Conceptual approaches to research modern agricultural food systems

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Abstract. The transition of the country and regions towards sustainable economic growth cannot be carried out without solving the problems of food independence, which is the main condition for Russia's economic security. This makes it important to study the problems of forming a balanced national food market, increasing the efficiency of modern agri-food policy. Taking into account the differentiation of climatic and socio-economic conditions for the development of regions, additional studies of the features of regional agri-food systems are needed. This requires the development of a scientifically based approach to the classification of types of constituent entities of the Russian Federation. For the purpose of typologizing regions, it is proposed to use the integral method. The results of such calculations can be used to substantiate the use of target-oriented and indicative planning methods in terms of defining goals and priorities in combination with substantiating the system of economic regulators. The results of the study can be taken into account by public authorities when conducting a comparative analysis of the economic development of regions, the development of federal target programs, and the formation of a strategy for the development of regions.

1 Introduction

The modern agri-food system is open, actively interacting with the environment. Its components are connected by rather complex connections, which leads to the need for labor cooperation.

The division of labor and intersectoral production cooperation determine the relationship of agricultural production with the with other areas of the economy. Agrarian production is carried out at the expense of the received means of production. In turn, agricultural producers are suppliers of raw materials for processing enterprises, together with them participate in the formation and development of food markets, as well as in bringing food products to the consumer.

The issues of cooperation and agro-industrial integration were reflected in the works of K. Marx and F. Engels, who noted both the separation of agriculture and industry and the subsequent creation of material prerequisites for their union [1]. The need to develop

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cooperative ties uniting the production, processing and sale of agricultural products was disclosed in the works of A.V. Chayanov [2].

In the economic literature, the concept of "agro-industrial complex" is often used, together with which such a concept as "agri-food complex" is used. The agri-food complex is the most important branch of the country, which is designed to meet the needs of the population in food, preserve it, maintain life and reproduce. For this purpose, such natural resources are used as: mineral resource base, soil fertility, and agricultural landscape. In addition, a large part of the employed rural population is in this area, which determines the social significance of the agri-food complex.

The common between agro-industrial and agri-food complexes can be traced in their functional structure. In their composition, both contain agricultural production; processing industries for the production of final food products; logistics systems engaged in storage, transportation, sales of products; production infrastructure facilities; systems of personnel training, information and scientific support. At the same time, there are differences between them. Thus, the branches of processing agricultural raw materials for non-food purposes, which are part of the agro-industrial complex, are not included in the agri-food complex.

Despite the long historical evolution of these concepts, in the definition of the agro-industrial complex (AIC), and in assessing the degree of development of its elements, a variety of approaches are observed. A number of scientists have considered the agro-industrial complex as an economic category, reflecting the totality of economic relations associated with the production of agricultural products, their procurement, storage, processing and sale. These relations were united by one goal: to meet the needs of the population for high-quality food products and products from agricultural raw materials according to scientifically grounded consumption rates and to achieve the highest socio-economic efficiency [3].

The agro-industrial complex in Russia is presented as a set of sectors of the national economy focused on the production of food and non-food consumer goods made from agricultural raw materials. The industries were united into several groups depending on the production functions they performed. The first group included agricultural production and industries specializing in the manufacture of final products. The second group included industrial sectors producing means of production. The third group was made up of industries specializing in production services and ensuring the delivery of the final products of the agro-industrial complex to the consumer [4].

The most general criteria for the formation and functioning of the agro-industrial complex can be attributed to the creation of its optimal structure that meets the requirements of proportionality, ensuring the achievement of the best final results [5].

In modern conditions, it is advisable to apply a content-semantic approach to the study of the agro-industrial complex, highlighting the following components: a target approach indicating the ultimate goal of the formation and functioning of the agro-industrial complex; a subject approach, showing which commodities produced in the agro-industrial complex are emphasized; structural approach defining the structure of the complex [6].

