ВНЕШНЕЭКОНОМИЧЕСКАЯ ДЕЯТЕЛЬНОСТЬ

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THE INFLUENCE OF IMPORT SUBSTITUTION ON REGIONAL POSITIONING IN THE SYSTEM OF INTERNATIONAL ECONOMIC RELATIONS [1]

The purpose of the research is to substantiate what kind of influence the import substitution has on the positioning of different types of regions in the system of international economic relations. The research is focused on two types of regions — the industrial type (the Sverdlovsk region) and the agricultural type (Rostov and Krasnodar regions). The research hypothesis is following: import substitution influences not only the replacement of imported goods by the domestic ones, but also can change regional positioning in the international economic relations system. The authors propose the methodological approach. It examines the regional economy according to three levels: a system of entities engaged in foreign economic activity; a system of the support of import substitution and export orientation in a region; a system of international economic relations. Regional positioning in the system of international economic relations is expressed in manufacture and agriculture exports and imports. Our methodological approach reveals the dependence between manufacture and agriculture exports and imports and the manufacturing and agriculture output, including correlation analysis. . We have offered a technique based on the comparative analysis of the effectiveness of import substitution in two regions' types applying correlation analysis. The analysis has shown the interrelation of the development processes of domestic manufacturing and agriculture, their export and import in 2005–2016. The import decrease and export increase (after 2014) were mainly due to regional specialization in international division of labour. This demonstrates the results of import substitution. The research results can be used for further development of the strategies of regional international economic activity including such instruments as import substitution and export promotion.

Keywords: import substitution, import dependence, regional economy, industry specialization, regional positioning, system of international economic relations, import substitution effectiveness, manufacturing, agriculture

Introduction

Recently more attention has been paid to a global policy of import restrictions and to the Russian reaction on it, which is expressed in the strategy of import substitution. Although, the methodological provision of conditions for the realization of this strategy, goals, methods and tools can significantly differ. At the same time, research-ers are unanimous in addressing the import substitution strategy to the replacement of imported goods by the domestic ones. Along with this, the strategy solves the task of modernization and improvement of the regional competitiveness, which influences the regional positioning in the system of international economic relations.

Therefore, the research purpose of this article is to substantiate the influence of import substitution on regional positioning. For this purpose, it is necessary to address the following issue: to reveal the interrelation of the development of in-

ternal production of manufacture and agriculture goods and their exports and imports, — both between each other, and with other indexes of socio-economic development, which determine the regional positioning in the system of international economic relations. The research is focused on two types of regions: 1) with highly developed manufacturing (on the example of Sverdlovsk region); and 2) with relatively developed agriculture and manufacturing (the Rostov region and Krasnodar Krai). The research hypothesis is based on the premise that import substitution should focus not only on the replacement of imported goods by domestic ones, but also on the improvement of the regional positioning in the system of international economic relations through the import restriction and development of export-oriented production.

Theoretical framework for the study of import substitution and regional positioning in international economics

We understand the regional positioning in a system of international economic relations as its participation in international division of labor, first of all, through export. In scientific literature, the relationship between the regional positioning in international labor division and various factors is analyzed. Thus, the interrelation between shocks in international trade and condition of local economic systems (regarding employment, income) is investigated [1]. In the analysis of the participation of national economy in the global value chains, we consider the activity not only of regions-exporters, but also of the regions delivering them components and services. These regions will be designated as the «intra-country» component of global value chains [2]. We also investigate the role of such a factor in regional export development as domestic transport. The article shows that effects are indirect, but still are presented [3]. The paper demonstrates that various regions of national economy, taking into account their realities, take different foreign trade courses for the purpose of economic development. [4]. But there are not enough research on how import substitution in a region improves the positioning of its economy in a system of international economic relations. The question arises: whether import substitution can promote the best regional positioning in a system of international economic relations?

We take into consideration foreign experience in the implementation of import substitution strategies in the 20th century by Latin American and Asian countries as well as Turkey and others

(Hoang Lieng, Jayanthakumaran K., Yilmazkuday H.) [5–8]. At present, the import substitution is understood as "a type of economic strategy and industrial policy of the country, oriented towards the protection of domestic producers through the substitution of imported industrial goods by goods of national production" [5]. In the context of the result, the import substitution means the improvement of the competitiveness of national production via stimulation of its technological modernization, increasing its efficiency and adopting new competitive products with relatively high value-added" [9]. The import substitution in the works of national researchers also is closely related to the new industrialization [10, p. 5]. Most actively it has been carried out in the US economy [11, p. 32]. It also has been carried out in the European economy, but in a lower extent [12, p. 171–172]. At that, the issue of import substitution is related to the economy's ability to provide itself with resources that defines the long-term welfare of a territory [13, p. 31].

