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Economic-statistical analysis of sustainable development of the rural labor market.

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ABSTRACT

Sustainable development of the rural labor market is the most important scientific and practical task for the further development and stability of the economic activities of the agro-industrial complex. The effectiveness of solving this problem is largely determined by the optimal and rational use of not only the production and financial potential of the rural economy, but also the effectiveness of using the human resources of the municipal region. At present, the rural labor market is the most important spatial and complex social and economic education that regulates the ratio of supply and demand for labor in rural areas. At the same time, the methodological and applied aspects of monitoring research of the rural labor market have not been adequately studied, including the issues of its economic and statistical evaluation. The article substantiates the scientific approach to the identification of the stability of the labor market and the employment system from the point of view of further development of rural municipal territories and clarifies proposals for overcoming human resources risks in the region.

Keywords: labor market, rural areas, development, economic, statistical assessment

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INTRODUCTION

The fundamental factor in the development of rural areas is the sustainable functioning of the municipal rural labor market. In the system of commodity markets of the agrarian region, it is the main element of the transformation of production and social labor processes, makes it possible to measure the demand and supply for labor services in the countryside [1] and improve the organizational economic mechanism of management in the regional subcomplex [5, 9].

It is in rural areas (in comparison with the urban) labor market has its own specific features. Here, the scale and duration of unemployment are the most perceptible, there is a low social security of the workforce, and a lower level of employment is recorded. Resolution of certain issues of economic and social stability of the labor market has been studied in a number of scientific papers of domestic [4, 6] and foreign scientists [7, 8]. Despite the urgency and significance of this problem, the methodological and applied aspects of the economic and statistical analysis of the sustainable development of the rural labor market are still not fully understood.

MATERIALS AND METHODS

The goal of the study of the sustainable development of the rural labor market in the region is to develop a methodology for its effective socio-economic monitoring, as well as an analysis and an objective statistical evaluation of this process.

At the first stage of the study, for a five-year period, an information database is calculated for each municipal rural area of the region, which, in general, characterizes the economic and social tensions in the development of the rural labor market.

This requires the following main factors:

- labor activity in rural areas,%;
- level of employment of the able-bodied population,%;
- Unemployment rate calculated by the methodology of the International Labor Organization (according to regional statistics bodies),%;
- The unemployment rate calculated on the basis of the registered unemployment rate (according to the employment service of the population of the municipal territory),%;

(a block of indicators of employment and unemployment);

- the ratio of supply and demand for labor, the index;
- duration of unemployment registered in the employment service, months;
- The proportion of registered stagnant unemployment (the proportion of unemployed with a duration of unemployment over 1 year in their total number),%;
- the number of unemployed who fall by 1 registered vacancy, persons;
- the number of people who are not engaged in labor activity, per one declared vacancy, persons;

(a block of indicators of labor market tension);

- the ratio of wages of rural residents to the subsistence minimum, the index;
- average unemployment benefit, rubles;
- gender profile of unemployment (number of unemployed women per 100 unemployed men), people;
- the coefficient of employment of rural population,%.

(a block of indicators of social stability of the labor market).

At the second stage of the study in the MS Excel environment, for each of the above indicators, the corresponding stability coefficients of the level dynamics calculated according to the following algorithm are determined:

R_{st} - the coefficient of sustainable development of the rural labor market (by a single indicator) was calculated as the average geometric value of the product of the coefficients integrated in it, multiplying the intensity of change, the direction and the rate of development of the factor sign in the dynamics according to formula (1)

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$$R_{st} = \sqrt[4]{R_{ab} \cdot R_{rl} \cdot R_{ga} \cdot R_{gr}} \cdot \sqrt[2]{R_{ka} \cdot R_{kr}} \qquad (1)$$

R_{ab}–the coefficient of stability of absolute values (the stability of the variability of absolute attributes) indicates an inversion of the variability of the change of the considered index in the dynamic series;

R_{rl} –coefficient of stability of relative values (stability of the dynamics of chain increments) indicates an inversion of variability in the change of a given attribute in a dynamic series;

R_{ga} –the absolute coefficient of intensity of development and dynamics (the average absolute increase over the period under study) indicates the rate of change, direction and dynamics of the process;

R_{gr} –the relative coefficient of intensity of development and dynamics (the average relative increase over the period under study) indicates the rate of change, direction and dynamics of the process;

R_{ka}–the absolute coefficient of correlation of levels (tightness of the connection between the indicators in the dynamic series) indicates a tightness of the relationship between them, as well as the direction of the relationship; for comparability with other coefficients is taken modulo;

R_{kr}–the relative correlation coefficient of the levels (the tightness of the relationship between the relative quantities in the dynamic series) indicates a tightness of the relationship between them, as well as the direction of the relationship; for comparability with other coefficients is taken modulo.

The author's scientific approach to assessing the sustainable development of the rural labor market is based on the following principles: the priority of increasing the rational employment of the rural population, alleviating the tensions in the labor market; an increase in the level of social protection of workers in the agro-industrial complex.

