

**COMPARATIVE ANALYSIS OF THE DYNAMICS OF SOCIAL AND
ECONOMIC DEVELOPMENT OF REGIONS AND FEDERAL DISTRICTS
OF THE RUSSIAN FEDERATION**

I. V. MITROFANOVA*

V. V. KUDREVICH,

N. P. IVANOV

V. V. BATMANOVA

I. A. MITROFANOVA

Abstract. In the article the tendencies of social and economic differentiation of the economic space of Russia in the context of regions and federal districts in 2002-2015 are studied. The degree of their destabilizing impact on the economic growth is assessed. For the estimation of the level of the interregional differentiation the authors used also such indicators as the coefficient of inequality and the coefficient of variation.

It was proved that the remaining significant differentiation in the level of social and economic development of Russian regions is a direct consequence of the domination of the innovative oriented strategy in the regional policy directed on the prioritized support of the regions leaders capable of providing an innovative breakthrough, innovative monopolist position, unequal distribution of the resource potential and this fact strengthens the tendencies of a depressive character and the stagnation in the regions outsiders. The conclusion is made that the tendency of the growth of the unequal character of development, of the excess in the disproportions of a secure limit in the levels of social and economic development of the regions leads to the creation of numerous gaps and crisis manifestations in the regional social and economic complexes.

Key words: Russia, social and economic development, gross regional product, investments into the fixed capital, economic potential, imports, exports, economic activity of the population, disproportions, interregional differentiation, coefficient of variation, coefficient of inequality.

1. Introduction

The current stage of the development of macroregions and regions of Russia is characterized by considerable disproportions and their strengthening of which becomes one of the factors destabilizing the rate of the economic growth. Despite the fact that the present economic misbalances are not direct threats to the conservation of the integrity of

* I. V. Mitrofanova, Dr. in Ec. Sc., Chief Scientific Researcher, Southern Scientific Center of the Russian Academy of Sciences; Professor, Department of the Economic Theory, World and Regional Economics, Volgograd State University, Russian Federation, e-mail: mitrofanova@volsu.ru. V. V. Kudrevich, Post Graduate Student, Senior Lecturer, Chair of Finance and Credit, Sevastopol State University, e-mail: kudrevich_viktoria@mail.ru. N. P. Ivanov, Dr. in Ec. Sc., Professor, Chief of the Department for Strategic Development, Stavropol State Medical University, e-mail: ivanovstvtr@yandex.ru. V. V. Batmanova, Ph.D. in Ec. Sc., Associate Professor, Department of the Economic Theory, World and Regional Economics, Volgograd State University, e-mail: batmanovavv@volsu.ru. I. A. Mitrofanova, Ph.D. in Ec. Sc., Associate Professor, Department of Economics and Management, Volgograd State Technical University, e-mail: mia05011986@yandex.ru

the economic space of Russia, their growth leads to a considerable drop of the stress resistance of the national and regional economy increasing their susceptibility to different external “shocks” [Granberg, A. G. (2011); Piskun, E. I., Kudrevich, V. V. (2016); Russkova, E. G., Mitrofanova, I. V., Vatyukova, O. Yu., Ivanov, N. P., Batmanova, V. V. (2017)].

A certain inequality of the regional development is an objective fact at the approved development model of focused on innovation, presence of the innovative monopolist situation, unequal distribution of the resource potential of regional systems. Within some limitations the factor of the unequal character of the development has a positive impact on the competitive situation, contributes to a more efficient use of the limited resources and is an objective parameter of market mechanisms of the regulation of economic processes. However there is a vivid tendency to the strengthening of the unequal character of the development, exceeding the disproportion of an admissible threshold in the levels of the development of the regions leads to the creation of misbalances and crisis manifestations [Mitrofanova, I. V., Mitrofanova, I. A., Starokozheva, G. I., Shatyrko, A. V. (2015)].

