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STRUCTURAL CHANGES IN THE AGRICULTURAL MICROBUSINESS SECTOR

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Abstract. The article is devoted to the substantiation and development of practical recommendations for structural changes in the agricultural microbusiness sector. The scientific substantiation of the system prerequisites for the need for structural transformations of the economic space of agricultural microbusiness in the region is provided. The authors propose a method for determining the level of state support for agricultural microbusiness taking into account the climatic and economic conditions of the region, based on the use of correction coefficients that take into account the influence of natural and climatic factors and the territorial location of farms, the cost of purchasing material resources and the volume of gross product output.

Keywords: economy of agriculture; agricultural microbusiness; structural changes

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1. Introduction

The effectiveness of the agro-industrial complex depends on the correct organization and combination of its structural elements while reducing the number of agricultural organizations requires the development of new approaches to the structural organization of agricultural microbusiness mainly focused on the production of potatoes and vegetables, wool and honey, as well as half of the total production of milk.

Small businesses engaged in agricultural production play a huge social and economic role in the development of the village and the country as a whole (Small and Medium-sized Enterprise Basic Act, KMU-Definition des IfM Bonn, Brock and Evans, 1989; Kowo et al. 2019; Eddelani et al., 2019; Caurkubule et al., 2020).

However, in Russia, representatives of small businesses operate within different frameworks of the existing Russian legislation, which leads to the distortion of actual data and the formation of a "shadow" sector of agricultural microbusiness. The current situation requires the development of approaches to the division of households into subsistence and commercial ones, which will contribute to their further transformation into farms and will also allow an optimal approach to the taxation of such farms with the self-employed tax (Bykanova and Akhmadeev, 2019).

An effective system of the agro-industrial complex of any state is impossible without the development of a proper system of its state support (Holtz-Eakin and Rosen, 2013). However, the existing measures of state support usually consider only the productivity level, with no differentiated approach to state support for producers located in various conditions, including those determined by the prevailing climatic conditions of a particular territory, which also requires the development of new methods (United Nations Economic Commissions for Europe, 2013; The Small Business Economy, 2015; Sullivan *et al.*, 2015; Report from the Commission..., 2009).

In this regard, the correct structure of the agricultural microbusiness space from a socio-economic point of view, taking into account both environmental factors and administrative, legal, economic, and socio-cultural conditions of a particular territory, is the basis for meeting the needs of the state, business, and population (Korableva et al., 2018).

2. Literature review

The agricultural production sector of the territorial socio-economic space should be considered as a single system that has a goal and objectives and consists of a set of elements and processes, functioning in a certain macro- and micro-environment. According to statistical data (Russian Statistical Yearbook, 2018), in Russia from 2000 to 2017, despite the downward trend in several main types of agricultural products, their main production was concentrated in private farms, primarily in the production of potatoes – more than 68%, vegetables – more than 55%, milk – more than 40%, wool – more than 47%, honey – 94%. At the same time, the state does not pay due attention to this sector of the economy, which is a separate element of the economic space of any territory and requires appropriate approaches to management (Voronkova et al., 2020; Panfilova et al., 2020). External factors that affect the structure of the territorial socio-economic space in addition to natural and climatic conditions also include the market environment and state policy. The state creates various institutions (Gritsenko, 2014) that form and regulate commodity markets, demand dynamics, macroeconomic policies that have a direct impact on currency volatility, the dynamics of inflationary processes, and the creation of tax and credit conditions (Gritsenko, 2007) for the business activities of economic entities. The scope of activities of these institutions also includes the processes of pricing of products, the formation of agricultural legislation and infrastructure for small business (State Program for the Development of Agriculture..., 2007; State Program of Development of Agriculture ... for 2013-2020; Land Code of the Russian Federation; On State Regulation of Ensuring the Fertility of Lands...; On the Development of Agriculture...; National Project "Small and Medium Entrepreneurship and Support for Individual Business Initiative").

Agriculture is supported through established institutions and government programs ("On the Distribution and Granting Subsidies from the Federal Budget...", 2009; "On the Federal Target Program "Sustainable Development of Rural Territories for 2014-2017 and the Period up to 2020"; "On Conditions and Order of Granting of Means of the Federal Budget..."; List of Innovative Regional Clusters), based on which regional authorities develop their departmental target programs, considering the needs of the population in the products of a particular industry, as

well as existing agricultural resources. The planned business projects are implemented based on public-private partnerships, i.e., co-financing of these projects by entrepreneurs, federal and regional budgets (Ermakova et al., 2016).

The most important role is played by the legal regulation of small business activities in the process of production and sale of agricultural products. The low level of development of small business in Russia, including personal subsidiary plots (PSPs), is associated, primarily, with the absence in the legislation of the Russian Federation of the notion of a commercial PSP, the division of PSPs, which today are recognized as a form of non-entrepreneurial activity for the production and processing of agricultural products (On a Personal Subsidiary Plot, 2003), into subsistence farms, manufacturing products for the personal consumption of the family, and commercial farms, sending large parties of their products to stores and processing plants with multi-million ruble turnover and high sustainable marketability, i.e., aimed at income generation and not the satisfaction of personal needs, and related to family-operated farms (FOFs) on the lee of the PSP status. So, in practice (Plotnikov, 2010), some PSPs manage on their own, while others attract workers from outside. About 1 million 200 thousand farms, called "personal subsidiary farms", use hired labor. The number of employees attracted is 2 million 400 thousand people, and on average, there are two employees per PSP. Some farms employ dozens of employees. For comparison, in the farming sector, the number of employees on average is 1.4 people per FOF. The observation shows that at least 1 million 200 thousand farms have gone beyond personal farmsteads in this indicator alone.