Import substitution means optimizing the economy's structure through the creation of additional productions and industries being able to substitute import [14, p. 17]. The strategy of import substitution is based on the development of the whole production, on the increasing of the quality of produced goods and the technologies being used in manufacturing as well as on the development of innovation. According to the estimates, "the intensification of import substitution processes in the Russian Federation may increase industrial production for more than 10–15 % within the next 5–7 years. The organization of the production of goods being in demand and having a high value-added should become a key focus".[1] On the whole, proceeding from the studies of the Doctor of Economics, Professor V.K. Faltsman, mentioned-above, we can allocate three types of import dependence and import substitution [15]:

"Type I. Import of technological equipment for the following production of goods and services. This type of import dependence covers such industries as fuel-energy and defense-industrial sectors, whose products are delivered to both the domestic market and export. At that, the import of fuel, energy and arms is significantly small. As equipment has a long working life, this type is less dependent on import cessation because

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[1] Prikhodko, N. (2013, October 25). Importozameshchenie podstegnet promyshlennyy rost v RF [Import substitution will spur industrial growth in Russia]. News. Economics. Retieved from: http://www.vestifinance.ru/articles/34648 (date of access: 25.12.2017). (In Russ.)

of the devaluation of national currency, embargo or other reasons" [15]. However, at this point, we deal with limitations of strategic competitiveness of above-mentioned industries through the interruption of modernization changes caused by exogenous factors along with limited internal investment resources.

"Type II. Import of raw materials, semi-finished products, components for the production of goods and services" [15]. This type of import dependence is studied in the work of Berezinskaya O. and Vedeva A. [16]. Taking into account the business expenses for component parts, raw materials, semi-finished products, it can be revealed that the import share exceeded 22 %. That is the level of localization of domestic production. "The most import dependence in this type has mechanical engineering (36.5 %). The imported components in this type are used for the production of domestic machines, assembly production of foreign cars, renovation of acting car park. Therefore, import substitution can be implemented on the base of both own competences and the involvement of foreign investors, for example, within the assembly industry. In this context, a specific potential of state-private partnership involving foreign elements is appearing. For example, foreign companies get preferences from presence and development the production on the Russian market in exchange for long-term commitments. Particularly, in 17.06.2016, such special investment contract was signed by Claas Company. According to it, Claas Factory gained "the status of the Russian agricultural machinery producer, that provides opportunities for the Russian agricultural producers to buy technical equipment at a discount of 25–30 % within a State program under the Resolution of the Government of Russia of the 27.12.2012 number 1432 "On approving the rules for providing the subsidies to agricultural machinery producers". "Claas, in turn, has made a commitment to bring the level of industrial localization up to the requirements of the Governmental Resolution number 719" [17]. Company "Deer&Co" is negotiating investment contracts in the same way.

"Type III. Import of finished goods, Russian production of which has appeared to be uncompetitive in the domestic market. Therefore, the import substitution on the own raw base is possible only through enhancing the competences and competitiveness or through importers' substitution" [15]. This type can be considered as the most mobile one from the point of view of developing and directing the government support for appropriate industries. In this context, the most significant aspect is the selection of appropriate industries corresponding most closely to the parameters of strategic and current competitiveness.

In general, the strategy of import substitution is closely connected with the industrial, innovative and scientific-technological policy as well as export policy. It puts the industry into the framework of quality control, orientation on product and technological innovations, and it enhances economic wealth, in general. This aims at sustaining the current competitiveness and forming the strategic one.

The import substitution plans are made in the form of state programs of the federal and regional level. Later, their efficiency is estimated, what as a rule is not easy [18, p. 134]. In the literature, in the import substitution context, the region's foreign trade and its industrial policy are analyzed [19]. We offer the methodological tools to evaluate the implementation of the policy of rational import substitution in an industry [20], taking into account the import geography [21]. To reveal the import substitution potential, the level of regional economy's diversification is calculated [22]. We propose to estimate the effectiveness of state regulation in import substitution also on the enterprise level [23]. At the same time, import substitution is seldom positioned as an important factor of export development. Though, the researchers (irrespectively the topic of import substitution) also note that the Russian industry has a high potential not only in the internal, but also in the global market [24]. Besides, as a rule, only any one chosen region will be investigated, as it is interesting to compare the various on regional economies.

Methodological approach to the assessment of import substitution as a factor of regional positioning in the system of international economic relations

It seems reasonable to offer a methodological approach to the assessment of import substitution as a factor of regional positioning in the system of international economic relations (Figure 1). The approach considers the regional economy in three levels: entities engaged in foreign economic activity, a system of the support of import substitution and export orientation in a region; a system of international economic relations. The second level contributes to the integration of these entities themselves into the system of international economic relations.

