to its initiators, are aimed at weakening Russia's economy, isolating it from global markets, which should result in a technological decline and a decrease in consumer characteristics of many types of goods, an increase in the cost of production, a reduction or complete shutdown of production that uses imported components and equipment.

In the current situation, the industrial regions of Russia, primarily those specializing in fuel and energy, export-oriented manufacturing industries and industries dependent on imports of various components, face high economic risks. This is also true of the companies embedded in global value chains. All of the above makes the research on the effects of the sanctions and the Russian industry's response to them particularly relevant, both theoretically and practically.

The aim of the paper is to outline the trends and prospects of future development of Russian industrial regions under the pressure of sanctions. The case of Sverdlovsk region is particularly worthy of interest as it has a high concentration of mining and manufacturing enterprises.

This research goal determines the following tasks:

– to analyze the influence of sanctions on the industrial structure of Sverdlovsk region;

– to track transformations in the added value chains and logistics in the new geopolitical conditions;

– to outline both positive and negative tendencies in import substitution for the industrial sector in the Central Urals.

The research covers the period from 2014, when the first package of sanctions was introduced by the European countries due to the so-called Ukrainian crisis, up to the middle of 2022, when anti-Russian sanctions were applied at an unprecedented scale. The research relies on the open data and results of the survey of the managers working in the logistics companies of Sverdlovsk region.

Literature review

The impact of international sanctions on the economic development of Russia and its industrial regions is discussed in diverse studies, which can be roughly divided into two groups: those dealing predominantly with the political aspect of the sanctions and those interested in their economic effects.

The first group unites researchers who focus on political sanctions as a tool to constrain the development of the Russian economy. In general, experts agree that the collective political pressure of the West on Russia increases confrontational risks in international relations (Belín & Hanousek, 2021; Davydov et al., 2022), and can lead to unpredictable situations (Likhacheva, 2021; Timofeev, 2021), including cascading effects for the global economy (Fisher, 2017; Gould-Davies, 2020; Libmann, 2015). At the same time, as history shows, direct or indirect political restrictions against any significant actor of international economic relations can trigger the processes of diversification and modernization of the target's economy (Kaempfer & Lowenberg, 2007; Nitsevich et al., 2020). In this regard, Jaberg (2014) and Lochmann (2014) admit that the measures of political pressure on Russia, taken by Western countries in connection with the 2014 Ukrainian crisis, were rather of a precautionary nature and not initially aimed at breaking off political or economic interaction with Russia and its regions.

The second group is represented by the studies that focus on economic sanctions as a set of measures to restrain the development of the Russian economy and its industrial sector. Experts assume that the expanding sanctions regime is becoming a significant obstacle to technological development and innovation (Crozet & Hinz, 2019; Maglinova, 2019; Tyll et al., 2018).

Moreover, any attempts to predict the long-term effects of economic sanctions against Russia turn into solving an equation with many unknowns. The researchers emphasize the counterproductive nature of sanctions pressure (Telegina & Halova, 2019; Volchkova et al. al., 2018) and note that the restrictions can trigger major international conflicts; however, this does not mean that lifting of the sanctions will definitely lead to de-escalation or will not cause serious economic damage to their initiators (Beauregard, 2022; Kimmich et al., 2022). What is more, sanctions or Russia's reaction to them can trigger a process of economic transformations (regional shift, import substitution, etc.). Their impact on the global economy is quite difficult to assess given the increasing interdependence between multiple economic actors (Connolly, 2015; Davydov et al., 2022; Korhonen, 2019), as well as the increasing chaoticity in the system of international political relations and weak predictability of global development trends (Andermo, 2021; Belozerov & Sokolovskaya, 2022; Mardones, 2022).

The works which investigate the impact of sanctions on Russia's industrial policy are of a particular interest. Experts reasonably emphasize the impressive potential of import substitution in the process of transition from an economy with distinct dependence on raw materials and, accordingly, low competitiveness, to the production of high-tech and high-tech products within the framework of the neo-industrialization policy, which implies the development of an economy based on knowledge, cutting-edge technologies and the efficient use of human and material resources (Afanasyev, 2022; Dontsova et al., 2019; Zagashvili, 2016; Nusratullin et al., 2020; Tolkachev et al., 2019).

