

Development of a Methodology to Assess the Regional Labor Potential in Modern Russia



Victor Fursov, Alexander Rudnev, Olga Malinina, Ekaterina Alekhina, Inna Kushnareva

Abstract: *The article presents the results of the development of a methodology for assessing the structural structure of the labor potential of a region and its role in socio-economic development, territorial and environmental features of labor resources and mechanisms of reproduction of labor potential. The development of the methodology was based on a conceptual and methodological review of foreign and domestic scientific sources. Promising markers of labor resources in foreign science have been identified, which are manifested in the assessment of migration risks, the impact of globalization factors, forecasting the dependence of labor productivity at the regional level on market factors, climatic conditions, insurance mechanisms, etc. A high level of scientists' interest in the problem of labor potential on micro-, meso and macro levels in Russia. The authors pay special attention to the assessment of existing approaches to the methods for assessing the labor potential of the region proposed by domestic researchers and applied in the Russian Federation; The features of the main methodological approaches are evaluated; their classification is given, as well as the technology for conducting the assessment, depending on the research tasks of scientists. The article describes the methodology developed by the authors for measuring the labor potential of the region based on the index method, which allows taking into account the specific conditions of its reproduction and use at the regional level, as well as conducting reasonable comparative assessments. The calculations are presented according to the proposed methodology of the state and level of development of labor potential for the regions of the North Caucasus and Southern Federal Districts and the Russian Federation as a whole.*

Keywords: *labor potential, assessment, migration risks, globalization*

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I. INTRODUCTION

Social and economic development both at the national and regional levels requires the mobilization and effective use of the necessary economic resources, in which human resources occupy a leading position.

From the point of view of strategic opportunities, it is their particular properties that become the basis of competitiveness, innovativeness and economic performance. Labor potential as a resource for the development of the economy takes on a new meaning from the perspective of qualitative and quantitative security. At the same time, the qualitative and quantitative characteristics of the labor potential are closely interconnected, but the qualitative ones in modern conditions are nodal, forming both the current and future framework of the labor potential [1, 2]. Unlike others, labor resources have the ability to form synergistic effects, which are achieved only through a combination of qualitative characteristics. Their formation and reproduction are not standardized, they are characterized by very long cycles, extremely high sensitivity to socio-economic conditions, and the level of involvement in social, labor and economic processes [3, 4].

The state of the labor potential is of interest primarily in terms of the level of its implementation, the degree of use, which is manifested in the results and productivity of labor. But the current state of labor potential is also promising economic achievements [5]. The structure and pace of building labor potential, according to experts, lag behind global trends [6]. The reduction in the number of economically active population and the deterioration of the health status in the Russian Federation in recent years require fundamentally new decisions regarding the accumulation and level of involvement of the quality of labor [7].

Regional differentiation in quantitative and qualitative parameters of labor potential is characterized by rather serious differences and fluctuations, specific regional profiles and various sets of factors that influence their creation and functioning. Identification of the specifics of these mechanisms will allow for the development of regional economies on a systematic basis. Domestic science has not sufficiently studied the regional conditions that determine the quality of labor potential; systems for managing the labor potential of territories and organizations; the degree and strength of the impact of the level of socio-economic development of the regions,

the level of personnel security and personnel risks; methods for identifying hidden opportunities.

The relevance of the study of labor potential is dictated by the need to solve a number of methodological problems, as well as the request of the business to ensure stable growth in labor productivity and operational efficiency. Among the rather acute unresolved problems of applied nature, researchers single out the inefficient use of labor potential at both the regional and state levels, the weak participation of the state in the preservation and development of regional labor potential, the decline in the quality of professional training, personnel deficit in certain industries and regions, and a low level human security in certain regions, defective functioning of the labor market. In these conditions, the development of effective tools for diagnosing the state and level of use of labor potential is required, which will justify and make the right strategic and operational decisions on managing labor potential both at the regional and federal levels.

