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METHODOLOGICAL TOOLS FOR ASSESSING THE SITUATION ON THE RUSSIAN LABOR MARKET

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Abstract

This article proposes a methodology for assessing the situation on the labor market in Russia. The analysis of this field and the methods of the labor market assessment are given. A number of methods are considered and the author's methodology for assessing the current situation is proposed, which is identifying demand and supply trends in the labor market and allows conducting comprehensive analysis of the current situation and, respectively, will simplify the making of effective management decisions. It is shown that according to the results of expert assessment, a significant indicator in estimation of the situation on the labor market is the coefficient of tension by the professional and qualifying composition of the unemployed people. It is necessary to characterize the supply of unoccupied labor force and the demand for it, their qualitative and quantitative ratio in the current year and in the forecast period, as well as the impact of the proposed changes on the possible scale of production and unemployment. To calculate the coefficient of the socio-psychological climate of the unemployed, a survey of clients of the public employment service was conducted. The results can be used in the public employment services to increase the reliability of forecasts of the situation on the labor market, as well as to build more general models.

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1. Introduction

The labor market is an extremely dynamic system that is influenced by many factors. Assessment of the situation in this market may be ambiguous. Currently, there are methods that allow diagnosing the situation on the labor market. Often, methodological tools are presented only by forecasting the needs of the labor market for specialists in various fields. This forecasting is carried out by the department of statistical work, the department of analytical work or the department of interaction with employers. It depends on different factors, for example, on the development of Internet technologies (Popkova & Ostrovskaya, 2019).

Forecasting the labor market includes a number of stages (Bukhonova & Doroshenko, 2004; Davletbaeva & Yusupov, 2010; Fursov et al., 2019; Krivokora et al., 2018). First of all, this is an analysis of the actual situation on the labor market, which allows us to determine the trend of a number of previous years. The following stage is a quantitative assessment of the expected state of the labor market in the current year. The main feature of this stage is the fact that the forecast for the next year is compiled before the end of the current year. Then the preparation of the forecast scenario (analysis of the possible socio-economic situation of the district (city) and, above all, the dynamics of industrial production as a whole, possible variations in the change in the labor force of the district (city), etc. The following forecasting is carried out in three categories:

1) Demand for labor force. It allows assess the need of the labor market of a certain territory for workers (the number of vacant job places at the beginning of the period; the need for workers in recently created job places; to replace those who left at their own will, as well as for reasons provided by law; natural decline of the population; off-the-job training; retirement; draft in the army (conscription), etc.

2) The supply of labor force. It allows determining the number of different categories of citizens who enter the labor market (those who were laid off due to staff reductions or liquidation of the company, those who left on their own, young people (graduates), migration growth of the population in the working age, unoccupied able-bodied population who want to start working or recover the job place). All these groups of citizens in the labor market are represented by three categories of labor force:

a) citizens who have lost their jobs for certain reasons, those who enter into working life for the first time and who decide to resume their work after a long time;

b) persons who have a job but wish to change it;

c) working citizens who wish to work in their free time from the first job (including students who wish to work in their free time from study).

In these recommendations, only unemployed citizens are considered, since in the conditions of a sharp reduction in demand for workforce, the main task of the public employment services is to assist in seeking suitable work, especially for the unemployed population.

3) The distribution of labor force (employment of the unemployed people during the year and the degree of unemployment at the end of the year). It provides an opportunity to assess the number of citizens who are self-employed, i.e. bypassing the public employment service, to determine the possible number of people employed with the assistance of the public employment service, aimed at professional training, registered for early retirement, as well as the value of unsatisfied supply and demand of labor force (the number of unemployed and the number of vacancies at the end of the year).

The next stage is the socio-economic assessment of the forecasting result. It is necessary to characterize the supply of unoccupied labor force and the demand for it, their qualitative and quantitative ratio in the current year and in the forecast period, as well as the impact of the proposed changes on the possible scale of production and unemployment.

The final stage is the adjustment of the forecast during the program period taking into account the real dynamics of the socio-economic situation in the territory.

For example, in one of the publications (Putivzeva et al., 2019), a model for managing the imbalance between labor markets and educational services was built. This topic is especially relevant in our country. At the same time, the rapid development of information technologies and their penetration into various fields of human activity causes changes in the labor market, which is a serious factor in forecasting (Gaynanov, & Klimentyev, 2018; Mammadova, 2019).

