InterAcción y PerspectivA

Revista de Trabajo Social

Julio-Diciembre 2021
Vol. 11 No. 2

Universidad del Zulia
Facultad de Ciencias Jurídicas y Políticas
Centro de Investigaciones en Trabajo Social

ARTÍCULO DE INVESTIGACIÓN

ENFOQUES METODOLÓGICOS PARA EVALUAR LA DIFERENCIACIÓN DE INDICADORES DEL FUNCIONAMIENTO DEL SISTEMA DE SERVICIOS SOCIALES

Maxim A. Shestakov *, Vladimir M. Smirnov ** y Marina V. Danilina ***

Resumen

Sobre la base del análisis de datos estadísticos y el análisis de contenido, el trabajo investiga las causas y estudia los factores de diferenciación de los parámetros del funcionamiento del sistema de servicios sociales y sus subsistemas individuales. Para estudiar los factores que determinan la diferenciación de los costos financieros de las organizaciones estacionarias de servicios sociales, es necesario plantear una hipótesis de trabajo. La hipótesis de trabajo es que el nivel de costos de la CCA está determinado en gran medida por el tipo de organización y, por tanto, la estructura regional de la CCA incide en la diferenciación de los costos financieros. Para probar la hipótesis, es necesario analizar los costos promedio por tipos de organizaciones de servicios sociales estacionarias y evaluar la confiabilidad de sus diferencias. Como resultado de la verificación empírica de las disposiciones metodológicas, se muestra que la diferenciación de los costos financieros de las organizaciones estacionarias de servicios sociales es del 62,2%. Al mismo tiempo, la diferenciación interregional es del 25,6% y la intrarregional del 36,6%.

Palabras clave: servicio social, monitoreo, financiamiento de capacidades, regulación del desempeño, diferenciación de costos.

Abstract
METHODOLOGICAL APPROACHES TO ASSESSING THE DIFFERENTIATION OF INDICATORS OF THE FUNCTIONING OF THE SOCIAL SERVICE SYSTEM
On the basis of statistical data analysis and content analysis the paper researches the causes and studies the factors of differentiation of the parameters of the functioning of the social service system and its individual subsystems. To study the factors that determine the differentiation of financial costs of stationary social service organizations, it is necessary to put forward a working hypothesis. The working hypothesis is that the level of CCA costs is determined to a large extent by the type of organization and, therefore, the regional structure of the CCA affects the differentiation of financial costs. To test the hypothesis, it is necessary to analyze the average costs by types of stationary social service organizations and assess the reliability of their differences. As a result of empirical verification of methodological provisions, it is shown that the differentiation of financial costs of stationary social service organizations is 62.2%. At the same time, interregional differentiation is 25.6%, and intraregional 36.6%.

Keywords: social service, monitoring, capacity financing, performance regulation, cost differentiation

* Instituto de Investigación de Rusia FGBU VNII del Trabajo, Ministerio de Trabajo de la Federación de Rusia, Moscú, Rusia. E-mail: shestakov_ma@mail.ru
** Instituto de Investigación de Rusia FGBU VNII del Trabajo, Ministerio de Trabajo de la Federación de Rusia, Moscú, Rusia. E-mail. E-mail: vsmirnov@vcot.info
*** Instituto de Investigación de Rusia FGBU VNII del Trabajo, Ministerio de Trabajo de la Federación de Rusia, Moscú, Rusia. Universidad de Finanzas del Gobierno de la Federación de Rusia. Espacio de la Universidad Rusa de Economía Plekhanov (PRUE), Moscú, Rusia. E-mail: marinadanilina@yandex.ru

1.- Introduction

Since the functioning of the social service system is of a decentralized nature and is directly regulated at the regional level, differentiation of the main parameters of the functioning of this system inevitably arises.

Differentiation in itself cannot be viewed as a negative phenomenon. Scientific research has shown that optimal differentiation, on the contrary, contributes to the development of the socio-economic system, creating diversity and certain incentives.

At the same time, excessive differentiation leads to the destabilization of the system, the destruction of system connections and its degradation.

In relation to this study, excessive differentiation can lead to a violation of the basic principles of the social service system, namely, to a decrease in the availability and quality of social services.

For the purposes of this study, excessive differentiation will mean such a level of differentiation of the parameters of the functioning of the social service system, which is not due to the objective reasons for their differences.

