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PROSPECTS FOR REGIONAL IMPORT SUBSTITUTION AS A FACTOR IN THE DEVELOPMENT OF LABOR AND INDUSTRIAL POTENTIAL IN THE CONTEXT OF SANCTIONS ON SUPPLIES

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ABSTRACT

Objective: The article aims to identify promising sectors in the economy of the Republic of Tatarstan (Russia) for the development of import substitution through production.

Methods: The information base is data from the Federal State Statistics Service and the Federal Customs Service of the Russian Federation for 2013-2021. The study's novelty lies in an original methodological approach to assessing the prospects for import substitution in the region in the context of sanctions on supplies.

Results: Based on the analysis of statistical indicators for Tatarstan in the time range, the authors assessed 96 groups of imported goods supplied from 120 countries and 39 types of economic activity in the region's industry. Types of economic activity according to OKVED (Russian National Classifier of Economic Activities) were compared with import deliveries according to FEACN (Foreign Economic Activity Commodity Nomenclature).

Conclusion: Promising industries for Tatarstan from the standpoint of production of import-substituting include the production of motor vehicles, trailers, and semi-trailers; production of chemicals and chemical products; production of rubber and plastic products; production of electrical equipment; agriculture; production of machinery and equipment; production of paper and paper products. The results can be used by government agencies and departments to develop import substitution policies to reduce dependence on imports from unfriendly countries in the context of the imposed restrictions.

Keywords: Import substitution; Sanctions; Import; Foreign economic activity; Localization; Specialization; Republic of Tatarstan; Labor potential; Industrial potential.

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INTRODUCTION

The shift towards an import substitution policy is becoming a relevant topic in the global economy. In the context of globalization and changing geopolitical dynamics, nations are striving to reduce their reliance on imports by fostering domestic production (Degtev et al., 2022). Import substitution policies typically aim at protecting national economic interests and security while stimulating regional economic growth. Sanctions, trade restrictions, and international conflicts can severely disrupt the supply of imported goods and services. Therefore, developing an import substitution strategy can strengthen a country's economy and reduce its vulnerability to such challenges (Alkhina, Zakharkina, 2018; Shavtikova et al., 2022).

Despite the positive role of import substitution, it is important to recognize that reducing dependence on imports does not imply a complete rejection of foreign trade. International trade plays a crucial role in economic development by providing access to resources that are unavailable domestically (Leontief, 1953). Achieving a balance between imports and exports, along with diversification of domestic production, is a key to sustainable development and economic security. For the Russian Federation, it is essential to analyze the potential and prospects for developing local industries and assess the effectiveness of importing goods from neighboring regions that have the capacity and resources for alternative supplies.

Import substitution is a complex and multifaceted process that requires balancing economic, political, and social factors. In the current global context, it has emerged as a critical strategy for many countries aiming to strengthen their economic independence, improve conditions for domestic market development, and reduce their economic vulnerability. In response to the sanctions imposed in 2022-2023, Russia intensified its import substitution policy, which also aims to ensure the competitiveness of Russian goods in the global market (TASS). This shift in strategy led to the adoption of numerous initiatives to bolster domestic production. However, the import substitution policy began long before the sanctions imposed by Western countries in 2021. As early as 2012, the State Program for the Development of Agriculture and Regulation of Markets for Agricultural Products, Raw Materials, and Food was approved to overcome dependence on foreign technologies and imported products in the agricultural sector (Resolution No. 717). The policy continued in 2014 under the state program "Development of Industry and Enhancing its Competitiveness" (Resolution of the

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Government of the Russian Federation No. 328, 2014) which focused on reducing dependency on critical goods and technologies. In the same year, a presidential decree mandated additional measures to promote economic growth in the industrial and agricultural sectors (President of Russia, 2012). As a result, the Russian government developed a plan to stimulate import substitution in industry and officially approved an import substitution program for the agricultural sector (Russian Government). The Ministry of Agriculture of the Russian Federation approved a list of 464 investment projects aimed at substituting imports as part of the key activities of this state program. The following year a government commission was established to regulate and monitor the effectiveness of import substitution initiatives (Resolution of the Government of the Russian Federation No. 785, 2015).

According to the President, the necessary conditions for the active development of industry have been established in Russia, making the primary task to ensure sustainable industrial growth in the country (Rg.ru, 2023). In 2022, the Russian government identified a list of critical industrial sectors where the replacement of imported components must be prioritized. As a measure of support, the Agency for Technological Development was created, which provides grants to priority industrial sectors.

Over the past year, new legislative projects have been developed to stimulate the Russian domestic market. These include requirements to purchase products manufactured in Russia in specified minimum proportions, acquire domestic goods during competitive bidding and auction procedures, and prioritize Russian software in government procurement.

The country's leadership emphasizes that import substitution is not a solution to all challenges. It is essential to develop competitive domestic technologies, goods, and services capable of becoming new global standards (TASS). It is crucial to foster technological cooperation with friendly countries. The implementation of international programs should enhance the competitiveness of local production by providing access to advanced technologies and facilitating the mutual exchange of experience and knowledge with partners.

