

## RURAL DEVELOPMENT IN THE CONTEXT OF SOCIAL WEALTH: ASPECTS OF THE REGIONAL LABOR MARKET

Marina Alexandrovna VOLOKHOVA, Ivan Sergeevich NOVIKOV

Volga Scientific-Research Institute of Economics and Organization of Agro-Industrial Complex (VRIEOAIK), Department of Socio-Economic Development of Rural Areas, Department of the organizational and economic mechanism for the development of agribusiness, 12 Shekhurdina Street, Saratov, 410010, Russian Federation, Phone: +79003149666, E-mail: novikovis@outlook.com

*Corresponding author:* novikovis@outlook.com

### *Abstract*

*In this paper, we study the regional aspects of the differentiation of wages of agricultural workers. In the prevailing market conditions, funding for agricultural workers is inadequate. In most cases, wage differentiation in neighboring countries is two or more times higher, which causes uncontrolled processes of labor migration from rural areas. The conditions of dependence of wages and production results in agriculture on the basis of a participatory approach are studied. We found that the payroll should be formed taking into account the observance of fundamental economic principles. In particular, while in the reference countries the basis of production activities is the observance of social guarantees and a decent level of remuneration, in the developing economies neighboring the region workers are poor, and as a result satisfaction of social justice is impossible. Moreover, the classical approach to the formation of a wage fund in modern market conditions may not be feasible and the author's concept of wage ranking is preferable.*

*Key words:* regional agribusiness, wages, labor market, Russian Federation

### INTRODUCTION

The article examines the current state and trends of the labor market in terms of wages of agricultural workers of the analyzed countries of the post-Soviet space and Europe, reveals the reference conditions of social wealth, its economic parameters. The article argues that in order to fully and comprehensively take into account the social and economic interests of workers, it is necessary to comply with the developed system for ranking wages and stimulating highly productive labor.

These studies are based on previous studies by Fisher and Knutson (2013) [8], Mackel (1975) [19], Melichar (1982) [20], Lee (1982) [17], Newman and Jarvis (1999) [27] and other leading global scientists involved in agricultural labor market issues.

These previous studies show that the widespread observance of social justice in the formation of remuneration for labor in agriculture provides benefits from production in comparison with traditional forms of

remuneration due to the specifics of production and terms of trade, which in turn reduce efficiency and economic benefits. This study takes another step to assess the importance of improving the efficiency of financing agricultural workers taking into account regional and industry specifics based on compliance with key provisions of the International Labor Organization. The material for the study was the results of the activities of agricultural enterprises of the post-Soviet countries (Tajikistan, Turkmenistan, Uzbekistan, Moldova, Kyrgyzstan, Georgia, Armenia, Azerbaijan, Belarus, Russia, Ukraine, Kazakhstan), as well as European countries neighboring Russia (Bulgaria, Poland, Lithuania, Slovakia, Hungary, Romania, Czech Republic, Latvia, Estonia, Slovenia, Norway, Finland, Sweden) for the period 2017-2019.

The research concept was the basic model of the involvement process - "ladder of participation", created in 1987 and then expanded, which contains the following levels: access to information, consultation,

joint decision-making, initiation and control by those who receive the result from social changes. Subsequently, this model was supplemented and refined by introducing extreme elements of the range, such as passive participation and self-motivation for actions (Wellbrock, Roep, ... Farrell, 2013) [49].

Using a qualitative methodology based on the use of documentary analysis and the use of various methods of collecting information, Davila, Vargas, et al. (2018) [5] analyze two demographic trends that have influenced the definition of the economy of solidarity. The first is the Latin American current, and the second is the current social and solidary economy, on the basis of which they examined the regulatory framework and proposed some theoretical elements that are the core of the study.

According to Wellbrock, Roep, et al. (2013) [49], differences in the implementation of joint forms of governance can be partially explained by different political dynamics, the economic and demographic situation, as well as a common sense of place. The effective formation of collective management requires a peer review and restructuring of the separation of roles and tasks between facilities, including public administration.

Tegegne, Penker and Wurzing (2016) [45] noted that working together on demographic change factors between science and society provided valuable space for social learning so that regional stakeholders can determine the need and scope of local mitigation or adaptation measures demographic transformation.

During the development of the organizational and economic mechanism for regulating the financing of agricultural workers on the basis of a participatory approach using the research conducted by Ivashinenko (2012) [15] and a number of authors of the Institute of Socio-Economic Population Problems of the Russian Academy of Sciences, groups of low-income, middle-income and most wealthy segments of the population were determined by the level of minimum wage using the method of statistical summary and structural attributive grouping by countries entering in the post-Soviet and Europe.

In this work, convincing evidence was found that the optimization of the principles of formation of the wage fund in agriculture increases the level of satisfaction with the labor of the rural population, reduces migration sentiment and, using the example of reference economies, increases the efficiency of regional agribusiness as a whole [9]. This conclusion is important for the management of agricultural organizations: an increase in the well-being of workers should attract highly qualified specialists to work and stabilize the reproduction of the rural population as a self-sustaining structure, as well as the potential of the national agribusiness to reduce the outflow of the local population and reduce the need for hired immigrant labor [29].

The rest of this document is organized as follows: in the second section, empirical data on the development of labor markets in the region's agriculture are considered, the third section introduces the methodology of the mechanism for regulating wages, and the fourth describes the proposed decision-making model to increase the income of agricultural workers.

## **MATERIALS AND METHODS**

The most important stage in the study of socio-economic phenomena and processes is the systematization of primary data and obtaining, on this basis, a summary characteristic of the entire object using generalizing indicators, which is achieved by observing the statistical summary method by grouping the primary statistical material [47]. The qualification category of the tariff system of remuneration depends on the tariff rate of the agricultural worker, his qualifications [44]. Working conditions are also taken into account - accruals are made in the form of various surcharges (for irregular working hours, coefficients for the complexity of work in agricultural sectors) [16]. Legal regulation of remuneration is represented by national legislation. Local acts of enterprises determine the wage system, the size of the salary, rates, allowances, surcharges, increase in wages in conditions that deviate from the norm, the bonus system [18].