Analysis of the regional context of Russia's economic development under sanctions leads researchers to the conclusion that in old industrial regions, the policy of import substitution can become a driver of economic development on the regional and national scale (Animitsa, 2015). Other positive effects include modernization of resource-intensive industries (Dokuchayev & Skornyakova, 2021), stimulation of innovative and technological processes (Golova & Sukhovey, 2015; Khmeleva, 2019), and diversification of the regional structure (Sodnomova & Rubtsova, 2022; Russell, 2022).

Economic sanctions have strengthened Russia's trade ties with nonsanctioning countries (Zhentao, 2022), for example, the economic activities in regions close to the Chinese border intensified (Tianzi, 2022).

Overall, the impact of international sanctions on the industrial sector of Russia and its regions remains a subject of heated academic and political debate. As the current situation is rapidly changing, we can now only develop forecast scenarios of industrial regions' adaptation to the new environment.

Data and Methods

The key task for the research on the development of an old industrial region under sanctions is to generate a representative statistical base. This study relies on the departmental statistics of the export-oriented enterprises in Sverdlovsk region together with the statistical reports of the relevant ministries (for instance, the Ministry of International and Foreign Economic Relations, Ministry of Industry and Science of the Sverdlovsk region). The authors have also contributed their own calculations based on the open data and results of the expert survey of the managers of the logistics companies of Sverdlovsk region.

Statistical analysis methods were also applied to assess the sanctions pressure on Russia as a whole and industrial enterprises of Sverdlovsk Region in particular. The empirical basis for the relevant aspects of the study was provided by specialised databases – the international service Castellum.AI[1], Yale School of Management[2], and the American information and analytical publication *The New York Times*[3].

Data collection, accumulation and generalization of the research statistics as well as interviews with top managers of the logistics companies were necessary to reveal relevant factors reflecting the functioning of Sverdlovsk region under the sanctions.

The research methodology comprised methods of structural and comparative analysis as part of the systematic approach. To investigate the transformations in industrial logistics and building scenarios of further development, we also applied the cartographic research methods.

Results

The research procedure comprises three stages:

1. *Description of the role of Sverdlovsk region in the structure of the Russian economy.*

Sverdlovsk Region has one of the largest industrial complexes in Russia and plays a significant role in the national division of labour. The manufacturing sector accounts for more than 96% of the industrial production of the region[4]. This sector also employs more than 20% of the working population. The key sectors of the regional economy are ferrous and non-ferrous metallurgy (31% and 19% of industrial production), mining and chemical industries, uranium and iron ore enrichment, machine building and metalworking, timber industry and wood processing[5].

2. *Analysis of the region's trade balance in the world economy.*

A steady growth in imports in the region's trade balance structure is shown in (Table 1). At the current stage, the regional economy is being reoriented toward import substitution.

In 2019, the regional authorities adopted the "Strategy for Industrial and Innovative Development of Sverdlovsk Region for the Period until 2035"[6]. In view of the increasing sanctions pressure on Russia, it has been supplemented by the "Draft Programme of Import Substitution Measures in Sverdlovsk Region's Industrial Complex for 2022"[7], developed by the region's Ministry of

[1] Russia Sanctions Dashboard. Castellum.ai. https://www.castellum.ai/russia-sanctions-dashboard

[2] Over 1,000 Companies Have Curtailed Operations in Russia—But Some Remain. Yale School of Management. https://som.yale.edu/story/2022/over-1000-companies-have-curtailed-operations-russia-some-remain

[3] Companies Are Getting Out of Russia. The New York Times. https://www.nytimes.com/article/russia-invasion-companies.html

[4] Without taking into account such types of economic activities as "electricity, gas and steam supply" and "water supply, water disposal and waste management".

