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USING BEHAVIOURAL INDICATORS OF SOCIAL DEPRIVATION TO ASSESS HUMAN POTENTIAL DEVELOPMENT CONDITIONS

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Abstract

Human capital is a key factor in the region's competitive edge and the base for its economic growth and social development. Therefore, the study of human capital assessment parameters, as well as social conditions forming and developing human potential is relevant for management systems. The authors suggest an approach to analyzing the state of human potential formation environment based on the assessment of the behavioral indicators of social deprivation. The behavioral indicators of social deprivation stand for the statistics characterizing deviant behaviors of people. The higher these indicators are, the more difficult are the living conditions in a certain territory due to the high proportion of residents with antisocial values. The most informative statistics describing these parameters include the crime rate, homicide and suicide rates, as well as alcohol consumption, drug abuse, and social orphanhood. The advantage of the suggested indicators is their unambiguous interpretation. The suggested approach was tested on the data from the regions of the Far East of Russia taking into account the goals of Russian national policies aiming the accelerated social and economic development of this macroregion. The analysis of the behavioral indicators of social deprivation and their dynamics is an informative tool for the assessment of human capital preservation conditions and the region's human potential development. Monitoring indicators can provide goals for the further study of causal links that condition the problems in the region.

Keywords: Human potential, behavioral indicators of social deprivation, regional development, regions of the Far East

1. Introduction

The main development resource and drive behind today post-industrial economy is the human and its creative energy. That is why the competition for talent is increasing all over the world. The human factor plays a key role in regional development as well because the competitive edge of a territory depends on people's activity, effectiveness, creativity, and ability to cooperate more than on the availability of natural resources, climate, and other first-order factors (Zubarevich & Safronov, 2013)

The problem of preserving quality human capital and developing human potential is especially relevant for the regions of the Far East that feature a high outward migration of permanent residents. The loss is partially restored through the newcomers, which results in an uneven redistribution of human capital (Ioncev & Magomedova, 2015). Migrants mostly come from neighboring countries, they lack qualifications and have experienced a language barrier, which hinders their social adaptation. These trends restrict the territory's development opportunities due to its low utilization and vast size. The development of the region's resources through human potential development is driven by the following:

- reproduction conditions: family, social institutes (moral and cultural standards, social capital), the quality and availability of social infrastructure facilities;
- self-fulfillment opportunities (implementing individual projects, labor market relevance, quality leisure, social environment density).
- The favorable conditions for the formation and realization of human potential ensure the accumulation of human capital which results in the increased efficiency of economic activities and the improved quality of the social environment in the region. On the contrary, the adverse conditions result in the loss of the existing territorial development potential due to the growing lack of qualified personnel and reducing the economic activity of the people (Mau, 2012).

Thus, the assessment of the current state of the social environment is relevant for the management system because it explains the level of human potential as a factor behind regional development opportunities.

2. Problem Statement

The assessment of human potential development conditions within a territorial unit (settlement, city, region, macroregion, country) is a complicated problem due to the following:

- the complex nature of the assessment target and the controversies in approaching the notions of "human capital", "human potential", and their components;
- the lack of consensus in study method approaches;
- the limited and heterogeneous data available for the analysis.

There are many approaches to the definition and assessment of human potential (Anikin, 2017). The human development index is used for comparing countries but it is hard to adapt for the comparison of regions within one country. Apart from education and professional skills, human potential is determined by health, cultural intelligence, moral values, and other parameters that are established under the influence of the social environment (Kormishkina, et al., 2019). Social deprivation indicators are usually seen as adverse factors for human potential.

This approach was first used in Russia by the research committee on the Theories of Social Systems of the Russian Society of Sociologies at the Institute of Sociology of the RAS. It was based on the calculation of the "number of negative phenomena per one baby born" (Davydov, 1995).

Various approaches to social deprivation factors identify from 3 to 200 components (Gunaev et al., 2019) which results in a high variance of indicator sets.

The authors suggest approaching the analysis of human potential formation conditions based on specific indicators of social deprivation determined using the behavior principle, i.e., resulting from unsocial or antisocial activities of people. The suggested approach was tested on the Far Eastern macroregion of Russia.

3. Research Questions

This article deals with the relationships between the behavioral factors of social deprivation and the preservation of the human potential of a territory.

4. Purpose of the Study

We aim to determine the possibility of considering the impacts of the behavioral factors of social deprivation on the conditions of human potential formation and preservation during the assessment of territorial development prospects.

