

Elaboration of Methods for Assessing the Level of Region's Human Development

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Abstract. The article is devoted to elaboration of a methodology for quantifying the level of human development focused on ensuring effective reindustrialization of the region's economy. Analysis of existing approaches to assessing the level of human development allowed to elaborate a methodology for measuring the level of human development of region's population. The article proposes the author's approach to structuring and quantitative evaluation of indicators characterizing the level of human development. The proposed method focuses on the potential of children and young people as a strategic resource necessary for reindustrialization of the Russian economy. In conclusion, authors of this article substantiate the practical importance of the elaborated methodology.

1. Introduction

To transfer the Russian economy to highly industrialized production based on innovative technologies it is necessary have higher demands on quality and level of human development. In this regard, issues focused on a methodology for quantifying the level of human development are important for a comparative analysis of changes in indicators. It develops recommendations aimed at human development necessary for the successful solution of reindustrialization problems.

The aim of the study is to develop methodological tools for assessing the level of region's human development and to determine a structure of statistical indicators that quantitatively characterize the level of human development.

2. Methods of research

We used general theoretical methods of cognition as formalization, theoretical analysis, concretization, comparative and logical analysis. The initial data of the study are the works of domestic and foreign researchers devoted to the problem of assessing human development.

3. Research result

International and Russian practice have a certain number of methods for assessing the level of human potential, but the most well-known is a conceptual approach developed by specialists of the UN development Program (hereinafter – UNDP) and used for comparative assessment of human development in the context of individual countries of the world by calculating the human development index (hereinafter – HDI).

The UNDP methodology has often been criticized, modified and supplemented during its application. The evolution of the HDI, a detailed analysis of critics' comments on the methodology

with proposals for further improvement are presented in the works of S. Alkire, M. Sant Ana, E. A. Stanton, A. Sagara, A. Najam, M. Kovachevich, etc.[1; 2; 3; 4; 5].

Despite the fact that UNDP is steadily improving the HDI methodology and introducing additional indicators, however, the index is still criticized by a number of scientists and is not always considered an adequate measure of human potential. In addition, domestic researchers believe that using of HDI is generally successful in conducting a comparative analysis of human development in the international dimension. However, there are many difficulties in interregional comparisons.

The main disadvantages noted by critics include the following: the limited number of factors taken into account by the index, the lack defining the minimum and maximum limits, methodological difficulties in calculating the HDI, the limitation of rating index from 0 to 1, the incompatibility of statistical data due to the lack of some statistical indicators.

Attempts to modify calculating the HDI oriented for use in Russian conditions, are made in works of N. In. Zubarevich, D. V. Petrosyants, V. A. Sukhykh, P. G. Nikitenko, G. T. Kulakov., O. V. Bondar-Podgurskaya, T. S. Krasnikova, A. A. Priemysheva, E. N. Kravchenko, E. E. Arepyeva, V. I. Sharkevich, A. V. Sveshnikova, etc. [6, 7, 8, 9, 10, 11, 12, 13]. Works of domestic researchers determine the fact that they give scientifically sound recommendations for improving methods to assess the level of human potential using of methods that include an extended system of parametric indicators or improving tools for measuring qualitative characteristics.

To calculate composite indices of human development D. V. Petrosyants uses three groups of indicators: the index of life quality, the index of involvement in scientific and educational activities, the index of population's standards, each of which consists of a set of individual indicators.

E. N. Tupikina, E. V. Kocheva suggested to adjust the method of calculating HDI by introducing an additional component, it is an employment index. According to the researchers, it is employment that provides the necessary income, health, growth of educational and professional level.

A. V. Sveshnikov considers the reorientation of evaluation system towards the measurement of innovative potential to be an important direction of improving the method of HDI.

E. A. Polishchuk considers the methodology of HDI that focuses on an environmental factor through the adjustment of GNI per capita at PPP.

Z. I. Kalugina proposes to introduce a new concept of human reproduction index and calculate it as a ratio of income to the minimum consumer budget.

