

Evaluation and Improvement of Zonal Sugar Product Specialization of Regions

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Abstract—The article is devoted to the improvement of zonal sugar specialization of the regions. The authors of the article consider the territorial specialization of regional clusters on the distribution of sugar production in the natural and economic space of Russia; analyze the state and trends of beet development, the level of territorial specialization and the parameters of the placement of production of the territorial production of sugar complex; study the regional specialization of sugar agglomerations on the structure of sugar beet crops; estimate the perspective results of territorial and branch shifts on the basis of proportionally-balanced placement of productions of territorial-industrial sugar complex of Stavropol region.

Keywords—territorial-production beet sugar complex, regional economy, sugar-producing territory, specialization of the regional complex.

I. INTRODUCTION

The processes of regionalization of the economic sugar-producing territory should be aimed at solving the main task, i.e. ensuring the food security of sugar product at the expense of its own beet raw materials [1]. At the present stage, the processes of modernization of the Russian economy are increasingly reaching the regional level of development. The specialization of the regional complex is due to territorial features, especially the ability to produce mass products effectively which have a significant share in the national balance.

II. RELEVANCE. SCIENTIFIC SIGNIFICANCE

Regionalization of the economy in sugar industry reflects overall countries trends. There is a scientific and practical need to have a more complete spatial understanding of the results and measures implemented for the territorial sustainable development of sugar-producing regions of Russia as a spatially organized economic system in general and each sugar-producing agglomeration separately [2]–[4].

The economic nature of territorial-industrial complexes from the standpoint of regional economy is widely represented in the following research: V. Butov, V. Vidyapin, A. Granberg,

G. Gutman, N. Kolosovsky, V. Leksina, A. Lesh, N. Nekrasov, Y. Tyunen, G. Fetisov, J. Schumpeter, R. Prof., B. Stulberg, etc [1], [5]–[8]. However, most of these works are dedicated to the agricultural and economic research of the problems at the macro level. The structural reconstruction of the territorial production of the sugar-producing complex and the effectiveness of its development from the perspective of regional studies continue to be very debatable [9].

III. STATEMENT OF THE PROBLEM

The article outlines the necessity of solving these problems, estimates the effectiveness of the regional development of the territorial production of the sugar-producing complex, the transition of sugar-producing regions to sustainable territorial and reproductive processes and the search for mechanisms to reduce their spatial polarization [10]. The authors of the article try to develop the concepts of the output of the economy of beet-growing areas on the path of innovative growth.

IV. THEORETICAL PART

The specialization of the regional complex is due to the territorial features, primarily the ability to effective production of large-scale products at a low cost and at the same time these products occupy a significant share in the national balance sheet. Its cheapening in areas of specialization is due to the use of favorable natural and economic conditions [9], [11].

Effective specialization should be understood as the predominant development in the region of certain, as a rule, large-scale industries that make the most effective use of local resource potential to meet the needs of the national economy [12]. The effectiveness of regional specialization should be evaluated from the standpoint of the most rational territorial division of labor in the country and the most productive use of the region's resources. Specialization determines the production orientation of the region, its role in the territorial division of labor.

The analysis shows that due to natural and biological conditions, the sugar industry in Russia has been formed historically

and traditionally, and geographically located in areas with the largest and best sources of monopolistically unique beet raw materials for the production of white sugar. Industrial sugar production is closely tied to the raw material base. It is possible to cultivate sugar beet only in a limited number of regions with favorable soil and climatic sources. Therefore, the vast majority of the location of the sugar plants was justified from economical point of view. They satisfied both a rational specialization of agriculture and the interests of concentration of the processing plants mainly to the needs of the beet producing regions.

Market reforms have not had a significant impact on the territorial and sectoral structure of sugar production. But the production of domestic beet sugar in modern conditions is opposed to the more profitable imported raw sugar, on the one hand, and on the other hand sugar beet cannot compete with other crops of the region due to its labor-intensive and not cost-effective cultivation. This was the formation of territorial disparities of the sugar-producing complex in different regions of the country.

To determine the level of specialization of the region, a system of theoretically reasonable indicators, closely interrelated with other indicators of the territorial division of labor should be used [13]. Since the basis of market specialization of the region is the territorial division of public labor, the definition of specialized industries should be based on the identification of the region's participation in the social division of labor. In this regard, the marketing research of the economic potential of the sugar-producing complex in beet-growing regions has become particularly important because of the state of improvement of their territorial specialization and location of sugar plants and beet seeding (seal beet).

To quantify the level of specialization of the territorial production of sugar production complex we applied the known methodological approaches used in the regional economy to determine the branches of specialization of the region [12] with the correction of a number of indicators applicable to the analyzed industry.