Regional differentiation in terms of the provision of economic, including human, resources is characteristic of all socio-economic systems. It is absolutely impossible to achieve both uniform distribution and the same level of utilization of labor potential; in fact, this kind of economic task is, in principle, not posed. The main question is how to use the reproductive mechanisms of labor potential at the regional level in order to achieve economic growth. And in this regard, labor potential is considered as the main source of regional development, combining all its quantitative and qualitative characteristics.

In modern science, the definition of the labor potential of a region is not uniquely defined.

Abroad, this category is not used, the categories of human resources and labor are identical to it. They are considered mainly from the point of view of participation in the value chain, as well as from the perspective of the formation of supply and demand in the labor market. The category of human capital, which has a long research history in foreign science, and in domestic as well, in this work, we do not consider, since it has only a cost form and at macro and mesoscale it reflects the costs associated with the reproduction of human capital.

Earlier studies of regional uneven economic potential in Europe [8], when substantiating models for calculating the European Community economic potential index, in order to develop the accessibility of peripheral regions and mitigate their economic inequality compared to the central regions of the EU, took into account the factor of human resources and their movements of peripheral and main regions. Quite actively, studies are conducted on the dependence of the degree of employment in the labor market on a number of socio-economic factors both at the national and international levels [9]. In modern studies of the state of the labor market, scientists use cluster analysis and other relevant technologies to identify trends in its development [10].

Then it is planned to shift research interest towards studying migration processes and forecasting labor supply. Moreover, most often it is precisely the regional characteristics of the reproduction of labor resources, their migration flows, the impact on economic activity in these

regions and the likelihood of risks that are being investigated. For example, [11] studied and modeled the potential for inflow, outflow, and substitution of labor in the border regions of Mexico and the United States. Such processes are currently being studied, especially for the EU with its attempt to regulate the flow of migrants to developed countries of the European Union. The quantitative parameters of aggregate supply and demand in the labor market are also constantly in the field of view of researchers who evaluate the level of unemployment and its economic consequences [12].

Research interest in the state of the labor market and its transformations, overflow of human resources on a territorial and sectoral scale is practically planetary - it is inexhaustible, ubiquitous and constant. As evidence, it is demonstrated by published results of a study of labor market changes in the Tibet Autonomous Region of Western China [13]. The exceptional speed of the transformation of the labor market, the nature of employment and the level of unemployment revealed is evidence of profound irreversible qualitative and quantitative changes in regional economic development.

The focus of scientific research is aimed not so much at assessing the risks of migration processes as at assessing the processes of globalization, their impact on the socio-economic processes of territories, states, regions, large urban centers and peripheral zones. Referring to the published research data, among others it is worth highlighting the work of the McKinsey Global Institute "The emerging global labor market" [14], devoted to the study of offshoring trends in the labor market. The desire of many companies to bring business to regions with low wages is a manifestation of globalism in the economy. A McKinsey Global Institute (MGI) analysis of data from 28 low-cost countries in eight sectors of the economy (automotive, healthcare, insurance, IT, licensed software, pharmaceuticals, retail, and retail banking) has strengthened and spread the phenomenon offshoring. These transformations of the labor market in developing countries put corresponding pressure on labor markets in developed countries, which is reactively taken into account both in the policies of private companies and in personnel policies at the state level.

Among foreign studies of recent years, in addition to migration processes, other aspects are actively studied. For example, trends in changes in labor productivity under the influence of climate change are estimated with the derivation of different scenarios for different regions of the planet by the 2080s. with a rough estimate of the costs of appropriate means of adapting workers to climate factors.

Separately, it is necessary to dwell on such a direction of research as the problems of insurance in the labor market. This applies not only to unemployment insurance and modeling the corresponding fluctuations in the level of employment, but also to disability insurance and the impact of benefits on labor supply. Retrospective analysis also covers labor market manifestations such as the creation of coalition of labor communities, which arise in the form of a consolidated response to sectoral and regional failures in the labor market.

