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Bufetova, Anna

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Social Inequality in the Russian Federation: Regional Convergence vs. Urban Divergence in Levels of Living

Anna Bufetova

Novosibirsk State University

Abstract

Social disparities in regions of Russia were increasing since transition started in the 1990s. Policy of budgetary alignment and state social policy carried out in the first 10 years of 2000-th at the expense of redistribution of a resource rent reduced in some degree social inequalities among regions. But social disparities between settlements of different size and status within regions are still even more considerable.

This empirical paper attempts to add evidence on the issue of disparities and convergence in levels of living within regions and cities of the Russian Federation in the period 2000-2010.

I. Introduction

Social disparities in Russia were increasing since transition started in the 1990s on the background of decline of all social indicators. In the first decade of 2000-th growth of economy contributed to improvement of wellbeing of population. Income per capita is almost doubled in this period, the proportion of people with incomes less than the subsistence minimum level reduced by more than half, indicator that reflects provision of expensive durable goods – number of own cars per 1000 population – rose by 75 %, the number of doctors per 10 000 population increased by 7%, life expectancy – by 8.7%.

Policy of budgetary alignment and state social policy carried out in the first 10 years of 2000-th at the expense of redistribution of a resource rent was aimed at mitigation of social disparities. To what degree was it successful?

Researches indicate a decline of inequality of the budget sufficiency of regions (Kolomak, 2010) and municipalities (Sumskaya, 2009). Was it helpful in reducing the degree of social inequality? As studies have shown, dynamics of regional social indicators differ: some of them demonstrate reduction of inequalities, the other – do not (Zubarevich, 2009; Nayden, 2010).

Inter-regional differences in per capita income decreased 2-fold, in number of cars per 1,000 people – from 10.4 times in 2000 to 6.3 times in 2010. Differences in the number of physicians per 10,000 population increased, but not significantly, and the differences in housing conditions and a life expectancy virtually didn't change.

But it is undeniable that regional social inequality is still high. At the same time one should keep in mind that intra-regional inequality, that is social disparity between settlements of different size and status are even more considerable.

In this paper we attempt to assess the degree of social inequality between regions and between cities on the basis of synthetic integral indicator of level of living. This complex approach make it possible to quantify the total inequality of levels of living in the regions and cities of the RF, to identify groups of territories that are similar in terms of level of living, to assess the divergence or convergence tendencies. The combination of two levels of research regional and local - provides a more complete picture of territorial pattern of level of living.

II. Database and Method

Adopting a simple definition of level of living as a kind of life that people can afford to live we consider various components of level of living: income, poverty rate, employment, quality and affordability of housing, health care and education.

We use annual data for 79 regions of the RF for the period of 2000-2010 provided by Federal State Statistics Service (FSSS) of RF (Table 1). Some indicators are converted so that the increase of their values corresponds to the increase of level of living.

Table 1. Indicators of level of living for regions

components of level of living		indicators		
Indicators of material well-being	per capita income of population adjusted for price level	the ratio of per capita income of population to the cost of a fixed basket of consumer goods and services ¹		
	provision of expensive durable goods	The number of own cars per 1000 population		
	poverty rate	the proportion of people with incomes above the subsistence minimum level (converted indicator), %		
Employment		Employment rate (%)		
Housing conditions		housing stock, average per inhabitant, sq. m.		
Affordability of health care		Number of physicians per 10 000 population, persons		
Affordability of education		Number of students in higher educational institutions per 10 000 population, persons		
General indicator of quality of life		life expectancy, years		

The study also covers 193 cities of the RF with population over 100,000 in the same period.

¹ The cost of a fixed basket of consumer goods and services is used to eliminate the influence of differences in regional prices

Unfortunately, database provided by FSSS for cities is much scarce. For this reason we use a little different set of indicators for the components of level of living in cities (Table 2).