In the first case, the region is characterized as a set of entities engaged in foreign economic activity (exporters and importers, enterprises with foreign investments etc.). Its activity is defined by potentials: caused by geography and historical de-
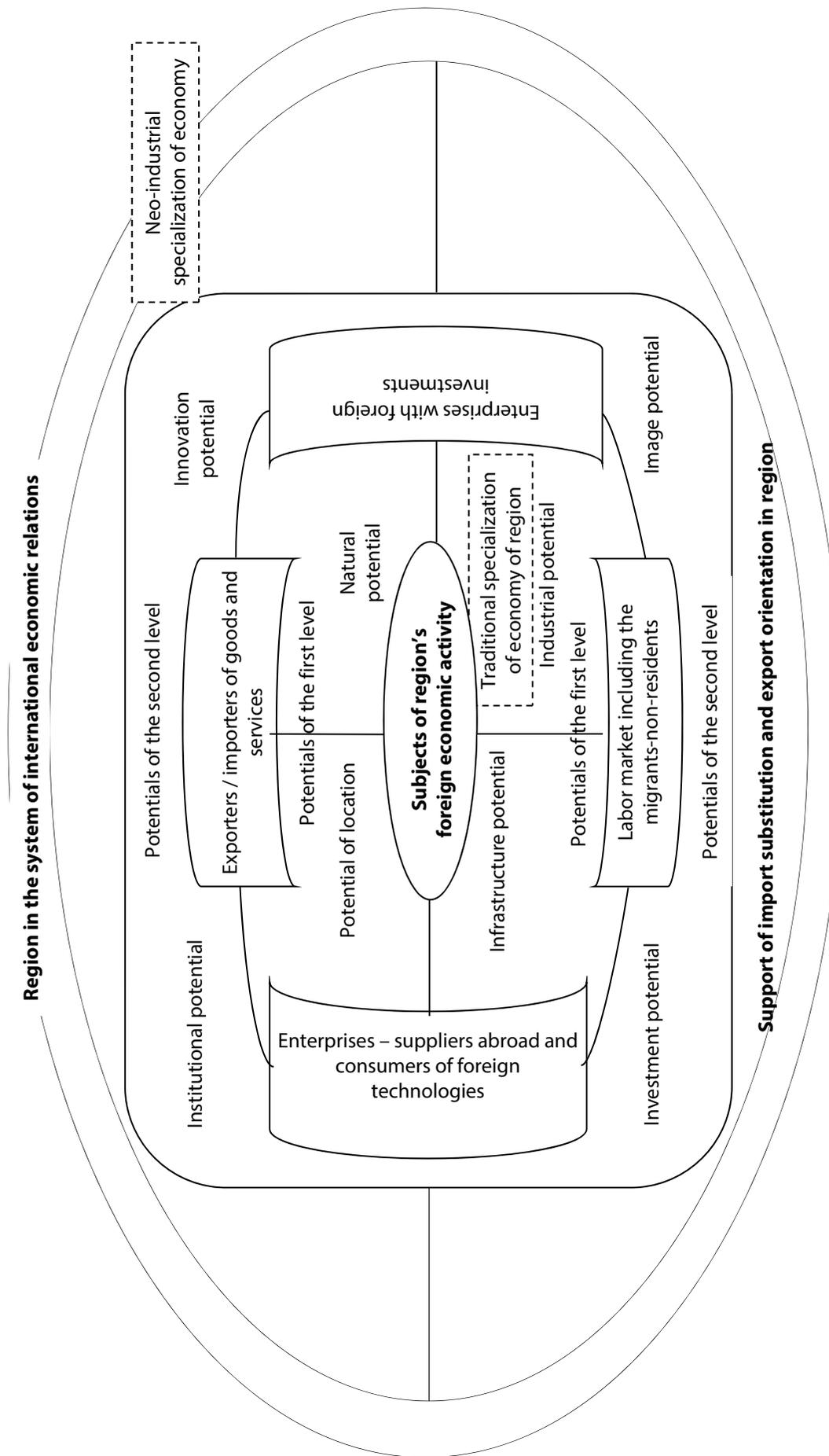
Region in the system of international economic relations

Support of import substitution and export orientation in region

Neo-industrial specialization of economy

Innovation potential

Enterprises with foreign investments

Image potential

Potentials of the second level

Exporters / importers of goods and services

Natural potential

Traditional specialization of economy of region

Industrial potential

Labor market including the migrants-non-residents

Potentials of the second level

Potentials of the first level

Potential of location

Subjects of region's foreign economic activity

Infrastructure potential

Potentials of the first level

Institutional potential

Enterprises – suppliers abroad and consumers of foreign technologies

Investment potential

Fig. 1. *Methodological approach to the assessment of foreign economic factor including the import substitution as a factor of regional positioning in the system of international economic relations*

velopment (the first level); and "introduced", reflecting the possibilities of development (the second level). Entities engaged in foreign economic activity function in terms of the international economic relations providing the threats (competition of import) and opportunities (export opportunity). In these conditions, the region's system of import substitution supports them and transform the traditional specialization of regional economy into the neo-industrial one.

1) The choice in favor of certain industries should be based on adapting the foreign experience in the implementation of such a strategy as well as on keeping the national interests. We can determine the following criteria for making this choice: orientation of import substitution on a certain industrial segments, taking into account such criteria as:

a) high import dependence (80–90 %): machine tool industry, light industry, heavy engineering, radio-electronic, pharmaceutical and medical industry. When the industrial production is able to cover domestic needs, it should be expanded to the world market [25];

2) ensuring the national security and maintaining the competitiveness of the country in international economy: oil and gas sector, where it is necessary to replace the supplies of crude oil by the supplies of oil products with high added value; food and pharmaceutical industry, where import dependence increases the threat of social instability in the country; defense-industrial sector, where import share is from 20 to 80 %. Thus, the Doctrine of Food Security of Russia adopted in 2010 determines the following shares of self-provision: by meat and meat products — not less than 85 %, milk and milk products — 90 %, fish products — 80 %, potato — 95 %.[1] In 2016, a high level of food supply security was sustained: grain (99.3 %), potato (97.4 %), sugar (94.7 %), meat and meat products (89.4 %), fish products (83 %), milk (79.9 %) and salt (66.9 %).[2]Integral and synergistic nature of modernization of the Russian real

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[1] Ob utverzhdenii doktriny prodovolstvennoy bezopasnosti Rossiyskoy Federatsii: Ukaz Prezidenta RF № 120 [On approval of Food security doctrine of the Russian Federation: The presidential decree No. 120] (30.01.2010). Garant [legislative base]. Retrieved from: http://base.garant.ru/12172719/#ixzz49X-1p8D1U (date of access: 27.12.2017). (In Russ.)