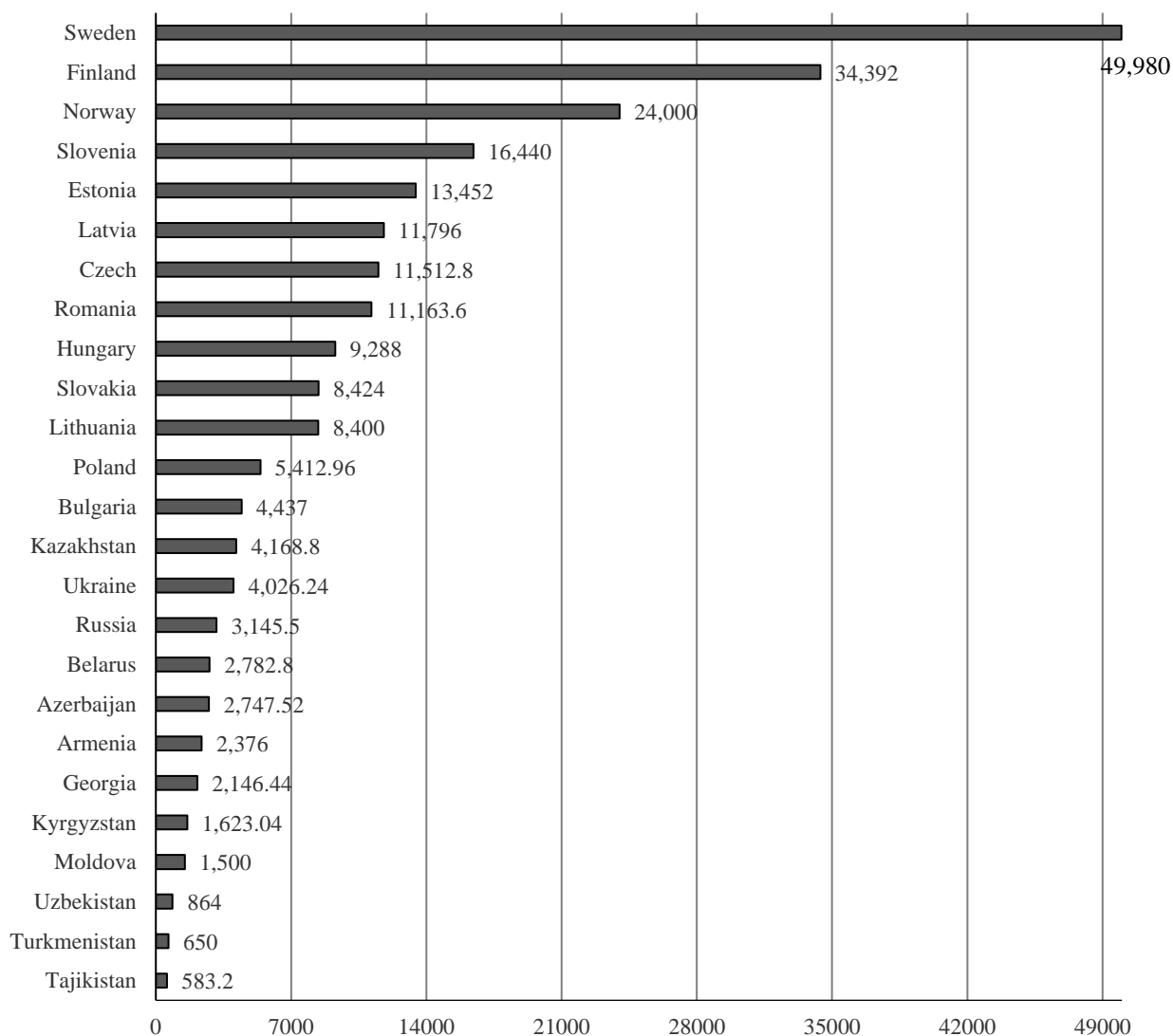


Fig. 1. Differentiation of remuneration in the studied region, euro per year.  
 Source: calculated by the authors.

To date, the following trends have been identified in the regional wage system:

- the level of remuneration in individual countries and the volume of gross production weakly correlate with each other and rely solely on the economic interests of agribusiness entities;
- the differentiation of average monthly and average annual wages is more than 5 orders, even within individual groups;
- the net profit of agricultural enterprises of the states of the studied region is formed largely due to national systems of support and subsidization of agriculture;
- there are no national programs for the formation and development of the social welfare of agricultural workers;

- there is no single approach to determining the minimum wage for agricultural workers, which contributes to an increase in the outflow of the able-bodied population to more economically developed countries;

- the reluctance of most agribusiness entities to offer a fair price for agricultural labor;
- poor efficiency of the statistical services of the countries of the post-Soviet space, lack of access to analytical information, distortion of official statistical information for the sake of the national interests of individual states (Tajikistan, Turkmenistan, Uzbekistan).

Thus, the current differentiation of regional volumes of wages in agriculture is presented in Fig. 1.

The current situation in agricultural remuneration clearly demonstrates its own

imperfection, which is further complicated by the lack of managerial initiative on the part of

the management of key enterprises in the region to form and then use a fair wage system.

