

SCTCMG 2021

**International Scientific Conference «Social and Cultural Transformations in the Context of
Modern Globalism»**

**VALUATION METHODOLOGY OF THE REGIONAL LABOR
MARKET CONDITIONS**

Ekaterina Georgievna Zinovyeva (a), Margarita Vladimirovna Kuznetsova (b),
Natalya Sergeevna Shkurko (c), Anna Viktorovna Mikhailova (d)*,
Agafia Dmitrievna Efimova (e)

*Corresponding author

(a) Nosov Magnitogorsk State Technical University, 38, Lenina st., Magnitogorsk, Russia, Ekaterina_7707@mail.ru,

(b) Nosov Magnitogorsk State Technical University, 38, Lenina st., Magnitogorsk, Russia, wj27@mail.ru,

(c) North-Eastern Federal University named after M.K. Ammosov, 42, Kulakovskiy st., Yakutsk, Russia, nat-skurko@yandex.ru,

(d) North-Eastern Federal University named after M.K. Ammosov, 1, Lenin Ave., Yakutsk, Russia, mikanya23@mail.ru,

(e) North-Eastern Federal University named after M.K. Ammosov, 1, Lenin Ave., Yakutsk, Russia

Abstract

The development and use of valuation methodology for the regional labor market conditions, based on the index approach, made it possible to rank the studied regions for the purpose of identifying the situation in the labor market of the region. Aggregation of the labor market in the study region showed that in the Sverdlovsk region, the aggregated labor market index has the highest value – 0.649. The Chelyabinsk Region ranks second among the four regions in this index – 0.575. In the Tyumen region it is 0.558. The situation on the labor market in these regions can be described as prosperous with a high potential for the development of the labor market. The index has the lowest value in the Kurgan region (0.277), where a slight lag in this indicator is recorded. Within the framework of social partnership, it is possible to coordinate the interests of the subjects of the regional labor market regulation policy. The current phase of socio-economic transformation is characterized by an active search for solutions to the problems of regional development. Through the mechanism of the labor market, rates of wages and employment of the population are established. Employment of the population is a necessary condition for its reproduction, since the people's living standards depend on employment. Regulation of the regional labor market is important. The regional labor market is one of the indicators, the state of which allows us to judge the stability, well-being and effectiveness of the socio-economic policy.

2357-1330 © 2021 Published by European Publisher.

Keywords: Labor market, regional market, index approach, social partnership



This is an Open Access article distributed under the terms of the Creative Commons Attribution-NonCommercial 4.0 Unported License, permitting all non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

1. Introduction

The regional labor market is a system of relations with the coordinated interests of employers and employees within the region (Agafonov, 2018). It in many ways determines the sustainable development of the region's economy and its efficiency.

The labor market is an essential element of the regional economic system. The level of well-being of the population and the dynamics of economic growth depend in many ways on its conjuncture (Koksharova et al., 2019).

The main component of the state and development of any region is the population, the main demographic and qualitative characteristics, the gender and age composition of the population, which determine social and economic development. The possibility of realizing labor as a fundamental factor of social production depends on the state of the labor potential of the regions. One of the main evaluation indicators of the economic potential of the development of the labor market in the region is the assessment of the labor potential of the region.

The importance of valuation of the regional labor market is related to how a certain labor market system allows you to evaluate the following issues:

- determination of the staffing needs in the priority development areas of a specific region;
- determination of the degree of employment and unemployment;
- getting an opportunity to evaluate the system of training graduates of educational institutions.

The labor market regulation policy in many ways determines the state of the labor market in the region and the possibilities for its further development. The labor market regulation policy in many ways determines the labor market conditions in the region and the opportunities for its further development.

2. Problem Statement

The scientific hypothesis of the study is that the solution to the problem of improving the level and quality of life of the population of the region depends on the effectiveness of the methods and tools used by the executive bodies of state authority that activate the mechanisms of social partnership at all stages of the development and implementation of socio-economic policy for regulating the regional labor market, aimed at ensuring the harmonization of the interests of subjects interested in regional development.

3. Research Questions

The subject of the study is the organizational and economic relations that arise in the process of implementing and developing a regional labor market policy in the region.

4. Purpose of the Study

The purpose of the work is to develop theoretical and methodological provisions that reveal the features of the elaboration and effective implementation of the regional socio-economic policy of labor market regulation.

5. Research Methods

The labor market as a scientific issue is the object of close attention of both domestic and foreign researchers (Giguere & St-Arnaud, 2020; Koptyakova, 2019; Lu & Hou, 2020; Ulceluse, 2020). Methodological and theoretical foundations of state regulation of the labor market are revealed in the works of Averina (2020), Agafonov (2018), Gagarinova (2019), Gatin (2019), Tatyankin (2019), Matveeva and Mikhalkina (2015) and others.