[2] Tendentsiya razvitiya sektorov ekonomiki 2015 god [Development trends of sectors of the economy]. (2015). Ministry of economic development of Russia. 8. Retrieved from: http://economy.gov.ru/wps/wcm/connect/f3d74eaf-cfd5–40d9-ac7b-4004db5092ad/Мониторинг+razvitiya +sectoral+Rossiiskoi+economici+sa+2015+God.pdf?MOD= AJPERES&CACHEID=f3d74eaf-cfd5–40d9-ac7b-4004db5092ad (date of access: 25.12.2017). (in Russ.)

sector, of stimulating high-technology industries and productions via technological innovations.

In 2014, one more criterion was added to these criteria — the sanctions imposed on a number of technological equipment being imported, which is crucial for the functioning of the traditional industries of the Russian economy (for example, fuel and energy complex, defense-industrial sector). Thus, according to the research of the International Trade Center, the restrictions on the import of technological equipment for the Russian oil and gas companies cover 68 % of all import in this sector. According to the Ministry of Industry and Trade of the Russian Federation, it will not be possible to substitute many types of equipment by the Russian analogues in the near future. The supplier can become China, although the quality of Chinese products is much lower than of the western ones. In this way, it can be called not the import-, but the importer-substitution [26, p. 8].

At that, the strategy of import substitution should be based on the assessment of its potential in the regional economy, which, in the authors' view, can be based on using the methods of PESTLE- and SWOT-analysis. They allow to identify external and internal factors for the development of the industries of regional economy. On this basis, we can define requirements to the import substitution policy from the perspective: of expansion of internal and external markets segments (share of regional market, of Russian market, of export orientation); and also of considering the content of import substitution in the concept of deindustrialization (modernization of existing industries, boosting their competitiveness, what demands considerable waste of recourses) or industrialization "from scratch" (developing new prospective industries on the basis of scientific-technical, staff, technological components, involvement of foreign investors into regional industries).

At the same time, it is necessary to choose criteria for the estimation of the import substitution potential. Thus, if we ignore the changes in year-by-year remains of manufactured products, then the supplies of each kind of product to national economy is calculated according to its production (P), minus export (E), plus import (I), i. e. $P - E + I$ (this index describes the regional market size) [27, p. 146].

At that, the rate of self-sufficiency (in per cent) can be calculated according to the formula:

$$\alpha = 100 \times (P - E) : (P * E + I). \qquad (1)$$

Import substitution of products (Δt) for the period t $(0, …, t)$ is: $\Delta t = \alpha_t - \alpha_0$.

Complementary indicator of self-sufficiency is a coefficient of import dependence:

$$\gamma = 100 \times I : (P - E + I); \qquad (2)$$

$$\alpha + \gamma = 100 \text{ \% [15, p. 28]} \qquad (3)$$

The development indicator of various components of regional economic potential can serve as the indicators of the import substitution potential They are the industrial, natural recourses, logistic, scientific-educational, labor, innovative, market, investment ones, which will be characterized by a range of various indicators [28, p. 82].

The results of an assessment of the impact of import substitution on regional positioning in the system of international economic relations

It seems reasonable to make a comparative assessment of the effectiveness of import substitution (for regional positioning in the system of international economic relations) for two types of regions. The first type is the industrial, the one with highly developed manufacturing (on the example of Sverdlovsk region, which takes the 1st place by volume in Russia. The second type is the agricultural-industrial that is the region with relatively developed agriculture and manufacturing industry (on the example of the Rostov region and Krasnodar Krai, which take the 2nd and 1st places in Russia on the volume of agricultural production).[1] For this purpose, we consider the dynamics of output, imports and exports of two corresponding groups of goods.

The dynamics of output in manufacturing and agriculture is similar for all considered regions in 2005–2016 (Figure 2). The rise observed till 2008, the recession was in 2009 because of the global financial and economic crisis, further a rise (with fluctuation in agriculture) and a recession in 2014 or 2015 because of the worsening of global crisis. Then, thanks to measures for import substitution and export stimulation, in manufacturing, the decrease rate has sharply slowed down (the Sverdlovsk region and Krasnodar Krai) and there is even a growth (the Rostov region). In agriculture, in the Sverdlovsk region, the recession has slowed down, in Krasnodar Krai, it has stopped, in the Rostov region — has turned into growth. As a result, the manufacturing has not fallen to the "bottom" of 2009.

The decrease is obvious in the import of cars, equipment and vehicles. After the peak years, there was a decrease in 2015 (in the Sverdlovsk region — since 2014), and in 2016, it was not returned. As a result, the indicator in the Sverdlovsk region has decreased in relation to the "peak" by 2.55 times (the minimum since 2007), in the Rostov region — by 2.34 times (the minimum on the whole interval), in the Krasnodar region — by 1.97 times (the minimum since 2010). In recent years, in the import of food and agricultural goods, the decrease was observed: the maximal import in all regions was in 2013. In the Sverdlovsk region, the level of 2016 was below values of 2010–2015 (a decrease since 2014; twice lower than the peak); in Krasnodar Krai — below values of 2011–2015 values (a decrease since 2014; 1.5 times lower than the peak); in the Rostov region — also lower of "peak" values of 2012–2013.

At that, the export of machines, equipment and vehicles in 2016 in the Sverdlovsk region showed the growth (in 1.64 times), having approached to a maximum value of 2012; in the Rostov region, the export exceeds the value of 2014–2015, in Krasnodar Krai — exceeds the value of 2015. The export of food and agricultural goods in Krasnodar Krai has increased in 2016 (and concedes only the value of 2014). In the Rostov region, it has increased in 2015–2016. Moreover, the value of 2016 is a maximum one (Figure 2). In the Sverdlovsk region, the agricultural export after the highest levels of 2013–2014 has returned to the previous level.

