Assessment of the state of social and labor sphere of rural areas in the Ural Federal District

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Abstract. The article presents the author's calculations of the labor sphere state of rural areas of the Ural Federal District (Russia). It is substantiated that labor (human) capital is the most important element of ensuring the functioning of the entire agrarian sphere. The estimation of labor productivity in the agricultural sector, the rate of wage growth, as well as relative social and labor indicators of the agricultural direction to the general economic is conducted. The authors consider the ratio of agrolabor productivity growth and decrease in the number of workers in this sphere, which is associated with a number of factors, resulting in the construction of a system of sociolabor factors interaction contributing to the development of rural areas, based on analytical data

1 Introduction

Rural development is directly related to the social sphere, which some authors present as a set of indicators expressing the standard of living of the population: wages, living wages, employment and unemployment rate, differentiation of the population by income level, etc. [1,2,3,4,5], others - with social infrastructure that provide socio-industrial conditions for labor reproduction, social protection of the population, preservation and development of demographic and labor potential [6,7,8].

As a result, all these indicators reflect the standard of living of the rural population as the main strategic task of rural development.

In our view, it is necessary to distinguish the standard of living as a set of indicators that characterize it, the level of population satisfaction in material and spiritual goods, on the one hand, and the conditions ensuring the sustainability of the achieved standard of living on the other. The main condition can be attributed to the stability degree of functioning and development of rural territories social infrastructure, provided by the level of economy stability of agrarian organizations located on them. To a certain extent, the level of personal consumption will be determined by the state of agribusiness activity in its reproduction and motivational functions. On the other hand, the sustainability of these activities will depend on: the achieved socio-economic development level of the country and its regions; the state of agri-food policy and institutional sphere; established rules of the “game” in the food market and, finally, from the “human potential” (human capital) itself — the most important condition for achieving competitiveness of agricultural farms.

Among the known forms of human capital, the nature of which traditionally appears to be the accumulated costs of general education, special training, health care and labor redeployment, for the agricultural sector the most suitable is the human capital of the territory (region or municipal region), which is formed in the low standard of living of the rural population.

We analyze the state of some important indicators of the social and labor sphere of the village, related to wage, demographic situation in the studied region, employment of rural population, security.

When studying income and wages, it is advisable to take into account not only the general characteristics of the standard and quality of life in the region but also their differentiation by socio-demographic, professional and income population groups using indicators (integral and private, natural and cost) to measure the relevant indicators [9,10,11].

One of the important areas of improving the standard and quality of life is the growth of employment, strengthening social protection of the population and overcoming poverty. Moreover, the quality of life includes not only the level of goods and services consumption, but also a set of other characteristics: morbidity, human rights, life expectancy, conditions of work, the degree of social protection of the population, freedom of choice of place of work, improvement of the social environment and others [11].

Wage is the basis of motivational influence on labor collectives in order to increase labor productivity. However, according to canonical representations the level of wages should not outpace the rate of labor productivity, which in modern conditions, in our opinion, hinder the development of the agricultural sector of economy. As in chess, there is a “stalemate” situation: wage increases are impossible due to low productivity, and productivity growth is impossible without wage increases. So where's the way out? Clearly, it is necessary to motivate the worker to more productive work, raising his wages to a level that will actually improve productivity.

However, for this purpose, in the management activities of agroorganization it is necessary to provide an appropriate regulatory mechanism for monitoring this ratio, as well as responsibility for the implementation of the contract about labor relations between the management structure and labor collectives of agroorganizations.

2 Materials and methods

We analyze the dynamics of indicators expressing the ratio of productivity and wages in the agrarian sphere of the Russian Federation, Ural Federal District and its subjects, on the basis of which we will determine the ratio of their growth rates. Data from statistical sources as well as analytical materials of state bodies are used. Calculation, the results of which are presented in table 1, shall be performed on the following proposed mathematical expression:

$$\Delta LP = \left[\left(\frac{GPe}{N_e} / \frac{GPb}{N_b} \right) / t \right] \cdot 100, \%$$

$$\Delta W = \left(\frac{We}{Wb} / t \right) \cdot 100, \%$$

(1)
(2)

$\Delta LP, \Delta W$ — average annual increase in productivity and wages respectively, %;

GPe, GPb — gross agricultural production at the end and beginning of the period, million RUB;

We, Wb — wages in agriculture respectively at the beginning and end of the period, RUB.;

Ne, Nb — number of workers in agriculture population, people;

t – the period of the dynamics under consideration, years.