This highlights the importance and relevance of studying import substitution. Specifically, developing tools for assessing promising areas of import substitution at the regional level has become a pressing issue in modern Russia. The lack of a unified standard for identifying potential regional development areas, given the constraints on

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foreign supplies, stipulates the need to create tools for evaluating and refining regional import substitution lists. The objective of this article is to identify promising sectors in the economy of the Republic of Tatarstan that have the labor and industrial potential to develop the production of import-substituting goods previously supplied by unfriendly countries that have restricted imports. The main hypothesis is linked to the examination of the region's labor resources and industrial specialization and the identification of the most import-dependent and vulnerable sectors. Analyzing the region's labor resources and industrial potential will reveal opportunities for establishing local production that can replace vulnerable imports from unfriendly countries. This study proposes and substantiates an original methodology for assessing the potential for developing import substitution industries based on an analysis of import flows and the scale of economic sectors across different types of activities. The practical significance of this work lies in evaluating and substantiating the prospects for import substitution in the most vulnerable areas of foreign supplies for Tatarstan, including the identification of strategic opportunities. The research is further complemented by an analysis of existing enterprises to support potential directions for import substitution.

LITERATURE REVIEW

The issues of import substitution, including the development of trade exchanges between countries, have been extensively studied. The theories of absolute and comparative advantage by Smith and Ricardo (2016) assert that each country has the potential to produce and export certain goods and services more efficiently than others. These theories emphasize the importance of regional specialization in the development of production and international trade. The Heckscher-Ohlin theory of factor endowments and W.W. Leontief's resource theory (1953) suggest that the distribution of production factors among countries determines their specialization and opportunities for international trade (Ohlin, 1967). Krugman (the theory of production concentration) and Porter (theories of competitive advantage) highlight the importance of economies of scale and focus on "acquired advantages" when selecting a production base in a region (Krugman et al., 2014; Porter, 2006). These theories emphasize the importance of specialization and concentration of production in specific regions.

Regarding the topic of import substitution, several scholars have made significant contributions. According to Chenery, a key driver of a country's economic

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growth is import substitution, which involves the gradual replacement of imported goods with domestically produced ones (Chenery, 1979). Earlier studies by Mun, Scaruffi, Stafford, Colbert, etc. (Titov, 2009) also address the concept of import substitution as a process of restricting imports to stimulate domestic production. In several contemporary studies, the concept of import substitution is based on increasing domestic production while simultaneously reducing dependence on other countries. This perspective is supported by Nazarchuk (2007), Starovoitova (2011), etc. Smirnov (2012) defines import substitution as a state policy aimed at replacing imported products by encouraging the localization of production and the transfer of technologies. Proponents of the concept of production localization, including Safiullin, Kuvshinov, Litvinov, and Antonyuk, emphasize the importance of regional production statistics, such as the region's share in total production and the level of production localization (Kuvshinov, 2011). These factors are crucial for creating competitive advantages in the development of import-substituting industries and enhancing the efficiency of the industrial sector.

The economic essence of import substitution as a factor in reducing technological and innovation lag is analyzed by Oruch (2023). Theoretical and applied aspects of import substitution in the industrial production of Russian regions are examined by many authors, including Animitsa et al. (2015) and Alekhina and Zakharkina (2018). The mechanisms for determining priority areas for import substitution in industrial sectors are explored by Evtyukhin (2017); Alessandria, Choi, and Ruhl (2021); Bershka and Lee (2022); Grimme, Lehmann, and Noeller (2021); He and Huang (2022); Irwin (2021); Leibovici and Waugh (2019). The key directions for import substitution are discussed by N.M. Tyukavkin and Anisimova (2023) in the context of the Samara Region and Isaeva (2018) in the context of the Siberian Federal District. The impact of sanctions on import substitution policy is assessed by Bazhanov and Oreshko (2019); Hoang and Breugelmans (2023); Karuppiah and Sankaranarayanan (2023); Bali and Rapelanoro (2021); Carfora, Pansini, and Scandurra (2022). Modern studies of import substitution in high-tech industries include works by N.M. Abdikeeva (2022) and Shavtikova et al. (2022); in the agro-industrial complex by Aisheva et al. (2018); in the oil and gas industry by Gribanich and Sukhanova (2018); in the pharmaceutical industry by Oborina (2021); and in the construction industry by Kikalishvili and Moiseeva (2016). Trends in government import substitution policy are studied by Shirokova and Nazarenko (2017). Despite the

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extensive body of work on import substitution, the development of tools for assessing potential directions of import substitution remains a relevant issue. The works lack assessments of dependence on imports from unfriendly countries, which is analyzed in this article. There are no studies evaluating import substitution directions specifically for Tatarstan, addressed in this article. In this study, we deepen and advance the modern theory of import substitution as a critical state policy aimed at promoting domestic production. Based on the theories of classical and contemporary scholars in production specialization, we propose and test a methodology for analyzing the prospects for regional import substitution as a factor in the development of labor and industrial potential under the sanctions, using Tatarstan as a case study.

The novelty of the study lies in the development of an original methodological approach for analyzing and identifying local import substitution prospects based on the existing labor and production potential under the sanctions on foreign supplies. The objective is to reduce dependence on imports from unfriendly countries. The methodology proposed involves several key stages of analysis:

1. The identification of localized industries in the region in terms of industrial specialization and labor resource concentration. The localization coefficient for product groups is a crucial indicator for the socio-economic development of the region. This coefficient shows which industries are key to the economy and which should be developed considering the specifics of the region. The coefficient is calculated by dividing the share of the production volume of a specific product type in the region by the share of the production of that product type in the country. A higher localization coefficient indicates a stronger dependence of the region on that product. High values typically suggest that the region has a well-developed industrial and raw material base and a highly qualified workforce in that industry. Being a useful tool for analyzing the labor potential of the region, the localization coefficient for the average number of employees in the economy was also calculated. This coefficient helps to evaluate how much the production of a particular item in an industry is influenced by the region's resources and capabilities. It is calculated as the ratio between the share of workers in the region employed in the production of a product and the overall share of workers in the production of that product nationwide. The higher the localization coefficient (≥1), the greater the share of jobs and production capacities the industry represents in the region's economy. Leading industries or types of production with a high localization coefficient for the average number of employees have a larger share of workers in the

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region's economy. This may be related to specific resources, technological advantages, location, or other factors that provide competitive advantages in this production.