Thus, thanks to the measures taken, in the production of both manufacture and agriculture, in 2016, there was a reduction of negative tendencies, and somewhere — even an improvement. It is necessary to emphasize the improvement in the need in import of both groups of goods by both regions' types (approaching to minima). There is an improvement in the export of machines, equipment and vehicles, especially in the industrial Sverdlovsk region as well as the improvement in the export of agricultural goods by "agricultural" regions (approach to maxima). It means that the import substitution yields the results, in particular, according to regional specialization. It is so not only in import replacement, but also in export development, that is for regional positioning in the system of international economic relations. At the same time, the aggravation of the global economic crisis affects the situation.

On the example of Rostov region, we carry out the assessment of import substitution potential by means of the methodology offered earlier. In relation to this region, the dependence on import

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[1] Calculated on: Regions of Russia. Socio-economic indexes. 2017: Statistical collections (2017). Moscow: Federal State Statistics Service. (In Russ.)
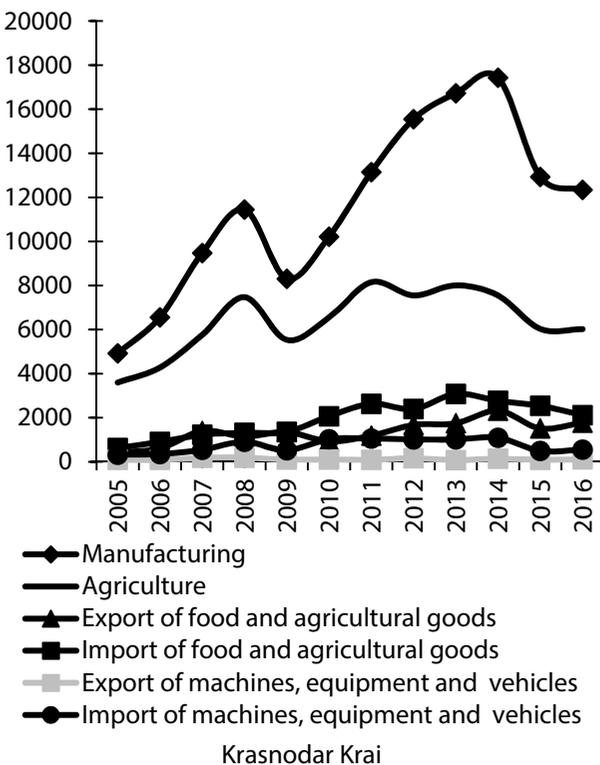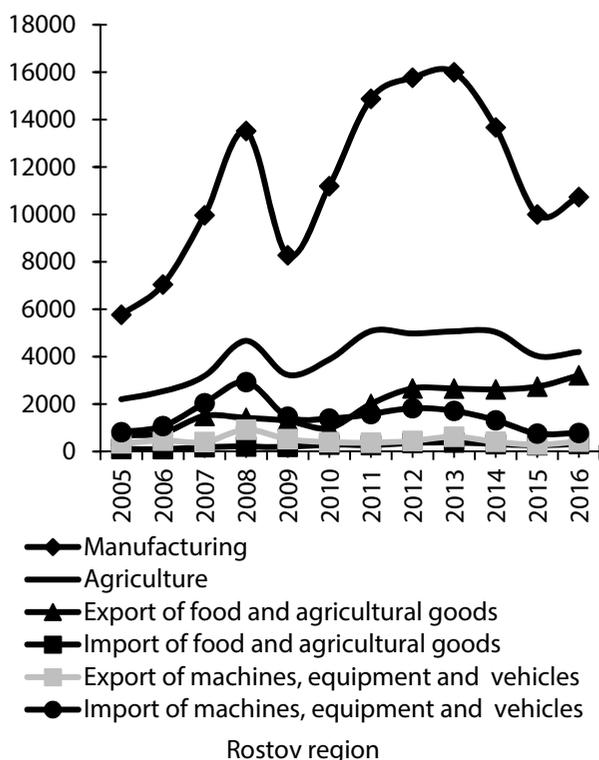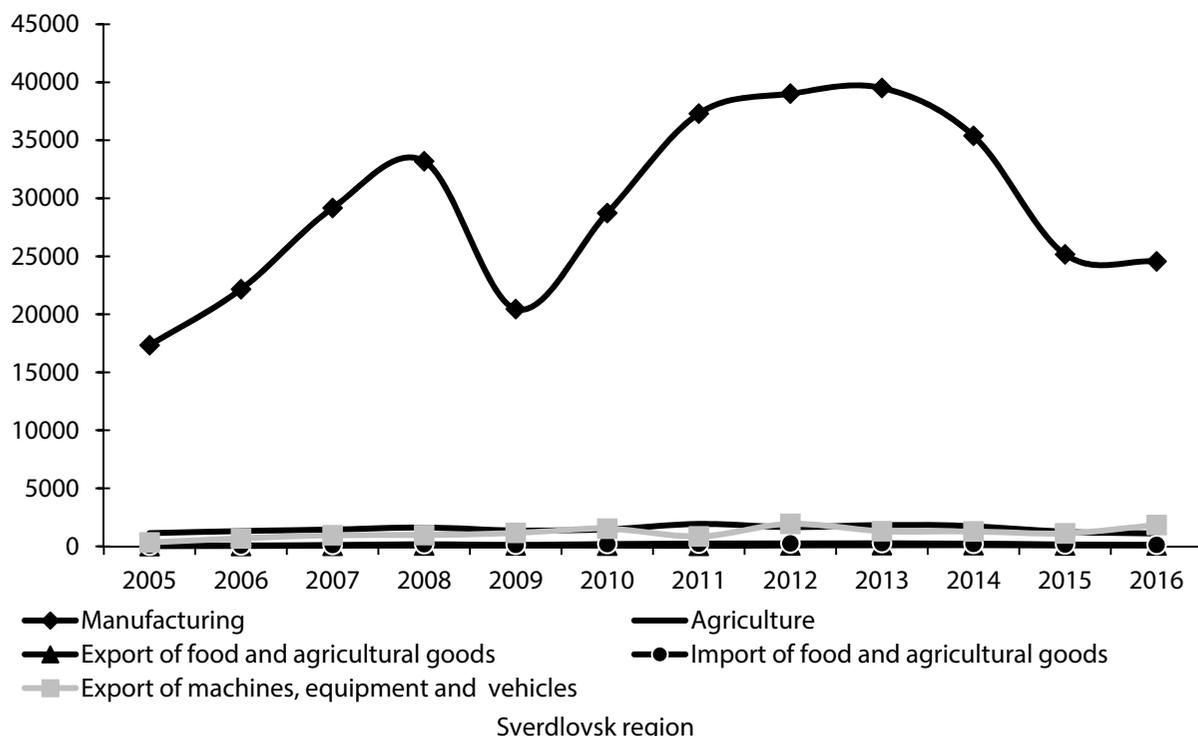
Fig. 2. *Dynamics of the indicators illustrating the realization of import substitution, Mio. USD.*
Calculated on: Regions of Russia. Socio-economic indexes. 2006–2017: Statistical compendium (2007–2017). Moscow: Federal State Statistics Service. (In Russ.) The average nominal rate of dollar by years is used (according to the data of the Central Bank of Russia)