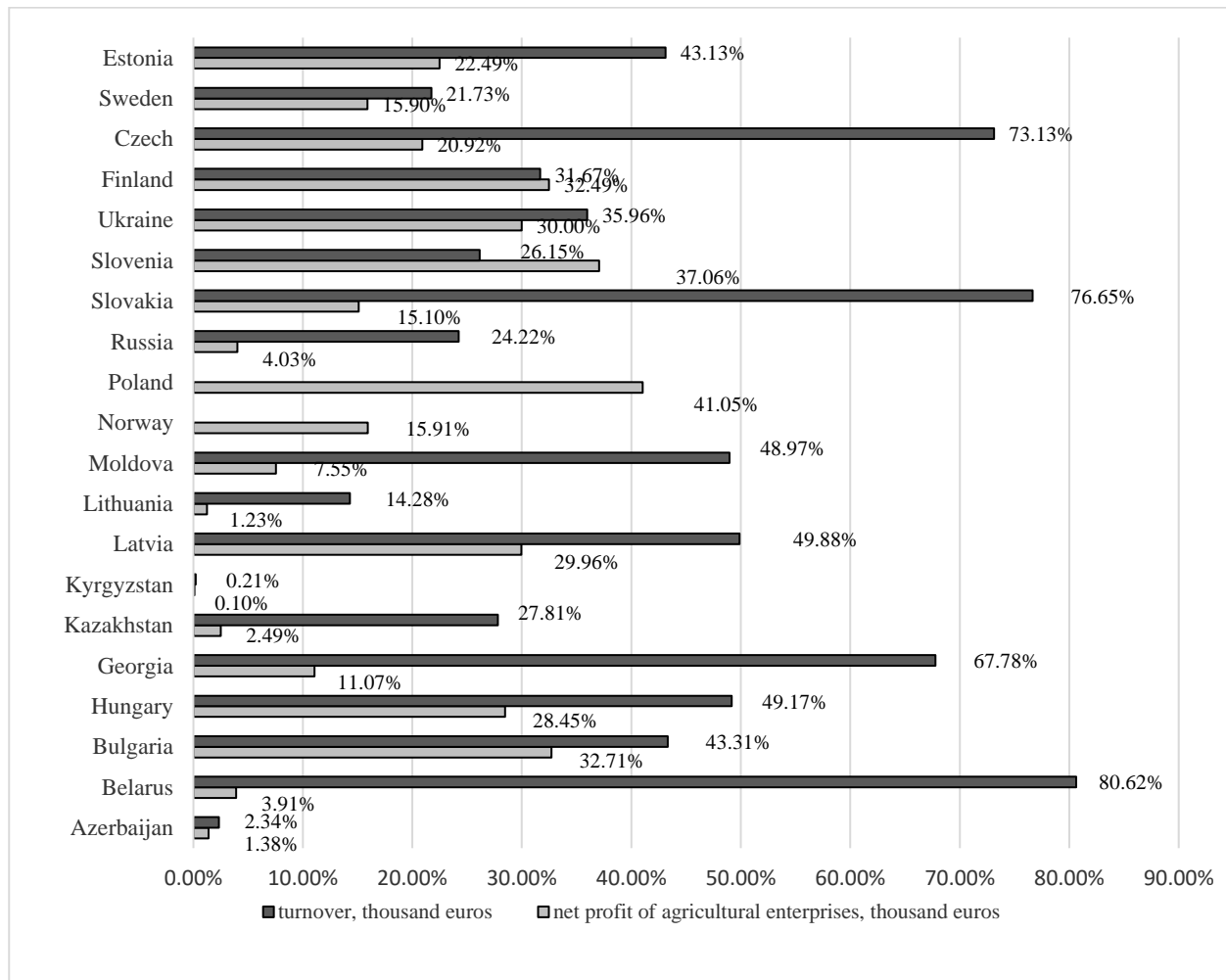


Fig. 2. Absolute ratio of gross outputs, turnover and net income in agriculture in the region  
 Source: calculated by the authors.

One of the reasons for this passivity is the objective negative aspects of the agricultural industry:

- submission of their own organizational and commercial interests to the interests of the national agricultural policy [7];
- the sufficiency of unskilled manual labor in many sectors of agricultural production [14];
- lack of a full-fledged system of national control of actual employment, formalization of the provision of financial statements [3];
- the general poverty of the rural population and the forced consent to unfair working conditions [48].

At the same time, business entities represented by management underestimate the clear advantages of optimizing the wage system:

- organization and improvement of the effectiveness of interaction between agricultural workers;
- attracting qualified personnel to the industry [10];
- organization of training, retraining, advanced training and internships of employees at their own expense, interest in career growth [30];
- the ability to choose personnel as a result of increasing the attractiveness of agricultural labor;
- reducing the risks of criminalizing the illegal use of migrant and unskilled cheap labor [34];
- organizational, informational and legal support from the national agricultural authorities and labor ministries in order to further improve national indicators of the social efficiency of agriculture [11].

In the process of research, the structure of the formation of added value of agriculture was analyzed and a significant bias was revealed in the volumes of revenue from sales of agricultural products and the levels of net profit of agribusiness, which indicates an insufficiently effective construction of national agro-industrial complexes and the absence of full-fledged market mechanisms for regulating the industry, Fig. 2.

## RESULTS AND DISCUSSIONS

The study used the method of statistical summary - this is a set of sequential operations to generalize specific individual factors. identify typical features and patterns inherent in the studied phenomenon as a whole, which allows us to calculate the tariff schedule for three options in our study, depending on the size of the actual wage and the subsistence minimum established for the Russian Federation on 01.01.2019, 163.48 euros per month for the able-bodied population.

A statistical summary includes the following steps:

- determination of the formation of groups according to Sturges' rule;
- the choice of a grouping characteristic and a system of statistical indicators to characterize groups and the object as a whole.

### **Definition of the formation of groups**

We determined which feature underlies the grouping (quantitative, qualitative, discrete, continuous). In this case, a quantitative continuous attribute.

We calculate the number of units of the population - N. In this study, we get  $N = 22$ .

We determine the maximum ( $x_{max}$ ) and minimum ( $x_{min}$ ) value in the given data.

We get:  $x_{max} = 49,980$ ;  $x_{min} = 583.2$ .

The Sturges' rule is an empirical rule for determining the optimal number of intervals into which the observed range of variation of a random variable is divided when constructing a histogram of the density of its distribution.