At the same time, the market for certain types of agricultural products of commercial PSP can become one of the promising directions in the development of agriculture and the consumer market of Russia and its regions (Prokhorova et al., 2016; Yemelyanov et al., 2018).

Market institutions that have a direct impact on the small business activities include the availability of markets for agricultural products, the price of sales, the availability and level of development of sales infrastructure (Fuller and Moran, 2014). Representatives of agricultural small and micro-businesses can influence the market environment through cooperation by joining forces to perform a function or solve a specific problem (Small and Medium Enterprises, Small Business) (Prodanova et al., 2019; Trofimova et al., 2019; Sycheva et al., 2018).

Modern production associations are created mainly in the form of vertical intersectoral structures. Agricultural cooperation in all Western European countries has vertically integrated forms that are fundamentally different from private or joint-stock activities (Gritsenko, 2014, No. 10, P. 23-30). As a result of combining economic entities in the form of integrated structures, the necessary conditions are created for the rational consolidation of productive forces and means of producers, which increases the potential of the production system created through cooperation.

It is necessary to develop cooperative principles in the field of agricultural small business and microbusiness, including that of cluster type, to form a unified price, supply, sales, and trade policy and improve the material and technical support for production in small business. This approach will encourage the development of the material and technical base of agricultural production, the formation of stable economic relationships with other agricultural producers, and the creation of supply and marketing infrastructure. To increase the PSP marketability and encourage the transition of commercial PSPs to FOFs, cooperative stores should organize transport and marketing infrastructure, which allow villagers to have confidence in the possibility of selling their products and, in turn, contribute to increasing the number of livestock in farmsteads, including breeding, providing them with feed, etc.

3. Theoretical background

The Siberian Federal District (SFD) is one of the largest regions of Russia with developed agricultural production and, along with the Central and Volga Federal Districts, is one of the three leading regions in a number of indicators. The area and population of this administrative-territorial region, including the average annual number of employed, are among the largest in the country. In terms of gross output, the agriculture of the SFD occupies the 4th place among the subjects of the Russian Federation (Table 1).

Table 1. Production of main types of agricultural products in peasant farms, thousand tons

	2013	2014	2015	2016	2017	2017 in % to 2013	Subject share, %
Grain (in weight after completion)							
Russian Federation	22796,6	26653	27605,1	33474,3	39498,8	173,3	100
Central Federal District	3763,3	4791,1	4734,7	5198,9	6152,3	163,5	15,6
Northwestern Federal District	56,6	70,3	92,1	71,9	67,5	119,3	0,2
Southern Federal District	6394,9	8347,9	8792,6	10583,4	12069,4	188,7	30,6
North Caucasus Federal District	2402,3	2575,6	2784,4	3358,1	3573,8	148,8	9,0
Volga Federal District	4148,7	5431,9	4733,3	6991,3	9422,4	227,1	23,9
Ural federal district	1073,5	1131,9	1569,1	1767,2	2250,9	209,7	5,7
Siberian Federal District	4887,3	4133,2	4773,7	5355,3	5806,4	118,8	14,7
Far Eastern Federal District	70	171,2	125,2	148,2	156	222,9	0,4
Livestock and poultry for slaughter (carcass weight)							
Russian Federation	237,2	264	282,6	292,2	305,3	128,7	100
Central Federal District	21,0	21,7	24,4	26,1	26,4	125,7	8,6
Northwestern Federal District	4,0	4,2	5,7	5,8	5,7	142,5	1,9
Southern Federal District	46,2	52,4	56	60,2	67,4	145,9	22,1
North Caucasus Federal District	50,6	64,2	71,2	67,6	70	138,3	22,9
Volga Federal District	51,7	55	58,8	60,3	59,7	115,5	19,6
Ural federal district	13,0	15,2	15,3	16,3	17,2	132,3	5,6
Siberian Federal District	39,4	40,1	40,4	44,3	47,9	121,6	15,7
Far Eastern Federal District	11,3	11,2	10,7	11,3	11	97,3	3,6
Milk							
Russian Federation	1787,3	1902	2010,9	2174	2375,4	132,9	100
Central Federal District	242,8	251,8	275,5	304,2	322,5	132,8	13,6
Northwestern Federal District	58,0	62,1	68,9	79,1	87,8	151,4	3,7
Southern Federal District	254,8	252,4	248,4	261,5	291,2	114,3	12,3
North Caucasus Federal District	329,9	361,9	365	386	404,1	122,5	17,0
Volga Federal District	529,0	581,3	634,5	677,1	738,3	139,6	31,1
Ural federal district	85,8	91,6	92,3	94,1	102,1	119,0	4,3
Siberian Federal District	201,1	213,7	232,4	272,6	322,7	160,5	13,6
Far Eastern Federal District	85,8	87	93,9	99,3	106,7	124,4	4,5

Source: Russian Statistical Yearbook, 2018

Thus, it can be noted that almost 13% of the all-Russian number of FOFs are located in the SFD; their area accounts for more than 23% of the total cultivated area of farms in the country (Table 1). At the same time, the district's FOFs exceed the average indicators for the Russian Federation in almost all indicators. Thus, they are characterized by the largest crop production area and the total land area (191.2% and 157.9% of the Russian Federation, respectively), and on average, one FOF in the SFD accounts for a greater number of workers, tractors and combines, cattle and milking units.