can be stated in the following proportions: for 40.5 % of companies, the share of imported raw materials is up to 15 %; for almost 27 % of companies, it is from 15.1 to 30 %; for 20 % — from 30.1 to 50 %; almost for 7 % of companies, import dependence is from 50.1 to 75 %; and for 8 % — more than 75 %. It should be emphasized that in comparison to other industries, the import dependence of scientific organizations, garment industry and tobacco production can be called criti-

cal, because the raw materials they used were represented through import on 43.5 %, 61.2 % and 92.3 % respectively.[1]

It should be noted, that producers of electricity, steam and hot water (share of imported raw materials in 2013 was 0.2 % and 0.4 %, respectively), metallurgical industry (0.3 %), agricultural sector (1.5 %), construction (2.3 %), mining (5.3 %), food industry (5.4 %) are the least dependent on imported raw materials. In such industries as the production of leather and leather products, footwear manufacturing, publishing and polygraphic industry, production of electrical, electronic, optical equipment as well as vehicles production, the share of imported raw materials is from 10 to 20 %.[2] Thus, to the sectors of economy with significant dependence on imported materials can be referred those, in which this share is higher than 20 %. Imported components are supplied from 57 countries of the world. At that, 15.4 % of company leaders pointed out that imported raw materials and component parts are supplied from China, 13,4 % — from Germany, 7 % — from both Italy and Turkey, 6.6 % — Ukraine, 4 % — the Republic of Belorussia.[3] Therefore, for nine sectors of economy, among which are agriculture, textile and garment industry, building materials production, building construction and others, the main country-supplier is Germany; for six industries — China (food industry, electric equipment production, electronic and optical equipment production, production of vehicles, etc.); for metallurgical complex — Italy, for leather products and shoes industry — Turkey, for mechanical engineering — Ukraine.[4]

Thereby, the goal of effective import substitution in the Rostov region is the advanced development of some industries, which are selected taking into account national priorities, specialization and resource potential of regional economy. These industries are following: machine-tool construction (import dependence level is 90 %); radio and electronic industry (82 %); light industry (72.5 %); oil and gas mechanical engineering (24 %); avia-

tion industry (helicopter construction) (24 %); power engineering industries (19.7 %); chemical industry (9.7 %).[5] Besides, the essential component of effective import substitution is oriented on sustaining the current competitiveness and achieving the strategic competitiveness in the regional economy [26]. So, according to the level of current competitiveness, the Rostov region occupies the 13th place among the regions of Russia (according to the share of gross regional product (GRP) in total and gross domestic product (GDP) of Russia), and by strategic competitiveness, the Rostov region is on the 11th place [29, p. 4]. Let us consider the statistical relationship of dynamics of the values of various indicators illustrating the realization of import substitution (and the relationship of import substitution to regional positioning in the system of international economic relations) (Table) (the method of least squares). In the Rostov region, there is a correlation of the dynamics of agricultural production and the dynamics of export of food and agricultural goods (correlation coefficient is 0.72 — a high degree); in Krasnodar Krai — 0.65. Therefore, it allows to conclude that the stimulation of these directions is interconnected.

