

Russia's economy innovative development in conditions of the import substitution

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Abstract

The article aims to investigate Russia's economy innovative development in conditions of the import substitution. The analysis of the nomenclature of import-substituting products was carried out using the official list of priority and critical types of products, services and software in terms of import substitution and national security. As a result, the model of catching-up development which was being objectively criticized earlier, has once again taken up the leading position in the economic agenda of the state. In conclusion, the sanctions pressure exerted on Russia has affected both the current macroeconomic situation and the system of its promising technological development.

Keywords: Russian Economy, Import Substitution, Innovative.

Desarrollo innovador de la economía de Rusia en condiciones de la sustitución de importaciones

Resumen

El artículo pretende investigar el desarrollo innovador de la economía rusa en condiciones de sustitución de importaciones. El análisis de la nomenclatura de los productos que sustituyen las importaciones se llevó a cabo utilizando la lista oficial de productos, servicios y software prioritarios y críticos en términos de sustitución de importaciones y seguridad nacional. Como resultado, el modelo de desarrollo de recuperación que fue criticado objetivamente anteriormente, una vez más ha tomado la posición de liderazgo en la agenda económica del estado. En conclusión, la presión sobre las sanciones ejercida sobre Rusia ha afectado tanto la situación macroeconómica actual como el sistema de su prometedor desarrollo tecnológico.

Palabras clave: economía rusa, sustitución de importaciones, innovadora.

1 Introduction

The passage of the world economy through the most acute phase of the fourth industrial revolution transforms the entire global system of socio-economic processes substantially. A distinctive feature of the changes taking place in this context is the spread of the model of innovative development, which gradually turns into a paradigm of global economic growth. Increase in the level of complexity and resource intensity of modern innovative processes, which expand their interdisciplinary predetermined the evolution of the implementation space in the direction of cooperative communities' formation. As a result, there is a change in the ideology of doing business, where the emphasis shifts from the organization of the activities of an individual enterprise towards the management of an entire innovative network. In the conditions of personalization of the final demand and individualization of the offer, the activities of participants in such networks begin to focus on the formation and consolidation of a set of their own unique competencies that can fit into the external innovative process. The gradual globalization of these innovative processes broadens the geography of doing business for each participant of the network, thereby contributing to an even greater fragmentation of the competitive field in the global economy and eroding the dominant participation of individual enterprises in the final consumer value creation. However, simultaneously with globalization and expansion of the international labor division, the tendencies of protection of the national markets keep existing in some countries of the world. Russia happens to be one of the countries, which is forcedly following the import substitution policy, which, being carried out to such an extent, contradicts the formation of international collaborations in the world economy and the creation of global ecosystems. That is why the article considers the possible ways of overcoming a range of problems arising in this connection, such as deterioration of the conditions for conducting innovative activities and limitation of the Russian economy growth rates.

2 Methodology

The official data of the Federal State Statistics Service, customs statistics of the Federal Customs Service, as well as the results of special studies of the Ministry of Industry and Trade of the Russian Federation and the Ministry of Economic Development of the Russian Federation became the informational basis of the study. The analysis of the nomenclature of import-substituting products was carried out using the official list of priority and critical types of products, services and software in terms of import substitution and national security. While assessing the level of novelty of goods and technologies which subject to import substitution in Russia, the Rospatent, and USPTO, EPO and JPO data were used.

The sequence of the study included three main stages. At the first stage, import-substituting products were analyzed from the point of view of their residing within the boundaries of the scope of experience in the field of organizing and carrying out the production of similar goods gained in the country. At the second stage of the study, the results obtained were refined from the point of view of the conformity of import-substituting production with the criterion of its novelty in the scale of the world economy. This created the basis for justifying the problems of transforming the processes of managing the innovative development of the Russian economy at the third stage of the

study, coordinating the current tasks in the field of import substitution with the long-term priorities of innovative activity.

3 Results and discussion

From the point of view of theoretical justification, the issue of import substitution is largely based on classical works in the field of economic growth by (Quesnay, 1758; Keynes, 1936; Chenery and Strauth, 1966). A closer researchers' attention to the development of national economies through the creation of their own production facilities contributed to the emergence of a whole scientific field related to the study of various aspects of import substitution. At the same time, the dualistic nature of import substitution caused two main approaches to the definition of its essence in the economic theory: as an instrument of protectionism and as a factor in ensuring national competitiveness as well as the competitiveness of individual national producers in foreign markets. It should be noted that the effectiveness of the formation and development of competitive factors of production, ensuring the development of products with high degrees of redistribution, is to a great extent the result of scientific and technological progress. Its decisive influence on economic growth was described by the (Solow, 1956; Romer, 1986; Broda and Weinstein, 2006; Balasubramanyam et al., 1996; Altenburg and Meyer-Stamer, 1999; Hertel et al., 2007).