The research used general scientific methods of cognition of socio-economic phenomena, dialectical, complex, comparative, tabular methods of visualization of statistical and calculated data.

To analyze the labor markets and the policy of their regulation in the Russian Federation and the Ural Federal District, we used official statistics from Rosstat, the results of research by regional rating and analytical centers, and legal acts regulating labor relations.

6. Findings

The elaboration of a labor market regulation policy in the region should be preceded by an analysis of the state and potential of the labor market development. This will ensure the effectiveness of the labor market regulation policy and create conditions for the development of effective tools. It is necessary to calculate an integral indicator to evaluate the state of the labor market in the region. For this purpose, it is proposed to use the system of the following indicators (tables 1–2).

Table 1. The system of indicators for evaluating the state of the labor market in the region*

Indicator symbol	Indicator name	Calculation method
Q1	The level of the number of the able-bodied population aged 15–72 years in the total population of the Ural Federal District for 2017–2019, %	Number of able-bodied population aged 15–72 years / Total population of the Ural Federal District for 2017–2019
Q2	The level of the number of employees in the total population of the Ural Federal District for 2017–2019, %	Number of employees / Total population of the Ural Federal District for 2017–2019
Q3	Level of participation in the labor force of the population aged 15–72 years in the Ural Federal District for 2017–2019, %	The number of the labor force (employed and unemployed) of a certain age group / The total population of the relevant age group
Q4	Average monthly nominal gross salary of employees of the Ural Federal District for 2017–2019 (rub.)	Average nominal gross monthly salary of employees
Q5	Average per capita money income of the population of the Ural Federal District for 2017–2019 (per month, rub.)	Average money income of the population of the Ural Federal District for 2017–2019 per month per capita
Q6	The unemployment rate of the Ural Federal District for 2017–2019, %	Number of unemployed of a certain age group / number of economically active population
Q7	The level of registered unemployed	Number of registered unemployed of a

	in the Ural Federal District for certain age group / number of economically active population
Q8	The nationwide stress index for 2017–2019 (person / vacancy)
Q9	Labor productivity index for 2017–2019 (in % of the previous year)
Q10	The share of unemployed persons registered for more than one year in 2017–2019, %

Note: *according to the authors

Table 2. The system of indicators for valuation of the state of the labor market of the Ural Federal District for 2017–2019 (Rosstat, 2019)

Subject	2017	2018	2019
Able-bodied population (%), (Q1)			
The Ural Federal District	59.7	60.2	59.4
Tyumen region (without autonomous districts)	30.2	29.9	29.6
Chelyabinsk region	58.6	59.3	58.6
Kurgan region	58.7	60.9	59.5
Sverdlovsk region	58.7	59.6	58.6
The number of employees (thousand people), (Q2)			
The Ural Federal District	48.9	49.1	49.0
Tyumen region (without autonomous districts)	46.1	46.3	45.9
Chelyabinsk region	49.7	50.7	51.2
Kurgan region	42.9	41.8	40.3
Sverdlovsk region	47.6	47.3	47.2
Level of participation in the labor force of the population aged 15–72 years (%), (Q3)			
The Ural Federal District	69.4	69.0	68.4
Tyumen region (without autonomous districts)	66.3	65.9	65.2
Chelyabinsk region	71.4	71.9	71.9
Kurgan region	63.9	61.4	58.6
Sverdlovsk region	67.4	66.6	65.8
Average monthly nominal gross salary (RUB), (Q4)			
The Ural Federal District	43977	47807	50186
Tyumen region (without autonomous districts)	40473	44913	44990
Chelyabinsk region	32253	35219	40440
Kurgan region	25433	28159	32226
Sverdlovsk region	34760	38052	40900
Average per capita money income of the population (per month, rubles), (Q5)			
The Ural Federal District	33643	34955	36882
Tyumen region (without autonomous districts)	27672	29162	31835
Chelyabinsk region	23719	24386	25187
Kurgan region	20660	20334	20391
Sverdlovsk region	35210	36735	38238
Unemployment rate (%), (Q6)			
The Ural Federal District	5.6	4.7	4.3
Tyumen region (without autonomous districts)	5.0	4.4	4.1
Chelyabinsk region	6.6	5.6	5.1