RESULTS AND DISCUSSION

The proposed methodology for assessing the level of sustainable development of the rural labor market was tested using the example of 9 municipal districts of the second agricultural zone of the Stavropol Territory. At the same time, the resulting estimated coefficients were multiplied into three main groups of indicators, separately characterizing the stability of employment and unemployment (U), the labor market tension (L) and the social stability of the rural labor market (S) for a single municipal territory. Their geometric mean (R) was presented as an integral coefficient of sustainable development of the rural labor market for each territorial formation (Table 1).

Table 1: Estimated data on the definition of indicators and the integral coefficient of sustainable development the rural labor market in the region

Municipal districts of the 2nd agricultural zone of the region	Indicator of sustainable development the labor market			Integral coefficient of sustainable labor market development (R)
	by level of employment and unemployment (U)	on labor market tension (L)	on social sustainability (S)	
Aleksandrovsky	0,614	0,558	0,668	0,594
Blagodarnenskiy	0,752	0,405	0,809	0,721
Budennovskiy	0,673	0,514	0,762	0,698
Ipatovsky	0,592	0,657	0,647	0,583
Kurskiy	0,481	0,559	0,503	0,445
Novoselitsky	0,544	0,622	0,611	0,532
Petrovsky	0,623	0,552	0,674	0,617
Sovietskiy	0,617	0,581	0,515	0,604
Stepnovsky	0,458	0,499	0,626	0,443

Economic and statistical analysis has shown that there is a direct and relative substantial relationship between the integral coefficient of sustainable development of the rural labor market and such important socioeconomic factors as: the volume of output of the processing industry, the level of wages, the level of rural employment and the labor-saving rate of labor in the agrarian sector economy (the coefficient of multiple correlation R varies in rural areas from 0.588 to 0.713).

Between the above factors and the indicator of social stability of the labor market, a direct and relatively close relationship has also been fixed (R = 0.487 ... 0.692, which is manifested in 7 out of 9 municipal districts). In general, this situation is typical for the rural areas of the Blagodarnoy, the Soviet, Petrovsky and Budennovskiy districts. In these small subregions are concentrated the most stable agricultural organizations and effectively functioning construction and processing enterprises, and the number of small enterprises per 1,000 people. The cash population is 1.2-1.3 times higher than the average for the agricultural zone.

The studies did not confirm the high correlation between the integral coefficient of sustainable development of the labor market and the indicators that determine the development of the ecological environment (the coefficient of multiple correlation left an average of 0.214). However, this does not mean that we should not pay attention to these components of sustainable development of the labor market. Here, more detailed scientific research is needed with the connection of other better quality multifunctional methods of economic and statistical analysis.

In addition, the analysis made it possible to identify the main reserves of sustainable development of the rural labor market and outline ways to prevent production, financial and personnel risks for the future. Thus, potential losses of the value of goods and services were calculated because of the insufficient level of sustainable development of the labor market in more than a third of rural areas. In this case, the comparison of data was made with respect to the average level of the corresponding indicators. It is established that the maximum of losses of products and the volume of provided services to the population (1,302 billion rubles - on average per year) falls on the share of rural areas with insufficient level of development of the processing industry, lower level of employment and employment of the population, higher level of staff turnover.

In this regard, in relation to rural municipal labor markets with respect to a sustainable type of development (integral coefficient of sustainable development R> 0.6), it is recommended: to expand the opportunities for creating new jobs in the field of agro-tourism, environmental and recreational activities; formation of an effective environment for self-employment in the non-agricultural sector of the rural economy.

For municipal labor markets with an average degree of sustainable development (0.55 <R <0.6), the following are necessary: the development and implementation of targeted municipal programs for staff sustainability of organizations; priority development of human capital in the agro-industrial complex; the priority creation of jobs in construction and trade; formation and development of a stable system of small and individual entrepreneurship.

The unstable type of labor market in the region (R <0.55), respectively, predetermines: the establishment of municipal rural centers for sustainable development and employment of the population; implementation of programs to prevent and mitigate human resource risks in rural areas; development of socio-economic maps for sustainable development of rural areas; quarterly information monitoring of the tension of the rural labor market.

CONCLUSION

The labor market acts as the main driver and the most important factor of stability in rural territorial formations. In this sense, sustainable development of the rural labor market can be presented as a condition for its productive social and economic development that meets the needs of the present and future generations in a variety of goods and forms of labor participation in rural areas.

The integral indicator of the sustainable development of the rural labor market varies from 0.445 to 0.721 in municipal areas and depends most on the level of rural labor activity, the level of its wages, and is also determined by the decrease in staff turnover and the increase in the coefficient of employment (the coefficient of determination D = 73.4 %).

The proposed methodology for assessing the further development of the rural labor market allows for its optimal improvement in perspective, taking into account the available vacancies and the demand for labor. Approved methodological approach can also be applied in other regions of the country.

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