Summing up the review of the current trends in resolving the problems of import substitution, it can be concluded that over the recent years this area of research has become one of the most discussed in the world scientific community, and in many countries of the world it has already become the mainstream of political and economic discussions. One of these countries is Russia, where import substitution has become the main development doctrine that primarily determines the strategic guidelines for transforming the foundations of the national economy functioning. Efforts taken over the recent years to overcome the consequences of sanctions in Russia have allowed reducing their negative impact on the macroeconomic situation in the country to a certain degree. Having been reflected in import substitution programs, this fundamental principle of development began being implemented at all levels of economic management, eventually reaching the level of individual enterprises. However, the scale of the changes taking place in economic policy, the core issue of which has become the matter of overcoming current social and economic problems, has inevitably affected the strategic priorities of the country's advanced technology development and also predetermined attention to the search for ways of achieving them. In the current market situation, many participants of the innovation process potentially able to focus on creating developments that meet the criteria of world novelty were forced to place emphasis in favor of the production of goods having analogs abroad.

Undoubtedly, when developing import substitution programs the presence of export potential appeared to be one of the most important requirements imposed in relation to projects for the manufacture of the respective types of products. On the one hand, this logic of reasoning seems quite comprehensible in the light of the limited volume of domestic sales markets in Russia. However, on the other hand, ensuring import substitution for such a wide range of products indicates the need to rely on factors of production, which in many cases will be inferior to the factors of production used while creating similar foreign products. In order to assess the scale of this problem, at the first stage of the study the analysis of the nomenclature of import-substituting products from the perspective of the organization of the processes of its manufacturing by Russian

enterprises was carried out. In order to rank the relevant goods and product groups according to the ability of domestic manufacturers to ensure their release, using the experience they have previously accumulated, a special scale of assessments was introduced. The scale provides for three main levels of assessment:

- 1) The absence of the experience of Russian enterprises in the production of this type of goods - 3 points (high level of novelty);
- 2) The presence of an actual reserve in the form of scientific research and (or) developments, corresponding to the profile of production for this type of goods - 2 points (the average level of novelty);
- 3) The availability of production capacities and the presence of certain experience in the manufacturing of this type of product - 1 point (low level of novelty) (Ricardo, 1817).

Drawing on the information from the List of priority and critical types of products, services and software, 2018 each of more than eight hundred kinds of import-substituting goods was assigned a certain score, which, in accordance with the previously proposed scale reflects the level of novelty in the organization of the process of its production. While carrying out further studies, it was assumed that it is possible to consolidate and average the scores obtained for individual goods to the level of commodity group estimations, and, ultimately, to assessments at the level of industry output as a whole. The results of the calculations conducted allowed to assign a certain rank to each of the industry in question, attributed to the value of the level of novelty of production which import substitution is formally the prerogative of the corresponding branch enterprises' activity (North, 1691).

The ranking was carried out in the range (1-9), where rank 1 was assigned to industry products with a minimum level of novelty in the organization of its production, while rank 9 was given to the products with the highest level of novelty. It should be noted that the scale of efforts taken by various industries in the implementation of the import substitution program is defined not only by the novelty of the procedures for creating the appropriate production capacities in Russia, but also by the magnitude of the total demand from the domestic consumers for specific types of production, as well as by the previously established share of import in the total volume of its domestic consumption. In order to take into consideration the influence of the demand factor, formula (1) clarified the previously obtained values of the novelty indicator of the organization of production of import-substituting commodities for the domestic market (N').

$$N' = \frac{I \cdot R_N}{100} \quad (1)$$

Where I is the share of imported products in total domestic consumption %; R_N – is the rank, corresponding to the level of novelty of organization of production of import-substituting commodities in a particular industry. The visualization of information on the updated level of novelty of the organization of import-substituting commodities production, as well as information on the total volume of domestic consumption and the share of imported products in it, is shown in Figure 1. Analysis of the information presented in it allows us to draw the following main conclusions. First, the most profitable positions in the matrix are occupied by the chemical industry, the sphere of manufacture of metals and their products, the pharmaceutical and medical industry, light industry, and the shipbuilding industry, which participation in the implementation of import substitution programs has quite positive prospects at first glance (Mun, 1628).