Kurgan region	9.1	8.0	7.8
Sverdlovsk region	5.5	4.8	4.2
Registered unemployment rate (%), (Q7)			
The Ural Federal District	1.1	0.9	0.9
Tyumen region (without autonomous districts)	0.6	0.6	0.6
Chelyabinsk region	1.4	1.1	1.1
Kurgan region	1.7	1.5	1.5
Sverdlovsk region	1.2	1.0	1.0
The nationwide stress index (person / vacancy), (Q8)			
The Ural Federal District	0.6	0.6	0.55
Tyumen region (without autonomous districts)	0.1	0.2	0.25
Chelyabinsk region	1.2	1.09	1.0
Kurgan region	1.2	1.0	0.71
Sverdlovsk region	0.8	0.7	0.58
Labor productivity index (in % of the previous year), (Q9)			
Tyumen region (without autonomous districts)	101.1	108.9	108.0
Chelyabinsk region	99.6	101.4	100.5
Kurgan region	104.5	102.7	104.2
Sverdlovsk region	102.1	103.1	103.3
The share of unemployed persons registered for more than one year (%), (Q10)			
The Ural Federal District	0.5	0.5	0.4
Tyumen region (without autonomous districts)	0.8	0.7	0.6
Chelyabinsk region	0.4	0.5	0.4
Kurgan region	0.5	0.5	0.5
Sverdlovsk region	0.4	0.4	0.4

The system of indicators allows you to determine the macro-state of the regional labor market, identify existing problems. This system is used as a basis for conducting a comparative analysis of the labor markets of heterogeneous, different objects of research.

The suggested indicators are relative. This allows them to be used for comparative interregional analysis. Among these indicators, there are those that have a negative impact on the state of the labor market, and those that affect it positively. The first group of indicators includes: Q1, Q3, Q8, Q9. The second group of indicators is formed by: Q2, Q4, Q5, Q6, Q7.

A private index is calculated using the following formulas for each of the selected indicators:

1) if there is a direct liaison between the variables, the following formula will be used (1):

$$I_{yi} = \frac{Y_i - Y_{min}}{Y_{max} - Y_{min}}$$

2) if there is an inverse liaison between the variables, the calculation will be carried out according to the formula (2):

$$I_{yi} = \frac{Y_{max} - Y_i}{Y_{max} - Y_{min}}$$

where I_{Q_i} is the index of the Q indicator in the i-th region; Q_i is the value of the Q indicator in the i-th region; Q_{max} is the maximum conditional value of the Q indicator; Q_{min} is the minimum conditional value of the Q indicator.

Next, the aggregated index of the state of the labor market is calculated. In this case, the calculation was based on 7 indicators, the source data for the calculation of which were presented in the statistical collections of Rosstat. The aggregated indicator is defined as the arithmetic mean of the private indices, including seven indicators (n=7), according to the formula (3):

$$I_{cpm} = \sum_{i=1}^n \frac{I_{yi}}{7}$$

The total index value will vary between 0 and 1. The closer the index value is to 1, the more stable the state of the labor market and the higher the potential for its development.

Next, the regions are ranked by the value of the general index (table 3).

Table 3. Ranking of regions by the value of the composite integral indicator*

Index value	The situation on the labor market
0.00–0.25	A crisis situation with a low potential for the development of the labor market
0.26–0.50	Medium-stressed situation with an average potential for the development of the labor market
0.51–0.75	Low-stress situation with above-average development potential
0.76–1.00	A favorable situation with a high potential for the development of the labor market

Note: *according to the authors

The methodology for evaluating the state of the labor market, proposed by S.M. Agafonov (2018), is universal, which is provided by the use of an index approach, and can be used for interregional comparisons.

For the purpose of testing the methodology proposed by S.M. Agafonov, the regions studied above were used: the Tyumen region (without autonomous districts), the Chelyabinsk region, the Kurgan region and the Sverdlovsk region.

We will encode the regions to calculate the method: R1 – Tyumen region (without autonomous districts); R2 – Chelyabinsk region; R3 – Kurgan region; R4 –Sverdlovsk region.

We will calculate the main indicators of the state of the labor market to evaluate the state of the labor market in the regions (table 4).

Table 4. The main indicators of the state of the labor market of the studied regions, %*

Indicator	R1, %	R2, %	R3, %	R4, %
Q1	29.9	58.8	59.7	59.0
Q2	46.1	50.5	41.7	47.3
Q3	65.8	71.7	61.3	66.6
Q4	43 459	35 971	28 606	37 904
Q5	29 556	24 431	20 462	36 728
Q6	4.5	5.8	8.3	4.8
Q7	0.6	1.2	1.6	1.1

Note: *according to the authors

The average data for the region for 2017–2019 are shown here and below.

Next, for each of the selected indicators, we define Y_{\max} and Y_{\min} and calculate the private indices using the following formulas (2) and (3) (table 5).

Table 5. The maximum and minimum values of the main indicators of the state of the labor market of the studied regions, %*

Indicator	Maximum value, Y_{\max} , %	Minimum value, Y_{\min} , %
Q1	60.9	29.6
Q2	51.2	40.3
Q3	71.9	58.6
Q4	44 990	25 433
Q5	38 238	20 334
Q6	9.1	4.1
Q7	1.7	0.6

Note: *according to the authors

The choice of the minimum and maximum values for each indicator (Table 5) was made on the basis of statistical data on the analyzed subjects.