The suggested approach shall be tested on the data from the Far East of Russia.

5. Research Methods

5.1. Statistical analysis
5.2. Comparative analysis
5.3. Modeling.

6. Findings

The conditions of the social environment are determined by the opportunities for the formation, fulfillment, and preservation of human potential within a specific territory. The social environment is a multi-factor complex structure system that includes both exogenic and endogenic conditions for people. The latter are formed by behavior standards, values, and actions of the members of the society. The combination of these factors can promote the well-being of society or result in some adverse effects like marginalization.

Various authors suggest different selections of social deprivation factors for the analysis. The research team led by Davydov A. A. used the social deprivation index for the assessment that was calculated based on the number of deaths, divorces, births, crimes, and the unemployed, as well as the average monthly wage, the price for a set of 19 staple foods, and the losses due to strikes per person-days (Davydov, 1995). The list of such factors by Tikhomirova T. M. and Sukiasjan A. G. includes the prevalence of HIV among the people aged 15-49; tuberculosis rates; alcoholism-related mortality; maternal mortality; infant

mortality; wilful homicide; suicide; overall mortality; unemployment level; and Gini index (Tikhomirova & Sukiasjan, 2018). The markers of social deprivation may also include indicators describing crime rates (Dabiev, 2015), disease rates (Romanov & Romanova, 2019), and social orphanhood (Panarina et al., 2015).

We believe that the social and behavioral deprivation factors are the most informative for the assessment of the potential of human resources in a territory. These behavioral factors that can be used for quantitative assessment with the data from Rosstat may include crime rates, homicide and suicide rates, alcohol consumption, drug abuse, and social orphanhood. These data are collected on a regional level and aggregated into the country averages. Besides, they have been monitored for a time sufficient to assess the situation in dynamics. The advantage of the suggested indicators is their unambiguous interpretation. Their increase signifies the deterioration of the social environment due to the increase in the troubled proportion of residents, which has a negative impact on the preservation and development of human potential, while their reduction reflects some positive trends in this area. The dynamics and direction of the indicators in question may be used as assessment markers for the conditions of regional human capital formation and development.

Adverse conditions of the social environment result in the migration of the most educated, creative, and active residents. The situation is critical when the behavioral factors of social deprivation have high values against the negative changes of indicator values. The aggravation of the situation over time is often the main reason for migration.

To test the suggested approach, we will analyze behavioral indicators of social deprivation in the regions of the Far East. (Table 1).

Table 1. Social deprivation indicators*

Region of Russia	Year	Crime rate per 100 thousand people	Suicide rate per 100 thousand people	Homicide rate per 100 thousand people	Retail sales of strong liquors in decaliters per capita	Drug abuse level[1]	Social orphanhood level[2]	Average growth of social deprivation factor intensity
Russian Federation	2014	1499.5	18.2	8.8	0.72	14.5	21.7	0.69
	2019	1379.3	11.7	5.0	0.69	9.9	15.4	
Far Eastern Federal District	2014	2255.4	33.3	19.1	1.08	17.5	37.5	0.72
	2019	1896.2	18.8	11.2	0.92	19.6	27.6	
Republic of Buryatia	2014	2519.2	52.8	24.9	0.92	5.2	31.5	0.63
	2019	2247.7	36.4	14.2	0.66	2.3	28.6	
Republic of Sakha (Yakutia)	2014	1121.0	34.5	21.0	0.92	7.9	38.0	0.66
	2019	1277.7	22.9	13.4	0.78	3.0	29.3	
	2014	2952.5	47.7	26.3	0.77	5.6	46.1	0.76

[1] the number of patients diagnosed with drug addiction syndrome for the first time in their lives and taken under medical monitoring per 10 thousand people
[2] the number of children left without parental care found and recorded over the reporting year per 10 thousand children aged from 0 to 17.