I. Yu. Timofeev criticizes the UNDP methodology, so he complements the assessment of regional human potential by measuring its quantitative side (population). He uses the method of multiplication of shares instead of a normalization method.

S. N. Zhurakhovsky proposes to modify the structure of indicators used to assess the level of human development. As composite indicators for HDI assessment, they are offered the following indicators: labor potential, innovation and intellectual potential, organizational potential, psychophysical potential, value potential, professional and qualification potential, demographic potential.

F. M. Borodkin, A. S. Kudryavtsev suggest introducing special indicators of social ills that have a negative impact on people's lives as component categories of HDI. For the calculation, the authors divide social troubles into groups, all of them have corresponding values of indicators: the availability of income sources, it is the basis of unemployment composite indicators; the moral state of population, estimated by indicators of social diseases; environmental pollution, characterized by indicators of the pollution level; the level of personal security, estimated by indicators of criminality.

Thus, having analyzed modern approaches to assess the level of human development, we can conclude that researches of an integral indicator are relevant and necessary to improve the region's life quality and to solve the most acute socio-economic problems.

Nowadays, one of the most effective and efficient approaches to management systems is a process-oriented approach, according to this method, all processes influencing on goals achievement can be divided into two types: the main processes that directly form value, and auxiliary, which provide and support goals achievement. To assess the human development it's possible to identify two main

indicators. One of which will serve as the main indicator aimed at conducting a direct assessment of region's human development and the second indicator is an index that evaluates the development level of conditions that form and create the basis for the successful development and growth of human potential in the region.

As the first indicator, which allows us to assess the overall level of human development in the region, is the "level of social activity of human potential", which evaluates development level of creative and socially active human potential. As the second supporting indicator, forming the basis and creating conditions for successful targeted development of human potential in the region, it is proposed to use the "level of region's sustainable development".

The level of social activity of human potential is focused on assessing how the level of knowledge's development, skills, cultural and moral education is used by each individual in practice for region's socio-economic development. This indicator pays attention to assessing development level of citizens' activity. Also it assesses knowledges that people received in their courses of personal development applied in practice. This idea supports one of the main goals of Patriotic education of the Russian Federation. The goal of Patriotic education is the development of high social activity, civic responsibility, spirituality in the Russian society, forming citizens with positive values and qualities that can manifest them in a creative process. [14].

In accordance with the concept of Patriotic education of citizens, developing creative patriotism is one of the main tasks implementing a set of measures at the state level. The task of a citizen-patriot is his social activity and benefits and prosperities' activity.

Given this fact, the indicator of human development should assess not only conditions that are created for human development, but it should reveal the level of social and personal development in practice for developing socio-economic well-being in the region.

The level of social activity can be divided into the following groups of composite indicators, an integral assessment of which will provide the most complete picture of problems:

1. Quality of education. The purpose of this indicator is to assess existing campaigns in education which provides conditions for the successful reindustrialization of region's economy. In this category, the main focus is on assessing the current education system of creative activity of citizens.

To determine this indicator, we should assess education quality of children and youth. School, pre-school education and early childhood education is a basic area of human development.

There are indicators that allow the most informative assessment of this category. We propose to use the following indicators:

1) the number of graduates of higher educational institutions with red diplomas per one graduate.

The need to assess a number of graduates with analyzing education quality on the basis of indicators characterizing data on the average number of students is not appropriate, because to form the basis of region's economy reindustrialization it is important to know the number of students, also the number of graduates who have successfully completed the chosen stage of education and received a set of necessary competencies that they can successfully apply in their professional activities.

In this regard, we propose to use an indicator of graduates number of higher education institutions, because it is the final indicator, which does not take into account all those who have not completed their studies and were expelled from institutions. However, a criterion that assesses graduates number, is not enough indicative, so to give the most informative to this indicator we propose to assess graduates number with red diplomas. Red diplomas, as a rule, are indicators of interests in chosen profession and hard work. The a-students, in a greater degree of probability will possess all necessary competences, which they will be able to successfully apply for economic development of the region and its re-industrialization. This factor is confirmed by the fact that, as a rule, graduates with honors are less likely to remain unemployed.

