

Models of accelerated import substitution in agricultural sector of regions within integrated economy

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Abstract — The article is devoted to the study of features of regional models of import substitution in agriculture on the basis of strategic priorities of domestic development. Analysis of theoretical and methodological foundations and key factors influencing modeling and prediction of indicators of agricultural sector is carried out. The aim is to analyze economic indicators of agriculture, reflecting the impact of import substitution on regions development. The study objectives are: to justify the demand for import substitution in agriculture for national economy and the development of federal subjects and districts; to identify main factors influencing the choice of import substitution model; to characterize existing problems of the effective implementation of import substitution models and suggest solution methods. Statistical analysis, modeling of socio-economic processes, systemic and situational approaches were used as research methods. The study has shown positive effect of import substitution on country region's economy. Perspective directions of increase the efficiency of existing import substitution models were described.

Keywords — agriculture, agrarian regions, import substitution, food security, strategy, agricultural products, model

I. INTRODUCTION

The agricultural sector of Russia is more export-oriented, which is mainly due to the import substitution policy as a result of EU- and US-imposed sanctions. The Russian agricultural sector is globally competitive in many aspects. Russia is one of the world's major grain producers. Over the past 15 years the country's share in world wheat exports has increased by 10%. The Russian Federation is one of the leading exporters of mineral fertilizers, which follow mineral fuels and products of metallurgy in the country's exports structure [1].

There is an intensive growth in demand and an increase in the amount of food consumption due to constantly growing world population. This may lead to the emergence of new long-term risks of instability in the global agricultural market. By 2050, the growth of global production of goods and services of the agro-industrial complex should be from 60% to 70% compared with the beginning of the 21st century. The accelerated import substitution and the achievement of food security in Russia are the primary and most urgent tasks of the state program of agricultural development for the period up to 2020 [2]. According to the program, by 2020 the share of Russian goods in the total volume of resources consumed in the country will increase markedly. The document focuses on the accelerated import substitution of a set of meat, dairy and vegetable products.

Accelerated import substitution implies a reduction in the share of foreign producers in market and prompt satisfaction of consumer demands for products of domestic origin. An important aspect in minimizing the timing of the implementation of agricultural projects is preservation and quality control of products. Recently, the Russian government has raised questions about termination of accelerated import substitution for a set of products for which the quality improvement is of concern [3]. The availability of large-scale funding is another significant factor. State support has spread over the most productive and perspective enterprises and regions.

The sharp reduction in products import requires serious expansion of the production capacity of domestic producers. However, not all regions are ready for such actions; many domestic agricultural enterprises require considerable modernization and reconstruction efforts. Obolentsev I., Kornilov M. and Sinyukov M. state that in order to ensure food security it is necessary to develop the production base of

agriculture [4]. It is the factor of deterioration of production capacities and technological inferiority that prevents most country's regions from carrying out the accelerated import substitution. It is also worth noting the climatic challenges facing some regions.

The import substitution is considered to be the actual direction of development of Russian agro-industrial complex due to complicated macroeconomic background and certain geopolitical factors including sanctions. The agricultural import substitution in Russia has been consistently developed, being an adaptation mechanism to global environmental factors as well as internal problems: national currency devaluation, low production innovation rates, inferior agricultural business technologies and insurance risks management. The high efficiency of protectionism was noted, which contributed to the development of production and advance agriculture to the leading position [5].

Many authors have focused on the development of import substitution in the agricultural sector as a priority direction of strategy, contributing to achievement of food security, as well as improving quality of life in rural areas. The growth of agricultural products consumption and a large domestic market are considered to be positive factors, while the primary problem is technological inferiority and reduction of import of digital equipment which is necessary to improve the quality of production and management processes. Some positive regional experience in development of agricultural cooperatives is presented, where main achievement is the reduction or complete elimination of intermediaries in the producer-consumer chain and control over local market prices.

These are the problems faced in the agricultural sector, which determine its role in the country's socioeconomic development:

1. Ensuring food security;
2. Support and supply of branches;
3. Turnover of agricultural products in domestic and foreign markets as a contribution to the country's GDP;
4. Investment attraction and comprehensive rural development;
5. Employment and improvement in the living standards of rural population;
6. Reduction of outflow migration from rural areas;
7. Improvement of competitiveness of domestic products in global markets;
8. Development of regional markets for agricultural products.

The threat to economic and food security in the Russian Federation as a result of the sanctions' pressure has become an incentive for transition to the policy of import substitution in various sectors, including agriculture. This type of import substitution is known as "sanctioned" or "forced" [6]. A flexible policy substitution should be set regarding to such

import in recognition that not any import substitution is economically beneficial.

II. MATERIALS AND METHODS (MODEL)

The employed research methods include statistical analysis, modeling of socio-economic processes, systemic and situational approaches.

III. RESULTS AND DISCUSSION

Different levels of development and potentials of the regions require a diversified approach to the policy of import substitution. There are two scenarios for import substitution implemented in the Russian Federation: accelerated (for developed regions) and normal (for the less developed regions).

Central, Volga and Southern Federal districts are the leaders of agricultural production. The least significant contribution comes from Far Eastern and North-Western Federal districts. Detailed structure of agricultural supplies from the regions of the Russian Federation is presented in Figure 1.