[5] Calculated by the authors based on "Strategy for Industrial and Innovative Development of Sverdlovsk Region for the Period until 2035". Government of Sverdlovsk Region. https://mpr.midural.ru//UPLOAD/2019/07/383-PP.pdf

[6] Strategy for industrial and innovative development of Sverdlovsk Region for the period up to 2035. Government of Sverdlovsk Region. https://mpr.midural.ru//UPLOAD/2019/07/383-PP.pdf

[7] Draft programme of import substitution measures in Sverdlovsk Region's industrial complex for 2022. Ministry of Industry and Science of Sverdlovsk Region. https://mpr.midural.ru/UPLOAD/2022/05/Prikaz_149.pdf

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Industry and Science. The Draft Programme is currently under discussion by the professional community. These strategic documents reveal the key areas, priorities and features of the region's transition to a new industrial policy. In addition, they include more than 50 investment projects for stimulation of import substitution in local industries as well as extensive statistical data on about 200 industrial enterprises and other economic entities in the region.

3. *Mapping of the new industrial logistics of Sverdlovsk region.*

We summarize the information from the database of the industrial enterprises which suffered from the sanctions and were forced to make changes to their production plans. Russian business is currently searching for new partners and new supply chains because the sanctions situation has impacted many players on the global market. Parallel import leads to an increase in the prices for materials.

Russia's immersion into the new economic reality began on September 12th, 2014, when the European Union (EU) imposed sanctions on several oil companies and defence organisations[8]. The new sanctions episode started in February, 2022. As of June 10th, 2022, 8,225 sanctions were imposed against Russia in addition to the 2,695 that were already in force[9]. The vast majority of restrictions were imposed by the USA, UK, and the EU (Fig. 1).

There are no other examples in the history of the world economy of such over-the-top sanctions pressure on a state. The retaliatory measures taken by Moscow have led to a deterioration in international trade indicators, a decline in technology transfer, and an increase in prices for consumer goods both in Western countries and in Russia.

The industrial regions of Russia have suffered mostly from the changed *non-market* environment. The EU has banned the imports of

[8] Debt financing was banned for three Russian oil companies (*Rosneft, Transneft and Gazprom Neft*) and the three biggest arms manufacturers (*Uralvagonzavod, Oboronprom and United Aircraft Corporation*), followed by additional restrictions. Nine Russian arms manufacturers were banned from receiving dual-use goods and technologies.

[9] Russia Sanctions Dashboard. Castellum.ai. https://www.castellum.ai/russia-sanctions-dashboard

Table 1

Imports in Sverdlovsk Region in 2014–2021 (in million USD)

	2014	2015	2016	2017	2018	2019	2020	2021
Import, total	3705.9	3057.9	2551.0	3723.1	4519.1	4780.3	5004.8	5430.0
with non-CIS countries	2933.3	2453.3	1876.8	2811.0	3367.9	3566.9	4049.6	4100.0
with CIS countries	772.6	604.6	674.2	912.1	1151.2	1212.4	955.1	1330.0

Source: Compiled by the authors based on the information from the official portal of Sverdlovsk Region.

