Comprehensive assessment of the well-being of an individual in the territory of residence: taking into account the changing influence of indicators and corrective modules [1]

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Abstract. The article discusses the generalizing characteristics of the well-being of the individual in the territory of residence, the assessment of indicators is carried out according to statistical data. The author's methodology was used, which allows in general to judge the changes and trends in the development of the regions. The constituent entities of the Ural Federal District (UrFD) were selected. As a result of the research, it was suggested that the use of this approach alone does not allow to fully capture the change in trends: often the presence of a particular indicator in a specific crisis situation does not always correspond to its actual / expected state. Therefore, the calculation of the generalized normalized assessment of the well-being of an individual in the territory of residence is adjusted for changes in the indices of economic development, potential and economic security. The authors made an attempt to consider in the analysis not only the population of the subject (the number of people), but also to assess the personality from the standpoint of moral development, the level of education, the available opportunities for spiritual development, the provision of benefits necessary to maintain life and the degree of satisfaction of the needs of the population.

Introduction

Over the past two and a half decades, Russia and its regions have experienced significant changes in the level of socio-economic development: from the default in 1998-99, the financial and economic crisis in 2008-09 and, finally, the coronavirus pandemic from 2020 to present time. An incorrectly chosen trajectory in socio-economic development (as a developing and catching up state) only aggravated the consequences. Development was characterized in some years by low GDP rates (no more than 1.5%), financing of education, science, health care and culture (only about 10% compared, for example, with European countries). The decline in population led even before the outbreak of the coronavirus to the so-called "Russian cross", when during the year more people died than were born.

A brief analysis of the well-being of the individual in the territory of residence.

Consider a generalized normalized assessment of the well-being of an individual in the territory of residence (subjects of UrFD). The choice of UrFD subjects as a testing ground is explained by their typical diversity (the Sverdlovsk and Chelyabinsk Oblasts are industrial industrial territories with a high level of technological and technical development, the Khanty-Mansi Autonomous Okrug and Yamalo-Nenets Autonomous Okrug are oil and gas producing territories, agricultural production and industrial production).

The authors propose to consider the state of the subjects through the prism of the well-being of the individual in the territory of residence. Welfare (the author's definition) is a complex socio-economic category that objectively characterizes the provision of a territory with vital benefits and the degree of satisfaction of the needs of the population, and is expressed in:

for a person:

- full development of human abilities;

- providing benefits to maintain the vital activity of the body, its physical and mental health;

- creating conditions that allow the individual to strive for the all-round development of abilities;

-providing the population with the benefits necessary for life;

for the territory of residence:

- providing the necessary resources for the economic complex, including in the future;

- ensuring the stability of the political system of the state;

-organization and provision of the infrastructure component;

- a combination of market and non-market sectors of the economy, a reasonable opposition to the imperatives of economic efficiency and social justice.

This analysis was carried out on the basis of the methodology [1] and represents the processing of more than 80 indicators. Further, we will use the following levels of crises: N - relatively normal situation (0 and less); PK1 - initial stage (0.001-0332); PK2 - developmental stage (0.333-0.665); PK3 - a critical stage threatening a transition to a crisis zone (0.666-0.999); K1 - unstable stage (1-1,399); K2 - threatening stage (1.4-1.799); K3 - emergency stage (1.8 or more).

For the period 2005-2019 (before the start of the coronavirus pandemic), it showed that the state of all UrFD subjects was in the pre-crisis (PK3) and crisis (K1) zones. UrFD subjects were faced with a situation where the number of deaths exceeded the number of births (the so-called "Russian cross"). The rate of natural increase decreased in Kurgan Oblast to -6.1 people per 1000 people, in Chelyabinsk Oblast to -3.2 people per 1000 people, and in Sverdlovsk Oblast down to 2.7 people per 1000 people. The level of registration of diseases increased: for tuberculosis (the worst territories are Kurgan Oblast and Sverdlovsk Oblast (respectively 212.1 people per 100 thousand people and 179 people per 100 thousand people); for viral hepatitis - Yamalo-Nenets Autonomous Okrug (YNAO) and Khanty -Mansiysk Autonomous Okrug (KMAO) (respectively 1847 and 1614 people per 100 thousand people); in terms of the spread of HIV infection - Sverdlovsk Oblast (about 2300 people per 100 thousand people). The highest level of registration of drug addicts was noted in Kurgan Oblast (279.4 people per 100 thousand people) [2].