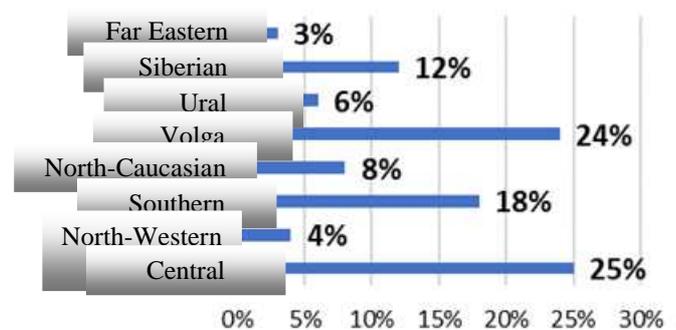


Fig. 1. Contribution of federal districts to the total agricultural output, 2017 [7]

There have been no significant changes in this structure since 2013. The contribution of Central, Southern and Volga Federal districts has slightly increased due to reduction in the share of other regions. In general, no structural changes in the agricultural production of the Russian Federation have been observed over the past 5 years.

The course to import substitution gives regional production enterprises the opportunity to expand the market and occupy previously inaccessible niches by increasing the pace and volumes of production. Each subject of the Russian Federation implements its regional strategy of import substitution, based on its competitive advantages and financial capabilities.

Fig.2 presents the dynamics of agricultural production over the past 5 years from which one can assess how actively the import substitution program is implemented and which model is being implemented per Federal district.

It is worth noting that the hierarchy of regions presented in Fig. 2 does not show prospects or effectiveness of the import substitution program implementation in these subjects. The acceleration of production process development can be

evaluated by analyzing its performance over time. That is, the most developed regions that implement the accelerated model of import substitution are the federal districts with the highest percentage of production growth over the period of the state program. All subjects of the Russian Federation have shown a steady positive growth trend.

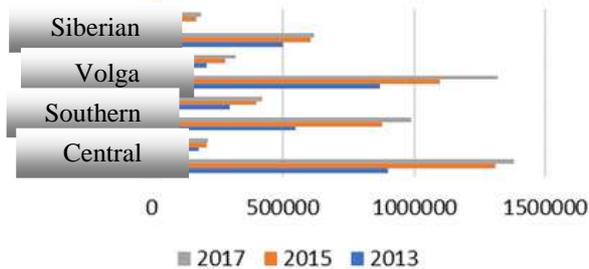


Fig. 2. Total value of agriculture products of federal districts of the Russian Federation, million rubles [8]

The Southern Federal district exhibited the largest percentage increase in years 2013-2017, where net production has increased by more than 75%. The significant results were achieved by the Far Eastern Federal district with 73.9% increase. The success of one of the least favorable regions for agriculture is due to activation of the state program for the development of the lands of the Far East. The agriculture of the Siberian and Ural Federal districts was developed less actively attaining 34% and 43% growth, respectively.

By comparing the above calculations and the data of Fig. 2, one may conclude that the presence of a large production base does not guarantee the possibility of rapid expansion of production within the framework of the implementation of the state policy on import substitution. The key problem of large agrarian regions is physical deterioration and moral obsolescence of materials and equipment which requires significant capital expenditures.

According to rating of the regions for implementation of the import substitution program for July 2018, the leaders are the subjects of the Ural Federal district, Volga Federal district, Southern Federal district. The Central Federal district and the Far Eastern Federal district are also the top 10 list of the most developed regions. This rating is based on the total results of import substitution including agriculture.

In order to compare the import substitution models of the regions with different potential and level of development, one can consider this process in greater detail using the following three regions as an example:

1. The Southern Federal district is a region with developed production, great potential and steady growth rates;
2. The Far Eastern Federal district is a young region in terms of agricultural development having average potential yet demonstrating steady growth;

3. The Siberian Federal district has rather developed production with big potential which demonstrates low growth rate.

The founding documents on the basis of which the policy of import substitution is implemented are: the strategies for socioeconomic development of regions, the concepts of import substitution and the import substitution promotion roadmaps.

Table 1 shows the levels of contribution of the transition to the import substitution policy to the development of regional economies the contribution change of agriculture to GRP since 2013.

TABLE 1 ECONOMIC EFFECT OF IMPLEMENTATION OF IMPORT SUBSTITUTION IN AGRICULTURE

Federal district	GRP increase from 2013 to 2017., %	Agriculture share in GRP, %	
		2013	2017
Central	26%	2,8	3,4
North-Western	41%	2,1	2,3
Southern	37%	9,8	13,6
North-Caucasian	29%	13,4	16,4
Volga	22%	6,2	7,7
Ural	24%	2,1	2,2
Siberian	29%	5,8	6,2
Far-Eastern	33%	3,2	3,4

By evaluating the data presented in Table 1, it can be concluded that the implementation of the import substitution policy had a positive impact on regional economy. In particular, the contribution of agricultural production to the gross regional product has increased, and the unemployment rate among the population has decreased.

IV. CONCLUSION

The analysis of regional models of import substitution has shown that the most effective models are based on effective use of the existing potential and mitigation of factors hindering development. The regions that employ accelerated import substitution models are located in the Northwestern, Southern and Far Eastern Federal districts. In the first case the attained growth was achieved by active application of digital technologies in agriculture; in the second case it was due to combination of favorable natural factors and a target programs approach; in the third case there was large-scale government support and investment.

The efficiency of import substitution models in agriculture can be significantly increased with improvement of coordination at interregional level; with improvement in the quality of municipal governance; with regional participation in joint projects coordinated at the level of federal districts.

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