

## REGIONAL FEATURES OF DEVELOPING THE SOCIAL INFRASTRUCTURE OF MUNICIPAL UNIONS IN PRIVOLZHISKY FEDERAL DISTRICT: PROBLEMS OF STATISTICAL ESTIMATION

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The article analyses the key issues connected with statistic evaluation of conversion in developing social infrastructure among the municipal regions of Privolzhsky federal district. The authors analyze the models of growth-initial level regressions on 9 indices for the years 2003-2007. As a result the conclusion is made about the presence of disproportion on sub regional level in all regions of the district.

Making up of the human capital providing competitiveness of our country in world economic space is connected with progressive shifts in the social infrastructure of cities, settlements in each region of the country. Research shows considerable inequality in social and economic development of municipal unions, and in particular, in the development of social infrastructure.

The research objective is to make the comparative analysis of the degree of inequality in the development of social infrastructure on municipal level of regions of Privolzhsky federal district (PFD).

PFD includes 14 regions (table 1). The territory of the district occupies 6,08% of the territory of the Russian Federation, the population on 1, January 2008 was 30 million 241

thousand 581 people (21,3 % of the population of Russia).

One of the features of the district is high urbanization of the population (the urban population share is about 73 %). But the urban saturation considerably varies from region to region. For measurement of the degree of intraregional asymmetry of developing social infrastructures in PFD we shall address the concept of the convergence widely applied to studying integration processes in the European Union.

The term "convergence" means rapprochement of levels of development of the countries-participants. The concept of divergence is the opposite. For quantitative estimation of convergence growth the initial level regressions models in which the rates of increase of an indicator are the dependent variables, and the

*Table 1*

**Demographic and administrative-territorial characteristic of PFD on 01.01.2008**

Region	Population, thousand people	Share of urban population, %	Territory, thousand in sq. km	Quantity of municipal areas
Republic Bashkortostan	4053	59,76	142,9	54
Mary El's Republic	703	63,30	23,4	14
Republic of Mordovia,	840	59,76	26,1	22
Republic Tatarstan	3763	74,70	67,8	43
The Udmurt Republic	1533	69,21	42,1	25
The Chuvash Republic	1282	61,31	18,3	21
The Perm Region	2718	74,98	160,2	33
The Kirov region	1413	72,05	120,4	39
The Nizhniy Novgorod region	3360	78,78	76,6	48
The Orenburg region	2119	57,39	123,7	35
The Penza region	1388	66,28	43,4	28
The Samara region	3173	80,46	53,6	27
The Saratov region	2584	74,07	101,2	38
The Ulyanovsk region	1312	73,17	37,2	21

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initial level of an indicator is the independent are used. The elementary regress of this kind is as follows:

$$g_i = \alpha + \beta \ln(y_{it-T}) + \varepsilon,$$

where  $y_{it-T}$  is an indicator at the moment of time, preceding the present situation  $t$  by  $T$  periods;  $g_i$  is average rates of increase in the corresponding country for  $T$  the periods, estimated as  $\ln(y_{it})/\ln(y_{it-T})$ ;  $\varepsilon$  is the casual deviation; and are the factors subject to an estimation.

In the course of the analysis of the statistical information in a municipal cut we have faced a problem of absence of some data in a number of regions PFD. Now there are no uniform requirements to making up of a file of indicators in a cut of municipal unions. But the Federal Agency of the state statistics of Russia works over this problem.

Leaning against the data of the state statistics, we researched variation series of 9 indicators ( $y_1, \dots, y_9$ ) for the period 2003-2007, which at determining of parameters of the equation act independent variable (table 2). Indicators  $y_1 - y_3$  characterize available housing accomplishment. The indicator  $y_4$  reflects the potential possibilities of satisfaction of spiritual

needs of the population. Indicators  $y_5$  and  $y_6$  characterize the availability of public health services that allows to analyze the factors of growth of life expectancy. The indicator  $y_7$  provides guidance on the possibilities of early development of children in municipal areas. The indicator  $y_8$  reflects the quality of life of the population by the availability of household services. The indicator  $y_9$  characterizes the development of road economy. In table 2 the results for the Orenburg region are reconciled. Similar calculations are made for all the regions of PFD.