In terms of living standards, almost all UrFD subjects were in the crisis zone (K1-K2). This was primarily due to the low ratio of per capita income to the minimum subsistence level. In terms of the ratio of the average pension to the subsistence level, all UrFD subjects were in the crisis zone (K3). The increase in spending on the purchase of food and alcoholic beverages in the total consumer spending of the population (more than 35%) and the share of expenses for housing and communal services in the average per capita income led to the fact that the position of UrFD subjects in terms of poverty was unstable: the worst YNAO (K2) and Chelyabinsk Oblast (K1).

Methodical tools

The determination of the well-being of an individual in the territory of residence, taking into account adjustments, was carried out in two stages:

1. Calculation of the correction factors for individual modules and the correction factor as a whole. This characteristic is calculated according to the formula

$$K(t) = 1 - \text{sign}\big(V_i(t)\big) * x_i(t), \tag{1}$$

where $\text{sign}\big(V_i(t)\big)$ – speed sign in year t.

2. Calculation of a generalized normalized assessment of the well-being of an individual in the territory of residence, taking into account adjustments to potential, economic development and economic security.

$$PWBI(t) = WBI(t) * K_{pot}(t) \, K_{dew}(t) K_{ES}(t), \qquad (2)$$

where $WBI(t)$ – the value of the personal well-being index in the territory of residence without adjustment per year t, $PWBI(t)$ – the value of the personal well-being index in the territory of residence, adjusted in year t, $K_{pot}(t)$, $K_{dew}(t)$ and $K_{ES}(t)$ – adjusting factors for economic potential, development and economic security, respectively.

Results obtained

The article presents the results in the most indicative periods of development: the financial and economic crisis of 2008-09, as well as stagnation and recession in the last 4 years (table 1). 2020, the year of peak loads from the coronavirus pandemic, only aggravated the socio-economic situation.

Table 1.

Generalized assessment of the well-being of an individual in the territory of residence (on the example of UrFD subjects)

Years / Indicators	2008	2009	2010	2016	2017	2018	2019
Sverdlovsk Oblast							
I. Personal well-being index in the territory of residence (according to statistics, normalized assessment)	1.12 K1	1.21 K1	1.01 K1	0.85 PK3	0.89 PK3	0.91 PK3	0.91 PK3
Corrective modules:							
Economic potential (overall coefficient of adjustment)	0.77	1.19	1.23	1.19	1.21	1.23	1.23
Economic development (overall coefficient of adjustment)	0.90	1.06	0.84	1.11	0.88	1.10	1.11
Economic security	0.753	1.116	0.639	0.566	0.501	0.506	0.508
Overall adjustment coefficient	0.52	1.40	0.66	0.74	0.54	0.69	0.69
II. Personal well-being index in the territory of	0.59 PK2	1.70 K2	0.67 PK3	0.63 PK3	0.48 PK2	0.62 PK2	0.63 PK2

residence, taking into account adjustments							
Chelyabinsk Oblast							
I. Personal well-being index in the territory of residence (according to statistics, normalized assessment)	1.22 K1	1.31 K1	1.203 K1	1.059 K1	0.935 PK3	0.968 PK3	0.992 PK3
Corrective modules:							
Economic potential (overall coefficient of adjustment)	0.74	1.21	1.22	1.20	1.22	1.23	1.25
Economic development (overall coefficient of adjustment)	0.89	1.04	0.87	1.08	0.89	0.90	1.10
Economic security	1.013	1.309	0.914	0.947	0.731	0.781	0.783
Overall adjustment coefficient	0.67	1.65	0.98	1.23	0.79	0.87	1.07
II. Personal well-being index in the territory of residence, taking into account adjustments	0.82 PK3	2.16 K3	1.17 K1	1.30 K1	0.74 PK3	0.84 PK3	1.06 K1
Khanty-Mansi AO							
I. Personal well-being index in the territory of residence (according to statistics, normalized assessment)	1.057 K1	1.163 K1	1.031 K1	1.107 K1	1.133 K1	1.13 K1	1.14 K1
Corrective modules:							
Economic potential (overall coefficient of adjustment)	1.22	1.22	1.22	0.78	0.81	1.18	1.20
Economic development (overall coefficient of adjustment)	0.89	1.07	1.08	0.91	1.08	1.10	1.11
Economic security	1.072	1.082	1.066	1.187	1.116	1.154	1.156
Overall adjustment coefficient	1.17	1.41	1.41	0.84	0.97	1.50	1.54