Thus, the study of these economic categories continues to remain relevant, including within the framework of the regional aspect. The purpose of the study is to study the current state and main directions of development of the agri-food system, substantiate a strategy for sustainable socio-economic development of the territory. The research methodology is based on the principles of a systematic approach and the application of a set of research methods and their techniques (such as economic and statistical, economic and mathematical, graphic, etc.), within which the interrelationships and interactions of economic, social, technological, environmental and other development factors are revealed. agri-food system of the country.

In modern conditions, it is necessary not only and not so much a quantitative increase in

production, but also qualitative changes in the agri-food system based on an increase in the efficiency of the use of available information and advanced innovative development. For the successful adaptation of the agri-food system to the conditions of world food markets, it is necessary to mobilize effective experience in conducting agribusiness, which involves the use of techniques developed in the framework of traditional, agro-ecological, organic and high-tech food production, the use of resource-saving technologies. Consideration of these issues requires coordinated interaction of representatives of agribusiness, the public sector, civil society, which, given the difference in their interests, is a very difficult task.

The development of the territorial-spatial organization of the agri-food system has always attracted the interest of researchers. Recently, however, in connection with the emergence of a new economic category "spatial economy" the relevance of these studies has grown. This introduces significant changes in the theoretical and methodological foundations of the effective spatial organization of the agri-food system of Russia. Thus, modern studies highlight new trends in its development: spatial economic contraction and spatial economic disunity.

2 Results

The study of the essence, tasks and structure of the agro-industrial complex and the agri-food complex allows us to interpret the regional agri-food system as a complex subsystem of the economy. It is a set of objects and processes interconnected and interacting with each other in order to ensure the food security of the region [7-8].

Table 1. Features of the functioning of the agri-food system.

Feature	Content
Functional and industry	The interaction of various spheres: <ul style="list-style-type: none">— agriculture;— processing of agricultural raw materials and sale of final products;— storage systems, transportation, product sales, industrial infrastructure, scientific support systems
Territorial and production	Geographical position, the presence of bioclimatic potential and natural resources, the specifics of the social division of labor, demographic changes and other factors affecting the location of agriculture and its specialization
Technological	Depends on the totality of technological methods of production, technologically integrated production of final agricultural products, through the ratio of technological paradigms affects the technological structure of the agri-food system
Socio-demographic	Social stratification of the region's population, qualification and sex and age structure of labor resources
Food and raw materials	The specialization of production consists of a set of sub-complexes: grain, potato, fruit and vegetable, sugar beet, wine, meat, dairy, egg and others
Organizational and managerial	The set of organizational forms and management bodies of the objects of the regional agri-food system
Environmental	Use of natural potential, intensity of impact on nature, ways to prevent harmful factors of impact on the environment
Criminal and law	The presence of legal, shadow and criminal structures, as well as their ratio

We have systematized various features of the agri-food system, taking into account the possible impacts on its activities.

The sustainable functioning of agro-industrial production depends on the development of the agri-food system, which has an important strategic and social importance and ensures food security, and, ultimately, the economic and national independence of the state [9-10].The socio-economic purpose of the agri-food system is to provide the population with affordable and high-quality food in the required volume.

Among the main functions of the regional agri-food system, one can single out: socio-economic, information-analytical, scientific-technological and environmental functions (figure 1).

The presented scheme testifies to the multifunctionality of the agri-food system and determines its specific place in the structure of the national economy. Based on the foregoing, we distinguish the agri-food system as an independent object of research and consider it appropriate to define the essence of the regional agri-food system as a set of industries directly related to the production of food products, including the production of raw materials, their processing, storage, sale and consumption.

Fig. 1. Functions of the regional agri-food system.

Sustainable development of the region's agri-food system is possible if the following principles are observed [11]:

- innovativeness - the susceptibility of the agri-food system to the introduction of innovative technologies;
- proportionality - maintaining the balance and proportionality of the development of all elements of the agri-food system;

- integration - the involvement of the regional agri-food system in the national economy, the development of agri-food markets;
- competitiveness - the ability to achieve food security at the regional and national levels.