2. Literature review and methodology

The study of the methodological, methodical and statistical aspects of the analysis of the processes of the regional social and economic differentiation, creation of the system of the basic indices of its assessment, development of recommendations in the reduction of the degree of the disproportion of the regions according to the level of social and economic development is made by the following scientists: S.V. Baranov, A.G. Granberg, K.P. Glushchenko, L.S. Guryanova, T.S. Klebanova, N.A. Kizim, E.V. Kotov, V.I. Lyashenko, E.I. Piskun, E.A. Petrova, K.V. Pavlov, T.S. Skufyina, J. Cuadrado-Roura, T. Mancha-Navvaro, R. Garrido-Yserte and others.

The informational and statistical basis of the research is the data of the Federal Service for State Statistics of the Russian Federation and the Ukraine, the calculations made by the authors.

The methodological base of the solution of scientific goals within the systematic and evolutionary approaches became the use by the authors of the general scientific and specific methods of research and knowledge: comparative method, subject and object method, historical and logical analysis, statistical method, method of expert estimation.

3. Results

The basic index for the assessment of the regional social and economic differentiation, the degree of the gap in the rate of the economic growth is the coefficient of the gross regional product per capita [Baranov, S.V., Skufyina, T.S. (2005); Glushchenko, K. P. (2010); Guryanova, L. S. (2011)]. The dynamics of this index for federal districts of Russia from 2000 to 2015 is shown in Figure 1.

The tendency of the growth of the disparities in the levels of the economic development of federal districts of Russia is obvious. The federal districts exceeding the average growth rate are the Ural Federal District, Central Federal District, Far Eastern Federal District, Northwestern Federal District and in this group the disproportions of the level of the economic development are obvious.

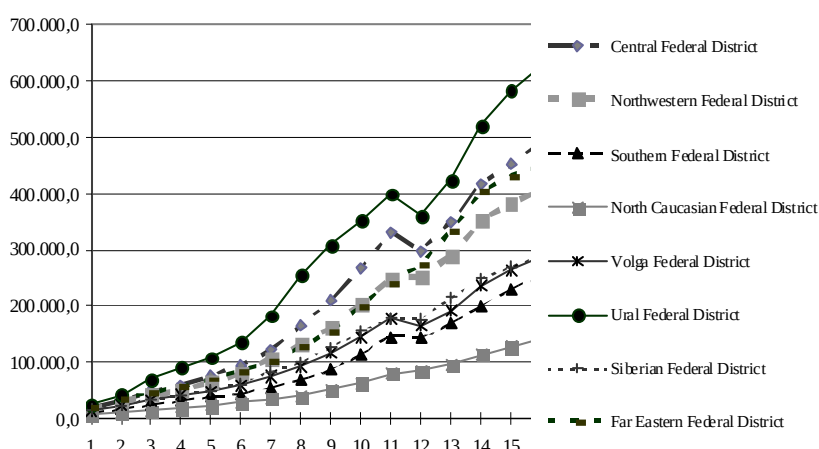


Figure 1. Dynamics of the gross regional product per capita (rubles) in the federal districts of Russia (2000-2015)

Source: made on the basis of the data: Federal Service for State Statistics of Russia: URL: <http://www.gks.ru/>.

For the assessment of the level of the interregional social and economic differentiation the authors used also such widely spread and accepted indicators [Geiman, O. A. (2009); Guryanova, L. S., Klebanova T. S., Sergienko, E. A., Goncharenko, G. S. (2012); Klebanova, T. S., Kizim, N. A., Guryanova, L. S., (2012)] as coefficient of inequality (differentiation), coefficient of variation. The results of the calculation of the indicators of the inequality of the regional development using the gross regional product per capita in the regions of the Russian Federation is presented in Table 1.