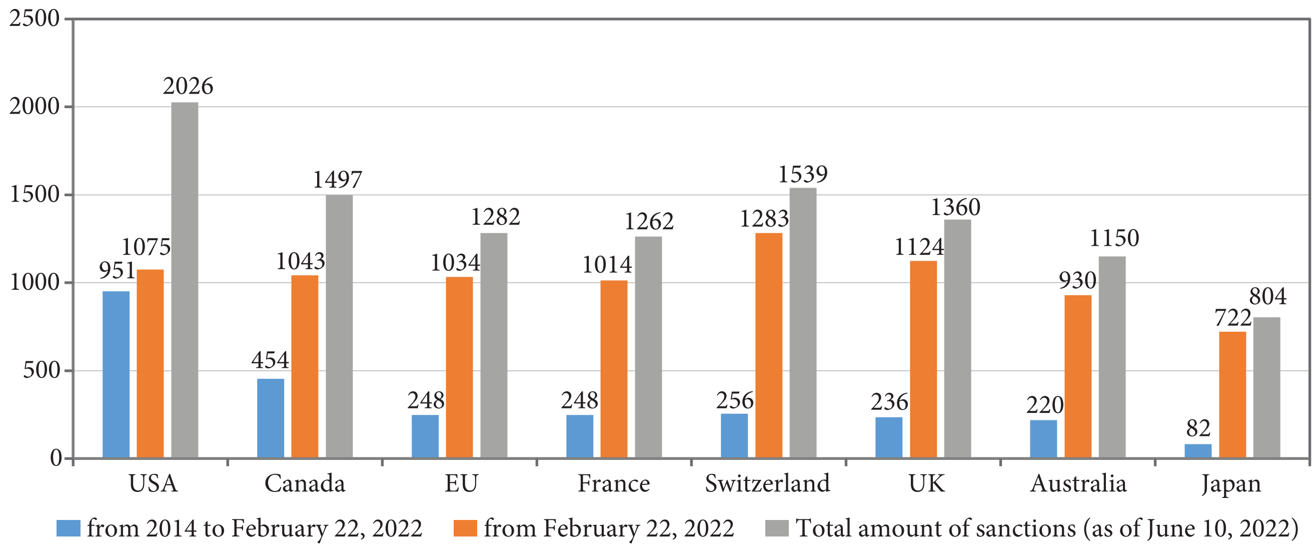

***Figure 1.** International sanctions against Russia (as of June 10, 2022)*
Source: Developed by the authors based on Russia Sanctions Dashboard. Castellum.ai. https://www.castellum.ai/russia-sanctions-dashboard

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coal, ferrous metal products, and wood products from Russia. The recently adopted sixth package of sanctions implies the gradual abandonment of the Russian oil. Thus, in the regions with industrial export specialisation, these restrictions can lead relatively quickly to economic stagnation and recession as well as increased unemployment and all sorts of the socioeconomic and political consequences that follow.

The industrial structure of Sverdlovsk region has always been characterized by a relatively high degree of resistance to external and internal challenges, both in the era of the administrative command economic system and in the turbulent period of market-type reforms (Givental et al., 2019). However, due to the unique nature of the sanctions pressure on Russia, it is quite difficult to assess the consequences of the exodus of multinational companies from the country and region.

In the economy of Sverdlovsk region, the main victim of the sanctions, in our opinion, should be considered the global producer of titanium and titanium alloys *VSMPO-AVISMA* (located in the town of Verkhnyaya Salda). The refusal of *Boeing* and *Airbus* to buy titanium and titanium alloys (60% of Russia's total exports) pose a challenge to this enterprise, which needs to quickly reorient its production to the new markets. The situation is aggravated by the suspension of cooperation with the British manufacturer of *Rolls-Royce* aircraft engines. For *VSMPO-AVISMA* an alternative is seen in a joint production with China of wide-body aircraft and the expansion of domestic demand for titanium in the production of civil aircraft *MS-21* and *Sukhoi Superjet-150*. The multiplicative effect of Western sanctions may negatively affect the functioning of the titanium cluster, which is being created in the special economic zone *Titanium Valley*.

The Ural Plant of Civil Aviation (located in the region's capital city of Yekaterinburg) is in a similar situation. In 2016, they reached an agreement with *Airbus* for the production of helicopters. Another agreement was signed with French *Turbomeca* for the assembly and repair of aircraft engines. However, due to the sanctions, the company is now forced to refocus to import substitution in the production of small aircraft (light multipurpose aircraft *LMS-901 Baikal*, training aircraft *Diamond DA-42T*, and sanitary helicopters *Bell-407*).