The optimal number of groups corresponding to a certain number of observations, according to the Sturges' rule, can be represented as follows:

$$n = 1 + [\log_2 N] = 1 + [3.332 \log N]$$

where:

N is the total number of observations of the quantity

$\log_2 N$  - base 2 logarithm,

$$n = 1 + [\log_2 N] = 5.459$$

$$n = 1 + [3.332 \log N] = 5.473$$

$$n \approx 5.459 \approx 5.473 \approx 5$$

We get  $n = 5$

We calculate the interval by the following formula:

$$h = \frac{R}{n} = \frac{X_{max} - X_{min}}{n}$$

$$h = \frac{49,980 - 583.2}{5} = 3,171.4$$

We round the interval to  $i = 3,171.4$  euros. If the value of the last boundary of the interval of the final group with  $x_{max}$  is not observed, it is necessary to take a more accurate value of the interval.

Table 1. The boundaries of the average monthly wage interval for employees

Group number	The boundaries of the interval of countries on wages per year, Euro., X	Number of countries, discrete variation series of indicators, f	Particular, W	The accumulated frequency, S
1	583 - 3754.4	10	10/22=0.45	
2	3,754.5 - 6,925.8	4	4/22=0.18	10+4=14
3	6,925.9- 10,967.2	3	3/22=0.14	14+3=17
4	10,967.3- 13,268.6	3	3/22=0.14	17+3=20
5	13,268.7- 16,440	2	2/22=0.09	20+2=22
Summ		22		

Source: calculated by the authors.

We calculate the interval for each group, with the condition that the interval is closed (has an upper and lower boundary).

For this, for the first group, the lower boundary will be  $x_{\min}$ .

In our study, the groups were determined by the size of the average annual wage per worker in agricultural enterprises by countries of the post-Soviet space and elected countries of Europe, Table 1.

Applying the G. Sturges' rule to calculate the optimal number of intervals, we received 5 groups with the largest and lowest average salaries at agricultural enterprises (583 and 16,440 euros, respectively), with an interval between them of 3,171.4. And one separate group, which in our study is a benchmark in terms of social welfare and the effectiveness of financing agricultural workers.

***The choice of a grouping characteristic and a system of statistical indicators to characterize groups and the whole object***

The dynamics and nature of changes in the abundance of any territory are determined by its natural (birth rate, mortality) and mechanical (migration) movement. The constant renewal of the population on the basis of natural movement, migration processes, as well as the transition of the population from one social group to another is called population reproduction.

Then the first group will include countries where the average annual salary of all employees will be from 583 to  $583 + 3,171.4 = 3,754.4$  euros per year. There will be 10 such countries (Tajikistan, Turkmenistan, Uzbekistan, Moldova, Kyrgyzstan, Georgia, Armenia, Azerbaijan, Belarus, Russia) (Table 2).

Table 2. The impact of wages on key indicators of social welfare of the studied countries

Groups of countries by salary in agricultural sectors		Tajikistan, Turkmenistan, Uzbekistan, Moldova, Kyrgyzstan, Georgia, Armenia, Azerbaijan, Belarus, Russia	Ukraine, Kazakhstan, Bulgaria, Poland	Lithuania, Slovakia, Hungary	Romania, Czech Republic, Latvia	Estonia, Slovenia	Norway, Finland, Sweden
The interval of wages in agriculture per year, euro		583 - 3,754.4	3,754.5 - 6,925.8	6,925.9- 10,097.2	10,967.3- 13,268.6	13,268.7- 16,440	24,000 - 49,980
On average in the group	Average wages to wages in agriculture, Euro,%	48.54	65.75	62.69	83.41	79.69	94.19
	The number of deaths per born, people	0.67	1.02	1.27	1.31	1.05	0.81
	Birth rate,%	1.66	1.18	0.95	0.94	0.99	1.15
	Immigration,%	5.0	8.42	4.24	6.23	13.31	11.89
	Natural increase (decrease) in the entire population,%	227.13	118.74	81.44	77.79	95.07	125.37
	Residents of the countryside,%	53.86	65.48	64.27	65.3	61.7	85.0
The decline in the rural population, including due to migration, person / year		202,787.4	255,573.75	14,379.33	19,116.33	5,959	856.33

Source: calculated by the authors according to the [1, 2, 4, 6, 12, 13, 21, 22, 23, 24, 25, 26, 28, 31, 32, 33, 35, 36, 37, 38, 39, 40, 41, 42, 43, 46]

The second group will include enterprises with an average annual salary of  $3,754 + 3,171.4 = 6,925.8$  euros per year. There will be 4 such countries (Ukraine,

Kazakhstan, Bulgaria, Poland). Similarly, we find the number of countries in the third group (Lithuania, Slovakia, Hungary), the fourth group also includes 3 countries (Romania,

Czech Republic, Latvia), the fifth group is completed by Slovenia and Norway. A separate reference group is represented by Norway, Finland, Sweden. Salaries in the agriculture of these countries per year are 24,000, 34,392, 49,980 euros, respectively, Table 2.

This kind of socio-economic factor, such as the size of wages, has one of the decisive effects on the demographic processes in the region. The grouping of wages showed a directly proportional dependence on the demography of different countries in terms of fertility, mortality, migration processes, and natural population growth. Natural growth serves as a characteristic of the growth rate of population reproduction. In the first and second study groups, there is a natural population growth due to the high birth rate in most countries included in it (Tajikistan, Turkmenistan, Uzbekistan, Moldova, Kyrgyzstan, Kazakhstan, etc.) due to religious and national cultural traditions. Depopulation takes place in countries belonging to the 3, 4, 5 groups, which speaks of a narrowed process

of population reproduction and leads to a demographic crisis. A prosperous economy in the fourth, fifth, and sixth groups with a high level of average wages helps to reduce the outflow of the working population (the average annual wage to wage in agriculture is from 83 to 95%).

***Justification of a decision-making strategy to improve the material situation of households in a rural settlement***

The study identified two social groups (wage earners and employers (agricultural enterprises and farms)) and, separately, administrative (managing) bodies. All these entities have a certain impact on decision-making to improve the social welfare of agricultural workers.

The first social group - wage earners - is divided into three social and property subgroups with respect to wages to living wages per working family member: 1.48-1.85 - high risk of poverty (minimum wage); 2.10-2.40 - on the threshold of poverty (average wage); 2.68-2.93 - an attempt to go beyond the poverty line (maximum wage) (Table 3).