2. Problem Statement

The methods that are used in forecasting are quite extensive (Bezudnaya et al., 2020; Kron et al., 2019; Kryshtaleva, 2017; Longhi, & Nijkamp, 2007; Schanne et al., 2010; Zinoviev & Schetinin, 2014): extrapolation method; modeling method; method of mathematical analysis; intuitive models and correlation method. However, public employment services use only intuitive models and the extrapolation method. Thus, it is difficult to make a correct forecast on the labor market, which leads to the inaccuracies and errors in assessing the current situation and its development.

3. Research Questions

It is necessary to answer the following questions:

- What forecasting methods are used for the labor market?
- What is the most significant indicator used in the estimation of the situation on the labor market according to the results of an expert assessment and by the professional and qualified composition of the unemployed?
- What methodological apparatus will allow comprehensively analyzes the current situation on the labor market and simplifies management decisions?

4. Purpose of the Study

The purpose of this work is to analyze existing methods for assessing the situation on the labor market, as well as the development of a methodology for assessing the current situation, revealing supply and demand trends in the labor market, which allows conducting comprehensive analysis of the current situation and, respectively, will simplify the making of effective management decisions.

5. Research Methods

Let's consider in detail the methods currently used in the public employment services in Russia. First of all, this is an extrapolation method (Hennigan et al., 1981; Nutt et al., 1976), when forecasting is carried out on the basis of indicators that have occurred in past periods.

The application of the extrapolation method in forecasting is based on the following prerequisites:

- 1) the development of the analyzed phenomenon is described by a smooth curve;
- 2) the investigated phenomenon will not undergo major changes.

Forecasts by this method can be carried out both for long terms (long-term forecast), and for a short period (short-term forecast). It should be noted that then the shorter the duration of the study, then the results of the forecast will be more reliable. When making a long-term forecast, one should focus on the dynamics of the analyzed phenomenon; for a short-term forecast, the main thing is to study which factors determine the studying indicator.

The advantages of this method are the lack of time-consuming calculations and the simplicity of information gathering, and the disadvantages: inaccuracy of data with a long forecast period and it is not an effective method in a rapidly changing environment. The information base of the method is the reporting and statistical data.

However, do not forget that extrapolation is not a forecast — it is only its basis. To make a full-fledged forecast, it is necessary to analyze and evaluate the situation on the local labor market, take into account the main socio-economic changes that are expected next year.

The second method, which is also used in the forecasting process, is a method of expert evaluation, i.e. a forecast based on the estimates made and substantiated by competent specialists. The method of expert evaluation gives an objective description of the qualitative and quantitative sides of the forecasting object based on processing and analysis of the totality of individual expert opinions.

The method can be used with partial or complete uncertainty, which, in its turn, can be formed:

- 1) due to the lack of reliable data for a long period;
- 2) in the conditions of unstable development and disturbances of inertia in the dynamics of processes and phenomena;
- 3) in processes that are not objective;
- 4) in the study of new processes and phenomena.

In the considering conditions, forecasting is simply necessary, moreover, it is even more relevant and practically significant.

An expert survey aspires for coherence, uniformity of judgments and estimates that were made by the experts. The reliability and credibility of the information depends on the competence of experts (Tavokin, 2016). That means that the opinion of a highly qualified group of experts may be quite reasonable and reliable.

This method is quite simple from the point of view of its organization; however, the subjective factor of the respondents is not excluded. It is advisable to apply both methods simultaneously, using both objective development trends and expert opinions. Also, in order to get an accurate forecast, experts should be able to adequately perceive the trends of the development of the studied object, the presence of production and (or) research experience in the considering field.

Nevertheless, as a result of developing estimates, two types of errors can occur:

1) systematic errors (related to the mindset of experts) — for their correction it is advisable to use correction coefficients);

2) random errors (vary from one expert evaluation to another and are characterized by the magnitude of the variance).

Moreover, if someone uses the method of expert evaluation, he should take into account directions, measures and indicators of the development of the territory, which are provided for long-term and medium-term by municipal, regional and federal target programs (Bobkov et al., 2017).