In the agricultural production of both the country as a whole and the SFD, a significant role is played by FOFs and PSPs. In these farms, the production of potatoes and vegetables, wool and honey is mainly concentrated, and half of the total production of milk. The availability of agricultural machinery in agricultural organizations and farms in the district correlates with the specialization of their production. The presence of tractors and milking machines is noted in the farms of the population, which can be considered as an indirect confirmation of their commercial orientation, rather than a subsidiary one.

The current situation requires the structuring of the agricultural microbusiness sector as an independent sector of a multi-layered agricultural economy, taking into account the influence of natural and socio-cultural resources, as well as the existing organizational and economic mechanisms, the territorial organization of agricultural production entities, and is caused by economic, social and political factors. The Krasnoyarsk Territory is of the greatest interest for research in the SFD due to its economic, geographical and geopolitical position and prospects for development, including external economic relations with the BRICS and Asia-Pacific Economic Cooperation member countries, the diversity of existing natural and climatic conditions, culture and lifestyle of the population.

4. Data analysis

Structurally, agricultural production in the Krasnoyarsk Territory is concentrated in agricultural organizations, the share of which, with constant growth, reached 54.4% in the reporting year. However, the largest increase in the share of agricultural production is observed in FOFs, the share of which has increased by 45.2% over 5 years (Table 2).

Table 2. Structure of agricultural products by category of farms (in actual prices; as a percentage)

	2013	2014	2015	2016	2017	2017 in % to 2013
Farms of all categories	100	100	100	100	100	x
agriculture organizations	46,6	40,4	49,9	52,3	54,4	116,7
households	49,2	56,0	45,1	41,3	39,5	80,3
peasant farms	4,2	3,7	5,0	6,4	6,1	145,2

Source: Krasnoyarsk Regional Statistical Yearbook, 2018

The decrease in the share of households can be attributed to the migration of rural population to urban districts and partial transition to FOFs in the framework of state support for regional authorities. Agricultural organizations and households have a livestock focus. Agricultural farms are characterized by crop specialization; the share of products in this industry exceeds 76% of the total production of farms. At the same time, in the analyzed period, there was an increase in the volume of livestock production, both in agricultural organizations and in FOFs at an even faster pace. Besides, there was an increase in the volume of production and crop production in regional FOFs by 33.7%, which generally indicates positive trends in the development of agricultural microbusiness in the region and the interest of the region's executive management in improving food security and rural development.

The development of the agro-industrial complex of the Krasnoyarsk Territory is primarily determined by such spatial elements as the natural conditions and resources of the territory, which are the basis for building the structure of the settlement and exert a direct impact on the structure and efficiency of functioning, including the

functioning of agricultural microbusiness. The Krasnoyarsk Territory as a whole does not currently meet the needs of the population with its agricultural products in full; for example, there is a shortage of providing vegetables and milk. At the same time, the food supply, both in the context of macro-districts and in their constituent municipalities, varies quite significantly. The leading territories in the production and provision of the population with their agricultural products are the Southern, Western, Eastern, and Central macro-districts, which have the largest share of participation of the microbusiness sector in the production of certain types of products. PSPs of the population provide the residents of the region with vegetables and potatoes. Regional PSPs also play a significant role in providing the population with livestock products – milk and meat.

The spatial dispersion of the population and transport infrastructure, along with the distributed nature of agricultural production, developed due to climatic factors, determines a large distance between the centers of production and consumption of products and various levels of provision of agricultural products to the population of macro-districts. This situation requires the activation of inter-municipal interaction to preserve the framework of settlement by developing economic ties of territories, attracting food resources of neighboring municipalities-leaders to scarce territories. An important element of inter-municipal cooperation should be the coordinated development of the agricultural sector of neighboring territories, the leaders of production, including support and development of the agricultural microbusiness sector of the region, its active participation in consumer cooperation, which ensures employment in rural areas and food supply to the population. For all macro-districts, it is important to create an effective system for purchasing products from FOFs and private farms. Measures are required to create a single technological chain "production – processing – sale of agricultural products".

Small businesses have a significant share in the total volume of gross agricultural production in the region. The largest volume of production in the region's FOFs is accounted for by growing grain crops and raising cattle (Figure 1). The largest areas of crop cultivation in the region's FOFs are inherent in the Eastern, Western, and Southern macro-districts, which also determines the corresponding production volumes. Open-ground vegetable growing and potato growing are most developed in the Central and Southern macro-district FOFs. Raising livestock and poultry for meat is typical for farms in all macro-districts of the region; the leaders of production are farms in the Eastern and Central macro-districts. The greatest positive dynamics of livestock farms growth is inherent in the Southern macro-district FOFs. Animal husbandry in FOFs of the Priangarsky macro-district is poorly developed, while reindeer husbandry is actively developing in the Northern macro-district (figure 1).