Table 1. Dynamics of the disproportions of the development of federal districts of Russia in 2000 – 2015

Ind ex	20 00	20 01	20 02	20 03	200 4	200 5	200 6	200 7	200 8	200 9	201 0	201 1	201 2	201 3	201 4	201 5
Ma xim um	25 10 2,2	41 64 9,9	69 32 7,3	90 06 5,5	107 831 ,3	134 653 ,5	182 505 ,2	254 078 ,4	307 373 ,9	350 766 ,8	398 807 ,4	360 909 ,4	423 495 ,4	521 192 ,2	583 243 ,9	626 119 ,2
Min imu m	68 07, 6	98 50, 7	13 80 2,7	18 40 8,8	223 74, 6	280 78, 5	350 83, 2	390 50, 8	504 34, 2	627 24, 1	789 21, 5	844 93, 9	949 15, 3	112 647 ,6	127 042 ,1	142 102 ,8
Gap	3,7	4,2	5,0	4,9	4,8	4,8	5,2	6,5	6,1	5,6	5,1	4,3	4,5	4,6	4,6	4,4
CV %	38	39	44	44	44	45	48	54	52	48	46	42	42	43	43	42

Source: made on the basis of the data: Federal Service for State Statistics of Russia. URL: <http://www.gks.ru/> Note: CV% means Coefficient of variation, %

Table 2. Dynamics of the disproportions of the development of Russian regions in 2000 – 2015

Index	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Maximum	58 588	98 130	176 918	232 236	275 623	341 147	467 804	673 208	831 305	934 230	872 422	977 256	1 210 004	1 327 227	1 422 113
Minimum	3 429	5 098	6 668	8 001	7 752	10 332	14 025	17 435	40 573	47 002	46 174	48 239	63 570	77 877	88 462
Gap	17	19	27	29	36	33	33	39	20	20	19	20	19	17	16
Ct of variation, %	63	66	75	75	76	77	77	86	79	76	80	77	78	75	74

Source: made on the basis of the data: Federal Service for State Statistics of Russia. URL: <http://www.gks.ru/>.

Table 3. Dynamics of the disproportions of the development of Ukrainian regions in 2000 – 2013

Index	19 98	19 99	20 00	20 01	20 02	20 03	20 04	20 05	200 6	200 7	200 8	200 9	201 0	201 1	201 2	201 3
Maximum	20 71	23 05	29 55	37 95	46 92	52 63	63 85	97 13	124 90	157 25	208 68	309 18	277 37	347 09	420 68	446 50
Minimum	79 6	88 4	11 42	14 11	20 15	23 13	27 41	35 16	460 3	565 0	736 9	968 8	938 3	109 39	132 28	145 29
Gap	2, 6	2, 6	2, 6	2, 7	2, 3	2, 3	2, 3	2, 8	2,7	2,8	2,8	3,2	3,0	3,2	3,2	3,1
C.varia tion, %	24	25	27	27	25	25	25	29	30	32	34	35	32	34	34	32

Source: made on the basis of the data: Federal Service for State Statistics of Ukraine. URL: <http://www.ukrstat.gov.ua>.

A stable tendency of the disproportion growth is typical not only for period 2000-2007. Further we can see a gradual reduction of the economic differentiation. Thus if in 2008 the maximal value of the gross regional product per capita typical for the Ural Federal District exceeded the minimal value of this index in the North Caucasian Federal district 6.1 times, so in 2015 this gap reduced by 4.4 times. The trend of the reduction of the economic differentiation is observed also in relative measures according to the dynamics of the coefficient of the variation what can be seen as a positive effect resulting from the implementation of a number of target programs of social and economic development of the regions and the implementation of the State conception of the strategic territorial development [Conception (2008)]. The rate of decrease of the coefficient of variation is insignificant what speaks about the freeze of the obvious misbalances. The value of the indicators of the disproportions in the development of federal districts of Russia remains at a high level and evidences considerable variations in the level of the economic development.

The disproportions of the regional development are manifested in more evidently manifested trends at the analysis of the statistical data in the level of the regions of the Russian Federation (Table 2). Thus if the level of the rates of the economic development reduced almost twice (39 times in 2007 and 20 times in 2008) and further a tendency of the stabilization of the values of this index is observed so the coefficient of the variation

reflecting the degree of the economic differentiation totally in all the regions does not manifest a stable tendency to a decrease and varies from 74% to 80%. This fact confirms a considerable fragmentary character of the economic space of Russia.