The level of regional specialization of the beet-growing base and sugar industry was calculated on the basis of comparison of the industry-left structure of the territorial production of sugar-producing complex of the region with a similar structure of the country as a whole [12]. Calculations are made by the formula:

$$LC = (Or / Hr * 100\%) / (Oc / Hc * 100\%) \quad (1)$$

where Or - beet-raising industry in the region; Hr - sugar-producing industry of the region; Oc - beet-raising industry of the country; Hc - sugar-producing industry in the country.

If the coefficient is greater than one (except for sugar losses), it is assumed that this level of territorial specialization is the highest in the country ranking of indicators [14].

In practice for estimating the quality of placement of sugar beet uses the method of total score proposed in the Soviet period academician Alexandrov N.P. The basis for the calculation of this indicator is the ratio of the yield index to the cost of production of this crop, expressed in points:

$$C = Ip / Ic * 100\% \quad (2)$$

where C - the total score of effective placement; Ip - the index of productivity of a particular product of the enterprise (region); Ic - the cost index of the same product.

The results of the calculation of these indicators show that the specialized subjects can be assigned regions with a share of crops (by beet compaction) of at least 5-7% (Krasnodar region, Tambov region, Kursk region, Voronezh region, Belgorod region), where there are effective indicators, i.e. a good raw material base, a great volume of commodity products, maximum profit, profitability, labor productivity 1.3 - 1.5 times higher than the national average level.

In this regard, on the basis of the market research and the study of the level of development of the territorial specialization of these sugar-producing regions-leaders there were revealed the coefficients of pair linear correlation which showed that the closest relationship is observed between those indicators whose correlation coefficient is greater than 0.50. The nature of dependence on individual indicators is negative due to the specifics of the industry, the conditions of its functioning and the parameters of specialization of economic entities [15].

V. PRACTICAL SIGNIFICANCE, SUGGESTIONS AND RESULTS OF THE IMPLEMENTATIONS

In order to accommodate the regional enterprises of sugar-and-product subcomplex (SPC) effectively [16], it is necessary to refer to the main directions of the effective functioning in the new economic conditions and to use the following principles, adjusted to the solution of the problems of territorial location of sugar producing complex industries in the regional space [14]. These principals are farming on the basis of indicative planning for the balanced development of its industries and regions; division and co-operation of labor that involves the optimization of the rational placement of beet and sugar plants in the regions and beet-growing zones of the industry, ensuring economic efficiency of production which is characterized by the ratio of results to costs in the formation of the raw material base of the sugar producing complex in the regions and the use of regional resources (land area (beet) [17], fixed assets and working capital, labor, labor costs); intensification of production, its high competitiveness and efficiency, as the most effective mechanisms of selection and regulation in the market economy, taking into account the feasibility of using regional resources, taking into account their natural and economic conditions for the development of sugar producing industries [18]; inter-economic, inter-sectoral cooperation and agro-industrial integration and the introduction of industrial production methods in the sugar producing complex when creating vertically integrated beet agricultural holdings and inter-sectoral associations of different regions and intra-regional branches of the sugar producing complex [19].

The study of the whole set of issues of specialization of sugar beet production showed that its state in both the country and in the regional aspects does not meet the modern requirements of the spatial location of the territorial-production beet sugar complex in the market and natural environment. Specialization of beet-sowing farms in the market is in conflict with natural factors [6]. Therefore, rational use of the resource po-

tential and cost-effective production, natural and socio-economic conditionality of the location of the sugar producing industries are not ensured [20]. Rational placement of enterprises of different specialization with the market and natural environment together is, in fact, one of the important requirements of effective organization of science-intensive sugar beet production.

The conceptual provisions and recommendations proposed by the authors can be used by regional authorities in the process of development of program-target measures for innovative development of sugar production complexes and their placement in sugar beet agglomerations in Russia.

VI. CONCLUSION

The processes of the economy regionalization of the sugar-producing territory should be aimed at solving the main task, i.e. ensuring food security for the sugar product at the expense of its own beet raw materials resources.

Regional sugar-producing complex can be described as clusters of an integrated system of interacting agents in a single reproductive cycle “sugar beet production – beet raw processing – distribution of ready sugar products – consumption” with its usual monospecialty in interregional labor division [21].

The effectiveness of the development of territorial-production sugar-producing complex in the regions of the Russian Federation can be achieved by solving five main problems: reducing their spatial polarization of development; regional pairing of business interests; strengthen the integration; the deepening of the territory specialization of sugar-producing agglomerations; balanced formation and distribution of raw material zones of territorial-production sugar-producing complex.

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