Developing Personal Subsidiary Farms in the Food Supply System of the Altai Krai

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Abstract. The paper identifies the problems of developing individual subsidiary farms in the Altai Krai in the context of sustainable development. The authors assess contemporary trends in small-scale farming in Russia and identify the main regions with a concentration of individual subsidiary farms in agricultural production. The main trends in the development of personal subsidiary farms are considered on the example of the Altai Krai. In individual subsidiary farms, the number of livestock and poultry decreases, and the number of bee families increases. Individual subsidiary farms remain the primary producers of potatoes, vegetables, wool, commercial honey, milk, cattle, meat, and poultry. The production marketability tends to increase but remains low. The reserve for the growth of sales volume due to production and marketing cooperation is practically not used since only five cooperatives are operating. The authors grouped the factors hindering the development of households, considering the demographic, behavioral, organizational, financial, and legal aspects of small businesses. In rural areas with a concentration of production in individual subsidiary farms, demographic indicators are at the regional average values. In addition, the labor market tension is lower than the average for the area.

Keywords: Small enterprises · Personal subsidiary farms · Regional agro-industrial complex · State support · Consumer cooperation · Development prospects

1. Introduction

One of the tasks of the agrarian reform carried out in Russia since the early 1990s was to create a multi-structure agricultural economy based on a combination of large-scale and small-scale production represented by agricultural and peasant (farmer) households. The importance of individual subsidiary farms in the agricultural sector of the economy, which included households and garden plots of rural residents, was minimized. However, the processes observed in Russian agriculture led to a hypertrophied structure of the gross agricultural output. In 1990–1994, the share of the population's subsidiary farms averaged 42.6%, and, in 1995–2014, it was 41.9%–52.5% [3]. Many scholars associated the development of personal subsidiary farms in the agrarian economy with the difficult situation of large agricultural enterprises and the difficulties faced by the heads of peasant (farm) households in the 1990s [7, 8]. An objective decrease in the share of individual subsidiary farms in gross agricultural output occurred in 2015–2019 (2015 – 34.5%, 2019 – 28.2%) [4, 5]. It is associated with the development of pig breeding, poultry farming in large integrated structures, and diversification of activities of large-scale enterprises. The prospects for the development of this form of management are associated with the further development of cooperation.

According to the All-Russian Agricultural Census, 2016 [3], 18.7 million individual subsidiary farms in Russia were engaged in agricultural production (79.8% of the total number), including 11.7 million rural farms. The distribution of individual subsidiary farms in federal districts correlates with the distribution of the rural population. There was a significant differentiation of the national communities in terms of the area occupied by agricultural lands. The least amount of land is in the North-Western, Southern, North-Caucasian, Ural, and Far-Eastern districts. The Central, Siberian, and Volga districts have the highest amount of occupied agricultural land.

Many scholars note the discrepancy of some personal subsidiary farms with the requirements of Russian legislation in terms of production scale and purpose. S. A. Lipsky [7] notes that "... in several regions, there are considerable private subsidiary farms (up to 100 pigs, up to 500 sheep, and up to 1,000 poultry)." V. Ya. Uzun and N. I. Shagaida [13] note the legal gaps, the existence of which retains the risks of tax evasion from households of the population and predetermines the risks of applying various sanctions to the owners of personal subsidiary farms. Many scholars describe households as a form of manifestation of crisis phenomena in the rural economy while recognizing that increased production in private subsidiary farms provided additional income for rural residents and Russia's food supply. E. G. Lysenko expressed a widespread opinion that as the agrarian economy stabilizes, the importance of households and the level of marketability of products will decrease, and part of large-scale private subsidiary farms will be transformed into farming enterprises [8]. One of the main conditions for the development of households is developing the production and marketing cooperation of small businesses [2, 6, 12] and niche industries [11, 14].

2. Materials and Methods

The study's theoretical and methodological basis was the research results in the development of small forms of management in the agricultural economy [2, 6, 8, 11, 12, 13, 14]. Rural territories of the Altai Krai were grouped to identify the types of municipalities by developing households. The grouping was made based on the indicator "Agricultural production," defined for agricultural enterprises, peasant (farmer) households, and personal subsidiary farms, contained in the municipal statistics of Altaykraistat. During the research, general scientific and unique methods were used (comparison, monographic, normative, economic, and statistical). The Microsoft Office 2007 software package, including the Microsoft Excel analysis package and its Table service, was used to analyze statistical data. The sources of statistical information were the Federal State Statistics Service (Rosstat) [3, 4, 5], the territorial body of the Federal State Statistics Service in the Altai Krai and the Republic of Altai [10], and the Ministry of Agriculture of the Altai Krai [1].