The dynamics of the manufacturing output finds a statistical relationship with the dynamics of import of machines, equipment and vehicles (a high degree — in the Sverdlovsk region [0.81] and Krasnodar Krai [0.78], noticeable — in the Rostov region [0.51]). It allows to conclude that whether these activities are interconnected (as the updating of equipment and its spare parts was made thanks to the import), or decrease in production as global crisis coincided with the restriction of import because of international sanctions The dynamics of the development of manufacturing correlates with agricultural production. All of the regions have a rather high interrelation (0.96 and 0.90 by Rostov and Sverdlovsk regions, 0.87 — by Krasnodar Krai). It means that these sectors are similarly subjected to the same influences (for example, to global financial and economic crisis, international sanctions, support measures). But the dynamics in export poorly correlates in these sectors (only the Sverdlovsk region has a noticeable relation [0.59]). At the same time, the dynamics in

[1] Analiticheskiy material po rezultatam regionalnogo issledovaniya stepeni importozavisimosti predpriyatiy Rostovskoy oblasti po osnovnym nomenklaturnym pozitsiyam [Analytical material on the results of a regional study of the degree of import dependence of the enterprises of the Rostov region by main product positions]. Official portal of export activity in the Rostov region, 15–16. Retrieved from: http://www.donexport.ru/info/2/analit/import_analit.doc (date of access: 25.12.2017). (In Russ.)

[2] Ibidem. P. 16.

[3] Ibidem. P. 19.

[4] Ibidem. P. 14.

[5] O podderzhke predpriyatiy Rostovskoy oblasti, proizvodyashchikh importozameshchayushchyuyu produktsiyu [On the support of the enterprises of Rostov region producing the import substituting products] (2015). Official portal of the Government of Rostov region. Retrieved from: http://www.donland.ru/Donland/Pages/View.aspx?pageid=125270&mid=130587&itemId=168 (date of access: 25.12.2017). (In Russ.)

Table

Correlation analysis of influence of import substitution on regional positioning in the system of international economic relations, 2005–2016

Region	x_1 Gross regional product	x_2 Manufacturing production	x_3 Mining	x_4 Number of the persons employed in economy	x_5 Transportation of goods by railway and motor transport	x_6 Innovative production	x_7 Graduation of highly educated specialists	x_8 Internal expenditures on R&D	x_9 Small enterprises' turnover	x_{12} Fixed investments	x_{13} Export	x_{14} Import	x_{15} Agricultural production	x_{16} Export of food and agricultural goods	x_{17} Export of machines, equipment and vehicles	x_{18} Import of food and agricultural goods	x_{19} Import of machines, equipment and vehicles
Correlation with x_2																	
Krasnodar	0.96		0.77	0.48	−0.04	0.09	0.54	0.88	0.88	0.75	0.92	0.94	0.87	0.87	0.13	0.92	0.78
Rostov	0.98		0.68	0.08	−0.46	0.53	0.17	0.82	0.91	0.87	0.84	0.72	0.96	0.62	0.34	0.83	0.51
Sverdlovsk	0.99		0.67	−0.65	−0.32	0.47	0.26	0.88	0.66	0.96	0.80	0.89	0.90	0.55	0.44	0.93	0.81
Correlation with x_{15}																	
Krasnodar	0.93	0.87	0.81	0.25	0.21	−0.01	0.71	0.92	0.91	0.86	0.84	0.92		0.65	0.23	0.81	0.92
Rostov	0.98	0.96	0.60	0.23	−0.55	0.68	0.24	0.84	0.92	0.84	0.89	0.58		0.72	0.29	0.86	0.38
Sverdlovsk	0.92	0.90	0.76	−0.74	−0.20	0.50	0.52	0.77	0.67	0.94	0.69	0.83		0.41	0.13	0.83	0.83
Correlation with x_{16}																	
Krasnodar	0.80	0.87	0.50	0.57	−0.20	0.32	0.39	0.70	0.74	0.43	0.74	0.71	0.65		0.25	0.75	0.50
Rostov	0.77	0.62	0.08	0.67	−0.51	0.92	0.09	0.61	0.49	0.46	0.92	0.00	0.72		−0.10	0.81	−0.13
Sverdlovsk	0.66	0.55	−0.11	−0.37	−0.70	0.09	−0.23	0.81	0.52	0.51	0.32	0.64	0.41		0.59	0.66	0.52
Correlation with x_{18}																	
Krasnodar	0.93	0.92	0.77	0.56	−0.11	0.04	0.65	0.73	0.80	0.77	0.89	0.96	0.81	0.75	−0.20		0.72
Rostov	0.92	0.83	0.24	0.29	−0.54	0.80	0.20	0.72	0.69	0.67	0.91	0.30	0.86	0.81	0.03		0.09
Sverdlovsk	0.96	0.93	0.51	−0.67	−0.58	0.22	0.17	0.91	0.62	0.93	0.66	0.88	0.83	0.66	0.57		0.79
Correlation with x_{17}																	
Krasnodar	0.06	0.13	−0.11	−0.14	0.36	0.09	0.05	0.38	0.18	−0.03	0.05	−0.03	0.23	0.25		−0.20	0.20
Rostov	0.28	0.34	0.73	0.07	−0.10	−0.06	0.00	0.08	0.58	0.60	0.03	0.60	0.29	−0.10		0.03	0.79
Sverdlovsk	0.69	0.44	−0.03	−0.33	−0.71	−0.14	−0.26	0.54	0.16	0.41	0.42	0.43	0.13	0.59		0.57	0.31
Correlation with x_{19}																	
Krasnodar	0.89	0.78	0.79	0.01	0.25	−0.13	0.57	0.85	0.77	0.89	0.78	0.89	0.92	0.50	0.20	0.72	
Rostov	0.45	0.51	0.94	−0.15	−0.14	−0.27	0.22	0.30	0.65	0.70	0.07	0.91	0.38	−0.13	0.79	0.09	
Sverdlovsk	0.81	0.81	0.73	−0.46	−0.33	0.29	0.47	0.67	0.90	0.91	0.83	0.97	0.83	0.52	0.31	0.79	
Average	0.78	0.70	0.52	−0.02	−0.26	0.25	0.26	0.69	0.67	0.69	0.64	0.67	0.65	0.51	0.27	0.63	0.54

The indicators illustrating the import substitution are highlighted in italics (x_2, $x_{15} - x_{19}$).