2. The identification of the most import-dependent sectors. The assessment of the region's import dependence involved identifying product groups that hold a significant share in the region's import portfolio, specifically those above the average import portfolio value. Additionally, the import dynamics were evaluated, focusing on sectors with a growing or leading import trend.

3. The identification of sectors with a high share of imported goods from countries restricting imports. Product groups with a high degree of import dependence were further analyzed in terms of the import structure. This analysis involved identifying the share of supplier countries in the current import volume, especially focusing on the share of imports from countries that have imposed sanctions on the region. The list of these countries is determined by the Resolution of the Government of the Russian Federation No. 430-r of March 5, 2022.

4. The assessment of the region's import substitution prospects as a factor in the development of labor and industrial potential under sanctions on supplies. Based on the analysis conducted during the previous stages, economic activities were systematized according to their significance and prospects for import substitution within the region's economy. Product groups and types of activities were correlated on a systematic basis, aligned with the national classifiers established by the Ministry of Economic Development of the Russian Federation.

Promising areas for the development of local production are primarily those characterized by a high share of imports from unfriendly countries and those with a high level of labor potential and production specialization. Considering the growth and significant share of imports in the trade structure, promising areas for import substitution can be divided into groups. The first group: growth in imports from 2013 to 2021, a significant share in the import structure, localization of import demand in the Volga Federal District and/or Russia, and regional production specialization. The second group: growth in imports from 2013 to 2021, a significant share in the import structure, localization of import demand in the Volga Federal District and/or Russia, but with no regional industrial specialization. The third group: growth in imports from 2013 to 2021, a significant share in the import structure, with no localization of import demand in the Volga Federal District and/or Russia (a characteristic of the country and

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district), but with regional production specialization. The fourth group: growth in imports from 2013 to 2021, a significant share in the import structure, with no localization of import demand in the Volga Federal District and/or Russia (a characteristic of the country and district), and no regional industrial specialization. The strategic opportunities envisioned for these groups include regional-focused policies (primarily targeting local production); parallel import substitution (meeting demand from other regions of Russia through localized production, which requires additional market analysis and assessment of production cost structures); exploring import substitution (through supplies from other regions of Russia with current potential and prospects for import substitution); establishing imports from alternative sources (friendly countries); enhancing support policies (particularly regional, for promising and/or future import-substituting industries, considering the potential for developing the region's labor and industrial resources. This requires an assessment of labor capital with due regard to the existing demographic crisis and the possibilities for production automation.

METHODS

The data for Tatarstan were analyzed as of the beginning of 2022. To identify the typical features of the region, the indicators for 2013-2021 were also considered. The pre-sanction statistics show an established picture of the region's economy, and most of the results are presented as of the beginning of 2022. The statistical base of the study was the databases of the Federal State Statistics Service and the Federal Customs Service of the Russian Federation. To identify the areas of industrial specialization and concentration of labor resources, localization and specialization coefficients were calculated by production volume and by the average annual number of people employed in the region by types of economic activity (Table 1).

Table 1. Specialization and localization coefficient according to OKVED in the Republic of Tatarstan (at the beginning of 2022)

OKVED (Russian Classification of Economic Activities)	Coefficient of specialization by production volume	Localization coefficient by average annual number of employees

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Mining	1.04 🟢	1.35 🟢
extraction of crude oil and natural gas	1.38 🟢	1.35 🟢*
provision of services in the field of mining	0.94 🔴	1.35 🟢*
Manufacturing industries	1.08 🟢	1.21 🟢
food production	0.68 🔴	0.96 🔴
beverage production	0.68 🔴	0.81 🔴
textile production	0.31 🔴	0.52 🔴
clothing production	0.38 🔴	0.83 🔴
leather and leather goods production	0.21 🔴	0.88 🔴
wood processing and manufacture of wood and cork products, except furniture, manufacture of straw products and plaiting materials	0.67 🔴	0.88 🔴
production of paper and paper products	0.68 🔴	1.05 🟢
printing activities and copying of information carriers	1.54 🟢	0.82 🔴
production of coke and petroleum products	1.69 🟢	1.86 🟢
production of chemicals and chemical products	2.25 🟢	2.82 🟢
production of medicines and materials used for medical purposes	0.10 🔴	0.50 🔴
production of rubber and plastic products	2.23 🟢	1.85 🟢
production of other non-metallic mineral products	0.59 🔴	0.89 🔴
metallurgical production	0.14 🔴	0.37 🔴
production of finished metal products, except machinery and equipment	0.64 🔴	1.63 🟢
production of computers, electronic and optical products	0.75 🔴	0.97 🔴
production of electrical equipment	1.05 🟢	1.36 🟢
production of machinery and equipment not included in other groups	0.75 🔴	1.10 🟢
production of motor vehicles, trailers, and semi-trailers	3.28 🟢	4.00 🟢
production of other transport vehicles and equipment	0.47 🔴	0.75 🔴
furniture production	0.36 🔴	0.78 🔴
production of other finished products	0.78 🔴	0.78 🔴
repair and installation of machinery and equipment	0.75 🔴	1.03 🟢
Provision of electric power, gas, and steam; air conditioning	0.60 🔴	0.99 🔴
production, transmission, and distribution of electric power	0.49 🔴	0.99 🔴*
production, transmission, and distribution of steam and hot water; air conditioning	0.74 🔴	0.99 🔴*
Water supply; water disposal, waste collection and disposal, pollution control activities	0.75 🔴	0.98 🔴
Agriculture	1.08 🟢	1.11 🟢
Construction	1.32 🟢	1.15 🟢

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● high level (>1)
● low level
*Industry average

Source: Calculated by the authors based on the Federal State Statistics Service data.