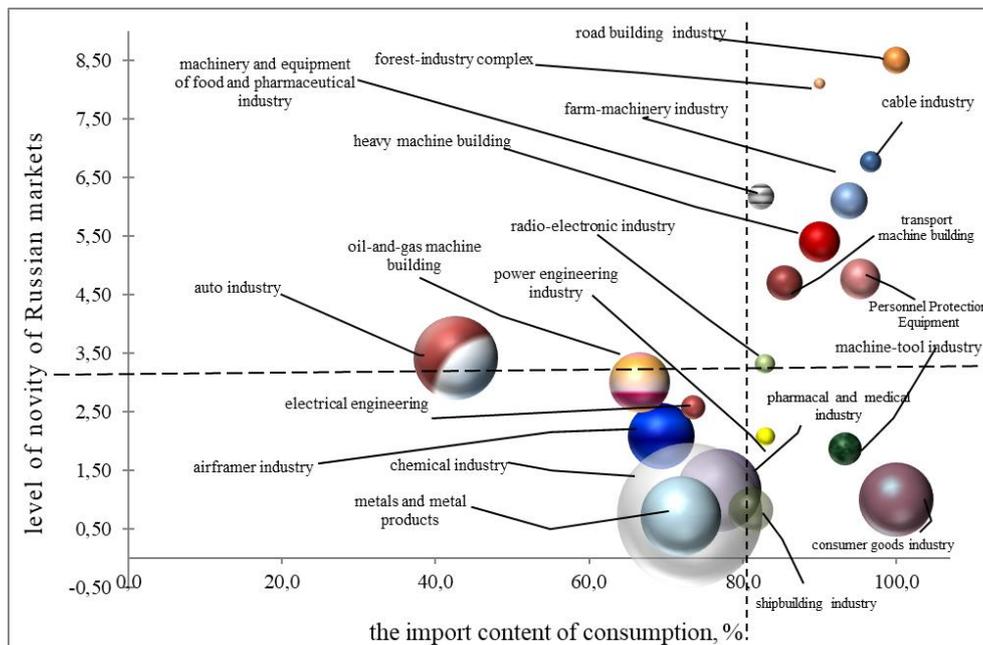


Figure 1. Economic branches positioning on the novelty of the organization of import-substituting products manufacture and the scale of potential demand for it (the size of the circle characterizes the amount of current demand on the relevant industry products)

On the one hand, this is attributed to the low level of poverty in the organization of production processes for the respective commodities, the experience of developing which is already obtained by individual enterprises capable of becoming sectoral growth points in the current situation, replicating and developing their own previously created practices. On the other hand, commodities the production of which the enterprises belonging to the industries mentioned above are oriented on, have a significant domestic demand, which either was largely ensured previously or is still being ensured by imports. Secondly, the critically high values of poverty are inherent to the organization of the processes of production of import-substituting goods in the field of construction, road and municipal engineering, timber industry complex, enterprises of the cable industry, and in the creation of machines and equipment for the food and processing industries. The situation with a high level of novelty for these spheres of activity is aggravated by the previously emerged significant dependence of domestic consumption on imports, the share of which amounts to least 80%, reaching 100% for particular goods and commodity groups (Hume, 1758; Lubnina et al., 2016). Third, the automotive industry, oil and gas engineering, electrical industry, agricultural machinery, radio electronics industry, aircraft building, machine-tool construction, heavy engineering, transport engineering, and the development of personal protective equipment occupy an intermediate place in the positioning matrix. It is worth mentioning that the positioning of potentially import-substituting products from the point of view of novelty in the organization of their production still does not provide all the information necessary for assessing the conformity of projects for the development of these types of products with the priorities to the strategy for advancing innovative development of the Russian economy. In this regard, at the second stage of this study, the positioning of various types of import-substituting products was carried out using the criticality indicator, which is designed to assess their position in the contour of strategic rather than current priorities for innovation. In order to determine the level of criticality of goods included in the official list of products that have already been used for the study, patent databases, as well as industry reviews which have priority for import substitution were analyzed (Melnik et al., 2015). So, at the initial

stage of the analysis, each type of product was considered from the position of its residing at a certain section of the life cycle of the relevant commodity group, realizing the potential of a specific technological base. The highest criticality values were attached to goods at the initial stage of the life cycle. Accordingly, the minimum criticality values were determined for goods in the maturity and decline stages of their life cycle. Introduction of the level of criticality of import-substituting products (K) and the values of the share of imports in the total volume of domestic consumption of the relevant goods to the procedures of analytical studies allowed to clarify the values of this indicator (K').

$$K' = \frac{I \cdot W \cdot R_N}{100} \quad (2)$$

Where I is the share of imported products in the total domestic consumption, %; W is the number of the technological structure that is prevailing for a particular industry; R_N – is the rank, corresponding to the level of gravity of the organization of production of import-substituting goods in the industry. The visualization of information on the specified level of criticality of import-substituting products, the total volume of domestic consumption and the share of imported products in it is shown in Figure 2 (Sadriev et al., 2015).