Table 2.	Indicators	of level	of living	for cities

components of level of living	indicators		
Per capita income of	the ratio of per capita retail trade turnover ² to the cost of a		
population adjusted for price level	fixed basket of consumer goods and services		
Employment	employment rate (%)		
Housing conditions	housing stock, average per inhabitant, sq. m.		
Affordability of health care	Number of physicians per 10 000 population, persons		
Affordability of education	Number of pupils at general educational institutions, per 1 000		
	population, persons		
General indicator of quality of life	•Natural increase of population per 1 000 population;		
	Rate of growth of population		

Synthetic indicator of level of living is calculated by the formula: $\overline{\mathcal{X}}^r = \sqrt{\frac{\displaystyle\sum_{i=1}^n (\lambda_i^r)^2}{n}}$, $\overline{\lambda}^r \in [0;1]$, where λ_i^r is unit-free rating-index which allows different indices to be added together. For its calculation we use the following formula: $\lambda_i^r = \frac{x_i^r - x_i^{\min}}{x_i^{\max} - x_i^{\min}}$, $\lambda_i^r \in [0;1]$, x_i^r the value of the i-th indicator in the region (city) r; x_i^{\max} and x_i^{\min} the highest and lowest values of the indicator x_i respectively attained in the period, n – the number of regions (cities).

This rating-index λ_i^r is a measure of a relative distance between actual value of the indicator in the region (city) r and the minimum value. The closer rating-index to 1, the closer the actual value of the indicator to the maximum (the best) value. The closer rating-index to 0, the closer the actual value of the indicator to the minimum (the worst) value.

Synthetic indicator of level of living (\mathcal{X}^r) is a relative length of vector difference between vector of actual rating-indexes and vector of 0-rating-indexes (worst values in the period). The closer synthetic indicator to 1, the less the difference between vector of actual values of indicators of level of living in the region (city) and the vector of the best values of indicators attained during the period, the higher the level of living.

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² The indicator of per capita retail trade turnover to some extent reflects the level of income and wealth of the population and is often used as a proxy for per capita income, while the information about per capita income for cities is not available. However it must be borne in mind that for the regional capitals this indicator overstates the level of wealth of the population.

The closer synthetic indicator to 0, the less the difference between the vector of actual values of indicators of level of living in the region (city) and the vector of the worst values of indicators, the lower the level of living.

Introduced synthetic indicator enables to sort regions or cities by level of living; to quantify the extent of inequality of level of living in different regions or cities; to identify groups of regions (cities), similar in the level of living, and to assess the degree of heterogeneity either of these separate groups or of the aggregate of regions (cities).

Besides, calculated in this way synthetic indicators are comparable in time and can therefore be used to study the dynamics of levels of living in different regions or cities and their groups.

We adopt sigma-convergence approach by evaluating convergence/divergence tendencies in levels of living in regions and cities by dynamics of variation coefficient of synthetic indicators of level of living.

III. Results

III.1. Regional level

In 2000-2010 there was an increase of all the selected social indicators and a decrease of interregional variation of most of them.

Variation in well-being indicators reduced most significantly. Coefficient of variation for the proportion of people with incomes above the subsistence minimum level reduced most of all: from 0,24 in 2000 to 0,056 in 2010. While at the beginning of the period coefficient of variation of this indicator was the highest, by the end of the period it become the lowest one. Its average annual rate of reduction was 13.5%. At the same time the minimum value of the indicator increased by 11 times: from 5,7% in 2000 (Ingush Republic) to 62,7% in 2010 (Kalmyk Republic). This fact indicates a decrease of poverty in regions.

Variation in per capita income of population reduced just as much, by 40% over the period, or 5,4% annually on average - from 0,35 in 2000 to 0,21 in 2010.

Variations of another well-being indicator - number of own cars per 1000 population – also reduced, although to a lesser extent. Its coefficient of variation diminished by 19,5% (2,2% annually).

Interregional variation of housing conditions (housing stock per inhabitant) didn't change significantly during the period.

Differentiation of regions by the indicator of availability of educational services though remains very high compared with other indicators, but nevertheless also reduced (from 0,455 in 2000 to 0,298 in 2010, or by 4% a year in average).

Economic growth increased inhomogeneity of regional labor markets - the coefficient of variation of the rate of employment increased by 37.8%, although its value remained one of the smallest among other indicators (0.12 in 2010).

There was a rise in interregional inequality in affordability of health care—the coefficient of variation increased from 0.217 to 0.232.

General indicator of quality of life – life expectancy – reduced from 64.8 years in average in 2000 to 64.4 years in 2005, and became more unequal (coefficient of variation increased from 0.038 to 0.05 during the same period).