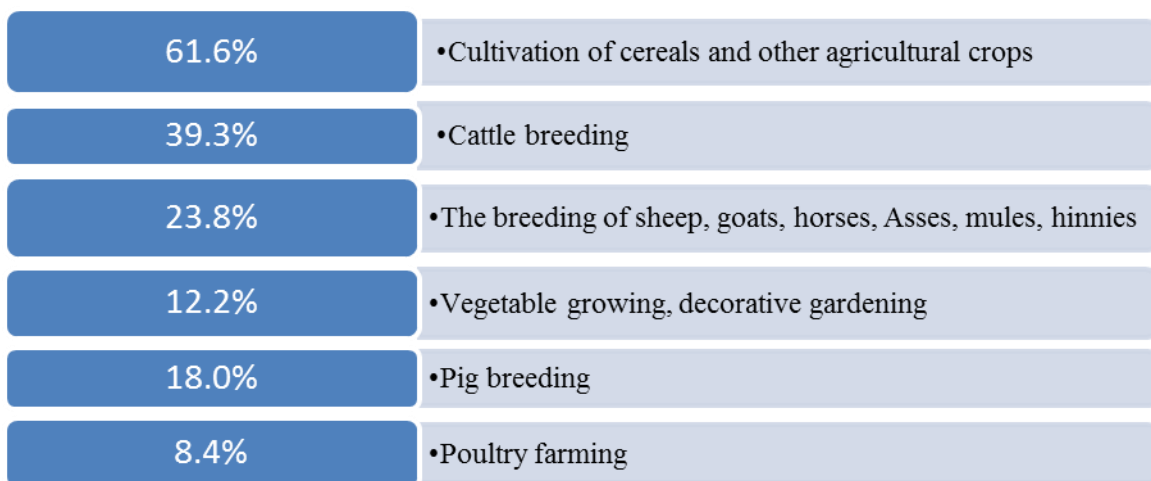


Figure 1. Types of FOF agricultural activities in the Krasnoyarsk Territory

Source: the authors' research

The most significant items of expenditure in the region's FOFs are expenditures on the purchase of material resources, which is typical for all macro-districts, while in their composition, the largest share is accounted for by oil products, seeds, planting material, and feed. In the structure of expenditures for the purchase of production goods in the region's FOFs, about 60-70% is accounted for by the purchase of machinery and equipment, i.e., significant expenses for the purchase of breeding and productive animals. The main FOF income is from the sale of agricultural products of their production and products of their primary and industrial processing. The farms of the Western and Eastern macro-districts were consistently profitable, despite a slight decrease in the profit indicators and profitability of production. A negative issue is a loss-making activity in several years of FOFs in the Central and Southern macro-districts, which are the leading territories in the production of such types of agricultural products as potatoes, vegetables, milk, and eggs in the region. This state of affairs indicates that the relevant institutions and mechanisms for their interaction are not sufficiently developed and require measures to improve the conditions for the agricultural microbusiness sector in macro-districts and the region as a whole.

State grant support, development of consumer cooperation, integration with market trade in cities, and large and medium-sized market entities in the region will contribute to the transformation of part of PSPs into peasant farms and their further development as a form of small business in agriculture (Fomin, 2018). The largest development of cooperation was in the Southern macro-district, with 98% of the macro-district members' cooperatives represented by PSPs, which is 2,455 farms. This fact, taking into account the favorable natural and climatic conditions and existing infrastructure conditions, allows concluding that this macro-district can act as a territory with the most developed PSPs, which are as close as possible to the concept of "commercial PSPs". A large percentage of PSP involvement in Agricultural Consumer Cooperative (ACS) activities is also noted in the Western and Eastern macro-districts of the Krasnoyarsk Territory, 84.5% and 76.7%, respectively.

At the same time, state support for small businesses should be differentiated, taking into account the existing economic conditions, including natural-climatic and infrastructure factors of economic activity by small business entities. All this requires approaches to dividing the PSP of macro-districts into subsistence and commercial types, which will contribute to the structuring of the region's small business – the transition of PSPs to FOFs, and the possibility of compliance of FOFs with the criteria of an agricultural enterprise.

5. Results

The structuring of the elements of the socio-economic space of the region for agricultural production can be represented as ways to combine agricultural business entities, taking into account the forms and types of activities, their number, and size, the order of their location and interaction with each other and with other elements in the socio-economic space, forming a set of internal and external relations due to the external and internal features of a particular region.

System prerequisites of the structure of territorial socio-economic space include a reduction in the number of economic entities of the agricultural sector, as agricultural enterprises and FOFs, the need to change the approach to the organization of the agribusiness structure, including at the micro-level concerning the natural-resource potential of the territory, and the task of ensuring food security under the Food Security Doctrine of the Russian Federation, the need for the development of small agribusiness in the rural areas and improving the standard of living of the rural population. At the same time, the main direction of the implementation of these tasks is the development of small forms of business in this sector.

The most important role is played by the legal regulation of small business activities in the process of production and sale of agricultural products. The low level of development of small business in Russia, including PSPs, is associated, primarily, with the absence in the legislation of the Russian Federation of the notion of a commercial

PSP, the division of PSPs into subsistence farms, manufacturing products for the personal consumption of the family, and commercial farms, aimed at generating income and not the satisfaction of personal needs and related to FOFs on the lee of PSP. The market for certain agricultural products of commercial PSPs can become one of the promising directions in the development of agriculture and the consumer market of Russia and its regions (Prokhorova et al., 2016; Ziyadin, 2012).

Small businesses engaged in agricultural production play a huge social and economic role in the development of the village and the country as a whole, while their representatives operate within various frameworks of the existing Russian legislation, which leads to the distortion of actual data and the formation of a "shadow" sector of an agricultural microbusiness. The informal economy can be interpreted as a reaction of the population to the strict regulation of the state, which once again indicates the need for structuring economic entities at the micro-level, the allocation of subsistence and commercial types of PSP at the legislative level, and the definition of cost and natural criteria for separation. At the same time, in several cases, there is an "unhealthy" tendency to terminate the economic activities of FOFs that have received grant support after the 5 years of their mandatory operation established by law. The capital accumulated at the expense of state funds and established economic ties continues to be used and is transferred to the informal sector of the economy. Such a FOF does not disappear as an economic entity, but continues its activities, the volume of which is expanded at the expense of budget funds, on the lee of PSP. To determine the status of a PSP, the main natural criteria, in addition to the plot area, may be the number of agricultural animals in conventional livestock, the volume of products sold, the level of mechanization of agriculture, etc.