The problem of the inequality of the regional development is typical of all the developing countries and this fact is explained by considerable changes in the economic, political, legal and technological constituents of the development of regional systems, globalization of the market, growth of the speed of the capital flow, expansion of technologies, migration of the working force, demographic shifts and so on. The manifestation of such changes has led to the necessity of the system adaptation of the mechanisms of the government regulation of the regional development, creation of an optimal combination of centralized and competitive mechanisms of management of regional development which are expected to provide the flexibility and adaptability of economic agents.

For the comparison of the tendencies of the differentiation growth of the economic development it is indispensable to analyze the statistical data of the development of the regions of Ukraine (Table 3).

Thus the gap between the levels of the economic development between the regions with the highest and the lowest levels (Zaporozhskaya oblast and Zakarpatskaya oblast) in 1998 made up 2.6 times, so in 2013 the gap in the levels of the economic development of the region leader (Dnepropetrovskaya oblast) and the region outsider (Chernovitskaya oblast) made up 3.1 times. Relative coefficients of the variation reflect a stable tendency of the growth of the interregional social and economic differentiation. Despite the fact that the leveling of the social and the economic development is seen as one of the basic priorities of the regional policy of Ukraine, the effect from such a policy is poorly manifested in the middle term period [Mitrofanova, I. V., Pavlov, K. V., Lyashenko, V. I., Kotov, E. V. (2016)].

The regional structure of the asymmetry of the economic development of the Ukraine is observed at the analysis of the dynamics of the deviation of the gross regional product per capita from an average value (mean) in the Ukraine totally in 1998–2013 (Figure 2).

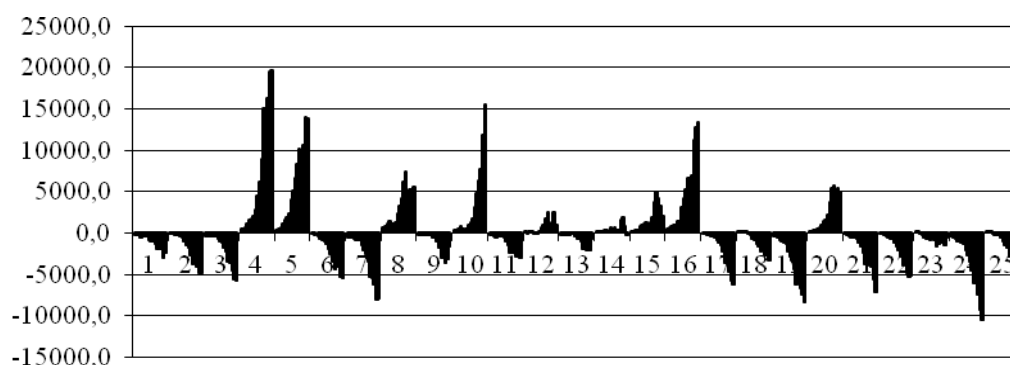


Figure 2. Dynamics of the deviation of the gross regional product per capita from an average value (mean) in the Ukraine totally in 1998–2013

Source: made on the basis of the data: Federal Service for State Statistics of Ukraine. URL: <http://www.ukrstat.gov.ua>.

Regions of the Ukraine which have a positive deviation judging from the index of the gross regional product per capita from the mean value are stably increasing it. These regions are: 4 – Dnepropetrovskaya oblast, 5 – Donetskaya obalst, 8 – Zaporozhskaya oblast, 10 – Kiev oblast, 12 – Luganskaya oblast, 14 – Nikolaevskaya oblast, 15 – Odesskaya oblast, 16 – Poltavskaya oblast, 20 – Kharkovskaya oblast. For other regions of Ukraine (64%) including the Crimean republic it was typical to observe the lagging in this indicator what allowed grouping them into the stagnating or depressive ones.

The impact of macroeconomic factors on the creation of the differentiation of the regional development is observed at the assessment of the disproportions in the context of separate regions, including the Republic of Crimea in comparison with the mean value of the indicators of macroregional systems (Figure 3).