II. Personal well-being index in the territory of residence, taking into account adjustments	1.23 K1	1.64 K2	1.45 K2	0.93 PK3	1.10 K1	1.69 K2	1.75 K2
Yamal-Nenets AO							
I. Personal well-being index in the territory of residence (according to statistics, normalized assessment)	1.263 K1	1.304 K1	1.128 K1	1.199 K1	1.199 K1	1.167 K1	1.172 K1
Corrective modules:							
Economic potential (overall coefficient of adjustment)	0.82	1.17	1.17	0.78	1.21	0.78	1.20
Economic development (overall coefficient of adjustment)	1.01	0.97	1.02	1.03	1.05	1.08	1.10
Economic security	1.249	1.241	1.122	1.219	1.153	1.048	1.05
Overall adjustment coefficient	1.04	1.41	1.34	0.99	1.46	0.88	1.39
II. Personal well-being index in the territory of residence, taking into account adjustments	1.31 K1	1.83 K2	1.51 K2	1.18 K1	1.75 K2	1.03 K1	1.62 K2
Tyumen Oblast (south)*							
I. Personal well-being index in the territory of residence (according to statistics, normalized assessment)	1.145 K1	1.245 K1	1.055 K1	1.016 K1	1.012 K1	1.102 K1	1.084 K1
Corrective modules:							
Economic potential (overall coefficient of adjustment)	0.72	1.25	1.27	1.32	0.64	0.66	1.30
Economic development (overall coefficient of adjustment)	0.36	1.53	0.39	1.12	1.13	0.84	1.11

Economic security	1.064	1.063	1.043	0.983	1.05	1.1031	1.1051
Overall adjustment coefficient	0.28	2.03	0.52	1.016	1.012	1.102	1.084
II. Personal well-being index in the territory of residence, taking into account adjustments	0.32 PK1	2.53 K3	0.55 PK2	1.48 K2	0.77 PK3	0.67 PK3(borderline)	1.72 K2
Kurgan Oblast							
I. Personal well-being index in the territory of residence (according to statistics, normalized assessment)	1.267 K1	1.264 K1	1.267 K1	1.222 K1	1.178 K1	1.212 K1	1.214 K1
Corrective modules:							
Economic potential (overall coefficient of adjustment)	0.79	0.82	1.10	0.85	1.12	1.14	1.21
Economic development (overall coefficient of adjustment)	0.97	0.95	0.93	0.96	1.03	1.03	1.05
Economic security	1.1	1.268	1.263	1.084	1.29	1.067	1.069
Overall adjustment coefficient	0.84	0.99	1.29	0.89	1.48	1.25	1.36
II. Personal well-being index in the territory of residence, taking into account adjustments	1.07 K1	1.25 K1	1.64 K2	1.09 K1	1.74 K2	1.52 K2	1.65 K2

*) Note: The results for Tyumen Oblast are presented without taking into account the autonomous regions of KMAO and YNAO, which are considered separately.

For Sverdlovsk and Chelyabinsk Oblasts, due to the interaction, an improvement in the normalized score in comparison with the values of the statistics is characteristic. However, for 2008-2009 the situation was the opposite, the values of the normalized estimate based on the statistics are underestimated in comparison with the adjustment data. This was facilitated by the high rate of development of the indicator "The volume of overdue debt on housing mortgage loans in the total volume of issued housing mortgage loans." For KMAO, YNAO and Kurgan Oblast, due to adjustments, a deterioration in the normalized estimate is typical in comparison with the values of the statistics for the entire time interval (deterioration of the value by 15-45%).

Conclusion

1. Analysis of the behavior of the main indicators of the well-being of an individual in the territory of residence revealed the following types of interaction: positive, negative and neutral. For Tyumen Oblast (south) there was a change in the indicator by more than 2-3 levels of crisis.

2. A real picture of the personal well-being index in the territory of residence was obtained, which differs from the statistical data:

- according to Sverdlovsk Oblast, the crisis level corresponded to K2 (according to K1 statistics); from 2017 to 2019 there was an improvement towards PK2;

- for the Chelyabinsk Oblast, the level of the indicator during the financial and economic crisis of 2008-2009 corresponded to the Sverdlovsk Oblast; in 2019, the indicator level worsened towards K1;

- according to KMAO and YNAO, as well as for Kurgan Oblast, a stationary process and the correspondence of the indicator to statistical data are characteristic;

- in Tyumen Oblast (south), the indicator deteriorated towards K3 in 2009 (according to the statistics, this corresponded to K1). Affected by a sharp change in the growth rate of industrial production compared to the previous period.

References

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