Thus, by analyzing the methodological tools, it was possible to establish that there is no comprehensive methodology for assessing the situation on the labor market. After a critical analysis of the specialized literature, as well as having studied the methodological tools of the studied service, there was a need to develop new methodological tools that would neutralize the following limitations (Astafurova, 2019; Goos, 2018; Jindrová & Vydrová, 2012):

1) indicators are not considered comprehensively, each parameter is calculated individually and cannot be calculated in any integral indicator;

2) all methods are reduced only to a quantitative assessment, while qualitative components are ignored.

We propose the following algorithm for the implementation of the method that implies the sequential execution of 8 stages:

1) identification of the parameters that characterize the situation on the labor market based on the results of a critical analysis of the literature;

2) substantiation of the list of indicators characterizing the situation on the labor market;

3) expert evaluation of the relative significance of the parameters;

4) development of a map of expert evaluations;

5) compilation of a source data table;

6) calculation of certain (by parameters) levels;

7) calculation of the integral level of evaluation of the situation on the labor market;

8) identification of the level of the situation in the labor market.

The detection of the parameters that characterize the situation on the labor market based on the results of a critical analysis of the literature is the first step. Based on the analysis of specialized literature, it was possible to identify three methods whose purpose is to diagnose the situation on the labor market, and the local market is the subject of the study. The studied indicators of the considered methods were: the tension coefficient on the labor market and unemployment rate according to the methodology of the International Labour Organization.

Taking into account the indicators mentioned in the first stage, the indicators that are to be calculated at the Public Employment Service, as well as the identified shortcomings, the following list of indicators of the author's methodology is proposed: the unstructured tension coefficient, the tension coefficient by the professional and qualifying composition of the unemployed, the unemployment rate according to the methodology of the International Labour Organization (ILO), the level of registered unemployment, the level of socio-psychological well-being of the unemployed.

Since the coefficient of tension can be calculated in a general way only and cannot give a clear picture of the current situation on the labor market, it is necessary to introduce another indicator as a tension coefficient by the professional and qualifying composition of the unemployed.

Thus, the estimation of the socio-psychological state of the unemployed is simply necessary for a comprehensive evaluation of the situation on the labor market, which will be carried out by calculating the level of socio-psychological well-being of the unemployed.

6. Findings

All the parameters proposed above were taken into account when calculating the aggregate indicator, which will allow us to conclude about the situation on the labor market.

In this regard, there is a need to assign each indicator its relative importance. The experts needed to come to a consensus and determine the relative importance of each indicator. The results of the expert evaluation are shown in table 1.

Table 01. The relative importance of the analyzed indicators

Indicators for assessing the situation on the labor market	Symbol	Relative importance
The unstructured tension coefficient	$TC^{unstruct}$	0.15
The tension coefficient by the professional and qualifying composition of the unemployed	TC^{PQ}	0.30
Unemployment rate according to the methodology of the International Labour Organization	UR^{ILO}	0.25
Registered Unemployment Rate	UR^{reg}	0.20
The level of socio-psychological well-being of the unemployed	L_{spw}	0.10

Thus, according to experts, the most significant indicator in assessing the situation on the labor market is the tension coefficient by the professional and qualifying composition of the unemployed. And this is quite obvious, since this parameter reflects the demand and supply of labor force in the context of each professional and qualifying group. According to the methodology of the International Labour Organization, the unemployment rate was identified by experts as more significant than the level of registered unemployment, since registered unemployment covers only a part of people who need employment, namely those who seek help from the state in search of work. The experts determined the level of socio-psychological well-being of the unemployed as the least significant indicator; this may be due to the fact that the indicator is completely new and has not been analyzed before.

The mapping of expert evaluations is based on the use of five typical gradations of the Harrington nomogram. The limits of each analyzed indicator were determined with the help of experts. It should be noted that the level of socio-psychological well-being of the unemployed assesses the position of an unemployed citizen in the labor market from three positions:

- 1) unemployment competitiveness (C);
- 2) well-being in the labor market (W);
- 3) waiting for employment (WE).

Given the above, the map of expert evaluations will look as follows (table 2):

Table 02. Map of expert evaluations of the situation on the labor market

Indicators	d_i	Gradations				
Total	1.00	C – low; W – uncertain; WE – slow	C – medium; W – uncertain; WE – medium	C – medium; W – medium; WE – medium	C – medium; W – certain; WE – fast	C – high; W – certain; WE – fast

To form a table of initial data, it is necessary to calculate the tension coefficient according to the professional and qualifying composition of the unemployed and the coefficient of the socio-psychological climate of the unemployed.