Modern spatial and production components of the regional agri-food system are distinguished by technological and economic diversity, uneven development, as well as the pace and trajectory of development [12]. Social and infrastructural problems are the main constraints to sustainable development of rural areas. The rural territory of the Russian Federation is heterogeneous both in natural and climatic conditions and in the socio-economic state of its elements (table 2).

With an average population density in Russia of 8.6 people per 1 km², the Central Federal District can be distinguished as the most densely populated (7 times higher), and the lowest population density is noted in the Far Eastern Federal District (8.6 times less). The population density in the Ural Federal District is 6.8 people/km², while in the Kurgan region - 11.8 people/km².

Table 2. The main socio-economic indicators of the development of regions of the Russian Federation.

Regions	Total regional area per person, km ²	Population per 1 km ² of territory, people	The ratio of per capita income and consumer spending per month	GRP per capita, thousand rubles	Fixed capital investments per capita, thousand rubles
<i>Russian Federation</i>	<i>0.1166</i>	<i>8.6</i>	<i>1.320</i>	<i>471.5</i>	<i>108.7</i>
Central Federal District	0.0165	60.5	1.327	613.9	106.2
Northwestern Federal District	0.1209	8.3	1.340	559.3	134.2
Southern Federal District	0.0272	36.7	1.216	297.8	85.0
North Caucasian Federal District	0.0173	57.6	1.281	183.0	51.3
Volga Federal District	0.0351	28.5	1.296	351.2	81.7
<i>Ural federal district</i>	<i>0.1472</i>	<i>6.8</i>	<i>1.366</i>	<i>757.1</i>	<i>232.3</i>
<i>Kurgan region</i>	<i>0.0846</i>	<i>11.8</i>	<i>1.469</i>	<i>229.3</i>	<i>26.5</i>
Sverdlovsk region	0.0449	22.3	1.204	457.3	78.1
Tyumen region	0.3965	2.5	1.511	1603.9	697.0
Chelyabinsk region	0.0253	39.5	1.442	360.9	55.8
Siberian Federal District	0.2668	3.7	1.378	369.9	78.9
Far Eastern Federal District	1.0006	1.0	1.397	609.3	197.5

Source: authors' calculations based on data from: Regions of Russia. Socio-economic indicators. 2018: Statistical collection / Rosstat. M., 2018. 1162 p.

The regions of the Russian Federation are significantly differentiated by the level of the gross regional product (GRP) per capita. It should be noted that the Kurgan region is

significantly inferior in this indicator not only to regions with a high GRP (more than 3 times), but also the average Russian indicators (2 times).

The level of regional development can also be associated with the activity of investment processes. The Kurgan region in terms of investment activity can also be attributed to the outsider regions. The volume of investments in fixed assets per capita is 26.5 thousand rubles, which is 8.8 times lower than the same indicator for the Ural Federal District as a whole and 4 times lower than the national average.

Socio-economic problems of regional development should be resolved taking into account the characteristics of various constituent entities of the Russian Federation. However, despite the significant differentiation of territories, one can find much in common in the content of intraregional problems. Almost all subjects, to one degree or another, are characterized by spatial inequalities and asymmetries, understood as "differences in the levels of economic development of territories, population employment, their incomes and quality of life, industrial and social infrastructure, etc." [13].

The assessment of the spatial distribution of the rural population also revealed a significant differentiation across the regions of the Russian Federation. On average, in Russia, the indicator of the density of the rural population is 2.2 people/km², the same indicator in the Krasnodar Territory is 33.5 people/km², which is 15 times higher than the average level. Accordingly, the production and economic development of rural areas also differs: from 0.7 to 20 rural settlements per 1000 km².

Regional development is characterized by an increasing spatial polarization in the distribution of rural populations [14]. On the one hand, there is a tendency of population growth in large rural settlements. On the other hand, there is an increase in small rural settlements with a population of less than 10 people and their subsequent migration to larger settlements. This tendency of spatial settlement contraction is dangerous, since it is associated with a decrease in investment attractiveness, destruction of engineering infrastructures, and an increase in socio-economic problems. The reduction of rural small settlements leads to the destruction of the development vector in the spatial structure of the regional agri-food system. All this contradicts its optimal and sustainable development.