The above can be considered with a specific example. Suppose that 100,000 rubles are allocated per year for social services for one recipient of social services. The cost of a bed-day in one organization is 400 rubles, and in another 320 rubles. Then, other things being equal, at the expense of the allocated funds, the recipient is guaranteed 250 days of stay in one social service organization, and in another already 313 days.

An even more striking example is the situation related to the cost of social services in home-based social services. Let's also assume that a subsidy is allocated in the amount of RUB 10,000. The cost of social services in one organization is 27 rubles, and in another 40 rubles. Based on budgetary constraints, in one organization the recipient will be able to receive social services 370 times a year, and in the second organization only 250 times a year.

Revealing the causes and studying the factors of differentiation of the parameters of the functioning of the social service system and its individual subsystems is an important and underdeveloped area of economic research.

2.- Data and Method

On the basis of statistical data analysis and content analysis we research the causes and studying the factors of differentiation of the parameters of the functioning of the social service system and its individual subsystems. Differentiation indicators are used in statistics to characterize the level of differences in the population. Differentiation indicators include quartile coefficient, decile coefficient and fund coefficient.

The quartile coefficient of differentiation (K_Q) characterizes the ratio between the upper and lower quartiles and shows how many times the minimum value of the trait in the last quarter of the population units is higher than the maximum value of the trait in the first quarter of the population units and is calculated by the formula:

$$K_Q = \frac{Q_3}{Q_1} \qquad (1)$$

where Q_1, Q_3 – the lower and upper quartiles of the distribution, respectively.

The decile coefficient of differentiation (K_d) shows how many times the minimum value of the trait in the last 10% of the population units is greater than the maximum value of the trait in the first 10% of the population units and is calculated by the formula:

$$K_d = \frac{d_9}{d_1} \qquad (2)$$

where d_9, d_1 are the lower and upper deciles of the distribution, respectively.

The coefficient of stock differentiation (K_ϕ) shows how many times the average value of a feature in the last 10% of units of the population is greater than the average value of a feature in the first 10% of units of the population and is calculated by the formula:

$$K_\phi = \frac{\overline{x_{10}}}{\underline{x_1}} \qquad (3)$$

where x_{10}, x_1 is the average value of the trait for the last and first 10% of the units of the population, respectively.

However, the study of the differentiation of the parameters of the functioning of the social service system requires the study of not only intergroup differentiation, but also intragroup differentiation of indicators. The above indicators of differentiation do not allow doing this.

Indicators of variation meet these requirements to a greater extent: standard deviation, variance and coefficient of variation.

The root-mean-square (standard) deviation is a generalized indicator that characterizes the size of the variation. It shows how many units, on average, each individual value of a trait differs from the average. This indicator has the same unit of measurement as the attribute and is calculated using the formula:

$$\sigma = \sqrt{\frac{\sum (x_i - \underline{x})}{n}} \qquad (4)$$

where x_i – the value of the i-th element of the sample;

$\underline{x}$ - is the arithmetic mean of the sample (sample mean is an estimate of the mathematical expectation of a value);

n - is the sample size.

The variance of the feature (σ^2) is the sum of the squares of the deviations of the individual values of the feature from the arithmetic mean. Variance does not have a unit of measurement and, as a rule, is not meaningfully interpreted, being the basis for calculating other indicators of variation and a kind of intermediate stage in statistical analysis. The variance is calculated by the formula:

$$\sigma^2 = \frac{\sum \left(x_i - \underline{x}\right)}{n} \tag{5}$$

The coefficient of variation (V) is an indicator that evaluates the homogeneity of the population and the typicality of the mean value, and is calculated by the formula:

$$V = \frac{\sigma}{\underline{x}} \times 100\% \tag{6}$$

where σ – is standard deviation.

It is customary to consider a population to be homogeneous, and the average value typical for a given population, if the coefficient of variation $V < 33$ %. Otherwise, the population is considered heterogeneous, and the mean is atypical.

Dispersion has an important property that allows it to be decomposed into intergroup and intragroup components:

$$\sigma_x^2 = \underline{\sigma_i^2} + \delta_x^2 \tag{7}$$

where $\underline{\sigma_i^2}$ – is the average of the intragroup variances;

δ_x^2 -is intergroup variance.

The average of the intragroup variances $(\underline{\sigma_i^2})$ is calculated using the following formula:

$$\underline{\sigma_i^2} = \frac{\sum \sigma_i^2 n_i}{\sum n_i} \tag{8}$$

Intergroup variance (δ_x^2) is calculated using the following formula:

$$\delta_x^2 = \frac{\sum \left(\underline{x_i} - \underline{x}\right)^2 n_i}{\sum n_i} \tag{9}$$

where $\underline{x_i}$ and n_i – are respectively, group averages and frequencies for individual groups.