The average meaning of life expectancy began to rise only in 2006, and by 2010 had reached 67.8 years.

Simultaneously the interregional variation of this indicator began to decline. But by the end of the period the value of coefficient of variation was still greater than in the beginning of it (coefficient of variation in 2010 is equal to 0.04).

Synthetic indicator of level of living was growing throughout the period (from 0.472 to 0.625), and its coefficient of variation was diminishing (from 0.115 to 0.084).

Moreover, the exclusion of the extreme regions (leaders – federal cities Moscow and St. Petersburg, and outsiders - Republic of Ingushetia and Tuva Republic) diminishes the coefficient of variation and makes its reduction more even and more significant (Fig. 1).

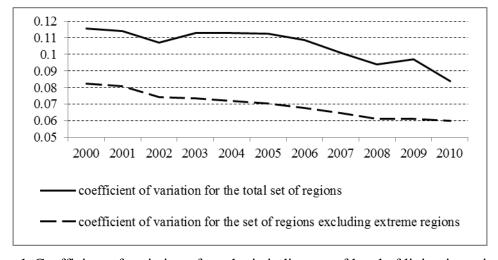


Figure 1. Coefficient of variation of synthetic indicators of level of living in regions

III.2. City level

Since one of the purposes of the study was to identify the role of the size and status of the city in determining the level of living, the dynamics of the synthetic indicators of level of living was investigated separately for the regional capitals and other "non-capital" cities, among which are: the largest (population over 500 thousand people), major (with population above 250 thousand, but not more than 500 thousand people) and big cities (with a population of over 100 thousand, but not more than 250 thousand people). We should note that most of all the largest cities (except three – Novokuznetsk, Togliatti and Naberezhnye Chelny) are regional capitals.

We excluded from consideration the federal cities of Moscow and St. Petersburg. Because of their status of subjects of the Federation these two cities are in different conditions of development in comparison with other cities of the Russian Federation.

III.2.1. Dynamics of individual indicators of level of living in cities

The majority of considered indicators have increased in the analyzed period.

Concentration of services and housing construction in the regional capitals has led to rapid growth of per capita retail trade turnover and the supply of housing in them, in spite of a more favorable population dynamics. This is the reason for the widening gap in these indicators between the regional capitals and other cities. The average per capita retail trade turnover in regional capitals exceeded the same indicator in non-capital cities by 3 times in 2006, and only at the end of the period there has been some reduction in the gap to 2.8 times.

The average housing stock (per inhabitant) in groups of cities was approximately of the same level at the beginning of the period (18.05 - 18.6 m² per person). By the end of the period housing stock (per inhabitant) in the regional capitals, despite the more favorable dynamics of the population, was already 21.9 vs. 20.6 and 21.2 m² in the major (including the largest) and big cities, respectively. And it should be borne in mind that the growth of indicator in big cities was largely due to population decline.

However, the quantitative indicators of housing conditions do not reflect the characteristics of the quality of housing.

Surveys conducted by FSSS in the frame of integrated monitoring of the living conditions of the population in 2011 show that quality of housing improves with the increase in city size. For example 27.9% of respondents in big cities complained about the lack of heat in their flats, and less than 20.5% - in the largest cities (almost all of them are regional capitals). Dampness in dwellings noted 17.1% of households living in big cities, 16.2% - in the largest,

and only 9.1% - in the largest cities with population over 1 million (that is cities-millionaires). The number of complaints about shortages of cold water is also higher among residents of big cities (3.5% of households in the big cities, and 1.7% - in the cities-millionaires). The situation with complaints about power interruptions is very much the same (Fig. 2).

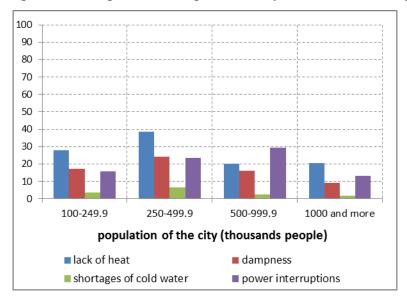


Figure 2. The proportion of households (in%), marking the disadvantages of living conditions in cities of various sizes (Source: Federal State Statistics Service of the Russian Federation)

The bigger the city, the better the availability of communications: cable TV, fixed and mobile phones, home and portable personal computers (Fig. 3).