We will evaluate the private indices (table 6), which complement the objective characteristics given on the basis of statistics, and give an adequate representation of the important aspects of the life of the regional society.

Table 6. The value of private indices for the studied regions*

Indicator	R1	R2	R3	R4
Q1	0.123	0.846	0.867	0.849
Q2	0.407	0.701	0.112	0.490
Q3	0.432	0.669	0.252	0.464
Q4	0.615	0.366	0.120	0.430
Q5	0.478	0.222	0.023	0.836
Q6	0.913	0.705	0.286	0.863
Q7	0.937	0.514	0.277	0.613

Note: *according to the authors

We will calculate the aggregated index of the state of the labor market (I_{slm}) for each region (table 7).

Table 7. Aggregated labor market index for each region*

Indicator	R1	R2	R3	R4
Islm	0.558	0.575	0.277	0.649

Note: *according to the authors

The calculation of the aggregated index of the state of the labor market in the regions showed that it is the most important in the Sverdlovsk region, which indicates a more stable state of the labor market

in this region. The index takes the lowest value in the Kurgan region. The Chelyabinsk region ranks second among the four regions in this index.

7. Conclusion

The results of the application of a comprehensive methodology for evaluating the state and development of the regional labor market can be summarized in three conclusions:

- demand is less than supply;
- demand is greater than supply;
- the demand in the regional labor market is equal to the supply.

A more effective use of the existing potential opportunities for the development of the region can be carried out on the basis of the strategic co-orientation of the region and the country as a whole. The multi-factor nature of the region's development potential affects the entire range of economic activities of the region, the socio-economic system as a whole, and its productive forces. Increasing the level of efficiency of the use of the development potential of the region implies the need for its valuation.

The valuation of the potential level of the regions that are part of the Ural Federal District is necessary for further optimization of activities in terms of the development of these regions and economic growth. The analysis should include not only quantitative, but also qualitative, as well as structural characteristics of the economy of the regions of the Ural Federal District. The comprehensive and integrated development of the region is determined by the economic and social efficiency of the functioning of regional systems, the level of optimization of the use of existing opportunities.

References

- Agafonov, S. M. (2018). Directions for improving the organizational conditions for the formation and development of the regional labor market. *Regions: systems, economics, management*, 2(41), 56–64.
- Averina, I. N., & Zinovieva, E. G. (2020). The role of the Public Employment Service of Magnitogorsk in minimizing unemployment. In *Innovative, financial and economic aspects of the information economy of the XXI century* (pp. 53–59). Publishing House of Magnitogorsk State Technical University named after G.I. Nosova.
- Gagarinova, K. S. (2019). The role of the state in regulating employment. *Bulletin of Science and Education*, 12-3(66), 21–23.
- Gatin, A. D. (2019). Demographic policy as a tool for accumulating the labor potential of the region. *Economics and Business: Theory and Practice*, 1, 54–57.
- Giguere, E., & St-Arnaud, L. (2020). Changes in the labor market and organizations: Job retention challenges and professional mobility. *Psychologie du travail et des organisations*, 26(4), 275–283. <https://doi.org/10.1016/j.pto.2020.09.002>
- Koksharova, M. Y., Kruglov, D. V., & Plotnikov, V. A. (2019). Problems of regulation of regional labor markets in Russia. *Management consulting*, 6.
- Koptyakova, S. V., Zinovyeva, E. G., & Maiorova, T. V. (2019). Development and deployment of automated electronic document management system in municipal units. *Journal of Physics: Conference Series*, 072034.
- Lu, Y., & Hou, F. (2020). Immigration System, Labor Market Structures, and Overeducation of High-Skilled Immigrants in the United States and Canada. *International migration review*, 54(4), 1072–1103. <https://doi.org/10.1177/0197918319901263>

- Matveeva, L. G., & Mikhalkina, Y. V. (2015). The possibilities of the Russian regions capacity increasing under the external threats. *Regional Economy*, 1(41), 96–104.
- Rosstat (2019). *Regions of Russia. Socio-economic indicators 2019*. https://rosstat.gov.ru/storage/mediabank/1dJJCOvT/Region_Pokaz_2019.pdf (26.12.2020).
- Tatyankin, V. M., Rusanov, M. A., Safonov, E. I., & Shitselov, A. V. (2019). Digitalization of primary data collection in the task of studying the optimal structure of demand for labor resources in the region of the Russian Federation. *Scientific Review: theory and practice*, 1, 87–93.
- Ulcelse, M. (2020). Self-employment as a stepping stone to better labor market matching: a comparison between immigrants and natives. *Journal of demographic economics*, 86(4), 479–501. <https://doi.org/10.1017/dem.2020.1>