As mentioned above, the dispersion itself has no meaningful interpretation and therefore has limited application in practical calculations.

However, the approach underlying the decomposition into intragroup and intergroup components can be applied to the decomposition of the **coefficient of variation**, which has a more meaningful interpretation.

The decomposition of the coefficient of variation is used in regional studies. In particular, the indicator of the interregional coefficient of variation is given, which is calculated using the following formula:

$$V = \frac{\sigma_d}{\underline{d_i}} = \frac{\sqrt{\sum_{i=1}^n \left(d_i - \underline{d_i}\right) \cdot \eta_i}}{\sum_{i=1}^n d_i \cdot \eta_i} \tag{10}$$

where σ_d – standard deviation of the indicator in the regions;

d_i – average regional level of the indicator;

$\underline{d_i}$ –average indicator in the i-th region;

η_i – the share of the i-th region in the total value of the indicator.

Summarizing the above, we can propose the following methodological scheme for decomposing the total coefficient of variation (CV_T) into the intragroup coefficient of variation (CV_W) and the intergroup coefficient of variation (CV_B):

$$CV_T = CV_B + CV_W \tag{11}$$

Intergroup coefficient of variation (CV_B) is calculated by the formula:

$$CV_B = \frac{\sqrt{\sum_{i=1}^{m} \left(y_i - \underline{y_w}\right)^2 n_i}}{\underline{y_w}} \tag{12}$$

where y_i – is the value of the indicator of the *i*-ro object in the region;

$\underline{y_w}$ – is the weighted average by the number of objects in the group value of the

indicator ($\underline{y_w} = \frac{\sum y_i \times N_i}{\sum N_i}$)[1];

n_i – is the share of objects in the region in the total number of objects in the aggregate.

The intragroup coefficient of variation can be assessed using the formula:

$$CV_W = \frac{\sum_{i=1}^{m} CV_i \cdot N_i}{\sum_{i=1}^{m} N_i} \tag{13}$$

Coefficients of variation between and within groups can also be calculated from the one-way ANOVA using the formula:

$$CV_{W(B)} = CV_T \cdot \frac{SS_W(SS_B)}{SS_T} \tag{14}$$

where SS_W – the sum of the squares of the deviations within the groups;

SS_B - sum of squares of deviations between groups;

SS_T – total sum of squares of deviations.

$$SS_T = \sum_j \sum_i \left(x_{ij} - \underline{x}\right)^2$$

$$SS_W = \sum_j \sum_i \left(x_{ij} - \underline{x_j}\right)^2 \tag{15}$$

$$SS_B = \sum_i n_j \left(\underline{x_j} - \underline{x}\right)^2$$

For example, CV_T equals 1,43; $\frac{SSW}{SST} = 0{,}64$. Then $CV_w = 1{,}43 \times 0{,}64 = 0{,}915$. The same result can be achieved by calculating CV_w using the formula (4).

Thus, on the basis of the decomposition of the coefficient of variation into the intergroup and intragroup components, it is possible to evaluate and analyze the degree of differentiation of the parameters of the functioning of the social service system and to develop appropriate regulatory influences.

---

[1] Ni – the number of the objects in the group.

3.- Empirical analysis of the factors of differentiation of indicators of the functioning of the social service system

1) General characteristics of the studied data set of stationary organizations (departments) of social services

Information analysis was carried out for 85 constituent entities of the Russian Federation and 1601 stationary social service organizations. Distribution of stationary social service organizations in the constituent entities of the Russian Federation showed the following.

The largest share in the structure of stationary social service organizations (excluding the category of other organizations) is made up of boarding schools (boarding houses) of the general type for elderly citizens (elderly people) and disabled people (33.67%), psycho-neurological boarding schools (32.5%) and departments stationary social services in non-stationary social service organizations (20.2%). These types of organizations (departments) account for 86.3% of all organizations (departments). Accordingly, the share of other types of stationary social service organizations accounts for 13.7%.

The median cost per recipient in stationary organizations (departments) of social services is 447,317.15 rubles / 1 person, and the median cost of a bed-day is 1341.1 rubles / bed-day.