2) the number of participants of scientific events per student.

The level of creative and creative activity does not always depend on grades in a diploma. There are quite number of people who do not have high grades in their diploma, still achieve high results in their professional field.. Therefore, we propose an indicator that allows you to estimate the number of

participants in scientific events per student. This indicator reveals the potential level of personal social activity of graduates in the future.

3) the number of educational institutions graduates of secondary vocational education with red diplomas per graduate.

2. The level of creative and intellectual potential of young people.

The second indicator assessing the level of social activity of human potential is the level of creative and intellectual potential of young people.

Today, young people are important part of innovative economy in the country, as it is characterized by a high level of education, non-standard thinking, excellent knowledge of modern technologies, confident orientation in the growing information flow, the ability to quickly adapt to a market economy, the desire to use theoretical knowledges in practice.

The formation of human potential is directly related to the presence of creative people who are ready to actively develop innovative technologies and direct them to improve the efficiency of implemented activities. In this indicator, we propose to assess the level of creative and intellectual potential of young people, as young people in the world today are recognized as the main resource for achieving development goals and the main conductor of social change, economic development and technical process [15, 16].

One of the most promising and effective ways to ensure reindustrialization of the region's economy is to prepare younger generation, i.e. it is very important for forming future specialists, focused on continuous development and creative approach to solving problems.

Under this indicator, we propose to use the following indicators:

- number of children attending music schools, art schools, children's creativity homes for 10 thousand children;

- number of applications for participation in the Olympics per student;

- number of applications for participation in conferences per student;

- proportion of young people from 14 to 35 years participating in activities of youth associations.

3. The level of cultural and moral potential of region's population.

The third indicator assessing the level of social activity of human potential is the level defining cultural and moral potential of region's population.

The need to consider issues of cultural development is relevant to develop cultural and humanitarian individual and population of the Russian Federation [17]. Culture is the most important prerequisite and result of human education, it inspires and creates incentives for abilities' development and desires to realize their potential in practice. Cultural development reveals hidden talents and hidden reserves of further social and personal development.

As the main indicators that quantify this category, we propose to use the following indicators:

- number of visits to museums, cinemas, theaters, concert halls, exhibitions on average per 1000 people;

- number of pupils of aesthetic education per 1000 population;

- percentage of young people involved in volunteer activities;

- percentage of young people participating in the activities of children's and youth public associations, as well as self-government authorities.

To assess the development level of moral potential, we propose to use indicators to assess the level of moral health, characterizing the level and degree of social anomalies characteristic among modern population:

- taken under supervision of patients with a first-time diagnosis of alcoholism and alcoholic psychosis per 100 thousand population;

- number of suicide deaths per 100 thousand population;

- number of abortions per 100 births;

- number of orphans and children left without parental care in Orphanages per year, people;

- the number of crimes committed by minors and with their complicity [18, 19].

4. The level of innovation activity of population.

The fourth indicator assessing the level of social activity is the level of population's innovative activity. To assess this category, we propose to use the following indicators:

- number of applications for inventions and utility models per 10,000 economically active population;

- number of patent applications filed per 10 thousand people, %;
- number of created advanced technologies per 10 thousand people, %.

2. The level of sustainable development of the region.

This indicator allows us to assess conditions created in the region to stimulate and create optimal conditions for human development of region's population.

The material well-being of region's population, its social security, development of social and information infrastructure, public health and environmental security of the region are fundamental importance for development of human potential. To assess the level of region's sustainable development, we propose the following hierarchical structure of indicators:

1. Material well-being and social security, including the following indicators:

- employment of the population by the state employment service as a percentage of applicants' number, %;

- proportion of population with monetary income below the subsistence level;
- share of food expenditures in consumer expenditures of population, %;
- percentage of unemployed persons up to 35 years, with higher professional education, %.

2. Provision of society with infrastructure facilities:

- density of public roads with hard surface (km of roads per 1000 km² of territory);
- provision of educational services (number of educational institutions per 1,000 population on average);

- area of covered public recreation areas per capita;
- number of hospital beds per 10,000 population;
- number of doctors per 100,000 population;
- the total area of the housing stock per 1 inhabitant, m²;
- proportion of the housing stock equipped with water disposal (Sewerage), %;
- proportion of organizations using the Internet, % [20].