Table 3. Decision strategies for improving the material situation of rural households

<b>Minimum wage to the cost of living</b>	<b>Middle wage to the cost of living</b>	<b>Maximum wage to the cost of living</b>
Wage-earners		
1.37-1.58	2.01-2.19	2.59-2.78
1.70-1.93	2.28-2.48	2.86-3.13
The average value of wages to a living wage		
1.48-1.85 (155.36 - 221.33 Euro)	2.10-2.40. (221.35 - 287.30 Euro)	2.68-2.93 (287.32 - 353.28 Euro)
The choice of a strategy for the behavior of a rural settlement of various social levels and authorities		
1-st Social group (employees)		
minimize costs	creation of volunteer groups	public attention
2-nd Social group (employers - agricultural enterprises and farms)		
-provision of permanent housing, with subsequent acquisition of ownership; -allocation of funds for the repair of schools, kindergartens, libraries, stimulating the labor market in "critical zones" - creating new jobs through the implementation of investment projects		
Authorities		
-attraction of social and informational ties -compliance with the provisions of the International Labor Organization (conventions 129, 144, 95, 131) and national labor codes (improving the legal framework in the field of labor and forms of employment and monitoring the implementation of the accounting policy adopted in the accounting policy in accordance with the tariff qualification grid and adjusted rates for the main part of remuneration, taking into account the implementation of established norms and standards)		

Source: developed by the authors.

The improvement of social wealth should primarily be associated with an increase in the material well-being of the rural population,

therefore, the behavior strategy of families with different levels of income is different.

The population with the lowest income (1 subgroup) has the most pronounced strategy of minimizing all expenses (emergency savings), including for food and basic necessities. They rely primarily on the help of the state, as well as relatives and parents. In addition, they are characterized by educational and labor activity (in the summer they are engaged in growing vegetables in their own plots, etc.). In order to improve the living conditions of this group, it is necessary to draw public attention to the problem of poverty.

The middle-income sections of the rural population take a passive position (2 subgroups), supporting the family at the expense of economy, preferring to endure temporary difficulties. They can also be proactive in providing financial assistance to low-income families.

The most affluent families activate and mobilize their internal reserves (3 subgroups). The presence of social ties and the possession of information, distinguishes them from other segments of the population and is a determining element of well-being, allows to engage in alternative activities such as farming or small business.

The second social group - employers (agricultural enterprises and peasant farms) will provide additional jobs due to investments in production.

In the second and third groups, economic instability affected the state of the budgets of municipalities and in the long term, the search for ways to stabilize finances and ensure the sustainability of local budgets of the district's settlements is still important.

Employers as a socially responsible group can influence the welfare of their workers, in particular, rural households, providing housing on preferential terms, a social package of corporate (within collective) benefits. Due to favorable investment characteristics, enterprises can attract investors with the aim of creating additional and new jobs in specific territories, implement projects under special contracts with the district administration with tax holidays for a certain period, as well as free sites requiring

reconstruction, additional equipment or for new construction.

Administrative bodies influence demographic processes and behavior strategies of households and employers of the agro-industrial complex.

The reduction of significant differentiation in the level of remuneration between sectors of the economy is a prerequisite for improving the regulatory framework in the field of labor and forms of employment, which controls the implementation of the accrual methodology adopted in the accounting policy in accordance with the tariff qualification grid and adjusted rates for the main part of payment labor, taking into account the implementation of established norms and standards. All this will contribute to increasing the social responsibility of the business, as well as the legalization of wages.

Studies have shown that it is necessary to minimize the existing significant differentiation in levels of remuneration between sectors of the economy and to fix in the accounting policy a detailed methodology for calculating remuneration in agricultural organizations, in accordance with the tariff qualification grid and adjusted rates for the main part of remuneration, taking into account the implementation of established standards and requirements.

***The choice of a grouping criterion by the size of wages and main economic indicators in the context of post-Soviet countries and Europe***

A selection and study of the main economic indicators of the countries of the post-Soviet space and Europe (and their grouping depending on the size of wages) showed that the first group of countries with the lowest level of wages is the largest. It includes 10 countries, including Russia. An analysis of these countries shows that in the reference group where the highest labor productivity (production), the wage intensity is 1.51, that is, one euro in the organization's income accounts for 1.51 euro of wages.

One of the key indicators that determine the effectiveness of the use of cash to pay for labor is wage mass or the profitability of the labor process. It indicates how many times the



employer's income received as a result of the employee's work is greater than the total wage fund.

Wage mass indicator allows you to assess the impact of the wage fund on the growth of production. Wage mass equal to the quotient of the financial results of the enterprise and the cost of labor for the period of time. It shows what revenue is received per euro of salary costs. The results of the organization's work include: profit; value added; volume of sales.

Formulas for calculating wage mass are:

$$\text{Wage mass} = (\text{Gross output}) / (\text{Wage fund})$$

To identify the effectiveness of spending money on wages, we carried out a comparison of wage mass with the indicator of wage intensity in dynamics for six groups in the context of selected countries. Wage intensity - an indicator, opposite wage mass. It determines how much wage is contained in 1 euro of production. The higher the value of the indicator, the more efficiently the organization's labor resources are used (Table 4).

Table 4. Grouping of the studied countries by main economic indicators (grouping indicator - wages)

Indicators	Average group of countries wages per year, Euro					
	1-st group 1,841.85	2-nd group 4,511.2	3-rd group 8,704	4-th group 11,490.8	5-th group 14,946	6-th group 36,124
Production, million euros / thousand people	12.03	30.13	28.55	14.21	32.05	95.05
Capital-labor ratio, euro / euro	6.20	2.46	6.07	1.02	6.36	22.75
Wage mass, Euro / Euro	16.21	1.95	1.56	0.50	0.70	0.66
Wage intensity, Euro / Euro	0.06	0.51	0.64	2.00	1.42	1.51
Personnel efficiency, Euro	572.71	10,284.01	5,895.34	1,756.46	10,064.48	19,065.36
Wage Efficiency, Euro	0.31	2.28	0.68	0.15	0.67	0.53

Source: calculated by the authors according to the [1, 2, 4, 6, 12, 13, 21, 22, 23, 24, 25, 26, 28, 31, 32, 33, 35, 36, 37, 38, 39, 40, 41, 42, 43, 46].