Within the framework of the federal project "Improving Business Conditions", it is planned to work out the key measures in 4 regions of the Russian Federation, followed by the legislative consolidation of its operation throughout the territory of the Russian Federation. It is not possible to transfer all PSPs mechanically under the special tax regime for self-employed citizens. In this case, the division of PSPs into subsistence and commercial ones will make it possible to optimally approach the situation, neutralize the negative consequences and contribute to the further transformation of commercial PSPs into FOFs, which in turn will strengthen the structuring of the agricultural microbusiness sector.

6. Discussion

Since most FOFs have a livestock-oriented economic activity, the author considers it appropriate to use the number of livestock of agricultural animals as the criterion under consideration, since it is these data on PSPs that can be tracked through local authorities. Besides, when appropriate changes are made to the legislation, it is possible to obtain information about the volume of products delivered/sold from the PSP for processing through requests in the ACS. Therefore, the volume of products sold, in particular, livestock and vegetable production, can also be considered as criteria for FOF classification (Table 3).

Table 3. Classification of FOFs in the Krasnoyarsk Territory

Macro-district, municipal district	Normalized index of FOF typology, point		The values of the FOF criteria (min/max)	
	in the macro- district	in the Krasnoyarsk Territory	in the macro- district	in the Krasnoyarsk Territory
Central macro-district	x	x	x	x
Berezovsky	71,7	76		
Bolshemurtinsky	67,9	66		
Emelyanovsky	100,0	100	max	max
Mansky	63,2	81		
Sukhobuzimsky	19,3	19	min	

Western macro-district	x	x	x	x
Achinsky	88,7	70		
Balakhtinsky	61,7	45		
Birilyussky	63,4	45		
Bogotolsky	100,0	61	max	
Bolsheuluisky	43,6	33		
Kozulsky	47,6	33		
Nazarovsky	42,5	30		
Novoselovsky	30,3	19	min	
Tyukhtetsky	54,4	34		
Uzhursky	38,3	24		
Sharypovsky	91,6	64		
Eastern macro-district	x	x	x	x
Abansky	100,0	99	max	
Dzerzhinsky	5,1	5		
Ilansky	25,7	26		
Irbeytsky	38,0	17		
Kansky	2,3	3	min	min
Nizhneingashsky	75,8	40		
Partizansky	33,1	20		
Rybinsky	38,2	21		
Sayansky	81,4	66		
Taseevsky	17,5	8		
Uyarsky	4,3	6		
Southern macro-district	x	x	x	x
Yermakovsky	100,0	71	max	
Idrinsky	35,2	24		
Karatuzsky	50,9	31		
Krasnoturansky	29,1	24	min	
Kuraginsky	40,3	26		
Minusinsky	97,0	42		
Shushensky	68,8	47		

Source: calculated by the author based on FOF accounting statements

Thus, the minimum size of the considered criteria for FOF classification in the region is characteristic for households of the Kansky District, where the average number of livestock amounts to 3 heads, the annual volumes of cattle meat – up to 4 centners, milk – up to 33 centners. Starting from the obtained region FOF classification results in the Krasnoyarsk Territory in general and in the context of macro-districts, it is possible to assume that for PSPs close to the minimum values of the considered FOF classification criteria, it is advisable to switch to FOFs, characterized by the commercial orientation of business activities. It is also advisable to switch to earned income tax for such PSPs.

For FOFs of the Emelyanovsky, Abansky, Ermakovsky, Mansky, and Achinsky Districts, in which the values of the considered criteria are close to the maximum, the transition to a different legal form, for example, to LLC, etc., is possible.

Thus, there is significant differentiation between the Krasnoyarsk Territory regions and the FOFs located in them in terms of the level of development of FOF agricultural activities and the size of production in their totality, both in individual macro-districts and in the Krasnoyarsk Territory as a whole. Starting from the obtained region FOF classification results in the Krasnoyarsk Territory in general and in the context of macro-districts, it is possible to assume that for PSPs close to the minimum values of the considered FOF classification criteria it is advisable to switch to FOFs, characterized by the commercial orientation of business activities. It is also advisable to switch to earned income tax for such PSPs.

The analysis confirms the need for a differentiated approach to measures of state support for the agricultural microbusiness sector, taking into account natural and climatic factors and territorial location.

There is significant differentiation in natural and climatic conditions between the regions of the Krasnoyarsk Territory and the agricultural microbusiness entities located in them, including within macro-districts. When considering the selected set of factors, the most advantageous position was found in the regions located as close as possible to the regional center – the Krasnoyarsk agglomeration, while despite somewhat worse natural and climatic conditions compared to the southern regions, they are characterized by a more developed transport network, logistics infrastructure and access to markets. FOFs in some areas of the Eastern and Western macro-districts were in the most unfavorable conditions due to the remoteness from consumers, poorly developed road infrastructure, and worse natural and climatic management conditions.