Fig. 2. Gross regional product per capita, rubles.

The social and reproductive structure of rural settlements can be represented as a series of "socio-economic funnels" that "suck in" all the available potential of the region, including the demographic one. As a result, the gap in production of gross regional product per capita is growing. If in 1998 the Kurgan region lagged behind the average Russian indicators by 42.5% in terms of GRP, now the gap has already increased 2.1 times. And in

comparison with the Ural Federal District, the difference is even greater, in 1998 – 2.8 times, in 2016 – 3.4 times (fig. 2).

Territorial and climatic conditions determined differences in the level of development of regional agri-food systems. First of all, it is necessary to highlight the significant differentiation of regions in terms of the availability of agricultural land (table 3).

Table 3. The main socio-economic indicators of the development of regional agri-food systems.

Regions	Share of rural population, %	Agricultural land area, % of the total area	Agricultural land area per capita of rural population, hectares	Share of agricultural products in GRP, %	Share in agricultural products, %	
					crop production	animal husbandry
<i>Russian Federation</i>	25.60	13.00	5.90	5.20	50.98	49.02
Central Federal District	17.80	51.20	4.76	2.90	48.45	51.55
Northwestern Federal District	15.60	4.00	3.14	3.80	29.76	70.24
Southern Federal District	37.40	75.30	5.49	13.10	67.70	32.30
North Caucasian Federal District	50.20	71.00	2.45	18.90	56.39	43.61
Volga Federal District	28.10	53.10	6.63	8.30	48.34	51.66
<i>Ural federal district</i>	18.60	9.00	7.12	2.40	42.05	57.95
<i>Kurgan region</i>	38.20	62.40	13.79	14.70	60.95	39.05
Sverdlovsk region	15.20	13.30	3.92	4.60	36.34	63.66
Tyumen region	19.30	2.90	5.94	0.80	44.96	55.04
Chelyabinsk region	17.30	57.60	8.43	7.60	38.01	61.99
Siberian Federal District	26.90	11.00	10.92	7.30	43.07	56.93
Far Eastern Federal District	24.20	1.30	5.37	5.70	59.62	40.38

Source: authors' calculations based on data from: Regions of Russia. Socio-economic indicators. 2018: Statistical collection / Rosstat. M., 2018. 1162 p.

On average, the area of agricultural land in Russia is 13% of the total area of the territory, in the Ural Federal District – 9%, and in the Kurgan region – 62.4%, which makes it possible to classify the Kurgan region as an agricultural region of Russia.

The share of the rural population varies significantly across regions. On average in the Russian Federation, this figure is 25.7%, in the Kurgan region – more (38.2%). The Kurgan region is characterized by a high proportion of agricultural products in the gross regional product compared to the data for the Ural Federal District, reaching 14.7% and 2.5 times higher than the average value for Russia. This also testifies to the agrarian orientation of the region. At the same time, crop production clearly predominates in the agricultural production of the Zauralya: its share is 61% against 39% of the share of livestock. It should be noted that in other regions of the Ural Federal District, animal husbandry makes a more significant contribution to the formation of agricultural products (55-64%). There is every reason to believe that the development of this industry in the Kurgan region can be attributed to the priorities of regional economic development.

Taking into account the cross-sectoral peculiarity of the agri-food system, in our opinion, the following principles of its sustainable development can be proposed:

consistency, proportionality, balance of all its constituent sectors and industries, not only at the regional but also at the national levels. This will make it possible to rationally use the available natural resources, adapt to changing socio-economic conditions, and increase the efficiency of the territorial division of labor.