In domestic science, in contrast to foreign science, the definition of labor potential is used quite widely, has an extensive research range, and is a subject for various fields of science: medicine, sociology, psychology, economics, management, statistics, etc. Scientific interest in this category continues to be high, activity scientific research in this area has grown in recent years, but discussions are still ongoing regarding the nature of the category of labor potential, its elemental composition, and methods of prices, reproduction mechanisms. According to domestic experts, the methodology of labor potential has not yet developed and is in the process of its formation.

The category of labor potential in Russian science began to be applied in order to characterize national wealth back in the 1920. It becomes relatively stable at the end of the last and the beginning of this century, formed by scientists in the works of R.P. Kolosova, V.A. Ilyin, Yu. G. Odegova and others. In recent years, approaches to the definition of the concept of labor potential have taken shape, which are conditionally divided into economic, demographic, statistical, and sociological. As part of the economic approach, a resource, factor, combined, and potential one has developed. If the resource approach interprets labor potential, labor resources in the unity of their quantitative and qualitative aspects, then the factor approach is the total social ability to work under given socio-economic conditions. The combination of individual provisions of the factor and resource approach has formed a combined approach that defines labor potential through the prism of qualitative measurements in the form of abilities for socially useful activities of the able-bodied population. A potential approach considers labor resources in close connection with the material factors of production, functioning together to ensure production results.

II. MATERIAL AND METHODS

To solve the problems of this study, it seems appropriate to use the definition of the level of development of labor potential as a quantitative indicator of the degree to which the qualitative characteristics of the labor potential correspond to the needs of the modern economy.

Measurement of labor potential both at the regional and national levels is a rather non-trivial task, since it is considered as a complex socio-economic phenomenon that requires a developed system of assessment indicators for its comprehensive measurement. In this case, when calculating the value of the potential, one can rely on the natural, cost and relative indicators that will allow us to determine both quantitative and qualitative characteristics of the labor potential. Some indicators are calculated on the basis of official statistics, while special indicators are used for some indicators.

The analysis of labor potential is based on the corresponding tools, however, the fragmentation of its interpretations has given rise to many methodological approaches to assessing the labor potential of the region. The structuring of assessment methods classifies them into the following groups:

1) the method of scoring components, evaluating each individual component according to the established range in

the scale of points;

2) the method of cluster analysis, which allows to establish cluster zones in accordance with the estimated value of the components and conduct an appropriate assessment;

3) the index method, leading the calculated values to some general unity through a relationship with basic or normalized values;

4) an integral method that displays one synthetic indicator based on many private indicators.

It should be noted that most of the known methods for assessing labor potential relate to the enterprise, and there are very few methodological developments for assessing the potential of a region, country, group of countries, relative assessments. The modern methodology of the region's labor potential pays great attention to calculating their quantitative and qualitative components, while concentrating on its individual aspects (for example, potential quality, potential development, degree of use, reproduction mechanism, etc.).

Some methodological approaches evaluate only quantitative components. For example, indicators of the dynamics of the able-bodied and employed population, the potential labor time fund or a set of cost indicators characterizing labor income, wages and labor development costs for all years of the period of their implementation, taking into account the inflation index or consumer price index for relevant types of goods and services. Also noteworthy is the methodology for assessing the labor potential of the region based on the ratio of positively and negatively characterizing the labor potential indicators: employed - unemployed, fertility - mortality, migration growth - migration retirement, population with higher education, life expectancy, etc. The consideration of different risk groups is also proposed by some authors in assessing the potential.

Several research groups recommend a comprehensive assessment of the region's labor potential. Among them, it is necessary to highlight the scientists of the Institute of Socio-Economic Population Problems of the Russian Academy of Sciences (ISEPN RAS), who included in the composition of their labor potential an assessment of the intellectual component, mental state, social and personal component. The Institute of Socio-Economic Development of Territories has developed a methodology that includes elements of the quality of the region's labor potential: physical and mental health of the population, cognitive potential, creativity, sociability, cultural and moral level, need for achievement. Some scholars in methodological approaches to assessing regional labor potential distinguish demographic, economic, psychophysiological, educational qualification and innovative components that allow differentiating assessment by regions of the Russian Federation. A comprehensive assessment of other authors is based on a combination of quantitative and qualitative indicators of different directions. Some researchers believe that in assessing labor potential it is necessary to take into account indicators of labor activity - production and economic results, creative activity, personality development, social activity.

