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Modeling the main trends development regional labor market in conditions of globalization economic processes

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ABSTRACT

Using the procedure of drawing up the balance of inter-sectoral labor contained in [2, 11], statistics [1], draw up economic and mathematical model of interbranch balance, which is an inter-sectoral balance of labor costs and labor resources of the Stavropol Territory in 2014. Based on the coefficients of direct and full complexity of developed cross-sectoral and commodities balances of labor and use of human resources. Build these balances can be a general type of matrix models, and all indicators are have expressed in labor gauges.

Keywords: agriculture, labor, Stavropol Territory

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INTRODUCTION

According to [1] Stavropol region is have characterized by a large number of economically active population (63.4%). It has a high employment potential. The overall unemployment rate in 2014 was 5.3% (in Russia - 5.2%, the average for the region and the South of the North Caucasus federal districts: one in Krasnodar region - 5.7%, the Rostov Region - 5.9%). In accordance with the forecast calculations, the population is not a limiting factor in the development of the Stavropol Territory.

The whole complex of Stavropol region has competitive advantages, foremost among which is the redundant workforce. However, there is tension in the labor market, associated with an advancing growth of the economically active population on economic growth, and there are problems of qualification structure of labor resources.

MATERIALS AND METHODS

Calculating the coefficients of direct material costs per unit of production for the 5 major branches of Stavropol Territory: mining, manufacturing, production and distribution of electricity, gas and water; Agriculture; building; transport and communications; trade and services to the public.

The values of coefficients of direct material costs per unit of production a_{ij} calculated according to the formula [2, 10]:

$$a_{ij} = \frac{x_{ij}}{X_j}; \quad i, j = \overline{1,5} \tag{1}$$

Where x_{ij} —indicators placed at the intersections of rows and columns, which represent the value of intersectoral product flows (iandj—respectively non-producing and consuming industries); X_j - gross outputjindustry.

Table 1 shows a diagram of the interbranch balance of production and distribution of the total social product of the Stavropol Territory in terms of value.

Table 1: Interbranch balance Stavropol Territory

Generating industry	Consuming industries					Final production (million rubles)	Gross output (million rubles)
	1	2	3	4	5		
1	16198	3605	3965	2301	2305	52362	80737
2	6645	16525	6765	339	20605	1306	52186
3	3965	2466	3566	2310	20605	6839	39752
4	2301	2305	1236	19086	2301	9101	36330
5	29519	4781	3965	1140	2301	41464	83170
Depreciation	8074	5219	3975	3633	8317		
Salary	16147	10437	7950	7266	16634		
Net in come	-2113	6848	8329	255	10101		
Gross output	80737	52186	39752	36330	83170		292175

The matrix of direct material cost A will be:

$$A = \begin{pmatrix} 0,2 & 0,07 & 0,10 & 0,06 & 0,03 \\ 0,08 & 0,32 & 0,17 & 0,01 & 0,25 \\ 0,05 & 0,05 & 0,09 & 0,06 & 0,25 \\ 0,03 & 0,04 & 0,03 & 0,53 & 0,03 \\ 0,37 & 0,09 & 0,10 & 0,03 & 0,03 \end{pmatrix}, \quad Y = \begin{pmatrix} 52362 \\ 1306 \\ 6839 \\ 9101 \\ 41464 \end{pmatrix},$$

where Y—the amount of the final product of each of the five sectors under consideration of the Stavropol Territory.

The coefficient matrix of full material costs would be:

$$B = \begin{pmatrix} 1,36 & 0,19 & 0,21 & 0,22 & 0,14 \\ 0,44 & 1,62 & 0,42 & 0,18 & 0,54 \\ 0,27 & 0,17 & 1,21 & 0,23 & 0,37 \\ 0,17 & 0,19 & 0,14 & 2,16 & 0,15 \\ 0,59 & 0,25 & 0,25 & 0,19 & 1,18 \end{pmatrix}. \quad (2)$$

The values of the gross output of the five branches of the Stavropol region, presented in Table 2.