Table 1
Statistical characteristics of the distribution of the cost of a bed-day in the context of the constituent entities of the Russian Federation (2020)

Subject of the Russian Federation	Average cost of a bed-day, rubles	The minimum cost of a bed-day, rub.	Maximum cost of a bed-day, rub.	Standard deviation of the cost of a bed-day, rub.	Rate of variation of the cost of a bed-day, %
1	2	3	4	5	6
Altai region	1061,3	769,5	1669,6	219,0	20,6
Amurskaya Oblast	2149,3	661,8	5706,1	1653,0	76,9
Arkhangelsk region	1389,5	1094,2	2323,4	283,5	20,4
Astrakhan region	1911,9	936,9	3501,5	920,8	48,2
Belgorod region	1266,4	822,7	2536,2	411,3	32,5
Bryansk region	1516,3	715,1	6316,7	1702,9	112,3
Vladimir region	3293,6	34,0	36066,1	6516,4	197,9

Subject of the Russian Federation	Average cost of a bed-day, rubles	The minimum cost of a bed-day, rub.	Maximum cost of a bed-day, rub.	Standard deviation of the cost of a bed-day, rub.	Rate of variation of the cost of a bed-day, %
1	2	3	4	5	6
Volgograd region	1545,6	1224,7	2338,0	266,9	17,3
Vologodskaya Oblast	1454,7	931,0	3180,8	517,0	35,5
Voronezh region	1302,8	832,5	2289,2	315,3	24,2
Moscow city	9150,1	1143,4	78501,7	16495,9	180,3
St. Petersburg	3654,6	1417,2	7803,2	1806,0	49,4
Sevastopol	1907,7	813,2	3151,7	1055,3	55,3
Jewish Auth. region	1614,1	1083,1	2429,0	514,8	31,9
Zabaykalsky Krai	1333,1	889,2	2157,3	388,3	29,1
Ivanovo region	3072,0	827,2	27068,6	6659,8	216,8
Irkutsk region	1707,5	1169,9	2079,3	251,8	14,7
Kabardino-Balkar Republic	1288,9	954,7	1456,2	235,2	18,2
Kaliningrad region	1074,5	865,5	1181,8	96,3	9,0
Kaluga region	1557,1	994,5	2777,9	494,5	31,8
Kamchatka Krai	4429,9	2092,4	5988,0	1835,0	41,4
Карачаево-Черкесская Республика Karachay-Cherkess Republic	1687,3	1014,4	2540,7	779,0	46,2
Kemerovo region	1436,0	938,9	2469,4	456,8	31,8
Kirov region	1681,5	763,3	12464,6	2234,5	132,9
Kostroma region	997,1	770,5	2123,7	403,1	40,4
Krasnodar region	1546,7	753,3	3900,6	506,8	32,8

Subject of the Russian Federation	Average cost of a bed-day, rubles	The minimum cost of a bed-day, rub.	Maximum cost of a bed-day, rub.	Standard deviation of the cost of a bed-day, rub.	Rate of variation of the cost of a bed-day, %
1	2	3	4	5	6
Krasnoyarsk region	1374,9	899,1	2314,0	393,9	28,6
Kurgan region	1129,8	800,2	2140,1	361,0	31,9
Kursk region	1139,5	786,1	2050,8	353,0	31,0
Leningrad region	1861,5	1266,5	3145,6	605,0	32,5
Lipetsk region	1342,5	937,4	2262,8	401,3	29,9
Magadan Region	3828,5	2387,5	6615,2	2413,9	63,1
Moscow region	2630,5	106,2	4737,3	906,2	34,4
Murmansk region	2646,2	1753,5	3443,2	544,6	20,6
Nenets Auth. district	3220,5	3220,5	3220,5	-	-
Nizhny Novgorod Region	1361,0	855,6	3150,4	434,5	31,9
Novgorod region	4975,8	718,5	21022,2	7203,5	144,8
Novosibirsk region	1064,9	815,9	1552,9	188,5	17,7
Omsk region	1826,3	1004,1	9677,6	1994,8	109,2
Orenburg region	1824,9	883,7	3773,8	898,3	49,2
Oryol Region	1125,2	292,4	2395,5	471,2	41,9
Penza region	1296,6	694,3	5304,1	1363,1	105,1
Perm Territory	912,4	912,4	912,4	0,0	0,0
Primorsky Krai	1434,0	986,0	2339,7	384,0	26,8
Pskov region	1433,6	677,8	4008,7	900,1	62,8
Republic of Adygea	1369,6	1261,9	1551,3	113,5	8,3