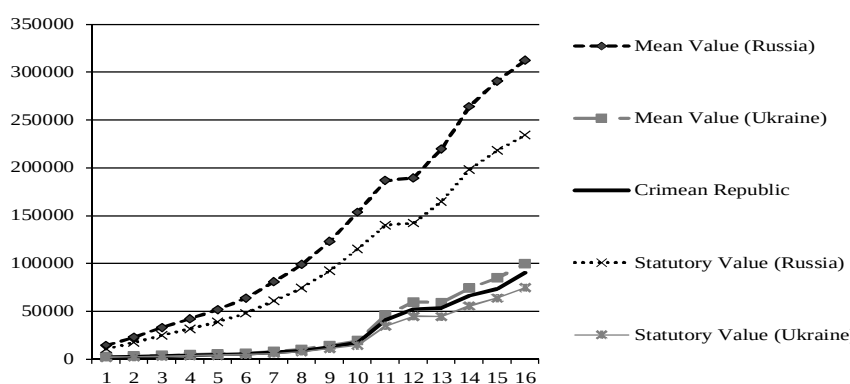


Figure 3. Dynamics of gross regional product per capita in the Crimean Republic, average and normative values of the gross regional product in the regions of Russia and Ukraine (1998–2013)

Source: made on the basis of the data: Federal Service for State Statistics of Ukraine. URL: <http://www.ukrstat.gov.ua>; Federal Service for State Statistics of Russia. URL: <http://www.gks.ru/>.

The Crimea is a territory with a balanced trajectory of development. The analysis of the acceptable diapason of changes in comparison with other regions of the Russian Federation which considerably exceeds the regulatory values set in the Ukraine shows that a balanced rate of growth in the Crimea is expected to exceed the target rate (approved as 2%) 3-11 times. The normative rate is set on the basis of the normative and legal acts which refer a region to a depressive group, a lagging group or to regions with a misbalanced trajectory of development.

The depressive regions in Russia are those who observe a considerable (more than 25%) lagging from Russian average rates of social and economic development. In the world (for instance in the countries of the European Union) one of the basic indices of the classification of a region as a problematic one (a region with a misbalanced trajectory of development) is the value of the gross regional product per capita which is 75% from an average level calculated across all the regions of the country [Zhuk, M. V. (2008)]. This fact allows using this indicator as a criteria for a further analysis.

The presence of considerable disproportions requires the necessity of the analysis of a number of factors whose influence leads to the convergence or to a differentiation in

the levels of the economic development. A number of researchers [Cuadrado-Roura, J., Mancha-Navvaro, T., Garrido-Yserte, R. (2000); Lavrovskiy, B. (2003); Drobyshevskiy, S., Lugovoy, O., Astafieva, E. (2005); Voinarenko, M. (2008); Geiman, O. A. (2009); Kagarmanova, A. I. (2015)] suggest as basic indicators the following ones: financial potential, labour potential, innovation level of economic systems, potential for a foreign economic activity.

The dynamics of the basic indicator of the financial potential of a region (investments into the fixed capital per capita) is shown in Figure 4.