To determine the impact of the climatic, territorial and economic conditions of the area on FOF expenditures on the acquisition of material resources, and present a quantitative characteristic of this relationship for the set of municipal districts (34 districts), the author built a regression model of the following form: $y = a_0 + a_1x_1 + a_2x_2 + a_3x_3 + \dots + a_nx_n$,

where y is the effective attribute (expenses for purchasing material resources, thousand rubles);

a_0 – free member;

$a_1, a_2, a_3, \dots, a_n$ – regression coefficients;

x_1 – road density coefficient (Engel coefficient);

x_2 – sum of positive temperatures above 10 °C;

x_3 – road density coefficient for production (Vasilevsky coefficient);

x_4 – hydrothermal coefficient (HTC);

x_5 – distance from the center of the municipal district to Krasnoyarsk, km;

x_6 – humus content, %;

x_7 – population size, thousand people

The multiple regression model has the following form:

$$y = 231,758 + 86,482.3 \cdot x_1 - 62.1574 \cdot x_2 - 278,672 \cdot x_3 - 82,500.3 \cdot x_4 + 78.9872 \cdot x_5 - 3,383.75 \cdot x_6 + 1,578.84 \cdot x_7$$

The coefficient of determination is equal to 47.7688%; therefore, the variation of the resulting attribute by 47.7688% is explained by the variation of factor features included in the model. Thus, the formation of FOF expenditures in the Krasnoyarsk Territory for the purchase of material resources by 47.77% is determined by the natural-climatic and resource conditions.

To determine the impact of the climatic conditions of the region on the volumes of FOF gross agricultural products and its quantitative characteristics, the author built a regression model on a set of districts (34 districts) of the following form:

$$y = a_0 + a_1x_1 + a_2x_2 + a_3x_3 + \dots + a_nx_n,$$

where y is the effective indicator (gross output per 1 FOF, tons);

a_0 – free member;

$a_1, a_2, a_3, \dots, a_n$ – regression coefficients;

x_1 – road density coefficient (Engel coefficient);

x_2 – sum of positive temperatures above 10 °C;

x_3 – road density coefficient for production (Vasilevsky coefficient);

x_4 – hydrothermal coefficient (HTC);

x_5 – distance from the center of the municipal district to Krasnoyarsk, km;

x_6 – humus content, %;

x_7 – population size, thousand people

The multiple regression model has the following form:

$$y = 17,211.99 + 7,991.276 \cdot x_1 - 7,981.92 \cdot x_2 - 25,859.3 \cdot x_3 - 684.069 \cdot x_4 + 5.986521 \cdot x_5 - 74.9009 \cdot x_6 + 137.3565 \cdot x_7$$

The coefficient of determination is equal to 44.2824%; therefore, the variation of the resulting attribute by 44.2824% is explained by the variation of factor features included in the model. Thus, the volume of FOF gross output in the Krasnoyarsk Territory by 44.28% is determined by the natural-climatic and resource conditions of FOF management, which cannot be ignored when developing measures for state support.

According to the author, it is necessary to additionally introduce in the current methodology for allocating budget funds for FOFs correction coefficients based on the proposed grouping of municipal districts and FOFs located in their territory, taking into account the points of influence of natural-climatic and resource conditions of the territory on the economic and natural results of their activities.

As a result, the total coefficient (C_{tot}) of the amount of state support for the FOF will be determined by the average value of the sum of the correction coefficients of the points level, the level of expenditures and the gross output level: $C_{tot} = (C_s + C_e + C_{go})/3$, where

- C_s – coefficient of the influence of the natural and climatic factors and the territorial location of the FOF, points;
- C_e – coefficient of the amount of expenses for the purchase of material resources for 1 FOF, thousand rubles;
- C_{go} – coefficient of gross output per 1 FOF, tons.

Comparing the values of the general correction coefficient in the context of three groups, it can be noted that for FOFs located in areas with the most favorable natural and territorial conditions belonging to the first group, there is a decreasing correction coefficient – 0.72. At the same time, for FOFs of the second and third groups, in addition to the current method, the application of the general correction coefficient 1.03 and 1.18, respectively, will allow financing FOFs more fully with the highest levels of expenditure and gross output. According to the author, from an economic point of view, this is justified, since these groups include the majority of FOFs in the region that provide development of the corresponding rural territories and employment of the rural population.

7. Conclusion

Small entrepreneurship in the region is represented primarily by micro-businesses; there is also growing informal employment in small businesses, in cases when an unregistered FOF or individual entrepreneur in fact functions on the lee of a PSP. The development of approaches to the division of PSPs, which today are recognized as a form of non-entrepreneurial activity for the production and processing of agricultural products, into subsistence farms, manufacturing products for the personal consumption of the family, and commercial farms, aimed at obtaining income from the sale of their products and not the satisfaction of personal needs, will promote the formation of a "white" market of agricultural micro-businesses in the region and will outline the PSPs subject to the system of earned income taxation under Federal Law No. 422-FZ "On the Experiment of Establishing a Special Tax Regime "Earned Income Tax".

All measures of state support for agricultural producers in the region, including FOFs, are aimed at reimbursing or compensating part of the costs, taking into account the level of productivity. At the same time, there is no differentiated approach to measures of state support for producers located in different economic conditions, which are also determined by the prevailing natural and climatic conditions of a particular territory. The formation of expenditures for the purchase of material resources and the volume of gross output in the FOFs of the Krasnoyarsk Territory by 47.77% and 44.28%, respectively, is determined by the natural climate and resource conditions of management, which cannot be ignored when developing measures for state support.