In order to calculate the first indicator, all the professions of the unemployed were enlarged into nine groups by the professional and qualifying parameter (table 3). Then, their relative significance was determined through expert evaluations.

Table 03. Professional and qualifying composition of the unemployed

Professional and qualifying groups	Symbol	Relative importance
Heads (representatives) of authorities and management at all levels, including heads of institutions, organizations and enterprises	A	0.17
Highly qualified specialists	B	0.11
Specialists of the mid-level qualification	C	0.11
Employees involved in preparation of information, documentation, accounting and service	D	0.11
Workers in the service sector, housing and communal services, trade and related activities	E	0.06
Skilled workers in agriculture, forestry, hunting, fish farming and fishing	F	0.16
Skilled workers of large and small industrial enterprises, art crafts, construction, transport, communications, geology and mineral exploration	G	0.06
Operators, machine operators and fitters	H	0.16
Unskilled workers	I	0.06
Total:	–	1.00

As a result, experts considered the heads of government and management at all levels, including heads of institutions, organizations and enterprises, operators, machine operators, fitters and skilled workers in agriculture, forestry, hunting, fish farming and fishing as the most significant professions. These professions require high professional knowledge of employees, abilities, skills, work experience, as well as the corresponding qualifications that not many possess, as a result of this, vacancies for these positions have a high laboriousness of filling.

Workers in the service sector, housing and communal services, trade and related activities, skilled workers in large and small industrial enterprises, art crafts, construction, transport, communications, geology and mineral exploration, unskilled workers are less required to apply for a job. And, as a rule, there

are much more vacancies for these professions than there are unemployed who want to get a job, which is explained by the lowest relative importance of these groups assigned by experts.

The tension coefficient by the professional and qualifying composition of the unemployed will be calculated using the following formula:

$$TC^{PQ} = \sum_{i=1}^n C_{T_i}^{PQ} * d_i, \quad (1)$$

where n is the number of groups of professions; d_i – the relative importance of the group of professions; $C_{T_i}^{PQ}$ – the tension coefficient of a group of professions.

In order to calculate the coefficient of the socio-psychological climate of the unemployed, a poll of clients of the public employment service was conducted. The unemployed needed to answer the question: “How do you assess your position in the labor market?”.

This indicator will be defined as the sum of the standard values of the Harrington function divided by the number of surveyed unemployed people. The information base for the remaining indicators is the statistical data of the public employment center.

To calculate the certain levels, the following formula was used:

$$Y = a + bx, \quad (2)$$

where x – is the value of the investigated parameter; a and b are variables calculated by a system of linear equations.

After the calculation of the certain levels of the studied indicators, it is necessary to calculate the integral indicator of the evaluation of the situation on the labor market. This indicator is the sum of the multiplications of certain levels by their relative importance, which was determined at the third stage. Thus, the level of estimation of the situation on the labor market (ES_{stm}) will be calculated by the following formula:

$$ES_{stm} = \sum_{i=1}^n ES_{stm_i} * d_i, \quad (3)$$

where ES_{stm_i} – certain indicator level; d_i – the relative importance of the indicator.

At the final stage, the obtained value of the level of the estimation of the situation on the labor market must be identified according to table 4.

Table 04. Professional and qualifying composition of the unemployed

Indicator Identification	Indicator level
Perfect	From 0.95 to 1.00
Well-being	From 0.80 to 0.94
Normal	From 0.63 to 0.79
Problematic	From 0.37 to 0.62
Critical	From 0.20 to 0.36

The proposed methodological apparatus will more correctly predict changes in the labor market.

7. Conclusion

Labor market problems are complex and overriding in terms of resolving them, since they affect the urgent needs of the majority of the population. In recent years, due to changes in the economy, the problem of imbalance in demand and supply of labor force has become more acute. There are contradictions between the requirements of employers and the skill level of job seekers. Monitoring of the staff structure of the economy and the social sphere, the estimation of the current situation, identification of trends in demand and supply in the labor market are getting more relevant now. In this work, we proposed methodology that combines a number of methods for the estimation of the situation on the labor market. The considered methodological apparatus can be applied in public employment centers of Russia, as well as in enterprises for making appropriate management decisions.

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