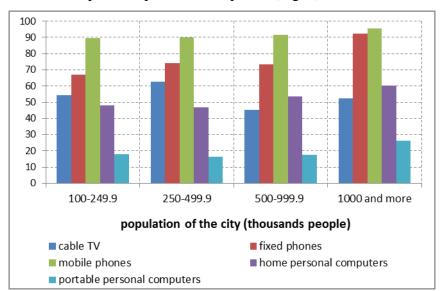


Figure 3. Households equipment with communication facilities in the cities of different sizes (in%) (Source: Federal State Statistics Service of the Russian Federation)

Households living in cities of different size vary essentially by having access to the Internet. Access to the network have about half of households in big and major cities, 57.4% - in the largest (from 500 thousand to 1 million) and 69.8% - in the cities-millionaires.

We can also find indirect evidence of the inequalities in material well-being of inhabitants of various-sized cities. High cost as a reason for the lack of network access was pointed out by 4% of households in big cities, 2.4% - by households in the largest cities and 0.7% - in cities-millionaires.

Distinction in the need for the use of Internet is also an evidence in favor of discrepancy in the way of life of the inhabitants of different-sized cities: the lack of need for its use declare 42-43% of the households in big cities, 36.9% of the households – in the largest cities, 28.2% of the households – in the cities-millionaires.

Despite the growing general indicators situation in health system in the RF is considered to be close to critical and widely discussed by authorities and media. Availability of medical care in rural areas is a very acute problem. In small towns the situation is not much better. Inequality in access to health services is growing even between large cities. Problem number one in the Russian health care is a deficit of staff. Medical personnel, including the most skilled, concentrated around the federal medical centers, large regional hospitals, university clinics. All these institutions with rare exceptions are situated in regional capitals. In primary health care shortage of personnel is growing. According to FSSS data the average salary of employees of municipal medical institutions, where nearly half the country's doctors is employed, only 14,600 rubles (approximately 365 euro per month).

Graduates of medical universities do not want to work in clinics. The average age of the local doctors in clinics has passed for 50. According to FSSS data the number of doctors per 10,000 population increased only in regional capitals (on average by 1.3% per year that is 12% over the period). In all other cities the indicator reduced: by 8.8% in the largest and major cities and by 7.2% in big cities for the entire period. The gap in this indicator between regional capitals and major cities increased from 1.68 to 2.06 times, between regional capitals and large cities - from 1.72 to 2.08 times.

Quantitative data do not reflect the quality of medical services, which is also becoming more differentiated in favor of regional capitals where staff shortage is weaker and skilled personal is concentrated.

Indicators of the number of students in educational institutions do not reveal significant differences between cities of different size. The average value of number of students in secondary educational institutions decreased in all groups of cities reflecting demographic

trends. The differentiation of this index also decreased by the end of period and the values of the index in groups of cities became almost equal.

However, the quality of education varies with the city size. A study by the Institute of Sociology of Russian Academy of Sciences (Konstantinovsky, Vakhshtayn, Kurakin, 2008) evidences that the smaller the town, the greater the share of "normal" and "weak" schools that do not have "high" status and specialization, in which there is a small proportion of high-skilled teachers. Graduates of these schools have relatively low results of Unified State Exam (USE) and are less likely to enter higher education institutions. "Normal" schools with low learning outcomes are usually in rural areas, urban settlements and district centers, and almost never - in metropolitan areas.

On the other hand, as the size of the city increases the proportion of "strong" schools (with the status of the gymnasium, with specialized studies or in-depth study of any subjects, that provide additional services) grows. These schools have a large proportion of high-skilled teachers, their graduates demonstrate high results of USE, most of them enter higher education institutions. More than half of these schools are concentrated in regional capitals and the largest cities.

Integrating indicators of level of living - the natural growth and population growth rates - show an obvious and increasing advantages of regional capitals in the first place, and of major and the largest cities - in the second place.

The natural decrease of the population diminishes during the considered period significantly, but remained the highest in the big cities and the smallest - in the regional capitals (Table 3). To a certain extent this is due to the outflow of population to major and the largest cities. The migrants are young and active population in the reproductive age. This process reduces the fertility rate and increases the mortality rate in big cities.