To identify import-dependent areas, we considered the volumes and growth rates of imports and the concentration of imports in the region. This analysis allowed us to identify the most vulnerable areas of the economy in terms of import dependence, social tension (employment of the population), and food security (ensuring demand for products).

RESULTS

The calculation results are presented in Table 1. For the aggregated classes of activities (OKVED (Russian National Classifier of Economic Activities) of a higher order), to unify and compare the results, the gross product of the economic sector was calculated (agriculture, etc.). For detailed OKVED, the general level of industrial production of the region was used. The study of the correspondence between the sectoral specialization of the region, according to the OKVED-2 classifier, and the imported products classified under the FEACN (Foreign Economic Activity Commodity Nomenclature) code, was conducted in previous works. This served as the basis for identifying the dependence of specific sectors of the region's economy on the supply of goods (Safiullin et al., 2023). When analyzing the industry specialization and labor potential of the region for the commodity group "Clothing items and accessories...", the activity "Clothing production" was considered. Commodity groups may include individual commodity items that require additional studies and special programs and measures to intensify production in the region.

The extraction of mineral resources in Tatarstan has been one of the most significant industrial sectors. This is evidenced by the localization coefficients. When examining specific product groups within this sector, it is apparent that the level of localization in crude oil and natural gas extraction remains high (the coefficient > 1). However, the provision of services related to mineral extraction is not the main specialization of the region. Calculations of the localization coefficient, based on employment data in the extraction industry, have similar results, indicating a high level of specialization and localization. Thus, the labor resources in the extraction sector are

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distributed proportionally to production volumes (as reflected by high localization coefficients).

The manufacturing industry is also a crucial economic sector in Tatarstan. Among the highly localized and specialized product groups with a coefficient greater than one are the production of motor vehicles, chemicals, and rubber and plastic products. This is further confirmed by calculations of the average annual number of employees involved in the production of these goods.

In addition to its leading position in mineral extraction, Tatarstan is actively engaged in the production of coke and petroleum products. Within the manufacturing industry, printing activities are prominent, although they do not employ a large workforce. This likely indicates the highly automated production of these goods. A high localization coefficient is observed in the production of electrical equipment. Tatarstan has its own production capacities and technical capabilities for creating high-tech electrical equipment.

For other product groups, the localization coefficients remain low (Federal Reserve System of Russia). There is a noticeable disparity in the localization level of fabricated metal production, excluding machinery and equipment. The localization coefficient for these products based on the average number of employees exceeds the coefficient calculated by production volume, indicating the labor-intensive nature of these economic activities.

The economy of Tatarstan is also significantly characterized by agriculture and construction. In both sectors, the localization coefficient, measured by production volume and total workforce, is greater than one.

The calculation of localization coefficients identified key economic activities in the region that are concentrated and specialized in terms of production and labor resources. These activities include crude oil and natural gas extraction, coke and petroleum product manufacturing, chemical production, rubber and plastic product manufacturing, automotive manufacturing (including trailers and semi-trailers), agriculture, and construction. The calculations presented at the beginning of 2022 reflect a typical industrial landscape for Tatarstan from 2017 to 2021. During this time, the localization coefficient for these industries remained relatively stable, with minor fluctuations around the value of one for paper production and the manufacturing of computers, electronic, and optical devices. There is a noticeable upward trend in the

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production of fabricated metal products and electrical equipment, while the other sectors showed consistent stability.

These industries could serve as focus areas for implementing the import substitution program in the region.

According to the analysis of import flows at the beginning of 2022, the commodity structure of Tatarstan was dominated by the supply of the following 10 products (accounting for more than 1.05%, which is the average share of the import portfolio): machinery and mechanical devices, land transport vehicles, electrical machinery and equipment, sound and television equipment, organic chemical compounds, iron and steel products, rubber and rubber products, tools and devices, furniture, bedding, lamps, and other chemical products. These categories collectively represent 88.72% of the region's imports, indicating the most import-dependent sectors of the economy. For the listed product groups, an increase in import volumes was observed from 2013 to 2021, with particularly notable growth in the supply of plastic products and organic chemical compounds. The lowest dynamics were seen in one product group (optical tools and devices), which displayed fluctuating but generally positive trends over the last seven years. In addition, 40 more product groups, which surpass the median import share, together constitute 99.57% of the import portfolio. These include oil and petroleum products, mineral waxes, other products made from non-precious metals, tools, devices, cutlery, and flatware made from non-precious metals. The corresponding economic activities in Tatarstan are represented by machinery and equipment manufacturing, production of motor vehicles, trailers, and semi-trailers, electrical equipment manufacturing, rubber and plastic products manufacturing, chemical substances and products manufacturing, metallurgy, computer, electronic, and optical products manufacturing, and furniture production. For these sectors, it is essential to intensify import substitution policies and/or seek new suppliers from friendly countries or other regions of Russia to ensure the uninterrupted operation of established value chains.