A decrease in wage intensity and an increase in wage mass ratio speaks of competent management of salary costs. Otherwise, the efficiency of labor costs decreases. In studies we observe the reverse process. An increase in these indicators indicates an increase in the social and economic significance of labor costs. In countries 5 and 6 of the groups with the highest level of pay per capita, wage mass is 0.7 and 0.66 euros, respectively, of the profit per one euro of labor costs. For further calculation of the tariff grid, it is most advisable to accept the minimum wage for the first category of the second group of countries, 4,511.25 euros per year or 375.93

euros / month, focusing on basic economic indicators, including wage intensity, which exceeds its size by 0.45 points compared to the first group.

***The method of ranking tariff coefficients by rank (minimum, average, maximum) and the calculation of the tariff grid of remuneration***

The ranking method is used to evaluate personnel, according to which the results of the work of employees, qualifications, positions held are compared, and then the sizes of tariff coefficients for the categories are determined. This method makes it possible to compare workers with each other, and not

only with the established standard or norm (Table 5).

Table 5. Ranking the coefficients of the tariff grid depending on the income of agricultural workers

Tariff category number	Tariff coefficients			Absolute increase in range	Relative increase in range	Range width	Overlap
	Minimum rank step value	Middle rank step value	Maximum rank step value				
1	1.0	1.3	1.6	-	-	0.6	0.2
2	1.4	1.7	2.0	0.4	23.5	0.6	0.2
3	1.8	2.1	2.4	0.4	19.0	0.6	0.2
4	2.2	2.5	2.8	0.4	16.0	0.6	0.2
5	2.6	2.9	3.2	0.4	3.8	0.6	0.2
6	3.0	3.3	3.6	0.4	12.1	0.6	0.2
7	3.4	3.7	4.0	0.4	10.8	0.6	0.2
8	3.8	4.1	4.4	0.4	9.8	0.6	0.2
9	4.2	4.5	4.8	0.4	8.9	0.6	0.2
10	4.6	4.9	5.2	0.4	8.2	0.6	0.2

Source: calculated by the authors.

In this case, it is taken into account that:

- the minimum, average, maximum values of the rank step are calculated depending on the income of the families of the rural settlement and are ranked according to the categories of the inter-qualification tariff grid;
- absolute growth is taken equal for all categories, on its basis the minimum, average, maximum tariff coefficients are determined on an accrual basis;
- the relative increase in the range characterizes the growth rate of the tariff coefficient in relation to the previous one;
- the width of the range is calculated as the difference between the minimum and maximum values of the ranks and with the help of overlapping they allow to cover the deficit of funds when the employee moves from the lowest to the highest level.

In socio-economic policy, any state in improving the demographic situation of a rural settlement should rely on the provisions of the International Labor Organization in the framework of recommendations and ratified conventions to strengthen social protection. State authorities should promote the protection of the right to work through an emphasis on the globalization of labor markets, characterized on the one hand by an excess of labor, and on the other by a lack of highly qualified personnel for agricultural enterprises. The labor market at the legal level should provide national regulatory systems of safety and health at work. This concept

includes the creation of a basic model of social protection, which allows assisting families in the most difficult situations who have lost their jobs or have been employed part-time.

In our studies, the calculation of tariff networks is based on the concept of poverty - the cost of living. The cost of living in the Russian Federation and, accordingly, the minimum wage is determined at 163.48 euros for the working-age population, 124.39 euros for pensioners, 150.58 euros for children.

For comparison, the second option of the tariff grid is calculated based on an analysis of the main economic indicators and their grouping in the context of elected countries (Table 6, and 7).

We have proposed an adapted 10-digit tariff grid and coefficients, which are determined depending on the ability of the enterprise to ensure the level of wages of its employees at the minimum, average or maximum levels.

From the analysis of payroll, salary intensity and profitability of labor, it follows that material remuneration is not associated with effective performance indicators of the enterprise.

Having identified the shortcomings of the existing unified system of labor rating, we examined the problem from the point of view of socio-economic significance. With a minimum value of the tariff coefficient, a person can provide only his primary needs,

with an average of simple reproduction, with a maximum - expanded.

Table 6. Adaptation of the tariff grid for three options depending on the income of a rural settlement with a minimum size, average and maximum income on the example of the Russian Federation

Tariff category number	Tariff coefficients			Tariff Rates		
	Minimum 1.37 - 1.93	Middle 2.01 - 2.48	Maximum 2.59 - 3.13	Minimum 1.37 - 1.93	Middle 2.01 - 2.48	Maximum 2.59 - 3.13
1	1	1.3	1.6	163.48	212.52	261.57
2	1.4	1.7	2	228.8	361.29	523.14
3	1.8	2.1	2.4	294.26	446.30	627.76
4	2.2	2.5	2.8	359.66	531.31	732.39
5	2.6	2.9	3.2	425.05	616.32	837.02
6	3	3.3	3.6	490.44	701.33	941.64
7	3.4	3.7	4	555.83	786.34	1,046.27
8	3.8	4.1	4.4	621.22	871.35	1,150.90
9	4.2	4.5	4.8	686.62	956.36	1,255.53
10	4.6	4.9	5.2	752.01	1,041.37	1,360.15

Source: calculated by the authors.

Table 7. Adaptation of the tariff grid for three options depending on the income of a rural settlement with a minimum size, an average and a maximum level of income for the analyzed countries, based on the minimum rate of the second group - 375.93 euros / month

Tariff category number	Tariff coefficients			Tariff Rates		
	Minimum	Middle	Maximum	Minimum	Middle	Maximum
1	1	1.3	1.6	375.93	488.71	601.49
2	1.4	1.7	2	526.30	830.81	1,202.98
3	1.8	2.1	2.4	676.67	1,026.29	1,443.57
4	2.2	2.5	2.8	827.05	1,221.77	1,684.17
5	2.6	2.9	3.2	977.42	1,417.26	1,924.76
6	3	3.3	3.6	1,127.79	1,612.74	2,165.36
7	3.4	3.7	4	1,278.16	1,808.22	2,405.95
8	3.8	4.1	4.4	1,428.53	2,003.71	2,646.55
9	4.2	4.5	4.8	1,578.91	2,199.19	2,887.14
10	4.6	4.9	5.2	1,729.28	2,394.67	3,127.74

Source: calculated by the authors.