3. Results

The Altai Krai is one of Russia's average regions in terms of households' development. In 2019, the share of this category of households in gross output did not exceed 26.2% (on average in Russia – 28.1%). The region is among 22 regions, which produced 20.8% of the total gross output of households (Figure 1). At the beginning of 2019, 454.8 thousand personal subsidiary farms were registered in the region. These farms operated on 300.3 thousand hectares, including 184.5 thousand hectares of arable land (2.8% of arable land of the region). They kept 40.7% of the total cattle population (295.6 thousand heads, which is 1.64 times lower than in 1995), including 44.6% of cows (134.3 thousand heads, 1.91 times lower than in 1995), 62.4% of pigs (265.4 thousand heads, 1.25 times lower than in 1995), 76.0% of sheep and goats (174.3 thousand heads, 2.39 times lower than in 1995), 45.3% of horses, and 93.2% of bee colonies (169.5 thousand bee colonies, 3.43 times higher than in 1995).

The change in the number of livestock, poultry, and bee families in individual subsidiary farms in the Altai Krai led to structural changes in agricultural production. In 2015–2018, the share of this category of farms in milk production decreased by 13.2%, and the share of livestock and poultry meat, eggs, and wool fell by 4.8%–5.0%. Simultaneously, personal subsidiary farms remained the leading

producers of commercial honey, potatoes, vegetables, wool (74.3%–84.9% of the regional volume), cattle and poultry meat (40.7%), and milk (39.2%) (table 1).

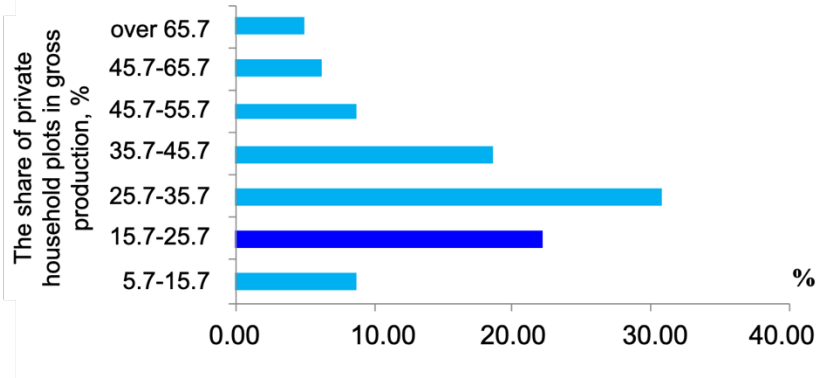

Figure 1. The distribution of Russian regions by households' share in gross agricultural output (2019), %.
Source: Calculated by the authors based on [4].

Table 1. The share of households of the population of the Altai Krai in the production of agricultural products, %.

Agricultural products	1995	2018			
		Total	Absolute growth over the years, %		
			1995	2005	2015
Potatoes	98.1	84.9	-13.2	-12.9	-0.3
Honey (commercial)	52.0	83.0	31.0	-0.8	-11.3
Milk	41.2	39.2	-2.1	-14.8	-13.2
Meat of livestock and poultry	45.7	40.7	-5.0	-29.4	-5.0
Vegetables	87.1	74.3	-12.8	-16.4	-0.9
Wool	24.0	80.9	56.8	15.9	-4.9
Eggs	49.3	19.3	-30.0	-28.8	-4.8

Source: Calculated by the authors based on [5].

The following factors reduce production volumes in households:

- demographic processes in rural areas: a decline in the working-age population;
- features of the labor behavior of young people, expressed in their unwillingness to engage in animal husbandry in private subsidiary farms;
- organizational: difficulties in organizing contractual relations with suppliers of materials and services and processors of agricultural products mainly due to low production volumes in households, the impossibility of subsequent VAT refunds from the budget of counterparties; the lack of material and technical support, physical and moral obsolescence of existing fixed assets (machinery, equipment, and production facilities); severing economic ties with large-scale agricultural production;
- financial: difficulties in attracting subsidized interest rates in banks since the beginning of 2018 (in 2018, only 22.2 million rubles were allocated from the federal and regional budgets to reimburse part of the costs of small businesses to pay interest on loans in the Altai Krai, which is 10.1 times lower than the achieved average level for 2012–2015, 4.2 times lower than in 2016, and 2.9 times lower than in 2017);
- legal, related to taxation, the need to obtain various certificates for the sale of agricultural products, registration of land shares in the ownership, etc.

It should be noted that demographic and infrastructural factors are the main constraints.

4. Discussion

In 2018, more than 32 thousand households in the Altai Krai were engaged in surplus milk, cattle, and pigs. In absolute terms, the volume of sold products exceeded 210.2 thousand tons of milk and 76.5 thousand tons of meat for a total amount of more than 8,991.7 million rubles (on average, about 28.1 thousand rubles per farm), which is 1.77 times higher than the income from sales in 2006. However, considering the adjustment of nominal indicators for the inflation rate, it is 1.43 times lower than in 2006. Despite the observed increase in products' marketability, most of the products of private subsidiary farms are used for personal consumption by household members. Low marketability hinders the integration of the region's agriculture into the system of interregional and international trade relations. In the context of the gradual holding of agricultural production in the Altai Krai, it hinders the development of peasant (farm) households and small businesses in rural areas.