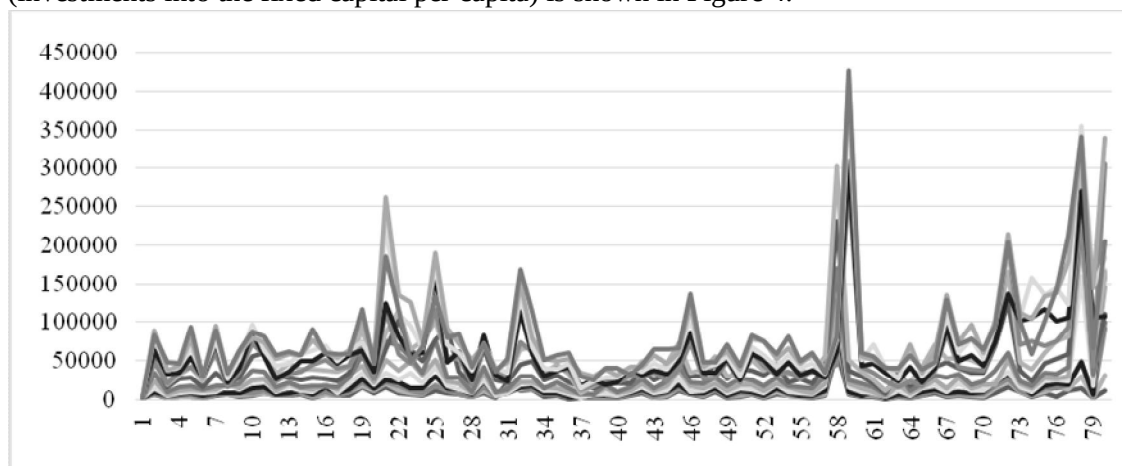


Figure 4. Dynamics of the investments into the fixed capital per capita in the regions of Russia (rubles) (2002–2015)

Source: made on the basis of the data: Federal Service for State Statistics of Russia. URL: <http://www.gks.ru/>.

A considerable asymmetry of the distribution of investments into regional economic complexes is obviously observed. The highest volumes of investments per capita is observed in the regions of the Ural Federal District (2002–2004, 2010, 2012–2015) and Far Eastern Federal District (2005–2009, 2011). The gap between extreme values of this index has a tendency for a decrease: from 67 times in 2002 to 17 times in 2015 for regional level; from 4 to 3 times for federal districts of Russia. The coefficient of variation remains significantly high and it reflects the degree of the unequal character of the distribution of the investments across all the regions of Russia. Moreover the value of this indicator reduced from 110% in 2001 to 77% in 2015. Only 29% of regions had its value that exceeded an average value calculated in all the regions of the Russian Federation. However the visible disproportions are not evident for the regions of federal districts (Figure 5).

The highest rates of the disproportions were observed in the Southern, Volga and Siberian Federal Districts. The tendency for a leveling the intensity of the investment activity is proved in the dynamics of the regional development of the Central Federal District. The values of the coefficients of variation calculated for the Northwestern, Ural and Far Eastern Federal Districts in 2015 are almost equal and are correspondingly 26%, 25%, 24%. This fact allowed coming to a conclusion about a considerably equal distribution of investments. The highest value of the variation coefficient is observed in the Southern Federal District and is 61%.

Another important indicator of the attractiveness of investments for this or that region is the profitability of the economic activity of enterprises [Kildishev, G. S., Abolentsev, Yu. I. (1988); Adaptive methods (2007)]. Besides the degree of the asymmetry of investments into regions is influenced by a differentiated investment risk whose assessment can be made using such an index like the share of the enterprises with losses in the region (Figure 6).

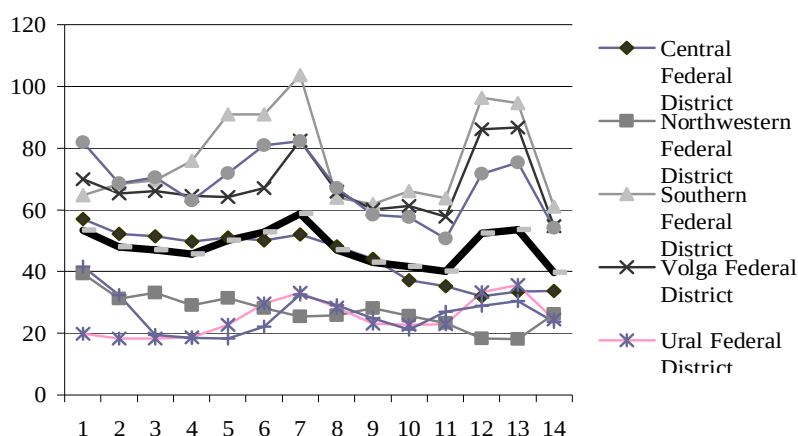


Figure 5. Dynamics of the coefficients of variation of investments into fixed capital per capita in federal districts of Russia (2002–2015)

Source: made on the basis of the data: Federal Service for State Statistics of Russia