Subject of the Russian Federation	Average cost of a bed-day, rubles	The minimum cost of a bed-day, rub.	Maximum cost of a bed-day, rub.	Standard deviation of the cost of a bed-day, rub.	Rate of variation of the cost of a bed-day, %
1	2	3	4	5	6
Altai Republic	1484,9	1139,4	1830,4	488,6	32,9
Republic of Bashkortostan	2581,3	703,3	27306,8	5974,5	231,4
The Republic of Buryatia	1718,9	876,8	9898,3	2460,0	143,1
The Republic of Dagestan	1218,2	1031,5	1387,8	159,8	13,1
The Republic of Ingushetia	1831,7	1182,7	2669,8	761,4	41,6
Republic of Kalmykia	1336,3	890,7	2029,8	429,4	32,1
Republic of Karelia	3471,6	1000,0	11780,6	3178,7	91,6
Komi Republic	6895,5	1140,3	60934,8	12260,7	177,8
Republic of Crimea	1418,1	1147,1	1963,9	256,6	18,1
Mari El Republic	2157,2	643,2	5718,0	1937,2	89,8
The Republic of Mordovia	1052,9	782,9	1698,0	250,8	23,8
The Republic of Sakha (Yakutia)	4735,9	1753,5	36563,3	7520,1	158,8
Republic of North Ossetia - Alania	2740,6	1064,7	6413,9	1447,3	52,8
Republic of Tatarstan	4801,7	687,3	28879,6	9159,2	190,7
Republik of Tiva	1451,1	1151,1	1897,7	226,4	15,6
Republic of Khakassia	2481,0	981,5	7349,4	2464,9	99,3
Rostov region	3598,5	630,1	35319,7	6709,5	186,4
Ryazan Oblast	1886,2	720,6	12510,6	2698,2	143,0
Samara Region	7445,8	727,6	49267,4	13400,7	180,0
The Saratov region	1552,1	825,4	5081,4	840,5	54,2

Subject of the Russian Federation	Average cost of a bed-day, rubles	The minimum cost of a bed-day, rub.	Maximum cost of a bed-day, rub.	Standard deviation of the cost of a bed-day, rub.	Rate of variation of the cost of a bed-day, %
1	2	3	4	5	6
Sakhalin Region	2861,5	2096,8	5210,0	1020,0	35,6
Sverdlovsk region	3679,4	584,1	25824,1	6009,3	163,3
Smolensk region	1401,2	792,3	1979,5	388,2	27,7
Stavropol region	10233,5	760,0	208958,9	42361,3	413,9
Tambov Region	1066,8	692,1	2134,1	502,4	47,1
Tver region	1413,0	629,5	4591,4	689,4	48,8
Tomsk region	1612,9	972,7	2193,9	418,7	26,0
Tula region	1442,8	1076,0	2615,6	384,8	26,7
Tyumen region	1619,9	895,8	5136,0	973,8	60,1
Udmurtia	1731,1	1104,5	2357,8	886,2	51,2
Ulyanovsk region	1508,6	817,9	3102,9	753,9	50,0
Khabarovsk region	1767,7	1144,7	2436,1	430,3	24,3
Khanty-Mansi Auth. district - Ugra	2365,4	2254,4	2444,0	87,1	3,7
Chelyabinsk region	1387,7	834,4	3221,2	481,3	34,7
Chechen Republic	1163,9	1163,9	1163,9	-	-
Chuvash Republic	1221,7	388,7	9138,5	1661,7	136,0
Chukotka Aut. district	4766,9	4061,6	5472,3	997,6	20,9
Yamalo-Nenets Auth. district	5422,6	1229,7	15184,3	4164,0	76,8
Yaroslavskaya oblast	2349,5	1046,4	5130,0	1259,2	53,6

The statistical characteristics of the distribution of costs per recipient of social services and the cost of a bed-day by types of social service organizations (departments) are presented in Table 2.

Table 2.
Statistical characteristics of the distribution of costs per recipient of social services by types of social service organizations (branches)

Name of the type of stationary social service organization	Average costs per recipient, RUB / 1 person	Minimum costs per recipient, RUB / 1 person	Maximum costs per recipient, RUB / 1 person	Standard deviation of costs per recipient, RUB / 1 person	Coefficient of variation of costs per recipient,%
1	2	3	4	5	6
Gerontological center	483517,9	56042,6	1006603,0	193983,9	40,1
Children's psycho-neurological boarding school	791584,4	534523,0	1808991,4	316381,7	40,0
Boarding house (boarding house) for war and labor veterans	713930,8	315108,0	1912506,6	405569,5	56,8
Boarding house (boarding house) of general type for elderly citizens (elderly people) and disabled people	517515,8	200448,0	2293769,3	261254,9	50,5
Boarding house for disabled children	977627,2	499288,0	1906866,3	473679,1	48,5
Boarding house for mentally retarded children	955586,4	106721,2	2421175,6	478753,0	50,1
Intensive nursing home (mercy) for elderly citizens (elderly) and disabled people	520188,7	434706,3	614158,5	95531,7	18,4
Department of inpatient social services	743389,0	33440,4	28418416,2	1696160,2	228,2