Sanctions have also become a technological challenge for the transport engineering industry of the Sverdlovsk region. Thus, *Ural Locomotives*, which manufactures components for high-speed electric trains *Lastochka*, has actively joined the project aimed to replace the Ukrainian electric motors and products of Siemens, which announced its exit from the Russian market in April 2022. It should be noted that in this project, the level of import substitution even in 2017 was 62%, and in 2019 it reached 80%. At this point, *Ural Locomotives* need to make the production of components for *Lastochka* 100% local. It should be achieved by increasing the involvement of the Russian sub-contracting enterprises in the production of electric locomotives with the asynchronous motor. Above all, it will ensure a long-term workload for local companies that will supply more than a half of the parts for the new urban express. In other words, the replacement of value chains should become a powerful impetus for the development of the leading economic entities of Sverdlovsk region.

Those industrial enterprises of Sverdlovsk region that have complex supply chains were hit the hardest by the sanctions. In a short period, the number of their foreign partners has significantly decreased. In the petrol, oil and lubricants supply segment, *BP, Exxon Mobil*, and *Shell* dropped out of the supply chain; in the financial services sector, *Citigroup, Deutsche Bank, Mastercard, Société Générale, Visa* and *Zurich Insurance Group*. *McKinsey & Company, Deloitte, EY, KPMG* and *PwC* (audit and consulting groups) left as well as enterprise software suppliers such as *Microsoft* and *SAP*. *FedEx, DHL*, and *UPS* stopped delivering correspondence. *Caterpillar* and *Hitachi*, the suppliers of machinery and equipment, also terminated cooperation with Russia. The German technology conglomerate *Siemens* is shutting down its business in Russia.

Sverdlovsk region is not a border region of the Russian Federation and, thus, it has no direct access to the seas and oceans. The new geopolitical and geoeconomic reality of the post-COVID economic era and the sanctions regime are also radically changing the industrial logistics of the region.

Firstly, the world's largest shipping companies connecting Russian ports with China, India, and North and South America have cut to a minimum their cooperation with Russia and its regions. In this situation, some shipping companies deliver only food and medical devices to the region.

Secondly, logistical difficulties for export-oriented industrial enterprises are caused by the sanctions of the European Union that prohibit the processing of the Russian transit cargoes and the entry of road carriers from Belarus and Russia to its territory. This has led to failures in the industrial logistics of the region and inability to fulfil contracts involving the use of imported components, parts and assemblies. Air cargo carriers will also have to build new economic geography since most aircraft belong to Western leasing companies.

New supply chains of components and materials in the industrial logistics of Sverdlovsk region are presented in Figure 2. The data were provided by the expert survey of 15 managers from the logistics companies of Sverdlovsk region. The questions were aimed at revealing the changes in the supply chains and introduction of new logistics hubs in some terminals as well as delivery delays and new risks. The quickest effect from the sanctions should be seen in the supply chains of materials for the industrial enterprises of the region. For a more representative evaluation of the changes in the supply chains the survey among 50 specialists working in 12 logistics companies (container processing and cargo shipping), including the suppliers of gases and filters for engineering and mining companies involved in the delivery on a regular basis, was carried out. The period covered is from January, 2022 to February, 2022.

Currently, Sverdlovsk Region imports machinery, equipment, electronics, pharmaceuticals, food, and transport vehicles from North and South America. The import is carried out through the movement of containers from one ship to another in the ports of Istanbul (Turkey) or Ningbo (China), but the sanctions excluded the possibility of direct sea delivery. Cargo air transportation is now carried out by only two airlines (from Serbia and Uzbekistan), delivering cargo from the United States directly to Moscow. Compared to the pre-epidemic period in May 2022, the average time of sea delivery from the USA or Brazil to Sverdlovsk region has increased from 58 to 68 days and so have the costs of sea freight and air transportation.

