Development of the Agri-Food Market of the Krasnodar Territory in the Context of Food Security in the Region

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Abstract: The purpose of this study is to develop a holistic concept for the formation and sustainable development of the regional agri-food market of the Krasnodar krai, mechanisms for the management and improving its efficiency to reduce the asymmetry of its functioning and increase the level of food security in the region. Within the framework of the study, the essential characteristics of the agri-food market that have a "vector of market orientation" and the features of its formation were clarified; the level and intensity of the development of the regional agri-food market were analyzed in dynamics; the balance of the agri-food market of the Krasnodar krai was assessed. The results obtained can be used by regional authorities, the Ministry of Agriculture, and the Ministry of Economic Development in the development of complex projects and targeted programs for the development of the agro-industrial complex; in updating the regulatory framework of regional agricultural policy; in justifying management decisions in the field of regulating the growth of a certain branch of the economy of the constituent entity of the Russian Federation and improving its food security, as well as in the business activities of business entities.

1 INTRODUCTION

The sustainable functioning and development of the agri-food complex of the Russian Federation as one of the priority national economic complexes of the country is the determining vector of socio-economic development, determining the vital activity of society.

The agri-food market (AFM) is an important segment of any national economy, the globalization of which affects economic systems, thereby determining their further development. The European integration vector in the development of Russia changes the structure of the market, its role, and functions (Vlasov, 2018). The process of development of the agri-food market in modern conditions is complex and multifaceted, and phenomena and processes associated with it acquire new features that correspond to the needs of the entities of the modern environment.

These trends are becoming more pronounced and often repeated in the context of a globalized economy. The processes of change in market systems are dynamic, irreversible, and multilateral in the global environment, which significantly affects all related systems that are also the elements of state regulation (Gaiduk, 2018). The main aspects in the development of economic systems are industry-specific features.

The already achieved level of development of the agri-food market currently lags behind the indicators of most European countries. At the same time, the Krasnodar krai has significant potential, enabling to occupy a leading position in the agri-food market on a global scale.

The development of the agri-food market attracts the attention of many scientists. Thus, the general scientific study of the essence for the category "development" is considered in the papers of O. Khubar, V. Virchenko, A. Kuzmenko, Yu. Prikhozhi na, A. Toynbi, O. Spengler, et al.

The sectoral aspects of the national agri-food markets are traced in the papers of O. Berezin, N. Datsenko, E. Kirilyuk, et al.

The main aspects of the nature and structure of the agri-food market are considered in the research by Samoylik.

It is also important to pay attention to the scientific contribution of foreign authors (T. Burns, DeVille, I. Skavronska, Ya. Mazurek, I. Meltsova, M. Sholtes, Mamedov, et al., Dedina and Sánova, Vilmantas, and Melnikas, et al.), studying the development of agricultural markets in other countries.

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All of the above determines the emergence of modern determinants and mechanisms for the development of the regional agri-food market, which require additional research.

2 MATERIALS AND METHODS

Abstract-logical and formalized methods were used to study the essence, formulate the characteristics and identify the most significant factors of the "agri-food market" category, and establish the patterns of its development.

Generalization and description of facts and events, projection of patterns of functioning of the agri-food market of the region, methods of analogy, and general scientific methods of theoretical and empirical knowledge were used.

Comparison of indicators and trends, identification of similarities and differences, as well as identification of the most significant aspects and factors of the formation and development of the AFM were carried out by methods of comparative and causal analysis.

The use of a systematic approach in the study complements the traditional analysis with methods that enable to study socio-economic processes in their totality and interaction, considering the regional agri-food market as an integral object consisting of interrelated and interdependent elements (entities, infrastructure, market conditions, etc.).

The author's personal observations and developments, data from the Federal State Statistics Service and Krasnodarstat, and official Internet websites served as information and empirical basis for testing the proposed hypothesis.

3 RESULTS AND DISCUSSION

The agri-food market (AFM) integrates the agricultural and food markets, where the sale of agricultural raw materials, products of processing industries, agricultural and processing industries, public catering and wholesale and retail trade is carried out.