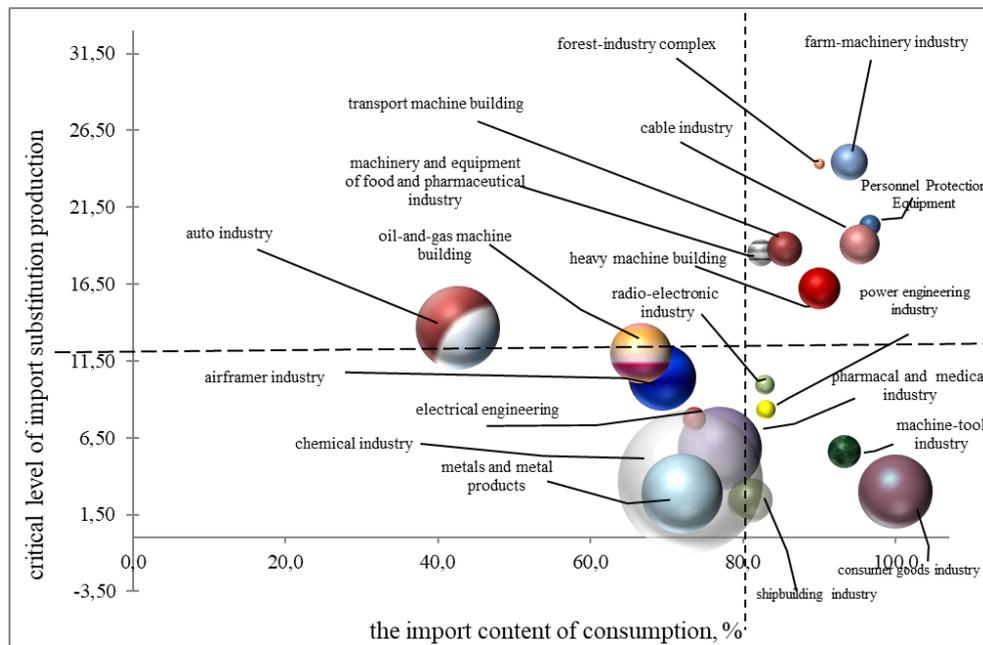


Figure 2. Economic sectors positioning in terms of the criticality of their import-substituting products and the scale of the potential demand for it
(The size of the circle characterizes the magnitude of the current demand for the relevant industry products)

4 Summary

Analysis of the results obtained allows us to draw the following conclusions. First, the largest portion of import substitution falls on the types of products which technological base in the scale of the world economy has a sufficiently high level of maturity, which does not allow to unequivocally consider the processes of organizing their production as promising ones. Second, the sectors that, within the confines of the import substitution program, are nevertheless oriented towards producing those types of products that will remain in demand in the economy of the sixth technological order, have relatively limited domestic demand. The results of the analysis carried out at the third stage of the study allowed to substantiate the main problems of transforming the management processes of the innovative development of the Russian economy coordinating the current tasks in the field of import substitution with the long-term priorities of innovation activity. The most important among them is the ineffectiveness of the efforts undertaken to develop the innovation infrastructure in the economy and the search for priority directions in the development of science and technology (Sadriev et al., 2015).

As a result, the country has not yet experienced any changes in the formation of the flow of innovative initiatives, and the required quality of innovative growth factors that could ensure progressive innovative development has not yet been created. Achieving a stable trend in the creation and consolidation of these factors predetermines the need for the development of interindustry cooperation chains in the Russian economy, covering not only the production, logistics and the realization of new types of products, but also the process of their creation. Only in this case one can count on the emergence of a critical mass of multiplicative effects that form the basis for involving actors from different spheres of activity in the innovation process, the increase in the number of high-tech jobs and the creation of due conditions for structural shifts in the economy that ensure its transition to a digital development model. It should be noted that import substitution is to be considered as part of a more fundamental plan for the formation of a globally competitive innovative economy. Carrying out the decomposition of the tasks that need to be resolved within the framework of this plan, it becomes clear that at the level of import substitution programs implementation, the foundations of culture and practices of inter-organizational interaction should be laid for the creation of innovations that could evolve into full-fledged innovative ecosystems later on.

5 Conclusions

Summarizing the results of the study conducted, the following main conclusions can be drawn. First, the sanctions pressure exerted on Russia has affected both the current macroeconomic situation in the country and the system of its promising technological development. In the existing situation, the national economy was forced to start moving along the trajectory of import substitution that assumes the localization of production of a wide range of goods that have fallen under the Western sanctions. Solving the problem of meeting the current needs of the country in various types of previously imported products and creating the conditions for optimizing the qualitative and quantitative indicators of the balance of the national trade balance, import substitution can nevertheless further strengthen the country's economic pursuit along the trajectory of implementing the priorities of the catching-up, not advanced innovative development. Secondly, the systemic contradiction in the Russian economy between the need to meet current domestic demand and the need for its orientation toward the development of promising technological markets

can be resolved through the use of import substitution as a basis for the competitiveness of domestic producers and the formation of inter-branch cooperative chains among them.

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