## CONCLUSIONS

The organizational and economic model that we developed for regulating the social welfare of agricultural workers on the basis of a participatory approach made it possible to single out a system of demographic factors (birth rate, mortality, migration, natural increase) and based on them to justify the influence of the size of wages on the decision-making strategy and determine three socio-property groups in relation to the living wage for one working family member: 1.48-1.85 - high risk of poverty (minimum wage); 2.10-2.40 - on the threshold of poverty (average wage); 2.68-2.93 - an attempt to go beyond the poverty line (maximum wage).

The method proposed by the model for calculating the adapted tariff grid based on ranking according to three options depending on the income of the agricultural worker in the future should serve as the basis for calculating the prices of products in crop production and animal husbandry when the employer determines the main part of wages. Additional wages based on the rating of the labor contribution of workers and the calculation of the percentage of performance indicators of the performance criterion will allow for an increase in payroll by 42.79% to provoke a 2.4-fold increase in staff profitability in crop production, and in livestock farming a decrease in payroll by 59.9% will lead to an increase in profitability of personnel by 2.75%, while the profitability of wages will increase.

Increasing the social welfare of agricultural workers in the countries of the first group will help to stop the growing flow of emigration of agricultural labor resources, increase the national attractiveness of agribusiness for local labor markets and stabilize migration processes in the region.

Within the framework of this model, the modern system of labor incentives was adapted based on analytical factors with the aim of developing specific recommendations to local authorities on increasing the efficiency of financing agricultural workers by legalizing basic and additional wages.

In the future, the study of the issue of optimizing the remuneration of agricultural workers will be framed in the form of a methodological manual for the national governing bodies and heads of enterprises of the agro-industrial complex on standardizing wage policies taking into account the developed model.

## REFERENCES

- [1]Azerbaijan Statistical Information Service (ASIS) 2019, <https://www.azstat.org/portal/>, Accessed on 1 July 2019.
- [2]Central Statistical Bureau of Latvia (CSB), 2019, <https://www.csb.gov.lv/en/statistics>, Accessed on 10 April 2019.
- [3]Ciarli, T., Salgado, E., Savona, M., 2018, Does increasing firm and sector productivity drive up wages for workers? Joseph Rowntree Foundation, <https://www.jrf.org.uk/report/does-increasing-firm-and-sector-productivity-drive-wages-workers>, Accessed on 13 September 2019.
- [4]Czech Statistical Office Database (VDB), 2019, <https://vdb.czso.cz/vdbvo2/faces/en/index.jsf>, Accessed on 4 August 2019.
- [5]Dávila, R., Vargas, A., Blanco, L., Roa, E., Cáceres, L., Vargas, L., 2018, Characteristics of the Colombian solidarity economy. Approaches to influential currents in Colombia. CIRIEC-España, Revista de Economía Pública, Social y Cooperativa, 93, 85-113.
- [6]European Statistics (Eurostat), 2019, <https://ec.europa.eu/eurostat/data/database>, Accessed on 22 February 2019.
- [7]Ferragina, F., Tomlinson, M., Walkerton, R., 2013, Poverty, participation and choice: the legacy of Peter Townsend, Joseph Rowntree Foundation, <https://www.jrf.org.uk/report/poverty-participation-and-choice>, Accessed on 6 September 2019.
- [8]Fisher, D., Knutson, R., 2013, Uniqueness of Agricultural Labor Markets. American Journal of Agricultural Economics. 95 (Issue 2). 463-469.
- [9]Garrone, M., Emmers, D., Olper, A., Swinnen, J., 2019, Jobs and agricultural policy: Impact of the common agricultural policy on EU agricultural employment. Food Policy. 87, UNSP 101744. DOI: 10.1016/j.foodpol.2019.101744.
- [10]Green, A., Sissons, P., Qamar, A., Broughton, K., 2018, Raising productivity in low-wage sectors and reducing poverty. Joseph Rowntree Foundation, <https://www.jrf.org.uk/report/raising-productivity-low-wage-sectors-and-reducing-poverty>, Accessed on 16 September 2019.
- [11]Grycova, M., 2013, Ageing of labor force in the agricultural sector in the Czech Republic. In: Radvansky, M., & Lichner, I (eds) Impacts Of Ageing On Public Finances And Labour Markets In Eu Regions: Theoretical Models And Empirical Analyses. International Conference on Impacts of Ageing on Public Finances and Labour Market in EU Regions. pp. 215-222. Slovak Acad Sciences, Inst Economic Research, Bratislava, Slovakia.
- [12]Hungarian Central Statistical Office (KSH) (2019), <http://statinfo.ksh.hu/Statinfo/themeSelector.jsp?&lang=en>, Accessed on 3 May 2019.
- [13]Information System of the National Statistical Institute of the Republic of Bulgaria (Infostat), 2019, [https://infostat.nsi.bg/infostat/pages/module.jsf?x\\_2=1](https://infostat.nsi.bg/infostat/pages/module.jsf?x_2=1), Accessed on 17 July 2019.
- [14]Iorga, A., 2017, Characteristics of The Romanian Agriculture Workforce. Scientific Papers-Series Management Economic Engineering In Agriculture And Rural Development. 17 (2), 183-186.
- [15]Ivashinenko, N., 2012, Participatory approach to solving problems of the population. Narodonaselenie. 56(2). pp. 16-22.
- [16]Juvancic, L., 2005, Intertemporal analysis of employment decisions on agricultural holdings in Slovenia. Agricultural Economics. 33 (2), 153-161.
- [17]Lee, L., 1982, The Professional Agricultural-Economics Labor-Market – Discussion. American Journal Of Agricultural Economics. 64 (Issue 5). 1065-1067.
- [18]Macdonald, C., 2012, Understanding Participatory Action Research: A Qualitative Research Methodology Option. Canadian Journal of Action Research, 13(2), 34-50.
- [19]Mackel, C., 1975, Survey Of Agricultural Labor-Market. Journal Of Agricultural Economics. 26 (3), 367-381.
- [20]Melichar, E., 1982, The Professional Agricultural-Economics Labor-Market – Discussion. American Journal Of Agricultural Economics. 64 (5), 1068-1070.
- [21]Ministry of National Economy of the Republic of Kazakhstan (Statistical Committee), 2019, <https://stat.gov.kz/>, Accessed on 13 November 2019.
- [22]National Bureau of Statistics of The Republic of Moldova (Statistica Moldovei), 2019, <https://statbank.statistica.md/pxweb/pxweb/en/>, Accessed on 4 August 2019.
- [23]National Institute of Statistics statistical database (NIS TEMPO-Online), 2019, <http://statistici.insse.ro:8077/tempo->