The analysis proved that the commodity structure did not undergo significant changes from 2013 to 2021 (Figure 1). In the same period, more than half of imports account for equipment, mechanical devices, transport, electrical machines, sound equipment, etc. Growth and stable high indicators were observed in plastic rubber products, organic chemical compounds, and furniture.

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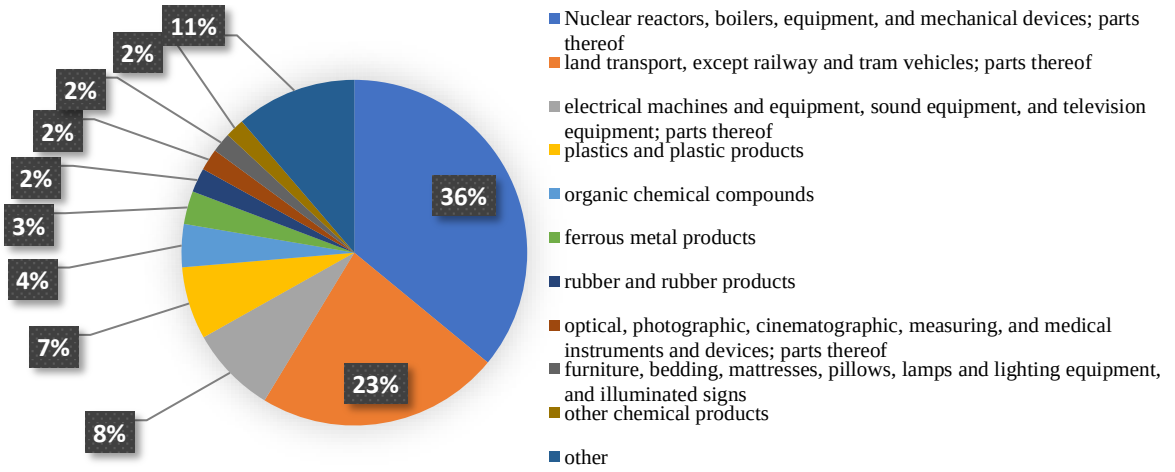

Figure 1. Structure of imports in the Republic of Tatarstan in 2021
Source: Calculated by the authors based on data from the Federal Customs Service of the Russian Federation.

Tatarstan is an active participant in the Russian foreign economic activity. An important area of its international activity is maintaining relations with Muslim countries and the CIS countries, which is reflected in the growth of mutual activity over the past few years (Federal Information System in the Field of State Regulation of Foreign Trade Activities). This is also confirmed by the fact that the trade turnover between these countries is growing, including a decrease in the share of imports to the region from unfriendly countries (85% in 2013, 65% in 2021). However, the share of these supplies remains high, and in the case of analyzing supplies from individual countries, it even grows. Let us present the results of the analysis of the top five suppliers from unfriendly countries with a high share of imports in the total supply of the region at the beginning of 2022. The largest share of imports from unfriendly countries comes from Germany, the US, and Italy (Table 2). All countries saw an increase in import volumes compared to 2013 (the pre-sanction period). This highlights vulnerable supply routes and necessitates the search for the development of import-substituting production in the region.

Table 2. Top five unfriendly countries with a high share of imports from the total import volume of the Republic of Tatarstan at the beginning of 2022

Countries/share, %	2013	2015	2021

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Germany	20.45%	22.55%	27.75%
US	8.26%	7.68%	8.34%
Italy	3.64%	5.46%	4.99%
Poland	4.73%	1.36%	2.09%
South Korea	3.54%	1.55%	2.03%

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

In the structure of imports for product groups in Tatarstan, more than 50% of imports originate from unfriendly countries (as per the previously mentioned list). This includes 21 key positions, among them goods from the food industry and agriculture (animals, processed vegetable and fruit products, animal feed); the chemical industry; and the machinery and instrumentation sectors (equipment, tools, land transport vehicles, electrical machinery, and more).

Table 3. Imported product groups with a share of more than 50% from unfriendly countries at the beginning of 2022

Product group	Share of imports from unfriendly countries
livestock	99.2%
processed vegetable, fruit, and nut products…	97.2%
other chemical products	94.5%
pharmaceutical products	89.8%
protein substances, modified starches, adhesives…	85.6%
wood mass…	84.1%
essential oils and resinoids, toiletries…	83.5%
equipment and mechanical devices, parts thereof	82.6%
optical, photographic, cinematographic, and measuring instruments and devices…	80.4%
soap, surfactants, detergents, lubricants…	77.8%
other articles of base metal	74.0%
land transport, other than railway or tram rolling stock, parts thereof	72.8%
tanning or dyeing extracts, tannins, dyes…	71.2%
furniture, bedding, lamps…	68.4%
products made of stone, plaster, cement, asbestos, mica, or similar materials	65.7%
glass and glass products	65.1%
paper and cardboard, paper pulp products…	63.1%
food industry residues and waste, prepared feeds…	61.8%
ceramic products	60.7%
plastics and plastic products	54.0%
electrical machines and equipment, sound recording and reproducing equipment, parts thereof…	53.2%

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

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If we turn to the analysis of the concentration of labor resources in the region's economic sectors (the localization coefficient based on the average number of employees across various activities in Tatarstan), it is evident that there is labor potential in several product areas with a high share of imports from unfriendly countries. These areas include the chemical industry (production of chemical substances and products (chemical products, dye extracts, varnishes, soap, detergents, essential oils, and adhesives)); machinery and equipment manufacturing (production of motor vehicles and equipment (land transport, electrical machinery, equipment, and mechanical devices)); the agricultural sector (production of food and agricultural products (livestock)); the petrochemical industry (production of plastic products (plastics and plastic products)); the woodworking industry (production of paper products (paper, cardboard, wood pulp)). These product groups are crucial as they are heavily dependent on imports while possessing a localized labor potential that could be leveraged for the development of promising import substitution industries (Figure 2).