The nomenclature of the European imports to Sverdlovsk region is largely similar to the American one, but the delivery is carried out mainly by land, road and rail. Within the framework of the EU sanctions policy, trucks are obliged to reload the goods from European to Belarusian and Russian vehicles, which leads to queues at transit warehouses at the border. As a result, up to 70% of trucks are delayed on the way. As a result of the sanctions, regular sea transportation to St. Petersburg has stopped, and cargo flights to Novorossi-

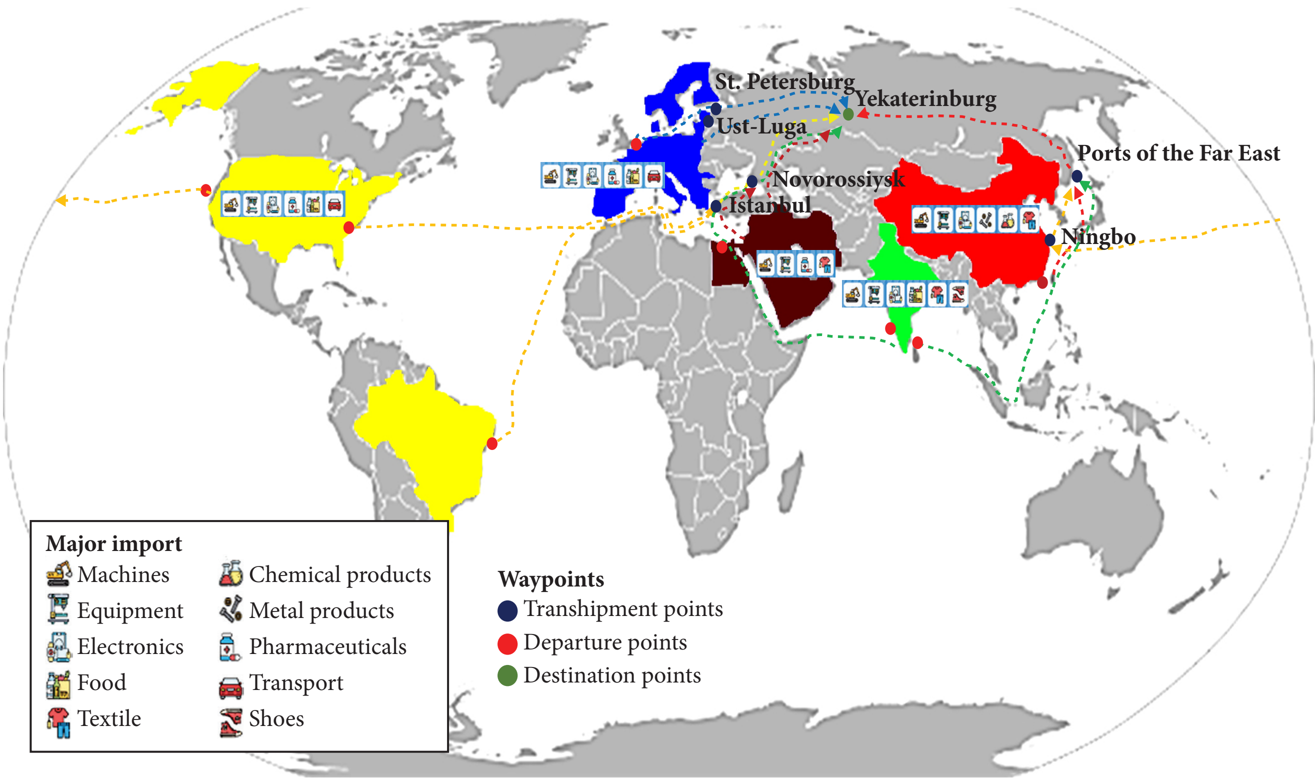

Figure 2. *New industrial logistics of Sverdlovsk Region under the sanctions*
Source: developed by the authors

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ysk are now carried out via Istanbul. Compared to the period before the pandemic in May 2022, the average delivery time by car from Germany increased from 6–8 to 9–10 days, sea delivery – from 5–10 to 24–30 days. Since February 2022, the average cost of car freight has increased by 20%, but sea freight has risen slightly.

Machinery, equipment, pharmaceuticals and textiles are imported from the Middle East to Sverdlovsk region. Transportation is carried out by sea through Novorossiysk and then by road through Georgia. Before the sanctions were imposed, logistical difficulties were caused by the low capacity of the high-altitude highway near the Russian-Georgian border. Nowadays, delays in cargo transit at Georgian checkpoints, as well as an increasing shortage of sea containers, have been added to them. In May, 2022 the average delivery time from Turkey under the "sea plus auto" scheme, compared with the period before the pandemic, increased from 12–14 to 14–18 days. A number of Middle Eastern countries, primarily Turkey, the UAE and Qatar, have provided their airports for the transit of goods from countries that have stopped direct air transportation to Russia.