When considering the selected set of factors, the most advantageous position was found in the regions located as close as possible to the regional center – the Krasnoyarsk agglomeration, while despite somewhat worse natural and climatic conditions compared to the southern regions, they are characterized by a more developed transport

network, logistics infrastructure and access to markets. FOFs in some areas of the Eastern and Western macro-districts were in the most unfavorable conditions, which is due to the remoteness from consumers, poorly developed road infrastructure, and worse natural and climatic management conditions.

The author considers it appropriate to use correction coefficients for the distribution of state support, in particular, for FOFs:

- according to the number of points of influence of the natural and climatic factors and the territorial location of the FOF, – coefficients of the level of points (Cs);
- according to the number of expenses for the purchase of material resources for 1 FOF, thousand rubles – coefficients of the level of expenses (Ce);
- according to the gross output per 1 FOF, tons – coefficients of the level of gross output (Cgo).

The use of these correction coefficients allows linking the amount of state support provided to FOFs with the natural and climatic conditions of management and the volume of production and restoring the stimulating function of state support. The calculation of correction coefficients is carried out within three groups of Krasnoyarsk Territory regions, allocated by the level of points of influence of the natural-climatic and resource conditions of the territory. The total coefficient (Ctot) of the amount of state support for a farm is determined by calculating the average value of the sum of correction coefficients for the level of points, the level of expenditures, and the level of gross output.

References

“On the conditions and procedure for the provision of federal budget funds provided for state support of small business, including peasant (farm) enterprises”: Decree of the Government of the Russian Federation No. 249 of April 22, 2005

“On the distribution and provision of subsidies from the federal budget to the budgets of the constituent entities of the Russian Federation for the reimbursement of part of the cost of paying interest on loans received from Russian credit organizations and loans received from agricultural credit consumer cooperatives”: Resolution of the Government of the Russian Federation of February 4, 2009 No. 90 (as amended by Decisions of the Government of the Russian Federation of 08.20.2010 No. 641, dated September 14, 2010 No. 728, dated November 30, 2010 No. 954, dated December 31, 2010 No. 1209)

“On the federal target program “Sustainable development of rural territories for 2014-2017 and for the period until 2020”: Decree of the Government of the Russian Federation of July 15, 2013 No. 598. URL: <http://www.garant.ru/products/ipo/prime/doc/70319016/>

Bykanova, O.A. & Akhmadeev, R.G. (2019). Universal VAT Loyalty Policy for B2B E-Commerce. Proceedings of the 34th International Business Information Management Association Conference, IBIMA 2019: Education Excellence and Management of Innovations through Sustainable Economic Competitive Advantage, 3046-3051.

Brock, W.A., Evans D.S. (1989). Small Business Economics, 1, 7-20. <https://doi.org/10.1007/BF00389913>

Caurkubule, Zh. L., Kenzhin, Zh. B., Bekniyazova, D.S., Bayandina, G.D., Dyussebekova, G. S. (2020). Assessment of competitiveness of regions of the Republic of Kazakhstan. Insights into Regional Development, 2(1), 469-479. [http://doi.org/10.9770/IRD.2020.2.1\(6\)](http://doi.org/10.9770/IRD.2020.2.1(6))

Eddelani, O., El Idrissi, N. E., Monni, S. (2019). Territorialized forms of production in Morocco: provisional assessment for an own model in gestation. Insights into Regional Development, 1(1), 6-18. [https://doi.org/10.9770/ird.2019.1.1\(1\)](https://doi.org/10.9770/ird.2019.1.1(1))

Ermakova, A. N., Vaytsekhovskaya, S. S., Malitskaya, V. B., & Prodanova, N. A. (2016). Investment attractiveness of small innovational business under the conditions of globalization and integration. European Research Studies Journal, 19(2 Special Issue), 258-267.

Fomin, A. (2018). Import substitution in the agro-industrial complex of Russia. International Agricultural Journal, 61(1), 1.

Fuller, T., Moran, P. (2014). Small enterprises as complex adaptive systems: methodological question? Entrepreneurship & Regional Development, 13, 47-63.