Preliminary calculation shows that the rate of labor productivity growth outstrips the increase rate of its payment: in Russia by 23.7% (43.34:39.88), in Ural FD— by 4.2%

(35.1:38.74); in the Sverdlovsk oblast — by 14.1%, in Kurgan oblast — lagging twice, in Tyumen the increase is 14.2%, in Chelyabinsk — (+22.6%).

3 Results and discussion

However, the presented results need to be clarified, which is related to inflation and the decline in the number of workers in agriculture. If we accept that the annual increase in selling prices for agricultural products is 7% on average, the increase will be 35% over the five-year period. It is by this magnitude that, in our opinion, the cost of gross agricultural production at all the territorial levels under consideration should be reduced. Then in none of the regions under consideration the rate of increase in productivity will not exceed this indicator on wages. In this case, the highest value of this ratio will be the national average and will be 8.3%, (23.7×0.35) , which can be accepted for the annual wage increase, the increase of which will not exceed labor productivity. For other territories this standard will be: for the Sverdlovsk oblast — 4.93%, Tyumen — 4.97%, Chelyabinsk — 7.91%. In Kurgan oblast, the increase is possible only in case of the aggregate risk reduction of agricultural production and increase of state support.

Table 1. Calculation of the productivity growth ratio and remuneration rates in the Russian Federation, the Ural Federal District and its subjects for the period 2010-2014 [12]

Territories	Gross agricultural products, million RUB.		Productivity of labor, thousand RUB per employee		Wages, rub./month		Growth for the period 2010-2014, %	
	2010	2014	2010	2014	2010	2014	2010	2014
Russian Federation	2507751	4825560	1467	3180	10125	17150	216.7	169.4
Ural Fed.Dist.	173700	254400	1669	2934	11177	18858	175.8	168.7
Sverdlovsk	44500	65900	1401	2436	13003	19747	179.8	152.0
Kurgan	20800	33400	3325	2924	7898	14099	88.0	178.5
Tyumen	45200	66700	1462	3344	12492	19945	228.7	199.5
Chelyabinsk	60.2	88.4	1944	4621	9875	19133	237.7	193.7

The actual annual wage increase exceeds estimated and is: in the country 13.8%, in the Ural FD — 14%, in the Sverdlovsk oblast — 11%, Kurgan — 13.8%, Tyumen — 12.5% and Chelyabinsk — 18.2%.

Given that real wages are below nominal and the rate of increase in market prices for final types of food exceeds the level of increase in wages in agriculture, it is advisable to adjust their ratio by the increase in state support to agro-organizations.

The rate of its annual increment should not be lower than inflationary growth in retail prices for agriproducts. However, at the beginning it is necessary to compensate almost two trillion accounts payable of agricultural organizations.

There is a need to prevent migratory processes that are undesirable for agricultural farms and rural areas, linking the flow of labour from some agricultural and rural areas to others. This leads to disruption of production processes and reduction of investment attractiveness of rural areas.

Therefore, there is a need to smooth inequalities in living standards of the population in different regions by comparing their actual indicators with normative ones, that is, in terms of satisfying needs of the population for the life benefits and various services.

Positive solution of this problem is seen through the balance of social and economic development of regions, in which the labor resources, motivational “attraction” which in other areas, as before, occurs according to wage level. In terms of subjects of the Russian Federation, we will analyze the ratio of the average monthly wage in agriculture with the same indicator in the economy of the country and calculate the share of increase in state support allocated to the regions to equalize the level of pay between entities (Table 2).