Name of the type of stationary social service organization	Average costs per recipient, RUB / 1 person	Minimum costs per recipient, RUB / 1 person	Maximum costs per recipient, RUB / 1 person	Standard deviation of costs per recipient, RUB / 1 person	Coefficient of variation of costs per recipient,%
1	2	3	4	5	6
Psychoneurological boarding school	489058,4	12408,0	2341068,0	267359,0	54,7
Special home for single elderly citizens (elderly people)	1046607,3	215101,0	2092802,4	757665,8	72,4
Special boarding house for elderly citizens (elderly people) and disabled people	606794,4	178710,0	4578889,0	638238,6	105,2

Shestakov, et al, 2021

Table 3.
Statistical characteristics of the distribution of the cost of a bed-day by types of social service organizations (departments)

Name of the type of stationary social service organization	Average cost of a bed-day, rubles	The minimum cost of a bed-day, rub.	Maximum cost of a bed-day, rub.	Standard deviation of the cost of a bed-day, rub.	Rate of variation of the cost of a bed-day,%
1	2	3	4	5	6
Gerontological center	1465,8	785,6	3145,6	593,7	40,5
Children's psycho-neurological boarding school	2199,8	1460,4	5081,4	897,0	40,8
Boarding house (boarding house) for war and labor veterans	1971,2	861,0	5225,4	1094,9	55,5

Name of the type of stationary social service organization	Average cost of a bed-day, rubles	The minimum cost of a bed-day, rub.	Maximum cost of a bed-day, rub.	Standard deviation of the cost of a bed-day, rub.	Rate of variation of the cost of a bed-day,%
1	2	3	4	5	6
Boarding house (boarding house) of general type for elderly citizens (elderly people) and disabled people	1577,9	599,7	27306,8	1500,4	95,1
Boarding house for disabled children	2952,7	1364,2	7803,2	1880,8	63,7
Boarding house for mentally retarded children	2700,5	292,4	6744,8	1343,6	49,8
Intensive nursing home (mercy) for elderly citizens (elderly) and disabled people	1429,9	1191,0	1706,0	268,5	18,8
Department of inpatient social services	6423,3	106,2	208958,9	14996,3	233,5
Psychoneurological boarding school	1404,5	34,0	9677,6	903,4	64,3
Special home for single elderly citizens (elderly people)	2972,7	643,2	5718,0	2146,3	72,2
Special boarding house for elderly citizens (elderly people) and disabled people	3092,3	488,3	68096,9	9943,9	321,6

Shestakov, et al, 2021

An analysis of the concentration of values of individual indicators by types of organizations is of great importance for analyzing the differentiation of costs of stationary social service organizations.

Table 4.
Concentration of values of individual indicators by types of organizations[2]

Name of the type of stationary social service organization	Concentration of OCO[3]	Concentration of recipients	Concentration of bed capacity	Concentration of the number of key personnel	Concentration of expenses
1	2	3	4	5	6
Gerontological center	2,27%	2,47%	2,05%	2,65%	2,29%
Children's psycho-neurological boarding school	1,02%	0,78%	0,87%	1,86%	1,74%
Boarding house (boarding house) for war and labor veterans	1,56%	0,95%	1,06%	1,59%	2,11%
Boarding house (boarding house) of general type for elderly citizens (elderly people) and disabled people	42,18%	47,29%	25,19%	27,66%	27,73%
Boarding house for disabled children	0,94%	0,41%	0,47%	1,42%	1,11%
Boarding house for mentally retarded children	5,95%	2,62%	3,07%	10,02%	6,73%
Intensive nursing home (mercy) for elderly citizens (elderly) and disabled people	0,31%	0,14%	0,16%	0,31%	0,22%
Psychoneurological boarding school	40,69%	39,36%	64,35%	51,48%	53,00%
Special home for single elderly citizens (elderly people)	1,49%	0,30%	0,34%	0,16%	0,87%
Special boarding house for elderly citizens (elderly people) and disabled people	3,60%	5,67%	2,44%	2,87%	4,20%
Total	**100,00 %**	**100,00 %**	**100,00 %**	**100,00 %**	**100,00 %**