- Gritsenko G.M., Lukyanov A.N. (2014). Institutional environment for the development of regional agribusiness: theoretical aspect. *Fundamental science*, 12(4), 794-798.
- Gritsenko G.M., Ryabukhina T.M. (2014). Agricultural Consumer Cooperation of Siberia. *AIC: economics, management*, 10, 23-30.
- Gritsenko G.M., Weitzel N.V. (2007). Management of land relations at the municipal level. *International Agricultural Journal*, 4, 53-54.
- Holtz-Eakin D., Rosen H. S. 2013. *Economic Policy and the Start-up, Survival, and Growth of Entrepreneurial Ventures* - Washington D.C.: United States Government Printing Office, SBA.
- Yemelyanov, V. A., Yemelyanova, N. Y., Nedelkin, A. A., & Zarudnaya, M. V. (2018). Neural network to diagnose lining condition. Paper presented at the IOP Conference Series: Materials Science and Engineering, 327(2) <https://doi.org/10.1088/1757-899X/327/2/022107>
- KMU-Definition des IfM Bonn. URL: <http://www.ifm-bonn.org/definitionen/kmu-definition-des-ifm-bonn/>
- Korableva, O. N., Kalimullina, O. V., & Mityakova, V. N. (2018). Innovation activity data processing and aggregation based on ontological modelling. Paper presented at the *2018 4th International Conference on Information Management, ICIM 2018*, 1-4. <https://doi.org/10.1109/INFOMAN.2018.8392659>
- Kowo, S. A., Adenuga, O. A. O., Sabitu, O.O. (2019). The role of SMEs development on poverty alleviation in Nigeria. *Insights into Regional Development*, 1(3), 214-226. [https://doi.org/10.9770/ird.2019.1.3\(3\)](https://doi.org/10.9770/ird.2019.1.3(3))
- Krasnoyarsk Regional Statistical Yearbook, 2018: Statsb./ Krasnoyarskstat. - Krasnoyarsk, 2018. - 506 p.
- Land Code of the Russian Federation. URL: <http://base.consultant.ru/cons/cgi/online.cgi?req=doc;base=LAW;n=183052>
- On state regulation of ensuring the fertility of agricultural land: Federal Law of July 16, 1998 No. 101-Federal Law. URL: <http://base.consultant.ru/cons/cgi/online.cgi?req=doc;base=LAW;n=156878>.
- On the development of agriculture: Federal Law of December 29, 2006 No. 264-FZ (as amended on February 12, 2015) (as amended and supplemented, entered into force on August 13, 2015). URL: https://www.consultant.ru/document/cons_doc_LAW_64930/
- On the personal subsidiary plots: Feder. the law of the Russian Federation of July 7, 2003 No. 112-FZ. Russian newspaper. Feder. issue - 2003. - July 10 (No. 3249). URL: <http://www.rg.ru/2003/07/10/odsobhoz-dok.html>.
- Panfifilova, E., Dzeneliuk, N., Domnina, O., Morgunova, N., & Zatsarinnyaya, E. (2020). The impact of cost allocation on key decisions of supply chain participants. *International Journal of Supply Chain Management*, 9(1), 552-558.
- Passport of the national project “Small and Medium-Sized Businesses and Support for Individual Entrepreneurship Initiatives” (approved by the Presidium of the Presidential Council for Strategic Development and National Projects, Minutes No. 16 dated 12.24.2018). URL: http://www.consultant.ru/document/cons_doc_LAW_319208/
- Plotnikov V.N. 2010. Private subsidiary farming: big problems of small farms. *Bulletin of Volgograd State University. Ser. 3, Economics. Ecology*, 2(17), 89-95.
- Prodanova, N. A., Plaskova, N. S., Dikikh, V. A., Sotnikova, L. V., Nikandrova, L. K., & Skachko, G. A. (2019). Techniques for assessing the investment attractiveness of a commercial organization based on classical methods of strategic economic analysis. *International Journal of Economics and Business Administration*, 7(4), 35-46.
- Prokhorova, V.V., Klochko, E.N., Kolomyts, O.N., Gladilin, A.V. (2016). Prospects of the agro-industrial complex development: Economic diversification, business development, mono-industry town strengthening and expansion. *International Review of Management and Marketing*, 6(6), 159-164.
- Report from the Commission to the Council and the European Parliament on the Implementation of the European Charter for Small Enterprises. Brussels: Commission of the European Communities, 2009.
- Russian Statistical Yearbook. 2018: Stat.sb., Rosstat. - M., 2018 - 694 p.
- Sycheva, I. N., Ovchinnicov, Y. L., Voronkova, O. Y. U., Kolmakov, V. V., & Vasilieva, A. G. (2018). Economic potential and development prospects of small businesses in rural areas. *European Research Studies Journal*, 21(4), 292-303.

Small and medium enterprises. Small and Medium Business Administration (Republic of Korea). URL: <http://smba.go.kr/eng/smes/scope.do?mc=usr0001146>

Small and Medium-sized Enterprise Basic Act. URL: <http://www.chusho.meti.go.jp/soshiki/teigi.html>

Small Business. U.S. Small Business Administration. URL: <http://archive.sba.gov/advo/research/data.html>

State program for the development of agriculture and regulation of agricultural products, raw materials and food markets for 2008-2012. Approved by Decree of the Government of the Russian Federation of July 14, 2007 No. 446MSX of the Russian Federation. Moscow: 2007.

State program for the development of agriculture and regulation of agricultural products, raw materials and food markets for 2013-2020. URL: <http://www.gosprog.ru/gp-razvitiya-selskogo-hozyaystva>.

Sullivan T.A., Warren E., Westbrook J. Financial Difficulties of Small Businesses and Reasons for Their Failure. Prepared for the Small Business Administration. Contract SBA-95-0403. Austin: The University of Texas at Austin, 2015.

The list of innovative territorial clusters. Approved by order of the Government of the Russian Federation of August 28, 2012 No. DM-P8-5060. Access from sprav. - legal system "Consultant Plus".

The Small Business economy. Report to the President. Washington D.C.: United States Government Printing Office, 2015.

Trofimova, L., Prodanova, N., Korshunova, L., Savina, N., Ulianova, N., Karpova, T., & Shilova, L. (2019). Public sector entities' reporting and accounting information system. *Journal of Advanced Research in Dynamical and Control Systems*, 11(8 Special Issue), 416-424.

United Nations Economic Commissions for Europe: Leasing, Lessons of Experience, prepared for the Southeast European Co-operative Initiative, 2013.

Voronkova O. Y., Ovchinnikov Y. L., Avdeev Y. M., Fomin A. A., Penkova A. N., Zatsarinnaya, E. I. (2020). Land Resource Management in the Agro-Industrial Sector of Russia. *Talent Development and Excellence*, 12(3s), 422-431.

Ziyadin, S. (2012). Prospects for information marketing within processing industry of agroindustrial sector in the republic of Kazakhstan. *Actual Problems of Economics*, 136(10), 429-436.

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