The problems of studying various aspects of the development of the agri-food market are covered by many researchers and scientists (Paramonov, 2016; Ushachev, 2015; Zeldner, 2018; Kuchumov, 2018; Mikhalko, 2017), but there is no unified interpretation of the concept under consideration today.

The critical analysis and systematization of existing points of view, variety of approaches, and numerous modifications of the definition of "agri-food market" allowed us to understand the agri-food market based on the use of commodity-money relations, as a set of relations of economic entities of industry markets involved in the process of production, distribution, exchange, and consumption of food products and their promotion from producers to consumers (auth.).

The agri-food market (Cole, 2018; Alston, 2000) integrates three independent but interrelated markets, each of which has its own characteristics (Figure 1).

Thus, the agri-food market is a multisectoral complex ecosystem that includes the sphere of circulation of agri-food products and ensures the relationship between the production and consumption of agri-food products, continuity, and integrity of the reproduction process. The foundation of the AFM is commodity-money relations that develop in the processes of production, distribution, exchange, and consumption of agri-food products, the structural and functional organization of which is based on a set of organizational, financial, economic, and social institutional forms (Buks, 2016; Pérez-Escamill, 2017).

Within the framework of the study, the authors consider the AFM as a system that covers a wide range of economic relations that are manifested in the process of interaction between agricultural producers, processing enterprises, intermediaries, and other market participants regarding the movement of agri-food resources, as well as end users (Figure 2).

The functioning of the agri-food market is impossible without state participation since it coordinates the interaction of all market participants through state support for agricultural producers and various regulatory and legislative mechanisms (Charles, 2014; Campbell). that allow regulating market relations and smoothing their negative aspects.

The concluded transactions between the entities of the AFM in terms of the supply and sale of manufactured products to meet the needs of the population in accordance with the effective demand and obtaining a socio-economic effect represent the result of the functioning of the agri-food market (Pingali, 2005). The foundation of management, the basic component of the sustainability and efficiency of agro-industrial production are the relations that arise between the entities of the agri-food market, which determine the structure, forms of product sales, production costs, strategic directions of development, etc.

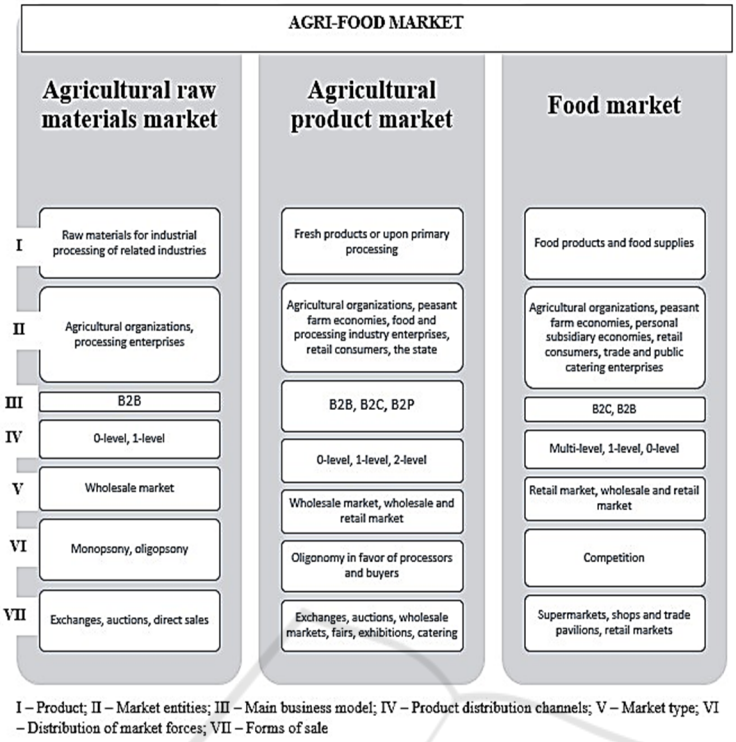


Figure 1: Agri-food market structure.