The following indicators are combined in the methodology of the Institute for Strategic Studies of the Republic of Bashkortostan: the share of the able-bodied population in the total number, the level of education and qualifications, the level of wages, the equipment of labor, the level of employment. A similar plan of methodological approaches includes other indicators: the working life of the population, the level of employment, the capital-labor ratio, the internal regional product per capita, and the level of professional education. A similar kind of integrated assessment technique links indicators of living standards, degrees of labor activity, and efficiency of labor utilization.

Since approaches to the definition, composition and structure of the labor potential of the region are significantly different from each other, there is still no unified generally accepted methodology for assessing it.

III. RESULT AND DISCUSSION

In this methodology, it was decided to use the index (relative) method for assessing the level of development of labor potential and its comparison with the southern regions of Russia, which in its methodological approaches and calculation methodology is similar to the human development index used for interregional and intercountry comparisons. Such an approach allows one to take into account the rational elements of potential estimates in well-known methodologies. At the same time, integral estimates provide for the conjugation of indices and indicator values. The methodology makes wide use of the dynamic series of the studied parameters with a fairly representative research horizon (15 years), which made it possible to obtain relevant values of labor potential indices.

By a comparative analysis of existing methodologies for assessing labor potential, a system of assessment indicators and an algorithm for calculating indices are substantiated.

For these individual indicators, the corresponding partial indices on a scale from 0 to 1 are calculated using the multidimensional average method, characterizing various aspects of the quality of the labor potential of the region. To conduct this calculation of private indices, the actual, as well as the minimum and maximum (or limit) values of each indicator are established.

Next, we determine the integral index of the development of labor potential, which is a synthesis of six particular indices, as their arithmetic average. The values of the integral index of the development of labor potential and its constituent private indices vary in the range from 0 to 1. The obtained calculation results allow us to evaluate the actions of regional authorities aimed at achieving a higher level of the index in question.

The proposed approach to assessing labor potential seems to be the most correct, since the index calculation method makes it possible to bring various indicators of labor potential into a comparable form and use official statistics to assess the level of its development. Its use in the study of labor potential at the regional level helps to compare and compare different regions according to the level of development of labor potential.

When conducting a study of the dynamics of the level of

labor potential of the southern regions of Russia in 2005–2015 and its estimates, the basic principles of the index and integral methods were used with respect to the composition of basic indicators, by which private indices were calculated and maximum and minimum comparison bases were determined. For all indicators, private indices were calculated for the subjects of the southern regions of Russia. When calculating the indices of development of the labor potential of the region, the maximum value of the indicator will be the level that exceeds the highest value of the corresponding indicator for all regions of the country for the period 2005–2015, and the minimum is the lowest value of the indicator by region for the same period. It is proposed to calculate private labor development indices based on the following indicators:

1) the duration of working life in the region. The calculation of the index is based on the expected life expectancy of the population according to the Federal Statistics Service. According to 2015 data, the maximum life expectancy of the population was in the Republic of Ingushetia (80.05 g). The minimum value on the scale is 15 years; maximum - 82 years;

2) the level of professional training of the employed population. The calculation of the index is based on data from the Federal Statistics Service on the specific gravity of the employed population with higher and secondary vocational education as part of the employed population. According to 2015 data, the maximum proportion of employed with a high level of training was noted in Moscow (93.1%), the minimum - in the Chechen Republic (21.7%) in 2005. Accordingly, 95% was taken as the maximum value of the indicator. , for the minimum - 20%;