Table 2: Results of calculations

Generating industry	Consuming industries					Final production (million rubles)	Gross output (million rubles)
	1	2	3	4	5		
1	16198	3605	3965	2301	2305	52362	80737,4
2	6645	16525	6765	339	20605	1306	52184,9
3	3965	2466	3566	2310	20605	6839	34868,7
4	2301	2305	1236	19086	2301	9101	36331,1
5	29519	4781	3965	1140	2301	41464	83169,8
Conditionallynet output	22109,4	22502,9	15371,7	11155,1	35052,8		
Grossoutput	80737,4	52184,9	34868,7	36331,1	83169,8		287292

Consider the application of interbranch balance method for the analysis of labor indicators. Complementing the original data for calculating cost of living labor or labor five main branches of the Stavropol Territory, define the coefficients of direct and complete the complexity and interdisciplinary form the balance of labor costs branches. Data on the number of labor resources of the five main branches of the Stavropol Territory are have presented in Table 3 [2].

Table 3: Distribution of the employed population by economic activity (thousands)

№ п/п	Name industry	Quantity
1	Mining and quarrying, manufacturing, production and distribution of electricity, gas and water	198,7
2	Agriculture	211,2

3	Building	93,5
4	Transport and communications	94,1
5	Commercial and public services	236,2

Table 4: Schematic cross-sectoral labor balance five key sectors of the Stavropol Territory in 2014

Generating industry	Consuming industries					Labor costs for end products	Labour costs in the sectors
	Cross-sectoral costs materialized labor						
	1	2	3	4	5		
1	90671,62	20179,72	22194,9	12880,32	12902,71	293107	451943,9
2	74836,41	186105,6	76187,85	3817,839	232054,8	14708,25	587709,1
3	24648,01	15329,63	22167,67	14359,87	128088,8	42513,93	216757,8
4	17856,07	17887,11	9591,525	148109,9	17856,07	70624,97	281934,3
5	231375,1	37474,31	31078,36	8935,518	18035,64	325002	651899

The data obtained are presented in Table 4 indicate the need to adjust labor by industry to maximize profits.

In this case, the specific economic content of the interbranch balance of labor is that the cost of the final product, estimated from the total labor costs, is equal to the total cost of living labor. Comparing the effect of various consumer products interchangeable with full labor costs their production; it is possible to judge the comparative effectiveness of their production.

RESULTS AND DISCUSSION

Thus, the labor market has a major impact on the formation of the labor force in agriculture. Current economic development requires the formation of a fundamentally new labor market in both structure and quality of jobs, which in turn will determine the strategy of development of human resources of the Stavropol Territory. An analysis of the situation on the labor market, the focus of the development strategy of the Stavropol Territory is have made on the development of human resources.

The specific economic content of the presented model is that the cost of the final product, estimated from the total labor costs, is equal to the total cost of living labor. Thus, the judge of the relative efficiency of production is possible by comparing the effect of various consumer products interchangeable with full labor costs of their production

The problems addressed in this article attracted the attention of many researchers. The management of the employment potential of the region, identifying the main principles of formation of management, as well as the use of mathematical modeling techniques discussed in [3, 8], [4], [5] and [6]. The study of the state of social and labor sphere of the Stavropol Territory the village is have dedicated to the work [7, 9].

CONCLUSION

Thus, based on coefficients of direct and full complexity of developed cross-industry and food balance sheets of labor and use of human resources of the five main branches of the Stavropol Territory. With performance full complexity of a more complete and accurate than using the existing cost parameters, revealed the structure of the cost of production of various kinds of products, especially the ratio between the cost of labor and materials.

Priority implementation of measures aimed at improving the provision of AIC labor, no doubt. The decision in the first instance of this problem will allow in the short term to stabilize the situation in agribusiness and begin to increase the production of domestic agricultural products.

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