The regional agri-food system has the property of dynamism, which is reflected in the change in the sectoral structure, the creation of new industries, and the complication of production ties. These processes are also subject to inter-industry links involved in the production and processing of agricultural products. Separate links and groups of industries distinguished on a functional basis are characterized by stable relationships, among which the most pronounced are vertical ties in the production and processing of basic types of agricultural products [15]. A significant role is played by the relationship between the main and related industries. At the level of agricultural production, such interrelationships include: in animal husbandry – selection and pedigree work, raising young animals, production of feed, etc.; in plant growing – seed production, elevator storage, etc. It is possible to note the relationship between crop production and animal husbandry, for example, at the stage of forage production.

As regional problems in the development of agri-food systems, one can note the underdevelopment and limitedness of individual technological chains, the truncated spectrum of auxiliary and service industries. We believe that the solution of these problems can contribute to the development of interregional exchange of production means, equipment, fertilizers, etc.

The study of the sectoral and functional structure of the agri-food system makes it possible to judge only some aspects of its development. To fill this gap and to reveal the territorial features of the agri-food system allows the analysis of its territorial structure, which is the spatial differentiation of natural, labor, financial, material and other resources and determines the objective need for the territorial division of labor and its integration in certain areas.

Significant differentiation of rural areas and, accordingly, of the subjects of the agrarian sector leads to different indicators and trajectories of economic development of regional agri-food systems. As a result, it becomes necessary to typify regions in order to further develop development models for each type of regions. We propose the following stages of the typification of regions:

- the selection of economic development poles in the agri-food system, which provide for the presence of both growth points and potential "black holes", i.e. sources of disintegration, imbalances and imbalances;
- awareness that the concept of "economic development poles" does not refer to the entire territory, but only to the one where the most profitable enterprises or industries operate;
- adaptation of the regional agri-food system to the risks associated with differences in natural, socio-economic, technical and technological conditions;
- formation of a mechanism for the development of rural areas, taking into account a certain criterion of optimality - the level of human territorial capital.

The formation of a sustainable and effective development of the agri-food system is of particular importance in modern conditions. Several types of models of behavior of the regional agri-food system can be distinguished, depending both on regional specialization and on the level of socio-economic development of the agrarian sector (table 4).

Table 4. The behavior of the agri-food system of the region depending on the type of regional development.

Regional development type	Features of the behavior of the agri-food system region
Agrarian region	Restraining a decline in consumption and an increase in food prices through the development of interregional economic ties
Industrial region	Active development of market infrastructure, integration into the national food market
Regions with developed extractive industries with insufficient development of agricultural production	Active cooperation and strengthening of ties with industrial and agricultural regions in order to compensate for the shortcomings of regional development

Source: compiled by the authors

Among the management tools in the field of state regulation of regional development, a significant role belongs to the methods of economic regulation of the agri-food system:

- 1) creation of special reserve funds for regional development of the agri-food system;
- 2) attracting investments for its development, building up investment and innovation policy in the region;
- 3) subventions and compensation of expenses of enterprises of the agro-food system, which are in rather difficult conditions.

Sustainable and effective development of the regional agri-food system presupposes the achievement of a balance in the development of the food supply system, which can be achieved under the following conditions:

- 1) the optimal ratio of production resources and their efficient use, i.e. taking into account not only the objective factor of their limitations, but also maximizing the production and economic capabilities of economic entities;
- 2) development of interregional and foreign economic relations of regions in accordance with the nature of economic relations and the scale of regional and social tasks;
- 3) the correspondence of food opportunities and the needs of the population for food, taking into account the regulatory criteria for levels of consumption, quality and affordability of food, as well as the uninterrupted supply of food to the places of their consumption;

The typification of the regions of the Russian Federation, depending on the level of agricultural development, has been repeatedly considered by domestic scientists [16]. However, the agro-food system (AFS), in addition to its basis - agriculture, includes other subsystems associated with the processing and storage of agricultural products, bringing it to the consumer. The proposed approach to the typification of regional AFS includes an assessment of not only the basic conditions for the development of agriculture in the region, but also the level of balance of food resources, as well as the physical and economic availability of food for all groups of the population. This typology of regional AFS creates a scientific basis for solving the problems of targeted state support, therefore it remains relevant and practically in demand.