Table 2. Calculation of the increase share in state support of agriculture in the subjects of the Russian Federation allocated to equalize them on the level of wages

Federal Districts									
Indicators	Central FD	Northwestern FD	Southern FD	North Caucasus FD	Volga FD	Ural FD	Siberian FD	Far Eastern FD	On average:
Ratio of wages in agriculture and in economy, %	49.2	63.1	70.4	66.4	57	48.3	53.5	55.0	57.8
Number of subjects	18	12	6	7	14	4	12	9	
Ratio of agricultural wage share to county average, %	85.1	109.2	122.0	114.8	98.6	83.5	92.5	95.0	100
Deviation from average, %	27.3	51.4	64.2	58.6	40.8	25.7	34.7	37.2	42.5
Proposed growth of state support for increase of pay,% (Cs)	72.7	45.6	35.8	41.4	59.2	74.3	65.3	62.8	57.1

Equalization of pay levels according to this coefficient will create roughly the same motivational conditions in the regions and stabilize the migration process.

In the conditions of the studied region, according to our calculations, Cs amounted to: for agricultural farms of the Sverdlovsk oblast 51.6; Kurgan — 38.4; Tyumen — 93.0, Chelyabinsk — 47.2.

Analyzing the state of the social and labor sphere of the rural area, it is necessary to assess the nature of the ratio of labor productivity and changes in the number of agricultural workers. This ratio allows to trace the manifestation level of innovative processes in the agricultural sector of a particular region on the basis of technical modernization.

For visibility, we will present this ratio in the form of a table (table.3).

Table 3. Calculation of the ratio of labor productivity growth rates in agriculture of subjects of the Ural FD and reduction of employees in it

Subjects of Ural FD		Value of indicators				
		2010	2014	ΔLP, %	ΔN,%	ΔLP/ΔN
Sverdlovsk	LP 2)	490	734	49.8	-	in 3.3x
	N	31762	27048	-	14.8	
Kurgan	LP	1339	1023	23.1	-	by 0.86%
	N	15693	11423	-	27.2	
Tyumen	LP	512	1170	128.5	-	7.1 times
	N	25655	21001	-	18.1	
Chelyabinsk	LP	681	1112	63.3	-	5,3 times
	N	30965	27222	-	12.1	

Comparing the rate of change (growth) of labor productivity and the number of agricultural workers of Ural FD subjects calculated on the basis of official statistics, it is possible to conclude exceeding the growth of the first over the second, which could be

considered a positive phenomenon. Tyumen and Chelyabinsk oblasts are in the best position on this ratio.

In the Kurgan region, the ratio of these indicators is about the same level, which indicates the growing degradation of the agricultural sector of the region. This conclusion is confirmed by the decline of the main economic indicators of its agricultural organizations' activity. On average for a five-year period there is a decrease in the production of gross production per 100 hectares of farmland by 34.8%, grain yield by 12.8%, potato yield by 15.3%, stock yield by 51%. labor productivity — by 23.6%. But the most disadvantaged indicator is investments in the main capital, which in the five-year period (2010-2014) increased from 25.6 billion rubles to 32.2 billion rubles, in an unsustainable variant (growth and decline).

In the Sverdlovsk region, for the given period investments increased from 264.5 billion rubles to 370 billion rubles, in Tyumen — from 1049.7 billion rubles to 1690.3 billion rubles, in Chelyabinsk — from 151 to 229 billion rubles.

That is, the volume of investments in fixed assets in the Kurgan region is lower than in other entities of the Ural FD by 23.4 times.

Similar conditions are for social infrastructure, in particular for the introduction of residential houses. If in total in the Kurgan region in 2015 389 thousand m² of housing was introduced, in Sverdlovsk — 2424 thousand m², in Tyumen — 3161 thousand m², in Chelyabinsk — 2002 thousand m².

In the Ural FD, there is a problem of population preservation, which can be represented by the ratio of birth rate to mortality. Considering the dynamics of this ratio on the number of births and deaths per 1000 people of the population in all subjects of the Ural FD except the Kurgan region, before 2011 there was an excess of mortality over fertility.

An important indicator of socio-economic character is the provision of agricultural land to the population (households). During the period under review (2011-2015) the level of provision of this type of agricultural resource stabilized, both in Russia and in the Ural FD.

According to official statistics, in the Russian Federation the existence of land used by enterprises, organizations and citizens engaged in agricultural production since 2011 was within 519.4-522.3 million hectares, reaching at the end of the period (2015) 520.8 million hectares, which amounted to 13.87 hectares and 13.7 hectares per rural inhabitant respectively.