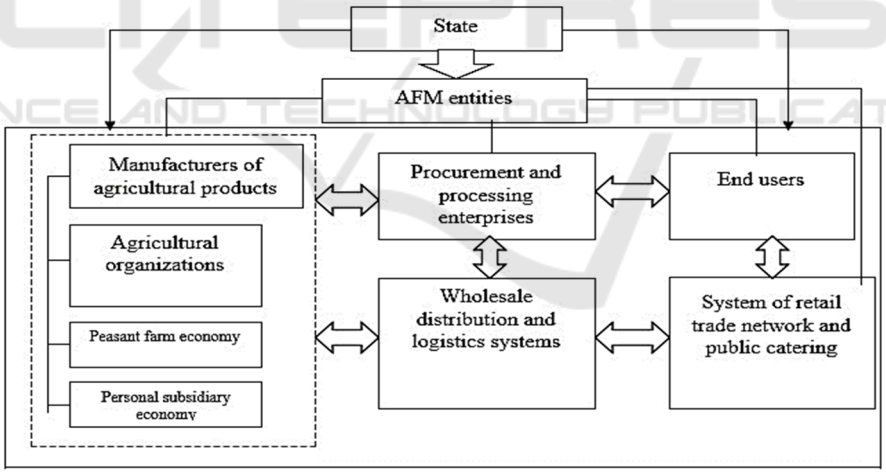


Figure 2: Agri-food market entities.

Economic crises negatively affect the income of the population and, as a result, the consumption of food. The social state, like the Russian Federation, guided by the Constitution is obliged to ensure the well-being of the population, its security, and improvement of the standard of living. The standard of living largely depends on the ability to meet primary needs, including food (Kolomyts, 2019).

In the context of the pandemic, when due to the suspension of the activities of a large number of enterprises, a significant part of the population's income has decreased; the state has taken a whole range of measures aimed at maintaining the declining incomes of the population.

The parity of the production-consumption ratio of food products should be observed, since if production volumes of some products are higher than the demand

volumes, then it is necessary to export them, and vice versa, if the population's demand for any products is not satisfied, then it is necessary to organize its import (Keyzer, 2007; Velinov, 2016).

The assessment of the factors of the regional food market conjuncture involves the analysis of dynamics of the import and export of food products (Figure 3).

The results obtained show that there is a fluctuation in import volumes over certain years in the study period. So, in 2019, compared to 2015, there was a reduction in the import of sugar by 83.4%, cheese by 48.1%. There is an increase in imports for other types of food.

The main suppliers of food products to the Krasnodar krai are the Belgorod, Pskov, Vladimir, Moscow, Chelyabinsk, and Orenburg regions. The total volume of imported products from these regions is more than 80% of the total import of food products.

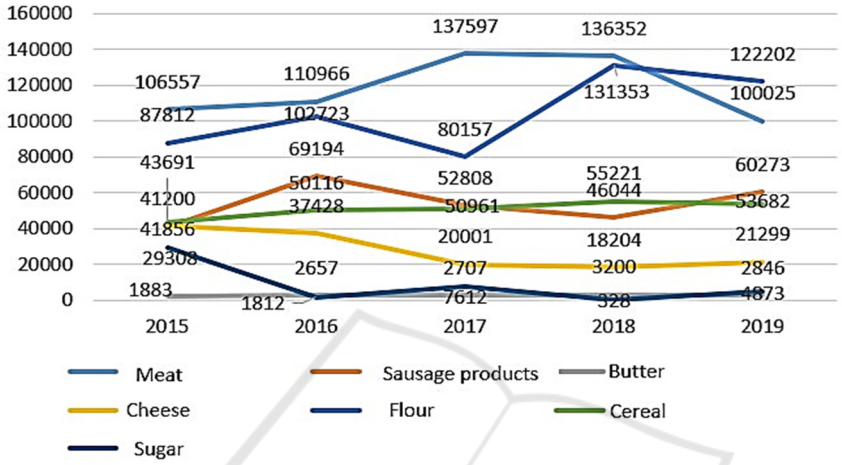


Figure 3: Import of main types of food products, t (GKS).