3. Political stability and security:

- number of registered facts of intentional infliction of serious harm to health (per 100 thousand population)

- number of robberies, thefts from apartments of citizens (on 100 thousand population).

4. Population health and demographic well-being:

- life expectancy at birth: total population, years;
- natural increase per 1000 population
- registered patients with diagnosis: diseases of skin and subcutaneous tissue, established for the first time in their life for 1000 people.;
- registered patients with the diagnosis: diseases of the digestive system, established for the first time in their life per 1000 people.;
- cases of congenital anomalies (malformations, etc.) registered for the first time per 1000 population.

5. Ecological safety

- mass of harmful substances ejected into the atmosphere from stationary sources per 1 square km of the region, tons/year;
- proportion of contaminated water in the total volume of wastewater discharged into surface waters, %;
- proportion of the investigated water samples that do not meet hygienic standards for sanitary and chemical indicators, %.
- share of water that does not meet hygienic standards for microbiological indicators %.

- formation at enterprises of toxic waste production and consumption (on average 1 sq. km) [21, 22].

4. Conclusions

The human potential is considered as an integral element forming effective and competitive region's economy focused on improvement of life quality of population and sustainable development of society [23]. To assess this multi-faceted category, a quantitative approach based on a two-tier indicator structure was proposed.

According to results of the research, the following conclusions can be drawn. Firstly, the presented method allows us to give a specific quantitative assessment of development level of creative human potential, directly focused on ensuring reindustrialization of the region's economy.

Secondly, the structure of indicators of social activity identifies indicators that characterize the main elements required for human development, for evaluation of interested areas human capacity, for the purposes of the generalized integral evaluation of human development of region's population.

Thirdly, analysis of the level of social activity will allow to give a final assessment of public authorities effectiveness to ensure human development. This indicator is the final criterion that assesses results achieved in this direction, it can serve as one of the criteria for assessing the region's investment attractiveness. If this indicator is at a high level in comparison with other regions, there are the most favorable conditions for implementation of investment programs.

Fourthly, analysis of the level of region's sustainable development will allow us to assess region with favorable conditions for human development, how much local authorities are focused on social development of citizens.

Fifth, the proposed approach to assess the level of human development makes it possible to assess the effectiveness of public authorities to improve the level of human development. That is, if the analyzed period will have a positive dynamics of increasing the level of sustainable development, it should lead to an increase in the level of social activity. Thus, the presented structure of indicators will allow evaluating the effectiveness of state programs' implementation and budget spending in the field of human development.

References

- [1] Alkire S 2010 Human Development: Definitions, Critiques, and Related Concepts Human Development Research Paper UNDP 100
- [2] Sant'Ana M 2008 The evolution of the concept of development: from economic growth to human development: *working paper Louvain-la-Neuve* 35
- [3] Stanton E A 2007 The Human Development Index: A History Amher Amherst 37
- [4] Sagara A 1998 The human development index: a critical review *Ecological Economics* **3** 249-264
- [5] Kovacevic M 2010 Human Development Research Paper *Review of HDI Critiques and Potential Improvements* http://hdr.undp.org/sites/default/files/hdrp_2010_33.pdf
- [6] Petrosyanc D V 2011 Indeks razvitiya chelovecheskogo potenciala v sub"ektah Rossijskoj Federacii Regional'naya ekonomika: teoriya i praktika **43** 23 -31
- [7] Tupikina E N 2010 Sovershenstvovanie metodiki ocenki indeksa razvitiya chelovecheskogo potenciala (na primere Dal'nevostochnogo federal'nogo okruga) *Regional'naya ekonomika: teoriya i praktika* **9** 57- 63
- [8] Sveshnikov A V 2012 Sovershenstvovanie metodiki rascheta indeksa razvitiya chelovecheskogo potenciala *Global'nyj nauchnyj potencial* **21** 131-133
- [9] Poleshchuk E A 2016 Metodologicheskie podhody k ekologizacii indeksa chelovecheskogo razvitiya *Sistemnoe upravlenie* **1(30)** 62
- [10] Kalugina Z I 2011 Resursnyj deficit razvitiya chelovecheskogo potenciala kak ugroza modernizacii *Region: ekonomika i sociologiya* **1** 50 -70
- [11] Timofeev I Yu 2015 Razvitie metodov ocenki roli regionov v formirovanii chelovecheskogo