In the Ural FD, during the period under review there was a slight increase in the land availability of the named designation from 79134.3 thousand hectares in 2011 to 79713 thousand hectares as of January 1, 2015, which amounted to 29.7 hectares (2011) and 34 hectares (1.01.2015) per inhabitant. This increase is caused by the reduction of persons engaged in agricultural production (from 2421 thousand people in 2011 to 2342 thousand hectares in early 2015).

If we consider the dynamics of the ratio of acreage and the average number of agricultural workers, this indicator in the Ural FD is as follows: 51.8 hectares (in 2010) and 62 hectares (in 2015), with the reduction of the sown area from 5373.9 thousand hectares and the number of agricultural workers from 104075 people (in 2010) to 86694 people (in 2014), i.e. by 17381 people.

The highest "load" in the area of sowing per agricultural worker is in the Kurgan region: 87.6 hectares in 2010 and 123.5 hectares; in Sverdlovsk — 26.8 and 31.8 hectares respectively; in Tyumen — 42.5 and 52.6 hectares; in Chelyabinsk — 67 and 73 hectares.

For visibility, the estimated values are presented in Figure 1.

Fig. 1. Sown area of agricultural land attributable to one agricultural worker in the subjects of the Ural Federal District, ha

The size of the acreage per agricultural worker indirectly influences the social and labor sphere of rural areas. On the one hand, with the increase in the sown area there is an opportunity to produce more agricultural products in favorable natural climate, economic and energy conditions for this.

If we accept that the first two conditions are currently available, there is doubt about energy because without adequate high - performance, energy - saturated equipment, increasing the area of agricultural land is unlikely to produce the desired socio-economic effect. In this case, a certain value has,

for instance, the seasonal load on machinery especially on tractors and harvesters. With high seasonal load on power machines the terms of field mechanized and harvesting works are lengthened, which adversely affects the safety of the crop, its quality indicators, and ultimately, economic results of management.

In general, the relationship between social and labor factors can be presented in the form of the following scheme (Figure 2):

Fig. 2. Schematic representation of interaction of social and labor factors contributing to development of rural areas

4 Conclusion

If we consider the level of technical equipment availability of agriculture subjects of the Ural FD, we can note that in most agricultural farms the seasonal load on power machines (tractors, harvesters) increases faster than their capacity and productivity increases. Almost 70% of power machines have worked depreciation life, which leads to an increase in operating costs, and eventually, increases the cost of agricultural products production and decrease its profitability. Next, the problems are solved in the sequence presented in Figure 8.

We will note the nature of the change of some indicators characterizing the state of the social sphere of the Sverdlovsk oblast over the five-year period at the average rate of their increase (+) or decrease (-):

- the proportion of the population with incomes below the living wage (-2.8%);
- Gini coefficient (income differentiation index) (+1.7%);
- number of health-resort organizations (+1.6%);
- number of general education institutions:
 - evening (-0.6%);
 - professional education (+1.1%);
 - colleges (without universities) -0.2%;
- number of libraries (-0.6%);
- number of children's health facilities (-2.3%);
- commissioning of residential buildings per 1000 people of the population (+0.8%);
- unemployment rate (+0.9%) [216].

The highest percentage of unemployment is in the following districts: Alapaevsky, Verkhne-Turinsky, Garinsky, Krasnoufimsky, Serovsky, Slabodo-Turinsky, Taborinskiy.

However, the intensification of crisis manifestations does not guarantee the increase in unemployment in other rural areas, so there is an urgent need to develop diversification entrepreneurship taking into account available resource capacities, especially of a natural character.

One of the main problems remains the fate of small and medium-sized rural settlements, which is caused by an unreasonable concentration of rural populations in large municipalities. It is the concentration of agricultural enterprises carried out by agroholding structures that leads to the increase of unused agricultural lands, especially distant from the central estates of these large agricultural organizations. The land left is not used, accelerating the devastation process of rural settlements, erasing the features of the rural way of life.

Therefore, the concentration of agricultural production is expedient to be considered from the position of not only economic, but also social efficiency. To meet this condition, it is necessary to improve the planning process as a critical management function.

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