Table 1: Export of main types of food products, t (GKS).

Indicators	2015	2016	2017	2018	2019
Meat	5,271	8,405	5,772	6,874	6,542
Sausage products	14,188	11,234	11,623	11,312	11,235
Butter	1,190	1,222	820	1,104	1,398
Cheese	434	4,039	4,387	1,906	2,176

Table 2: Balance of import and export of basic food products (GKS).

Indicators	2015	2016	2017	2018	2019
Meat	101,286	102,561	131,825	129,478	93,483
Sausage products	27,012	57,960	41,185	34,732	49,038
Butter	693	1,435	1,887	2,096	1,448
Cheese	41,422	33,389	15,614	16,298	19,123
Flour	-21,678	57,428	23,221	93,308	87,750
Cereal	-26,061	-81,524	11,349	-109,047	-69,993
Sugar	-618,320	-751,278	-802,204	-621,619	-874,020

The increase in the export of food products in the study period in physical terms was: for cheeses – five times; for tea – nine times; for meat semi-finished products – nine times; for cereals – almost twice; for milk (except raw) – one and a half times; for confectionery products – thirty-seven percent.

The export volumes of some food products decreased: flour – by 3.2 times, canned meat – by 39.1%, sausage products – by 20.8%.

Enterprises of the Krasnodar krai produce a fairly large volume of meat products, which affects the decline in the production of producers from other regions in the domestic market. Thus, the volume of imported meat for the period from 2015 to 2019 decreased by 6.1% due to the redistribution of commodity flows. It should be noted that now most of the products produced are sold on the territory of the Krasnodar krai.

The Krasnodar krai supplies more than 80% of food products to Moscow and the Moscow region, as well as to St. Petersburg and the Rostov region.

The negative balance of import-export of the studied groups of food products indicates that the volume of export of cereals and sugar exceeds the volume of import. Thus, the export of cereals in 2019 exceeded the import by 2.3 times, sugar by more than 180 times.

To determine the level of balance of the regional food market, it is necessary to assess the production and consumption of basic food products using integral estimates of the volume of production and consumption of food products by the population of the Krasnodar krai.

For this purpose, we used the method of N.V. Shalanova:

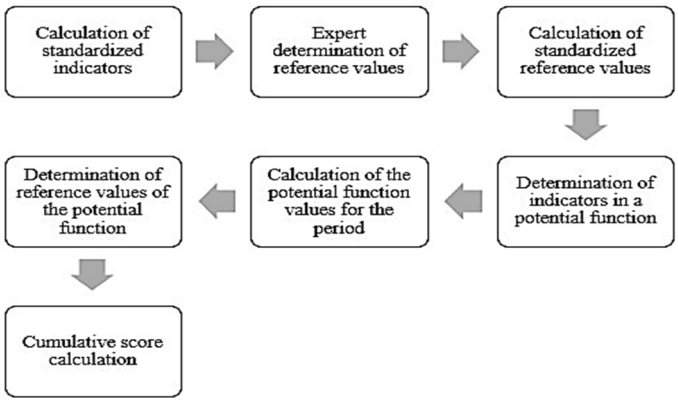
$$C(t_i) = \frac{\sum_{j=1}^{n} \alpha_j \frac{x_{ij}}{\sigma_j}}{\sum_{j=1}^{n} \alpha_j \frac{x_j^*}{\sigma_j}} 100,$$

where x_{ij} is the value of the j-th indicator in the year t_i of the analyzed period;

σ is the standard deviation of the j-th exponent;

α_j is the weight of indicators;

The algorithm for calculating the integral estimate is shown in Figure 4.