Zabaykalsky territory	2019	2218.1	29.0	14.9	0.55	14.1	24.9	
Kamchatka territory	2014	1562.6	18.8	16.0	1.35	12.3	41.8	0.57
	2019	1840.9	5.4	5.7	1.22	10.2	28.7	
Primorsky territory	2014	2523.2	23.5	17.0	1.15	37.4	35.7	0.68
	2019	1,636.7	15.7	10.8	0.93	36.7	24.0	
Khabarovsk territory	2014	2210.3	25.7	11.7	1.30	10.5	35.8	0.35
	2019	1815.6	0.5	2.7	1.17	22.2	25.2	
Amur Oblast	2014	2128.6	48.0	22.9	0.90	22.2	37.4	0.89
	2019	2464.3	30.2	17.8	0.79	24.5	37.7	
Magadan Oblast	2014	2064.5	10.1	14.1	1.84	6.8	22.8	1.03
	2019	2050.6	16.3	15.6	1.52	7.8	16.0	
Sakhalin Oblast	2014	2350.2	10.6	12.5	1.50	26.0	28.2	0.41
	2019	1937.8	0.4	5.9	1.52	28.6	20.5	
Jewish Autonomous Oblast	2014	2045.8	35.4	21.8	0.93	25.5	63.2	0.90
	2019	2234.3	32.7	17.0	0.97	23.8	49.8	
Chukotka Autonomous District	2014	1276.0	41.5	27.7	1.27	0.0	66.3	0.85[3]
	2019	1550.8	18.0	30.0	1.25	2.0	61.0	
The ratio of the maximum and the minimum values	2014	2.6	5.2	2.4	2.4	7.2	1.4	
	2019	1.9	91.0	6.6	2.8	16.0	3.8	

*   The calculations were performed using the data from Rosstat, the Ministry of Education, and the Federal Service for Alcohol Market Regulation

The data presented show that there are significant social problems in the Far Eastern regions because the macroregion averages for all indicators are much worse than the all-Russian averages. The differentiation between the regions within the macroregion is quite high, between 1.9 and 91 times for various indicators. The situation in Jewish Autonomous Oblast is critical, as all of its indicators exceed the all-Russian averages 1.4–3.2 times.

The overall change dynamics in the intensity of the behavioral factors of social deprivation can be assessed through the average growth rate of the indicators. The negative dynamics were only observed in Magadan Oblast where the average growth rate is above one. The most positive changes were observed in Khabarovsk territory and Sakhalin Oblast.

The integral indicator of social deprivation level (L_{sd}) is calculated using the following formula:

$$L_{sd} = \frac{\sum_{i=1}^{6} \frac{V_i^{reg}}{V_i^{FEFD}}}{6}$$

where i is the behavioral indicator of social deprivation;

V_i^{reg} is the value of behavioral indicator i describing social deprivation in a region of Russia;

V_i^{FEFD} is the value of behavioral indicator i describing the average social deprivation in the macroregion;

The integral assessment of social deprivation level in the regions of the Far East is presented in Table 2.

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[3] Without drug abuse level

Table 2. Social deprivation level assessment

Region of Russia	2014	2015	2016	2017	2018	2019
Far Eastern Federal District	1.00	1.00	1.00	1.00	1.00	1.00
Republic of Buryatia	1.00	1.05	1.06	1.02	1.05	1.04
Republic of Sakha (Yakutia)	0.82	0.81	0.81	0.84	0.82	0.86
Zabaykalsky Territory	1.06	1.06	1.02	1.00	1.05	1.04
Kamchatka Territory	0.86	0.85	0.70	0.75	0.81	0.78
Primorsky Territory	1.14	1.13	1.11	1.08	1.09	1.07
Khabarovsk Territory	0.85	0.83	0.68	0.76	0.76	0.76
Amur Oblast	1.11	1.11	1.10	1.11	1.31	1.33
Magadan Oblast	0.77	0.82	0.79	0.86	0.78	1.00
Sakhalin Oblast	0.94	0.95	0.91	0.95	0.85	0.91
Jewish Autonomous Oblast	1.18	1.38	1.60	1.64	1.78	1.42
Chukotka Autonomous District	1.03	1.04	1.29	1.18	1.16	1.35

Compared to other Far Eastern regions, the situation in the Khabarovsk Territory, Kamchatka Territory, Republic of Sakha (Yakutia), and Sakhalin Oblast (in descending order) is relatively positive.

The worst conditions for the development of human potential were found in Jewish Autonomous Oblast, which is confirmed by the high outward migration (between 2014 and 2019, 26.9 thousand people left the regions, while the number of newcomers was only 16.7 thousand people). As a result, there is an increasing lack of human resources and the quality of human capital is declining. High social deprivation levels were also observed in Amur Oblast and Chukotka Autonomous District.

Other regions of the Far East are in the risk zone because their behavioral indicators of social deprivation are significantly higher than the national averages, which continues to promote outward migration and aggravates the problem of preserving and reproducing human capital in the macroregion, which is critical for the implementation of development projects.

We must note that there were some positive changes in indicator values of the period in question, which signifies that the situation somewhat improved due to the state policies among other reasons. However, social processes are quite non-reactive, which must be taken into account when developing and implementing management actions.