The existing significant differentiation in the level of development of regional agri-food systems made it necessary to substantiate the methodology for identifying priorities in the system of strategic management of the agri-food system, substantiated methods of their optimization, taking into account modern requirements.

When classifying regional agri-food systems, it is advisable to consider the following criteria as criteria:

- the need of the population of the region for food products;
- availability of resource potential of regional agri-food systems, determination of resource requirements and substantiation of the scale and level of intensity of regional production;
- balance between links, industries, types of production and all subsystems of the agri-food system;
- activation of innovation and investment processes in order to solve problems of a resource-saving and motivational nature;
- stimulating commodity supply and demand, increasing the physiological and economic availability of food.

Since the number of classified objects is large enough, the typification of regional AFS, taking into account the totality of the selected features, presupposes a preliminary calculation of the integral assessment. According to the authors, the following can be distinguished as the main stages of the methodology for assessing the type of regional agri-food system:

- 1) assessment of the basic conditions for the development and use of the potential of regional agri-food systems based on the analysis of general indicators;
- 2) analysis of the production of the main types of agricultural products;
- 3) study of the level and structure of consumption of basic types of food;
- 4) calculation of indicators of self-sufficiency of the population of the regions with basic types of food;
- 5) determination of the integral indicator of the AFS development in the region;
- 6) typology of regions of the Russian Federation according to the level of the integral indicator of the development of the AFS;
- 7) development of a strategy for the development of regional agri-food systems for the formation of a full-fledged domestic food market with the aim of import substitution and increasing the export potential of Russia.

The qualitative characteristics and quantitative characteristics of the selected types of agri-food systems, as well as the results of typologization of the subjects of the Russian Federation according to the level of development of the regional agri-food system are presented in table 5.

The relative correctness of the presented classification of regional AFS in the applied aspect is limited in time by the data period for typology. The reliability of the results obtained can be increased by extending the observation period, sequentially checking the clustering of objects. This will increase the stability of the research results by neutralizing the influence of random factors (for example, natural and climatic or market conditions). As an alternative, it is possible to propose a typologization based on the average values of classification signs-indicators over a number of years.

Table 5. Classification of the subjects of the Russian Federation by the level of development of the regional AFS.

Group name and boundaries	Qualitative attributes	Region	Integral indicator of AFS development
		<i>RF</i>	<i>1.000</i>
AFS, leading in terms of development 3.582–2.000	AFS of these regions are developing in favorable natural and climatic conditions; are distinguished by a high level of agricultural production; are characterized by high efficiency in the use of resource potential. As a result, these regions have a high level of self-sufficiency for the main types of food.	Belgorod region	3.582
		Bryansk region	2.828
		Astrakhan region	2.770
		Republic of Mordovia	2.433
		Kursk region	2.387
		Tambov region	2.279
		Kabardino-Balkar Republic	2.039
		Lipetsk region	2.008
AFS of a relatively high level of development 1.999–1.000	AFS in these regions is characterized by a balanced development of agricultural sectors. Population density and size are relatively stable. Rural infrastructure is well developed. The level of food self-sufficiency is relatively high, with the exception of densely populated regions (Leningrad Oblast, Nizhny Novgorod Oblast)	Voronezh region	1.904
		Karachay-Cherkess Republic	1.855
		Penza region	1.732
		Republic of Mari El	1.625
		Pskov region	1.542
		Novgorod region	1.529
		Volgograd region	1.482
		Orenburg region	1.451
		Oryol region	1.396
		Chuvash Republic	1.384
		Ryazan region	1.331
		Republic of Dagestan	1.315
		Tula region	1.305
		Leningrad region	1.280
		Udmurt Republic	1.265
		Altai Territory	1.219
		<i>Kurgan region</i>	<i>1.203</i>
		Saratov region	1.191
		Republic of Tatarstan	1.161
		Omsk region	1.159
		Republic of Kalmykia	1.141
		Kaluga region	1.119
		Republic of Bashkortostan	1.112
		Stavropol Territory	1.107
		Republic of Adygea	1.060
		Kirov region	1.051
		Nizhny Novgorod region	1.032
AFS of average	Regions with a moderately developed AFS, as	Chelyabinsk region	0.995