China supplies machinery and equipment, electronics, metal products, chemical products, textiles, footwear, transport to Sverdlovsk region. Deliveries are carried out both by sea and by land (rail and road). The logistical complications that have arisen as a result of anti-Russian sanctions are in many ways similar to those discussed above: direct sea delivery to St. Petersburg has stopped, and the risk of a shortage of sea and rail containers is increasing. Nevertheless, the average time of direct delivery under the "sea plus railway" scheme as of May 2022 is the same as before the pandemic – 42 days. Moreover, since February 2022, there has been a slight decrease in the cost of cargo delivery to Central Russia due to a decrease in supply volumes.

Import from India is represented by machinery and equipment, electronics, food, textiles, footwear. Logistics includes sea routes to Novorossiysk and St. Petersburg as well as the "sea plus railway" scheme through the ports of the Far East. The logistical complications that have arisen are in many ways similar to the Chinese case, the average delivery time according to the combined scheme (58 days) has not changed, but the cost of transport services has risen in price.

In general, it can be stated that the process of forming new logistics chains has been launched to ensure the supply of imported goods to Russia and its industrial regions. At the same time, an increase in the number of operations leads to high costs and long delivery time, which, in turn, significantly reduces the economic feasibility of some of the imports, and actualizes the need to revise Russia's industrial policy, primarily, in the context of import substitution.

It should be noted that the sanctions policy against Russia, on the one hand, can give a multiplicative effect of neo-industrialization, but, on the other hand, lead to the region's technological isolation. A comparative analysis of the positive and negative consequences of the sanctions and the region's transition to import substitution is represented in Table 2.

Table 2

Comparative analysis of the impact of sanctions and import substitution on the industry of Sverdlovsk region in the context of international sanctions

Positive effects	Negative effects
Increasing the resilience of the regional economic system	Hindered technology transfer and knowledge sharing, severed ties with knowledge-intensive multinational corporations
Improvement of the region's economic security due to the high proportion of enterprises of the military-industrial complex	Replacement of high-tech products is difficult
Creation of new jobs, wage growth and the resulting multiplicative effect for the development of the economy	"Parallel import" of industrial products from countries that did not support sanctions against Russia
New opportunities for diversification of the sectoral and territorial structure of the region's economy	Reduction of revenue from import customs duties
Reduction of value chains, reduction of transport costs	Weakening of the region's foreign trade relations, isolation in domestic markets

Sources: compiled by the authors using the data from websites of the Ministry of Industry and Science of Sverdlovsk Region and the evidence provided in Afanasyev (2022), Dontsova et al (2019), Khmeleva (2019), Mardones (2022), Likhacheva (2021), Sodnomova & Rubtsova (2020).

Conclusions

Sverdlovsk region, like other old industrial regions of Russia, needs to develop a new industrial policy as part of the import substitution framework to ensure its economic stability and development in the new geopolitical and geo-economic conditions. As the sanctions keep piling up, Russian regions are increasingly likely to re-orient their exports and imports to Asian partners, which, in turn, may have a certain multiplier effect on the development of transport infrastructure in Eastern Siberia, the Far East, and Western Asia. In this regard, the package of anti-crisis measures for business proposed by the Russian government should be supplemented with financial support for enterprises involved in the implementation of the import substitution program and in building new value chains.

It is not the first time that Russian industries and businesses experience the sanctions pressure. Since 2014, industrial enterprises and ministries have accumulated certain experience of adaptation to the unfavourable external environment. The first results of the import substitution policy have been analyzed and some insights into the country's economic development under sanctions have been gained. Nevertheless, it should be admitted that nowadays it has become significantly harder to assess the effects of sanctions as there is still a lack of empirical material.

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