The grouping of rural territories of the Altai Krai did not reveal any peculiarities of municipalities with a predominance of households in agricultural products' production. In 76.3% of districts, the production concentration in individual subsidiary plots did not exceed 35.5%. Only 6.8% of communities have the attention of production in personal subsidiary plots over 55.5%. With a relatively equal demographic load and the share of the population over working age in the total population of municipalities, the migration attitude of rural residents of groups 4–5 (the migration loss coefficient varies from -4.0% to -6.0%) is significantly lower than the migration loss of the population of groups 1–3 (the coefficient of migration loss varies from -7.6% to -10.0%). The tension in the labor market is also lower. Per 100 vacancies, there were 252 people in search of work (in groups 1–3 – 266-364 people) (table 2).

Table 2. The leading indicators of the Altai Krai's rural territories, depending on the share of households in the gross agricultural output.

Indicator	District groups				
	1 (less than 25.5%)	2 (25.5%–35.5%)	3 (35.5%–45.5%)	4 (45.5%–55.5%)	5 (more than 55.5%)
Share in (%):					
number of districts	39.0	37.3	8.5	8.5	6.8
population	40.0	41.8	7.4	6.7	4.1
Gross agricultural output, thousand rubles/person	143.9	103.0	116.3	80.0	106.1
Coefficients, %					
migration loss	-7.6	-7.6	-10.0	-4.0	-6.0
natural loss	-5.5	-5.4	-8.0	-6.5	-10.8
demographic burden	1,029	993	989	1,034	1,011
The share of the population over working age in the total number, %	28.8	30.3	29.9	29.8	29.9
Labor market tensions, people/100 jobs	266	364	339	305	252

Source: Calculated by the authors based on [10].

The development of households in the Altai Krai is associated with the development of production and marketing cooperation and the transformation of high-quality private household plots into peasant (farm) households. There are more than 50 agricultural consumer cooperatives registered in the region. However, only five operated: Voskhod (Topchikhinsky district), Druzhba (Tselinny district), Kolos (Talmensky district), Smolensky (Smolensky district), and CharyshAgroProduct (Charyshsky district).

5. Conclusion

For the development of personal subsidiary plots, it is necessary to create conditions for consumer

cooperation (mainly in procurement, production, and marketing). These conditions will stabilize and increase the volume of manufactured and sold products, especially in niche industries, ensure quality control of production processes and products, reduce the financial load on the regional budget, and ensure the socio-economic development of rural areas, including easing tension in the labor market in rural areas and improving the material situation of the rural population.

References

[1] Department of agriculture of the Altai Krai 2020 *State support 2020* Available at: http://www.altagro22.ru/apk/gospodderzhka-2020/
[2] Dibirov A A, Dibirova Kh A, Epshtein D B, and Moreva A V 2016 *Conceptual foundations for developing integration and cooperation processes in the Northwestern Federal District of the Russian Federation's agro-industrial complex* (St. Petersburg, Russia: R-KOPI)
[3] Federal State Statistics Service 2018 *Results of the All-Russian Agricultural Census 2016* Available at: https://gks.ru/storage/mediabank/VSXP_2016_T_2_web.pdf/
[4] Federal State Statistics Service 2019 *Russian Statistical Yearbook 2019* Available at: https://gks.ru/storage/mediabank/Ejegodnik_2019.pdf/
[5] Federal State Statistics Service 2020 *Critical indicators of agriculture in Russia in 2019* Available at: https://gks.ru/folder/11110/document/13276#/
[6] Gritsenko G M 2013 Prerequisites for agricultural consumer cooperation development in the Altai Krai. *Bulletin of Altai State Agricultural University 8* pp 153-157
[7] Lipsky S A 2013 Short forms of farming in the countryside: Land issue and some other problems *Nikonovskiye Chteniya* **18** pp 169-172
[8] Lysenko Ye G 2007 Personal Subsidiaries of the Population within the Structure of Agricultural Production *Bulletin of the Russian Agricultural Sciences* **1** pp 13-15
[9] Rosstat regional office of the Altai Krai and the Republic of Altai 2020 The *Altai Krai in numbers. 2015–2019* (Barnaul, Russia: Rosstat)
[10] Rosstat regional office of the Altai Krai and the Republic of Altai 2019 *The leading indicators of the socio-economic situation of municipalities*. Retrieved from https://akstat.gks.ru/folder/33031/
[11] Sycheva I N, Voronkova O Yu, Vorozheikina T M, Yusupova G R, Semenova A N, and Iljin A E 2019 The Main directions for improving the environmental and economic efficiency of regional production *Journal of Environmental Management and Tourism* **10-3** pp 631-639
[12] Ulezko A V, Nechaev N G, Sokovykh I S, and Klimov A V 2013 *Economic entities of the agricultural sector: Resource provision and innovative development* (Voronezh, Russia: Voronezh State Agrarian University)
[13] Uzun V Ya, and Shagaida N I 2015 *Agrarian reform in post-Soviet Russia: Mechanisms and results.* Moscow, Russia: Delo
[14] Vorobyov S P, and Bugai Yu A 2019 Factors of Socio-economic Development of Rural Areas *IOP Conference Series: Earth and Environmental Science* **395** 012109