3) the level of labor activity of the population. The calculation of the index is carried out according to the proportion of people employed in the working-age population. The highest level of employment was noted in 2014 in the Chukotka Autonomous Region (81.2%). Therefore, the maximum value is 85%. The worst indicator was recorded in the Republic of Ingushetia in 2006 (16.8%). Therefore, in the calculations for a minimum of labor activity 15% are taken;

4) capital-labor ratio of workers in the region. The calculation of the index is determined by the ratio of the value of fixed assets to the number of employees in the economy of the region. The best indicator of capital-labor ratio was noted in the Tyumen region in 2015 - 5662.9 million rubles / thousand. people Therefore, 5670 million rubles / thousand were taken as the maximum value of capital-labor ratio. people The minimum value is the zero level, which corresponds to the conditions of manual labor. In calculations, the inflation rate was taken into account;

5) per capita gross regional product. The calculation of the index is based on the gross regional product per capita. The highest value of the indicator was recorded in 2015 in the Tyumen region (1,625,998.2 rubles), the lowest - in 2005 in the Republic of Ingushetia (17,435.1 rubles).

Therefore, for the maximum per capita gross regional product taken 1,650,000 rubles., For a minimum - 15,000 rubles. In calculations, the inflation rate was taken into account;

6) the average monthly salary of workers in the region. The value of the index is calculated according to the Federal Statistics Service. The maximum value of the average monthly salary of workers in the Chukotka Autonomous Okrug in 2015 is 79 531 rubles. Accordingly, in calculations for the maximum average monthly salary per capita, we take 80,000 rubles, for the minimum - the minimum wage for the corresponding period. In the calculations, the inflation rate was taken into account.

According to the calculations for 2005–2015. the integral index of the development of labor potential of the Russian Federation increased by 23.3% (from 0.454 to 0.560). Thus, the country's labor potential is characterized by positive dynamics. However, in the first half of the period under review, the index of development of labor potential grew little by little, and in the second half of the period, growth increased.

For all, without exception, the southern regions of Russia, the period 2005–2015. differed in the growth of the integral index of the development of labor potential. The most significant index of the development of labor potential increased in the Republic of Ingushetia (by 30.5%), primarily due to the low base. As a result, the Republic of Ingushetia, in a ranked number of southern regions of Russia, in terms of size, the labor potential development index displaced Dagestan and the Chechen Republic in last place, which are characterized by rather low growth rates of the labor potential development index for 2005–2015. (14.5% and 15.2%, respectively). The growth rate of the labor potential development index in the Krasnodar Territory (26.0%) and the Volgograd Region (24.9%) was higher than in the whole country. Among the southern regions of Russia, the first places are occupied by the regions of the Southern Federal District, with the exception of Adygea, Kalmykia and Sevastopol, which are ahead of the Stavropol Territory (0.458). The Astrakhan region and the Krasnodar Territory retained their first places among the southern regions of Russia.

Thus, the opportunities for further growth of the labor potential of the southern regions of Russia are largely determined by attracting investments in the regional economy, carrying out structural restructuring of the regional economy, which is based on the availability of a sufficient amount of labor resources with attractive economic conditions and a territorial location.

IV. CONCLUSION

A comparative analysis of various approaches and methods used in assessing the level of development of labor potential revealed that there are still no reliable substantiated and generally accepted system of indicators and methods for calculating the assessment of its indicators. In addition, most of the methods used to assess the development of labor potential relate to the level of the enterprise, and at the same time there are few methodological developments used to

assess the development of labor potential at the level of the region and individual territories.

This methodology is open, flexible and, if necessary, can be supplemented with other indicators, and the calculation results provide fairly complete information about the actual level of development of labor potential in the region. The calculation of the level of development of the labor potential of the regions showed that this technique is universal and can be used for a comparative assessment of the labor potential of regions, constituent entities of the Federation, urban and rural areas.

The results of assessing the level of development of labor potential are, first of all, an information base that can be used in the activities of municipal and regional government bodies in making strategic and operational decisions, forming priority goals and tasks for prospective management of the development of labor potential of the territory, based on taking into account the real conditions of reproduction labor resources.

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