level of development 0.999–0.700	a rule, combine a relatively developed industrialized agriculture with a large manufacturing industry. Characteristically stable rural population against the background of diversified cities. The contribution of personal subsidiary plots to the formation of food resources is noticeable. The most developed are the AFS of the Orenburg and Rostov regions and the Stavropol Territory. There is significant differentiation in the level of food self-sufficiency within the group, especially in terms of meat, milk, vegetables and potatoes. Due to the differences in climatic, socio-economic and financial nature, a differentiated approach to state support for the AFS in these regions is required.	Tver region	0.946
		Vologda region	0.928
		Krasnodar Territory	0.926
		Smolensk region	0.917
		Krasnoyarsk Territory	0.909
		Amur Region	0.909
		Republic of Khakassia	0.899
		Ulyanovsk region	0.892
		Tomsk region	0.887
		Rostov region	0.886
		Vladimir region	0.884
		Irkutsk region	0.873
		Republic of Altai	0.871
		Trans-Baikal Territory	0.836
		Tyumen region	0.800
		Yaroslavl region	0.768
AFS low level of development 0.699–0.500	Regions with AFS with a low level of development may include depressed areas that are far behind the average Russian indicator of agricultural development. In such regions, the level of self-sufficiency in food is low. At the same time, the conservation of a low level of development, or its further decline, increases socio-economic risks. Regions with problematic AFS need urgent government support at the federal and regional levels	Kostroma region	0.758
		Kaliningrad region	0.743
		Novosibirsk region	0.739
		Republic of Crimea	0.697
		Republic of Buryatia	0.689
		Perm Territory	0.678
		Sverdlovsk region	0.677
		Republic of Tuva	0.675
		Kemerovo region	0.658
		Samara region	0.650
		Republic of North Ossetia - Alania	0.639
AFS with extreme natural conditions 0.499–0.000	Extreme natural conditions led to an extreme lag coupled with stagnation, which is fraught with an extremely low level of food self-sufficiency and a high dependence on external food supplies. The aggravation of these problems can lead to an increase in socio-economic degradation, depopulation and social conflicts. The exception is the Moscow region with a fairly developed agriculture, a high level of consumption, a significant number and density of the population.	Ivanovo region	0.619
		Sakhalin Region	0.610
		Primorsky Territory	0.587
		Jewish Autonomous Region	0.578
		Republic of Sakha (Yakutia)	0.519
		Moscow region	0.495
		Kamchatka territory	0.493
		Chechen Republic	0.459
		Republic of Ingushetia	0.447
		Arkhangelsk region	0.388
		Komi Republic	0.357
		Khabarovsk Territory	0.313
		Republic of Karelia	0.306
		Magadan region	0.287
		Chukotka Autonomous District	0.113
		Murmansk region	0.051

Source: authors' calculations

3 Conclusions

Thus, the strengthening of the differentiation of regional economic development, the transformation of interregional ties, the aggravation of demographic problems, the lack of effective spatial management lead to the disunity of the economic space or to spatial restructuring.

The priority direction of sustainable development of the agri-food system should be to improve the efficiency of agricultural production, which will require a serious reduction in waste resulting from agricultural production, processing of agricultural raw materials and consumption of food products.

The substantiation of the strategic goals of the development of the regional agri-food system should be based on the analysis of the institutional conditions of its functioning. This requires the development of a scientifically grounded approach to the classification of types of constituent entities of the Russian Federation, which will optimize the interests of the state, business, consumers, and will contribute to the justification of selective state support.

The implementation of these proposals is an urgent and practically demanded task of national and regional policy.

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