The authors believe that the suggested system of social environment assessment is informative for the preservation and development of human potential. It can provide necessary information about the problem areas to perform a more detailed study of the current situation and develop adequate corrective policies to improve the social situation of troubled territories.

7. Conclusion

This research has produced the following findings:

The analysis of the entire set of behavioral factors of social deprivation and specific indicators is an informative tool for the assessment of human potential preservation and development conditions in a region

The analysis of the behavioral factors of social deprivation may help formulate a system of monitoring for the social environment in the regions of Russia that can become the information base for the further study of causal links that explain the emergence of troubles in a specific territory.

Without timely management decisions taken by the authorities, the adverse development of the situation may undermine the region's positions in the competition for talents and results in the outward migration of the most active and talented labor resources, as well as a significant reduction of social and economic development opportunities for the territory.

The testing of this approach that was performed using the data from the Far East of Russia showed that all the components of this macroregion have relatively poor conditions for the formation and preservation of human capital as compared with the national averages. In some regions, Jewish Autonomous Oblast, first of all, the situation is critical, which results in significant restriction of economic growth opportunities for this territory.

References

Anikin, V. A. (2017). Chelovecheskiy kapital: stanovlenie koncepcii i osnovnye traktovki [Human capital: concept emergence and key interpretations]. *Economic Sociology*, *18*(4), 120-156. [in Russ.].

Dabiev, D. F. (2015). Chelovecheskiy kapital i indeks prestupnosti (na primere Tyvy) [Human capital and crime rate (the Tyva example)]. *ECO*, *2*, 176-179. [in Russ.].

Davydov, A. A. (1995). Indeks socialnogo neblagopoluchija [Social deprivation index]. *Sociological Studies*, *10*, 118-128. [in Russ.].

Gunaev, E. A., Badmaeva, N. V., & Kovanova, E. S. (2019). Indikatory socialnogo neblagopoluchija naselenija: etnoregionalnaja specifika Kalmykii, Burjatii i Tuvy [Indicators of population social deprivation: ethnic and regional specifics of Kalmykia, Buryatia, and Tyva]. *The New Research of Tuva, 1*, 190-201. [in Russ].

Ioncev, V. A., & Magomedova, A. G. (2015). Demograficheskie aspekty razvitija chelovecheskogo kapitala v Rossii i ee regionakh [Demographic aspects of human capital development in Russia and its regions]. *Economy of Region*, *3*, 89-102. [in Russ.].

Kormishkina, L. A., Kormishkin, E. D., Koloskov, D. A., Ivanova, I. A., & Kormishkin, A. E. (2019). Social inequality and poverty as a challenge to the development of human potential of the national economy. *ESPACIOS*, *40*(35). https://www.revistaespacios.com/a19v40n35/19403519.html

Mau, V. A. (2012). Chelovecheskiy kapital: vyzovy dlja Rossii [Human capital: challenges for Russia]. *Voprosy Ekonomiki*, *7*, 114-132. [in Russ.].

Panarina, N. N., Kholina, O. I., & Kramchaninova, N. V. (2015). Socialnoe sirotstvo v sovremennoy Rossii: determinanty vosproizvodstva i rasprostranenia [The social orphanhood in today Russia: the determiners of reproduction and propagation]. *Humanities, Social-economic and Social Sciences*, *2*(11), 33-36. [in Russ.].

Romanov, V. G., & Romanova, I. V. (2019). Zdravookhranenie i sostojanie zabolevaemosti naselenija Zabaykalskogo kraja: marker socialnogo neblagopoluchija [Healthcare and disease rate in Zabaykalsky territory: social deprivation marker]. *Bulletin of ZabGU*, *25*(10), 62-83. [in Russ.].

Tikhomirova, T. M., & Sukiasjan, A. G. (2018). Vlijanie faktorov socialnogo neblagopoluchija na ocenku chelovecheskogo potenciala v regionakh Rossii [Impact of social deprivation factors on the assessment of human potential in the regions of Russia]. *Federalism*, *2*, 64-78. [in Russ.].

Zubarevich, N. V., & Safronov, S. G. (2013). Neravenstvo socialno-ekonomicheskogo razvitija regionov i gorodov Rossii 2000-kh godov: rost ili snizhenie? [Uneven social and economic development of the regions and cities of Russia in the 2000th: growth or decline?]. *Obshchestvennye nauki i sovremennost, 6*, 15-26. [in Russ.].