Shestakov, et al, 2021

---

[2] without inpatient departments, because for these institutional units, the analysis must be carried out separately

[3] OCO – hereinafter - social service organizations (stationary)
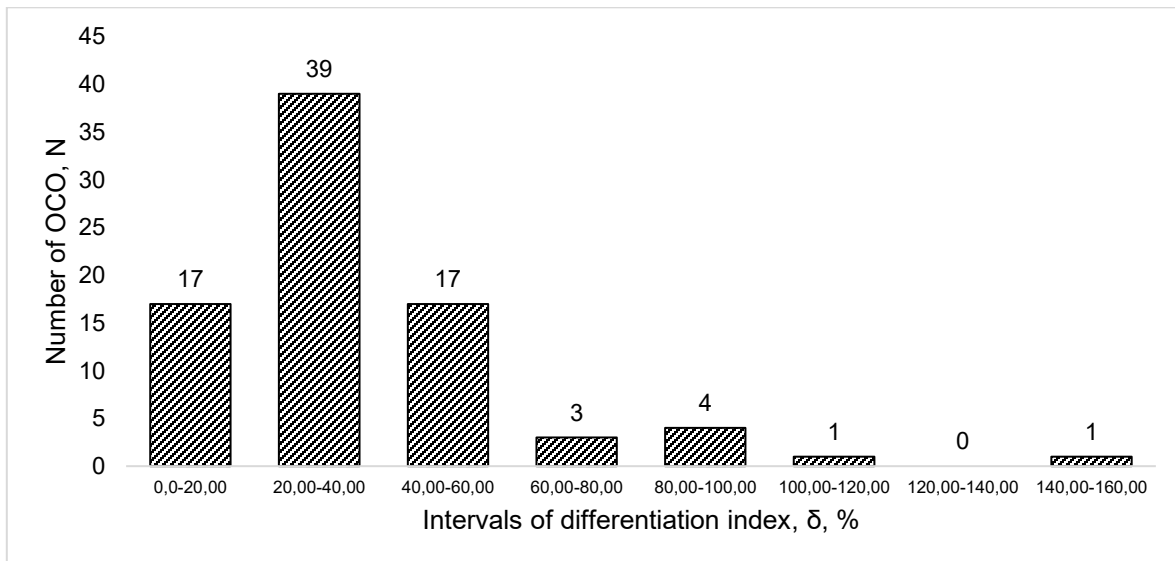
2) Intraregional and interregional differentiation of financial costs of stationary social service organizations

The general differentiation of the financial costs of stationary social service organizations consists of interregional differentiation and the average of intraregional differentiation values, measured by the coefficient of variation.

If we consider the average Russian indicator, then the differentiation is 62.2%. At the same time, 25.6% of differentiation is interregional differentiation and 36.6%, on average, is intraregional differentiation.

The grouping of the constituent entities of the Russian Federation by the level of intraregional differentiation is shown in Figure 1.

Figure 1 - Grouping of constituent entities of the Russian Federation by the level of intraregional differentiation

Shestakov, et al, 2021

The figure shows that 17 regions have differentiation of less than 20%, 39 regions have differentiation in the range from 21% to 40%, and 26 regions have more than 41%. The median value is 31.8%.

If the intraregional differentiation for regions exceeding the median value were established at the median level, then the average Russian value would be 52.1%, i.e. decreased by 10.1 p.p.

To study the factors that determine the differentiation of financial costs of stationary social service organizations, it is necessary to put forward a working hypothesis. The working hypothesis is that the level of CCA costs is determined to a large extent by the type of organization and, therefore, the regional structure of the CCA affects the differentiation of financial costs.

To test the hypothesis, it is necessary to analyze the average costs by types of stationary social service organizations and assess the reliability of their differences.

The analysis of the data made it possible to reveal the following patterns: the costs per recipient of social services are higher in the CCA for children, and in boarding homes for disabled children and boarding homes for mentally retarded costs are higher than in a children's psycho-neurological boarding school.

As can be seen from the data analyzed, the regional structures of stationary social service organizations differ significantly.

Testing the hypothesis about the influence of the structure of stationary social service organizations on the average costs per recipient showed the presence of a weak but statistically significant correlation (rx = -0.22). This means that the structure of organizations has an impact on the differentiation of costs per recipient.