Table 3. Natural increase and growth rates of population in the groups of cities (average values)

	Annual popu	Annual population growth		Natural increase of population	
Groups of cities	rates		per 1 000 population		
	2000	2010	2000	2010	
regional capitals	0,996	1,002	-4,5	-0,11	
major (including the	0,997	1,0005	-4,0	-0,33	
largest) cities	0,997				
big cities	0,995	0,996	-4,8	-0,98	

(Source: Federal State Statistics Service of the Russian Federation)

Average population growth rate changed from negative to positive only in regional capitals and major and the largest cities because of population migration. In the big cities the aging and reduction of the population continues (Table 3).

III.2.2. Dynamics of synthetic indicators of level of living in cities

In the first part of the considered period (2000–2006) synthetic indicators of level of living were decreasing in all groups of cities. The main reasons for this were deterioration in the health care and population dynamics. But this decline of synthetic indicators is noticeably smaller in regional capitals and major cities.

Growth of synthetic indicators started with 2006 in the regional capitals and major cities and a year later - in the big and the largest cities.

Synthetic indicators exceed their initial values by the end of the period only in regional capitals and major cities (Fig. 4).

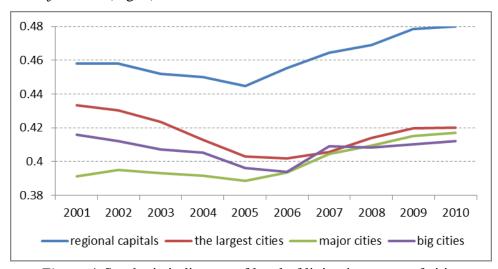


Figure 4. Synthetic indicators of level of living in groups of cities

So we observe a gap between level of living in regional capitals and other cities. And this is a general tendency for the whole territory of the country. The lag in level of living is increasing in 10 of the 14 regions in which there are large and major cities - not the capital, and in 26 of 32 regions where there are big cities and the capital but no large and major cities.

By the end of the considered period, the highest levels of living were in regional capitals in the Southern Federal District. At the same time there was the highest gap between regional capitals and other cities. Thus, the decisive factor in determining the level of living of urban residents is the capital status of the city.

Another noticeable trend is convergence of levels of living in non-capital cities, increasing homogeneity of the group (Fig. 4).

This trend is typical for most federal districts (Fig. 5) - the average synthetic indicators of level of living in major and big cities don't differ significantly. With the only exception – cities of Khanty-Mansi Autonomous District (Surgut, Nizhnevartovsk) and Yamal-Nenets Autonomous District (Novy Urengoy, Noyabrsk) in Ural Federal District. These cities of oil and gas extracting regions are characterized by relatively high synthetic indicators of level of living. But in general, the coefficient of variation for the aggregate non-capital cities reduced during the period from 0,135 to 0,097. And we observe a convergence tendency of levels of living in large and major cities.

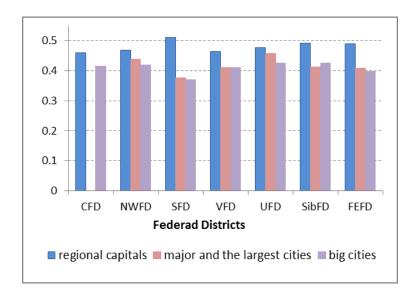


Figure 5. Average synthetic indicators of levels of living in groups of cities in Federal Districts of RF

(CFD – Central Federal District, NWFD - Northwestern Federal District, SFD - Southern Federal District, VFD - Volga Federal District, UFD - Ural Federal District, SibFD - Siberian Federal District, FEFD - Far Eastern Federal District)

In addition, the smaller the size of the cities, the greater the homogeneity of the group: the coefficient of variation of synthetic indicators of level of living for major cities is 0.1, for big cities - 0.08.

Thus, there is a growing polarization of levels of living of urban residents. The regional capitals, the largest cities and cities from resource extraction regions are at one extreme. And all other cities are at another extreme. The levels of life of the residents of these cities are becoming more similar, less dynamic, and increasingly lag behind the capitals.