In the sectors of the economy producing optical and photographic tools and devices, pharmaceutical products, processed vegetable products, animal feed, furniture, ceramic products, and plaster products, the labor potential is not high, which may be due to the specifics of the industry (non-labor-intensive production using modern automated production technologies) and the need to train and attract labor resources for import substitution.

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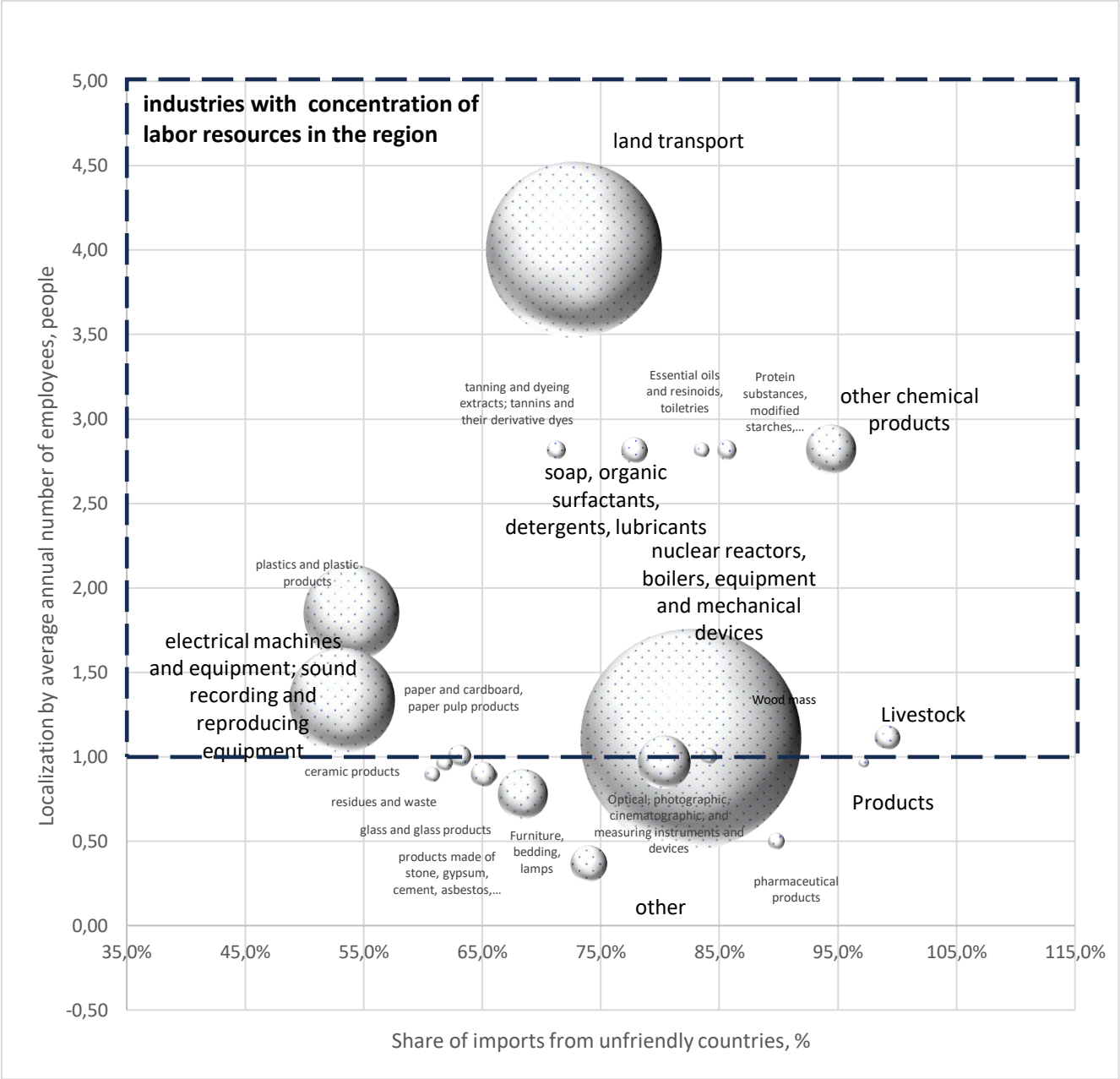

Figure 2. *Product groups in relation to the localization coefficient of the relevant industry by average annual number of employees at the beginning of 2022*
Source: Calculated by the authors based on data from the Federal Customs Service of the Russian Federation and the Federal State Statistics Service.

The analysis of the region's specialization by types of economic activity (specialization by production volume) showed the following. Specialization in most types of production coincided with the localization of labor resources, except for the production of equipment (equipment and mechanical devices) and (wood pulp, paper, and cardboard). This may indicate labor intensity of production and/or a low level of implementation of technologies and automation of production. We also identified product groups that feature localized labor resources and regional specialization in

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their production but have an import share from countries that have imposed sanctions in recent years of less than 50%. These include products from the petrochemical complex, such as organic chemical compounds, crude oil and its derivatives, inorganic chemical products, rubber, and other rubber products. According to these commodity groups, the region has labor resources and industrial specialization for import substitution in the context of limited supplies from foreign countries (Figure 3). These areas can become not only the basis for local import substitution, but also production replacing imports in other regions of Russia.