4. Conclusion

The paper shows that since the functioning of the social service system is decentralized and directly regulated at the regional level, differentiation of the main parameters of the functioning of this system inevitably occurs, and excessive differentiation leads to destabilization of the system, destruction of system connections and its degradation.

A method is proposed for assessing the differentiation of the parameters of the functioning of the social service system based on the decomposition of the coefficient of variation into intragroup and intergroup components.

As a result of empirical verification of methodological provisions, it is shown that the differentiation of financial costs of stationary social service organizations is 62.2%. At the same time, interregional differentiation is 25.6%, and intraregional 36.6%. Important factors in the interregional differentiation of the financial costs of stationary social service organizations are natural and climatic conditions, the type of organization of social services, the size of the organization of social services and the load on the personnel of organizations. Studies have shown that, for example, an increase in the average number of people served in a neuropsychiatric boarding school per 100 people. leads to a reduction in financial costs per recipient from 6.7% to 29.7% (for a sample of 10 constituent entities of the Russian Federation). This effect is explained by the fact that with an increase in the number of served citizens, the average cost per recipient decreases due to a decrease in the share of conditionally fixed costs.

This effect is also manifested through the personnel structure of stationary social service organizations. The analysis showed that the share of administrative and managerial personnel (AUP) and service personnel practically do not depend on the average bed capacity of the organization. In relation to the main staff, the opposite relationship operates: with an increase in the average bed capacity of the organization by 1%, the necessary need for the main staff increases only by 0.4%.

Thus, it can be concluded that with an increase in the average bed capacity of the organization, the need for specialists from among the main personnel increases disproportionately.

The average intratype differentiation is 84.3%, incl. for basic personnel - 110.6%, AUP - 100.7%, service personnel - 86.0%. At the same time, the median load within the types of inpatient organizations of social services does not differ significantly.

Thus, leveling the load on the basis of bringing it to the median level would reduce differentiation from 84.3% to 19.3%. This would accordingly lead to a decrease in overall differentiation at the expense of personnel costs.

Bibliographic References

- Federal Law of December 28, 2013 N 442-FZ "On the Basics of Social Services for Citizens in the Russian Federation"

- Shorokhova, IS **Statistical methods of analysis**: [textbook. manual] / IS Shorokhova, NV Kislyak, OS Mariev; Ministry of Education and Science Ros. Federation, Ural. Feder. un-t. - Yekaterinburg: Publishing house in the Urals. University, 2015.S. 82

- Socio-economic statistics: Textbook. for university students studying in the specialty 061700 "Statistics" and other econom. specialties / Ed. B.I.Bashkatov. - M.: UNITI, 2002.S. 71

- Williamson J. G. (1965) Regional inequality and the process of national development: a description of patterns, Economic Development and Cultural Change 13, 1–84;

- Gluschenko, K. (2017). 'Williamson's Fallacy' in Estimation of Inter-Regional Inequality. 10.13140 / RG.2.2.13622.29768;

- Glushchenko K.P. On the assessment of interregional inequality // Spatial Economics 2015. No. 4. P. 39-58;

- Malkina, M. (2015). Study of the factors of interregional convergence / divergence in real incomes and "social well-being" of Russian regions. Journal of Economic Regulation. 6.111-119. 10.17835 / 2078-5429.2015.6.4.111-119.

- Malkina M.Yu. Investigation of factors of interregional convergence / divergence of real incomes and "Social welfare" of the regions of the Russian Federation // Journal of Economic Regulation (Issues of economic regulation). Vol.6, No. 4, 2015. P.113

- Federal Law No. 83-FZ: Basic Provisions, Mechanisms and Instruments [Text] / Ministry of Finance of the Russian Federation; Nat. issled. University Higher School of Economics; ed. M. Yu. Alashkevich, B. L. Rudnik. - M.: Izd. House of the Higher School of Economics, 2011.

- Federal Law of 27.07.2010 N 210-FZ (as amended on 31.07.2020) "On the organization of the provision of state and municipal services");

- Technologies for reforming the system of rendering state (municipal) services. Publisher: Institute of Urban Economics, 2012;

- Reform of public sector institutions: preliminary results and new challenges [Text] / A. Biryukov, D. A. Dombrovsky, E. E. Komarovskaya and others; ed. A. M. Lavrov, O. K. Yastrebova; National Research University Higher School of Economics, Faculty of Social Sciences, Department of State and Municipal Administration. - M.: Ed. House of the Higher School of Economics, 2017.

- Federal Law of 13.07.2020 N 189-FZ "On state (municipal) social order for the provision of state (municipal) services in the social sphere"