To the Cheddok scale used for the classification of correlation degree, the coefficient of 0.3 to 0.5 reflects moderate correlation degree, 0.5–0.7 — noticeable degree, 0.7–0.9 — high, 0.9–0.99 — very high. The cases of very high relation degree are highlighted in bold type; with dark shading — of high degree; with weak shading — of noticeable; by underlining — of moderate.

Calculated on: Regions of Russia. Socio-economic indexes. 2006–2017: Statistical collections. (2007–2017). Moscow: Federal State Statistics Service (In Russ.). The average nominal rate of dollar by years is used (data of the Central bank of Russia).

corresponding import correlates in the Sverdlovsk region (0.79) and Krasnodar Krai (0.72) — that is this import increased or decreased in concert. The dynamics of manufacturing output correlate to the dynamics of export of food and agricultural goods (in Krasnodar Krai — highly [0.87], in Rostov and Sverdlovsk regions — noticeably [0.62 and 0.65]). Partly, it can reflect the real interrelation caused by the fact that manufacturing products will be used in the food industry and agriculture.

Let us consider the statistical relationship of the dynamics of indicators (illustrating the realization of import substitution) with the dynamics of other indicators of socio-economic development. The relationship is the strongest with GRP dynamics (in case of manufacturing and agriculture, import of food and agricultural products for all 3 regions the relationship is very high; in case of export of food and agricultural goods and import of machines, equipment and vehicles — for 2 regions — high [average correlation coefficient for all cases — 0.78]). Next by the number of cases of high correlation, the internal costs on research follow: among all the cases of statistical relationship of the chosen 6 indicators for 3 regions [that is among 18 cases] — 12 cases are of high extent of relation [average correlation coefficient — 0.69]) (including high degree for all regions — by comparison to dynamics of manufacturing and agricultural production and of import of food and agricultural goods).

We can group 11 cases to three types depending on the dynamics of investments into fixed capital (average coefficient — 0.69), gross export (0.64) and import (0.67). A noticeable degree of correlation is found also for manufacturing production (0.70), small enterprises' turnover (0.67), agricultural production (0.65) and the import of food and agricultural goods (0.63).

Thus, the correlation analysis has allowed to conclude, that there is a statistical relationship between the development processes of domestic manufacture and agriculture, their exports and imports, both between themselves and with other indicators of socio-economic development. Thus, the import substitution and region's positioning in the system of international economic relations are interrelated.

Conclusion

Thus, we have proposed the methodological approach to assessing of import substitution as a factor of regional positioning in the system of international economic relations. This approach considers the economy of regions according to three levels: a system of entities engaged in for-

eign economic activity; a system of support of import substitution and export orientation in a region; a system of international economic relations. The second level contributes to the integration of these entities themselves into the system of international economic relations.

We have developed the methodological aspects for choosing the preferable industries of import substitution in a region. The methodology for the assessment of import substitution potential is offered. It is based:

— on target positioning of industrial priorities in import substitution on the national and regional levels;

— on complementarity of import substitution types belonging to priority industries;

— on the estimation of the indicators of import substitution potential for each region, considering industrial specialization and factor analysis.

The instrument for proving the hypothesis became the authors' technique of the comparative assessment of import substitution effectiveness for two types of regions with the application of a method of correlation analysis for dynamics of the indicators illustrating the realization of import substitution.

The analysis has allowed to draw conclusions about the statistical relationship of the development processes in domestic manufacturing and agriculture, export and import of food and machine-technical products for 2005–2016. Moreover, during the implementation of import substitution strategy, in both types of regions, there was a decrease in the import of food and machines. In agricultural regions, the export of agricultural goods was increased. In the industrial Sverdlovsk region, the export of machines and equipment was grown. This demonstrates the results of import substitution, in particular, according to the regional specialization.

The analysis has shown, that import substitution furthers not only the simple replacement of imported goods by domestic, but also improves the regional positioning in the system of international economic relations. This takes place through the import restriction and the development of export-oriented production as well as through other kinds of regional economic activity, including development of transport, entrepreneurial, innovative and other types of infrastructure. This, in its turn, influences the image of a region and its positioning in the system of international economic relations.

The authors have classified industries depending on the type of import substitution. We also have studied the support system at the regional

level and the level of entities engaging in foreign commercial activity in a region.

We have highlighted the goals of effective import substitution, that furthers the best regional positioning in the system of international economic relations. One of the goals is to increase the production and export of competitive products at the expense of the goods oriented both on the domestic and foreign market, including through subcontracting and localization policy. Another goal is the attraction of investments, including foreign ones, into the creation of new import-substituting industries through the development of priority development areas, special investment contracts and instruments of regional branding.

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