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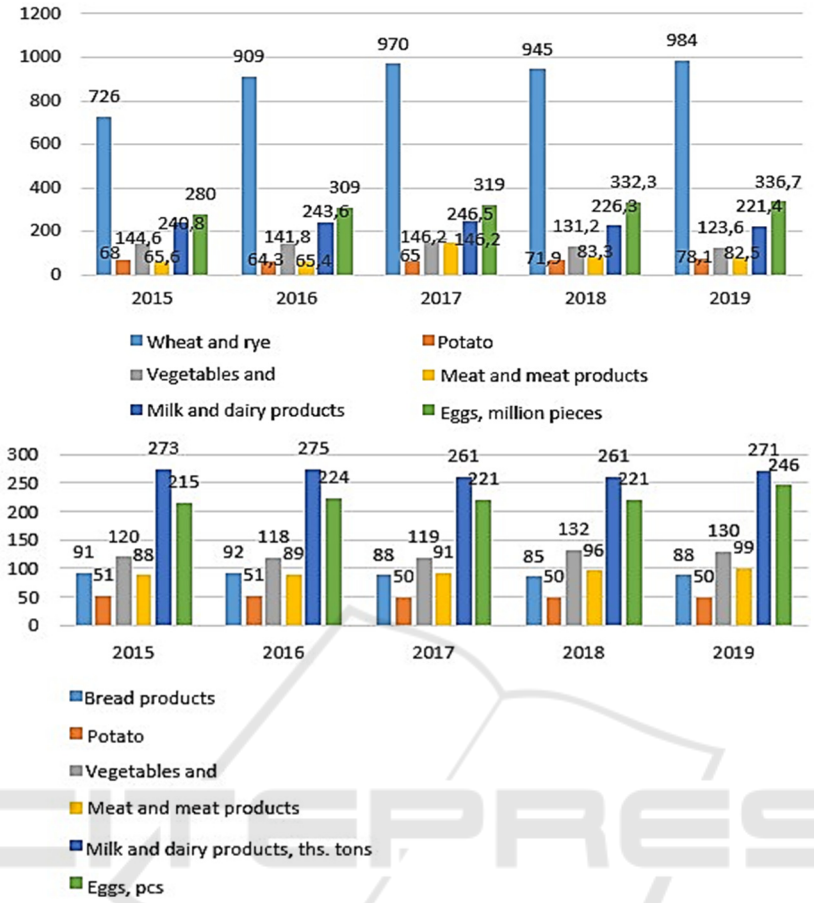

Figure 5: Average per capita consumption of basic food products, kg. (Krasnodarstat, 2019).

To assess the balance of the regional food market of the Krasnodar krai, the recommended norms of food consumption were used (Table 3).

The results of the calculation of the integrated assessment of the potential of the agri-food market are summarized in Table 4.

Table 3: Recommended norms of consumption of basic food products, on average per capita in Russia (GKS).

Indicators	Per year, kg	Per day, g
Meat and meat products	73	200
Milk and dairy products translated into milk	325	890
Eggs, pcs.	260	0.7
Bread and bread products translated into flour	96	263
Potato	90	247
Vegetables and melons	140	384

Table 4: Integrated assessment of production and consumption of basic food products for 2015-2019.

Integral estimation	2015	2016	2017	2018	2019
Production	15.7	15.8	15.3	15.8	15.7
Consumption	12.5	12.9	12.0	12.3	12.1
Balance sheet	3.2	2.8	3.3	3.5	3.6

During the study period, the production of the main types of food exceeded consumption. Almost all product groups are produced in the region in sufficient quantities. Today, the Krasnodar krai meets the needs of the population in basic food products at the expense of its own capacities. Export is carried out if the production exceeds the demand.

Indicators of meat products and milk and dairy products are slowing down and lagging behind the recommended standards. Accordingly, their insufficient production should be compensated by the import of these products.

4 CONCLUSIONS

The results of the study indicate that most of the indicators are within their acceptable values, which characterizes the state of regional food security as fairly stable, within the normal range. The threat is a decrease in the potential of the agro-industrial complex, social tension, which is manifested in a significant income gap, low real incomes, and high food prices, which reduces the availability of food and increases social discontent.

The priority direction and basic task from the point of view of providing the population with food should be the improvement of regional agri-food policy, and its solution should be accompanied by import substitution of food, state support for agricultural enterprises, integration processes in agriculture, revision and adjustment of the current doctrine of ensuring food security

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