- potenciala *Belgorod: Izd-vo BelGAU im. V.YA.Gorina* 160
- [12] ZHurahovskij S N Prakticheskie aspekty ocenki razvitiya chelovecheskogo potenciala v usloviyah perekhoda k ekonomike, osnovannoj na znaniyah <https://cyberleninka.ru/article/n/prakticheskie-aspekty-otsenki-razvitiya-chelovecheskogo-potentsiala-v-usloviyah-perekhoda-k-ekonomike-osnovannoy-na-znaniyah>.
- [13] Borodkin F M, Kudryavcev A S CHelovecheskoe razvitie i chelovecheskie bedy <http://nesch.ieie.nsc.ru/Bed.pdf>.
- [14] Konceptiya patrioticheskogo vospitaniya grazhdan Rossijskoj Federacii <http://www.gospatriotprogramma.ru/the-concept-of-patriotic-education-is-the-basis-of-the-state-program-/the-concept-of-patriotic-education-of-citizens-of-the-russian-federation.php/the-concept-of-patriotic-education-is-the-basis-of-the-state-program-/>
- [15] Vsemirnaya programma dejstvij v otnoshenii molodezhi do 2000 goda i na posleduyushchij period: Rezolyuciya, prinyataya General'noj Assambleej OON, 13 marta 1996 http://vmo.rgub.ru/files/rezoluzija_oon_pogramma_dejstvij_1996-146-2.pdf
- [16] Rasporyazhenie Pravitel'stva RF ot 17.11.2008 № 1662-r (red. ot 10.02.2017) «O Konceptii dolgosrochnogo social'no-ekonomicheskogo razvitiya Rossijskoj Federacii na period do 2020 goda» (vmeste s «Konceptiej dolgosrochnogo social'no-ekonomicheskogo razvitiya Rossijskoj Federacii na period do 2020 goda») http://www.consultant.ru/document/cons_doc_LAW_82134/
- [17] Ukaz Prezidenta RF ot 24.12.2014 № 808 «Ob utverzhdenii Osnov gosudarstvennoj kul'turnoj politiki» http://www.consultant.ru/document/cons_doc_LAW_172706/
- [18] Mityugina M M 2015 Analiz dinamiki moral'nogo zdorov'ya obshchestva kak osnova povysheniya kachestva zhizni naseleniya *Samoupravlenie* **11** 23-26
- [19] Mityugina M U 2015 pravlenie psihosocial'nymi riskami kak instrument povysheniya kachestva zhizni naseleniya regiona *Samoupravlenie* **10** 25-27
- [20] Mityugina M M 2009 Perspektivy povysheniya kachestva zhizni naseleniya regiona (na primere CHuvashskoj Respubliki): monografiya *CHeboksary: Izd-vo CHuvash. un-ta* 199
- [21] Mityugina M M 2011 Analiz ekologicheskikh komponent kachestva zhizni naseleniya *CHuvashskoj Respubliki Vestnik CHuvashskogo universiteta* **CHeboksary: Izd-vo CHuvash un-ta** **4** 448-453
- [22] Mityugina M M 2011 Ekologicheskaya bezopasnost' kak osnova obespecheniya kachestva zhizni naseleniya *Vestnik CHuvashskogo universiteta* **2** 449-453
- [23] Mityugina M M 2017 Analiz evolyucii predstavlenij o sushchnosti ponyatiya «chelovecheskij potencial» kak osnovy obespecheniya reindustrializacii ekonomiki regiona *Biznes. Obrazovanie. Pravo* **4(41)** 168-173