- online/#/pages/tables/insse-table, Accessed on 12 September 2019.
- [24]National Statistical Committee of the Kyrgyz Republic (KyrgyzSTAT), 2019, <http://www.stat.kg/en/>, Accessed on 15 November 2019.
- [25]National Statistical Committee of the Republic of Belarus (NSCRB), 2019, <https://www.belstat.gov.by/en/>, Accessed on 25 November 2019.
- [26]National Statistics Office of Georgia (GeoStat), 2019, <https://www.geostat.ge/en/>, Accessed on 6 April 2019.
- [27]Newman, C., Jarvis, L., 1999, Worker and firm determinants of piece rate variation in an agricultural labor market. *American Journal Of Agricultural Economics*. 81 (5), 1304-1304.
- [28]Open Data Portal of the Republic of Uzbekistan, 2019, <https://data.gov.uz/en/>, Accessed on 28 September 2019.
- [29]Paul, S., 1987, Community participation in development projects: the World Bank experience (English). World Bank discussion papers. no. WDP 6. Washington, DC: The World Bank, <http://documents.worldbank.org/curated/en/850911468766244486/Community-participation-in-development-projects-the-World-Bank-experience>, Accessed on 19 April 2019.
- [30]Prisacaru, V., Caradja, A., 2019, Relationship Between The Performances Of Professional Agricultural Education And Rural Labour Market in The Republic of Moldova. *Scientific Papers-Series Management Economic Engineering In Agriculture And Rural Development*. 19 (1), 485-490.
- [31]Republic of Slovenia Statistical Office (SIStat) 2019, <https://pxweb.stat.si/SiStat>, Accessed on 22 September 2019.
- [32]Slovak Republic Statistical Bank (DATAcube), 2019, <http://datacube.statistics.sk/>, Accessed on 18 September 2019.
- [33]Slovak Republic Statistical Base (STATdat), 2019, <http://statdat.statistics.sk/>, Accessed on 19 September 2019.
- [34]Spesna, D., Pospech, P., Nohel, F., Drlik, J., Delin, M., 2009, Aging of the agricultural workforce in relation to the agricultural labour market. *Agricultural Economics-Zemedelska Ekonomika*. 55 (9), 424-435.
- [35]State Committee for Statistics of Turkmenistan (TURKMENSTAT), 2019, <http://stat.gov.tm>, Accessed on 27 September 2019.
- [36]State Statistic Service of Ukraine (UKRSTAT), 2019, <http://ukrstat.gov.ua/>, Accessed on 30 May 2019.
- [37]Statistic Estonia Database (ES), 2019, <http://pub.stat.ee/px-web.2001/dialog/statfile1.asp>, Accessed on 22 November 2019.
- [38]Statistic Finland (OSF), 2019, <https://www.stat.fi/>, Accessed on 26 August 2019.
- [39]Statistic Sweden (SCB), 2019, <https://www.scb.se/en/>, Accessed on 19 August 2019.
- [40]Statistical Committee of the Republic of Armenia (SCRA), 2019, <https://www.armstat.am/en/?nid=12>, Accessed on 8 April 2019.
- [41]Statistics Lithuania (LSD), 2019, <https://osp.stat.gov.lt/pradinis>, Accessed on 12 April 2019.
- [42]Statistics Norway (SSB), 2019, <https://www.ssb.no/en>, Accessed on 15 April 2019.
- [43]Statistics Poland Local Data Bank (BDL), 2019, <https://bdl.stat.gov.pl/BDL/start>, Accessed on 27 October 2019.
- [44]Taylor, J., Charlton, D., 2019, Labor in an Agricultural Household. In: Taylor, JE., & Charlton, D. (eds). *Farm Labor Problem: A Global Perspective*. pp. 97-120. Academic Press Lid.Elsevier Science Ltd.
- [45]Tegegne, A., Penker, M., Wurzinger, M., 2016, Participatory demographic scenarios addressing uncertainty and transformative change in Ethiopia. *Systemic practice and action research*. 29(3).
- [46]The Statistical Agency under President of the Republic of Tajikistan (TAJSTAT), 2019, <https://stat.tj/en/>, Accessed on 27 September 2019.
- [47]Tran, L., Perloff, J., 2002, Turnover in US agricultural labor markets. *American Journal Of Agricultural Economics*. 84 (2), 427-437.
- [48]Volokhova, M., Zudochkina, T., Glukhov, S., 2019, Regulatory and production method of stimulating labor in processing enterprises of agroindustrial on the example of Saratov region, Russia. *Scientific Papers Series Management, Economic Engineering in Agriculture and Rural Development*. Vol. 19(3), 641-647.
- [49]Wellbrock, W, Roep, D., Mahon, M., Kairyte, E., Nienaber, B., Garcia, M., Kriszan, M., Farrell, M., 2013, Arranging public support to unfold collaborative modes of governance in rural areas. *Journal of rural studies*. 32. 420-429.