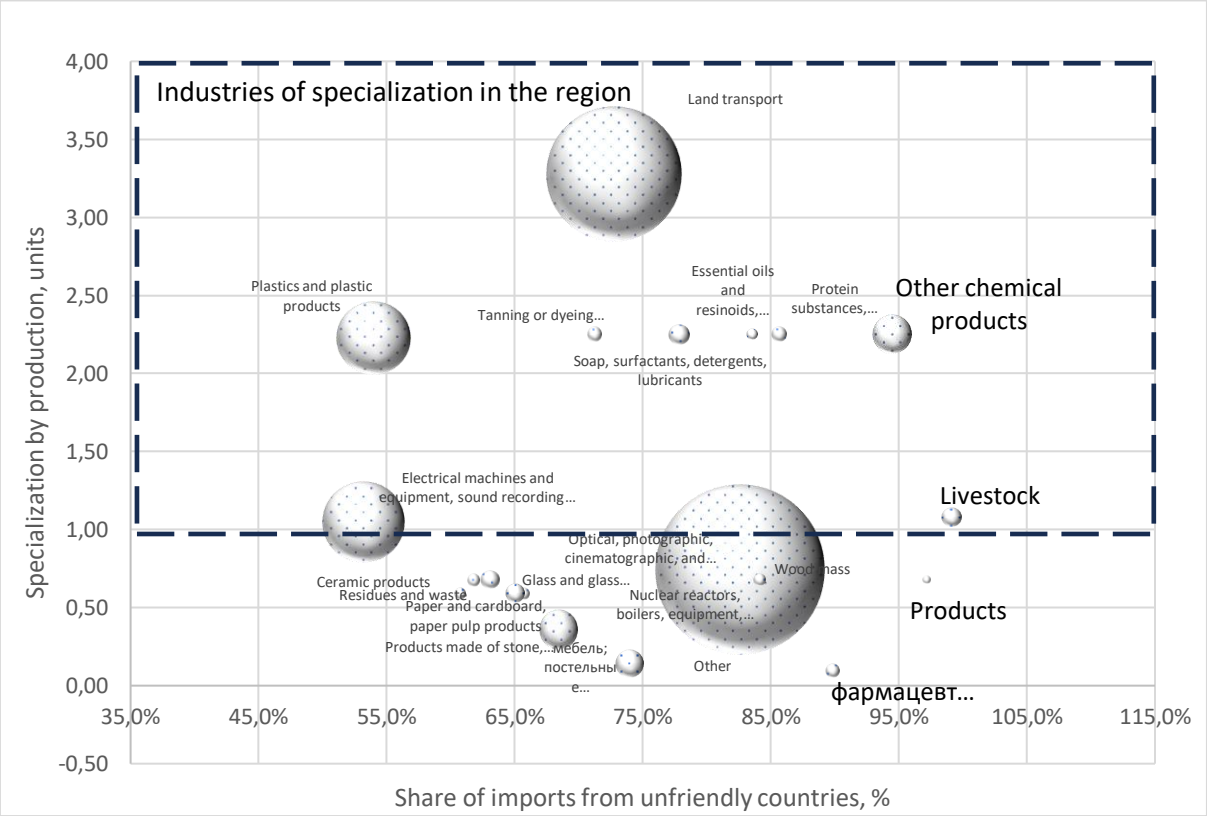

Figure 3. *Grouping of products in relation to the specialization coefficient of the corresponding industry by the volume of production at the beginning of 2022*
Source: Calculated by the authors based on data from the Federal Customs Service of the Russian Federation and the Federal State Statistics Service.

Thus, the following sectors of the economy are socially significant from the viewpoint of the availability of labor potential, industrial specialization, the need to reduce import dependence on unfriendly countries that have restricted supplies, and are promising for import substitution: production of chemicals and chemical products (commodity groups such as other chemical products, protein substances, adhesives, soap, detergents, dyes, paints, as well as organic chemical compounds and inorganic chemistry products showing lesser dependence on imports from unfriendly countries)

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in the chemical industry; production of motor vehicles (ground transport vehicles and their parts, electrical machinery and equipment) in the mechanical engineering complex; production of electrical equipment, other machinery and equipment (electrical machinery and equipment, equipment and mechanical devices); production of rubber and plastic products (plastics, plastic products, rubber, rubber products) in the petrochemical industry; production of paper and paper products (paper and cardboard, paper pulp products, wood pulp or other fibrous cellulose materials) in the woodworking industry; production of agricultural products (animals, etc.) in the agricultural complex.

The prospects for the development of import-substituting industries with due regard to the specialization and localization of industry and the growth of import dependence and supply volumes are grouped as follows (Table 4). The first group includes growing areas that account for a significant share of imports, for which there is localized demand in the region, as well as industrial specialization for their replacement. The second group comprises growing areas that account for a significant share of imports, for which there is localized demand in the region, but the specialization and potential for their replacement are low. The third group includes growing areas that account for a significant share of imports, for which demand is growing on a national scale and there is industrial specialization for the deployment of production. The fourth group consists of growing areas that account for a significant share of imports, for which demand is growing on a national scale and there is no industrial specialization.