IV. Conclusions

Thus, our study confirmed that one of the determining factors of level of living of urban citizens is the size of the city. The larger the cities, the higher the value of synthetic indicator of level of living and the more favorable its dynamics - a smaller reduction during recession and higher growth during the recovery.

Another important factor for the level of living is specialization of the city: higher level of living is typical for the cities of resource extracting regions.

However, there is another no less important factor that influences the value and dynamics of synthetic indicator of levels of living – the status of "regional capital". It provides a higher level of living in regional capitals, even when the level of economic development and population size of the regional capital is slightly inferior to other largest cities in the region (Togliatti in Samara region, Novokuznetsk in Kemerovo region).

Status of "capital" provides not only a higher level of living, but also more favorable dynamics of it - smaller amplitude of fluctuations and more rapid growth.

Consequently status of "capital" turns out to be more important factor of level of living of urban residents than level of economic development and size. In the existing centralized budget system most of the financial resources is concentrated at the federal level, and municipalities do not have sufficient resources for the development of the economic and social spheres. Under this conditions status of the capital provides to regional centers the access to the resources of other budget levels - state and federal transfers.

The conducted study showed the growing polarization of levels of living in cities of RF. Regional capitals, the largest cities and cities from resource extraction regions are at one extreme. And all the rest cities which are not capitals are at another extreme. This total group of non-capital cities became more homogeneous: on the background of the weak performance of the synthetic indicators of levels of living there is a convergence of level of living within groups (big, major cities), as well as between groups of cities.

Contemporary centralization of financial resources at the federal level of budget system contributes to further polarization of levels of living of urban residents.

Therefore, the experts and the scientific community are in favor of changing of the budget legislation.

"The concept of improving the regional policy" published by Federal authorities suggests "gradual establishment of a guarantee of financial independence for the subjects of the Russian Federation and for municipalities" as a strategic purpose. Simultaneously, the significance of institutional policies for the development of human capital and mobility of the

population, and social policy aimed at targeted support for the most vulnerable groups of people rises.

One of the most important directions of this policy is the support and development of small businesses, which contributes to employment growth and reduction of income inequality. It can also help to develop human capital of new entrepreneurs and to reduce social exclusion that is most important for small and big cities.

Organization of business schools, consulting centers, system of financing, creating a culture of social inclusion contributes to economic creativity, allowing different social groups and individuals to realize their potential. All these measures may increase the "learning ability" and adaptive capacity of the city or region and ensure the growth of its competitiveness.

But municipalities do not always have sufficient resources and qualified personnel for the implementation of such measures. Therefore the establishment of such business schools and other information centers and their accessibility to the residents of backward areas should be in the focus of interest of regional authorities.

No less important to work with entrepreneurs who already have a business in the city. To maintain and develop existing businesses local administrations should be aware of its basic problems and needs and contribute to their solution and satisfaction. In practice communication of business and regional government in Russia is informal: negotiations with the governor on the conditions of entry into the region or the report to the head of the local administration about plans of business development at the territory of the region are mandatory but not connected to any one piece of legislation, etc. These informal rules are characterized by variability and lack of security.

To increase the level of trust and stability the communication of business and government should be organized in the framework of formal rules. Local authorities can establish specific units or representatives (ombudsman) to communicate with local business community. Range of interests of ombudsmen should be wide: evaluation of the local business climate, quality of the workforce in the labor market, need for support for the territorial expansion of firms from the authorities, the problems of local legislation, etc.

Particular attention should be given to the assistance in the expansion of the business, including expansion outside the region. Yet Russian municipal authorities are not enough focused on the assistance in development and territorial expansion of local businesses. Although one of the causes of underdevelopment in many Russian cities is fear, inability and unwillingness of entrepreneurs to expand business beyond their native city.

No less important systematic work on building of social and cultural capital. The problem of citizen involvement in local government is exacerbated by decreasing the size of the settlement. There are organizations working on a solution to this problem. They have a successful experience in implementing of civil educational programs and schemes of enhancing people's participation in society. But today there are still a few examples of such organizations and most of them remain unknown to most managers and specialists of municipalities. Although the development of human, social and cultural capital is the most important for many communities, and for some of them this is the only factor of the development, without which the traditional activities aimed at socio-economic development of the area will be ineffective.

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