For comparative analysis of the results of  $b$ -convergence modeling of indicators of social infrastructure of municipal areas of the regions of PFD we will analyze table 3.

Having analyzed the results presented in the tables, we have come the following conclusions:

1. The modern information base of municipal statistics does not allow to make complete comparative analysis of social infrastructure of all the regions of PFD concerning municipal areas.
2. The development of social infrastructure of municipal areas in the regions of PFD confirms the presence of disproportions in the development of the regions of the country, the absence of systems approach to social problems.

Table 2

**Estimations of  $\beta$ -convergence of indicators of developing social infrastructure of the Orenburg region for 2003-2007**

Notes: In brackets values of t-statistics of the Student for  $\beta$ .

$R^2$  - Determination factor.

\* The factor is statistically significant with probability of 95 %.

\*\* The factor is statistically significant with probability of 90 %.

Table 3

**Results of the estimation of indicators of municipal  $\beta$ -convergence in the regions  
of PFD for 2003-2007**

Region	Presence of indicators in municipal areas	$\beta$ -convergence* presence on indicators	$\beta$ -divergence* presence on indicators
Republic Bashkortostan	$y_1, y_2, y_3, y_4, y_5, y_6, y_7, y_8$	$y_2, y_3, y_5, y_7$	$y_4, y_8$
Mary El's Republic	$y_1, y_2, y_3, y_5, y_8$	-	$y_6$
The Republic of Mordovia	$y_1, y_2, y_3, y_4, y_5, y_6$	$y_2$	-
<b>The Republic of Tatarstan</b>	$y_1, y_2, y_3, y_4, y_5, y_6, y_7, y_8, y_9$	$y_2, y_3, y_7, y_9$	$y_4$
The Udmurt Republic,	$y_1, y_2, y_3, y_4, y_5, y_6, y_8, y_9$	$y_2, y_3$	$y_6$
<b>The Chuvash Republic</b>	$y_1, y_2, y_3, y_4, y_5, y_6, y_7, y_8, y_9$	$y_2, y_3, y_7, y_9$	$y_6$
The Perm Region	$y_1, y_2, y_3, y_4, y_5, y_7$	$y_5$	-
The Kirov region	$y_1, y_2, y_3, y_4, y_5, y_6, y_8, y_9$	$y_6, y_8$	$y_2, y_4$
The Nizhny Novgorod region	$y_1, y_2, y_3, y_4, y_5, y_6, y_7, y_8$	$y_5, y_7$	$y_1, y_3$
<b>The Orenburg region</b>	$y_1, y_2, y_3, y_4, y_5, y_6, y_7, y_8, y_9$	$y_1, y_2, y_3, y_5, y_9$	-
<b>The Penza region</b>	$y_1, y_2, y_3, y_4, y_5, y_6, y_7, y_8, y_9$	$y_2, y_3, y_5, y_6, y_9$	-
The Samara region	$y_1, y_2, y_3, y_4, y_5, y_6, y_7, y_8, y_9$	$y_2, y_3, y_7, y_8$	-
The Saratov region	$y_1, y_2, y_3, y_5, y_6, y_8, y_9$	$y_1$	-
The Ulyanovsk region	$y_1, y_2, y_3, y_5, y_6, y_7, y_8, y_9$	$y_1, y_7, y_8$	-

*Notes:* The bold type designates the regions where the information base allows to calculate all the 9 indicators.

\* Only those indicators for which size  $\beta$  is statistically significant with probability of 95 %.

3. In the Orenburg and Penza areas more than the others the tendency of reducing inequality in social infrastructure of municipal unions is shown.

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