Table 4. Prospects for the development of import substitution in the region

Directions	Prospects
1. Mechanical engineering, oil and gas industry, chemical industry: tools, devices, devices made of base metals; land transport vehicles; petroleum products; protein substances; adhesives; other chemical products; plastics; rubber; organic chemical compounds, etc.	– Regional orientation towards local production; – Import substitution in other regions of the Russian Federation due to localized production (requires analysis of markets and cost structure).
2. Instrument-making, agriculture, textile industry, woodworking industry: animals; machinery and mechanical devices; furniture; bedding; lamps; special fabrics; finishing materials; leather goods; travel accessories; finished textiles; animal feed;	– Substitution with supplies from other constituent entities of the Russian Federation (having current and prospective potential); – Imports from alternative sources (friendly countries); – Active (regional) support of import-substituting prospective (and/or future)

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wood pulp; paper, cardboard; glass; ferrous metal products, etc.	industries if there is the possibility of developing the labor and industrial potential of the region (an assessment of labor capital is required with due regard to the existing demographic crisis (foreigners), the possibilities of automation of production).
3. Chemical industry, mechanical engineering, instrument making: paints, varnishes, putties, etc.; electrical machines and equipment; sound equipment; soap, detergents, waxes, candles; newspapers, typewritten texts, etc.	– Focus on local production (regional and federal business support programs); – Analysis of the possibility of import substitution from other constituent entities of the Russian Federation to assess the prospects for localization of production in the region.
4. Food industry, agriculture, textile industry, processing of extractive industry: vegetables, fruits and nuts; chemical threads; knitted fabrics; products made of stone, plaster, cement, asbestos, mica, etc.; ferrous metals; copper; various finished products; milk, eggs, cheese, butter, honey; meat and meat products; cotton wool, felt; ropes and cables, etc.; clothing; metal ceramics; paper pulp products; aluminum, etc.	– Research into the issues of replacing imported product groups with products imported from neighboring regions; – Replacing goods with goods imported from friendly countries; – Active policy of supporting import-substituting promising (future) industries if there are production capabilities in the territory.

Tatarstan has industrial potential for the development of these areas, which is confirmed by the coefficients and large manufacturers capable of meeting the demand for these product groups in the future. For example, PAO “KAMAZ”, OAO Kazan Plant “Elektropribor”, AO “Kazan Electrotechnical Plant”, and OEZ “Alabuga” (the engine manufacturing plant of PAO “SOLLERS”, etc.) in mechanical engineering; PAO “Kazanorgsintez”, AO “Kazan Synthetic Rubber Plant”, AO “Chemical Plant named after L.Ya. Karpov”, AO “Tatkhimfarmpreparaty”, AO “Nefis Kosmetiks”, OOO “Kazan Paint and Varnish Plant”, OOO “NPP Tasma”, ZAO “Danaflex”, and OOO “Elastic Plant” in the chemical industry; PAO “Nizhnekamskneftekhim”, PAO “Tatneft”, AO “TAIF-NK”, AO “TANEKO”, and AO “KVART” in the petrochemical industry; ZAOR “Naberezhnye Chelny Cardboard and Paper Mill”, GUP “TATKNIGOIZDAT”, and AO “Zelenodolsk Plywood Plant” in the woodworking industry; SPSSPK “Kormotsentr-BKZ”, AO “Agrosila”, OOO “SKHP Koshchakovsky”, OAO “Chelny Kholod”, OOO “VAMIN Tatarstan”, and AO “Tatkrakhmalpatoka” in the agricultural complex; OAO “Kukmor Felting Plant”, OOO “TatVoilok”, OOO “Alsu Almetyevsk Hosiery Factory”, AO “Kukmor Sewing Factory”, OOO and “Zelenodolsk Sewing Factory” in the light industry; “P-D Tatneft–Alabuga Glass Fiber” and AO “Vasilievsky Glass Factory” in the glass

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industry; AO “Kukmor Metalware Plant”, OOO “Kamsky Metallurg”, and OOO “Tekhstroy” in the metallurgical complex.

CONCLUSIONS

This research yielded significant conclusions that contribute to the advancement of the theory and practice of regional economics, particularly in import substitution. The novelty of this study lies in the development of a methodology that enhances the framework for fostering import substitution industries within specific regions and the country. Using this methodology, the research identified the most promising sectors of the economy in Tatarstan which have the labor and industrial potential to replace industries heavily dependent on imports from unfriendly countries (where supply restrictions or sanctions have been imposed). Based on existing demand (reflected in a high share of imported products), the sectors identified as promising for import substitution include the production of motor vehicles, trailers, and semi-trailers; the production of chemicals and chemical products; the production of rubber and plastic products; the production of other machinery and equipment; agricultural goods; and the production of paper and paper products.

Possible improvements to the proposed approach include supplementing the research with a detailed analysis of specific product categories, the framework for government support and regulation of priority import substitution areas, and a structural analysis of the region’s import partners. In the context of sanctions and the withdrawal of manufacturers from the Russian market, ministries and agencies are developing lists of goods and equipment for import substitution across various economic sectors. The sectoral import substitution plans developed by the Russian Ministry of Industry and Trade and the Industrial Development Fund include action plans for import substitution in the pharmaceutical industry, energy engineering, electrical and cable industries, and ferrous metallurgy. The State Information System for Industry contains a list of import substitution items from the Ministry of Industry and Trade, including glass and glass products, metalworking equipment, agricultural and forestry equipment, automotive and transportation equipment, electronics, optics, electrical engineering, light industry equipment, and mining and construction equipment. There is no unified regulatory document that defines a comprehensive list of goods subject to import substitution in Russia for 2023 and beyond. As a rule, the list of goods and equipment for import substitution is formed at the regional level, considering the

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resources available. Regions are also responsible for developing measures to support enterprises producing goods subject to import substitution. No regulatory standard limits its application in improving the proposed methodology. However, it also allows for the methodology and results to be used in the development and refinement of regional import substitution lists.

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