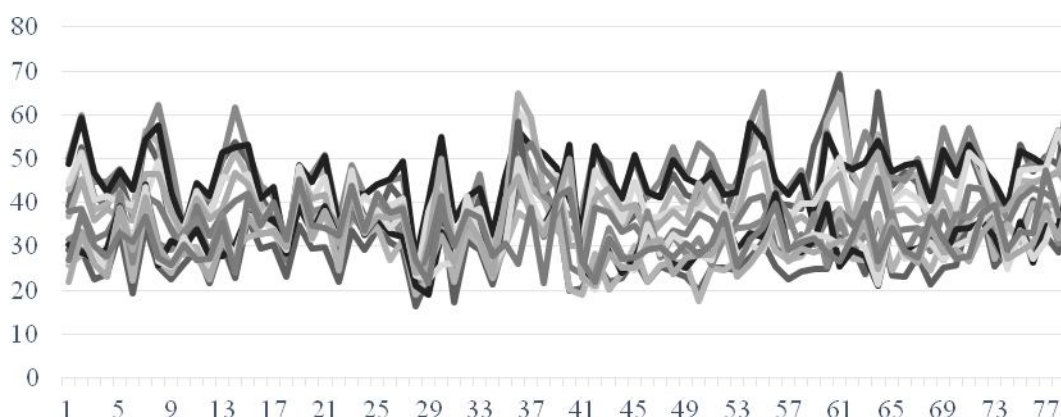


Figure 6. Dynamics of the share of the enterprises with losses in the regions of Russia (%) (2002–2015r.)

Source: made on the basis of the data: Federal Service for State Statistics of Russia

In the period under analysis a weak regional differentiation of this index is observed. The gap in extreme values in 2002 and 2015 makes correspondingly 3 and 2 times. At the level of federal districts of Russia the gap was insignificant and did not exceed 1.4 times (Figure 7).



Figure 7. Dynamics of the gap changes of extreme values of the index “Share of the enterprises with losses” across federal districts of Russia (number of times) in 2002-2015

Source: made on the basis of the data: Federal Service for State Statistics of Russia

The coefficient of variation of the index of the investment risk reduced from 21% in 2002 to 18% in 2015 and this fact reflects a considerably high homogenous situation in Russian regions in accordance with this indicator. The share of the regions where the value of this coefficient is below the average value makes 56%. The share of the regions with a high investment risk reduced from 49% to 44%. The highest level of the variation of this index was typical of the Volga and Siberian Federal District (Figure 8).

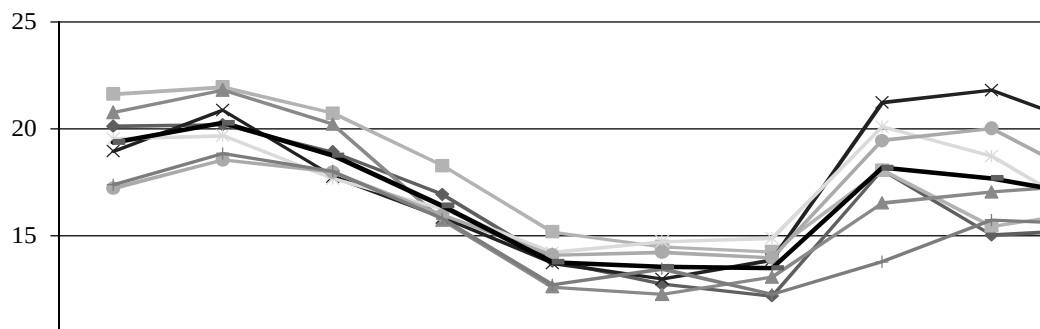


Figure 8. Dynamics of coefficients of variation of the share of enterprises with losses in federal districts of Russia (%) in 2002-2015

Source: made on the basis of the data: Federal Service for State Statistics of Russia

Thus in 2002–2015 considerable disproportions in the dynamics of investments became obvious. The investments concentrated mainly in the districts with a high level of the economic development: Northwestern, Central, Ural, Far Eastern Federal District.

The basic indicator of such a dominant factor of the regional development as a labour potential is the level of the economic activity of the population, the analysis of the dynamics of which across the regions of the Russian Federation in 2002–2015 (Figure 9) confirms a low regional differentiation.

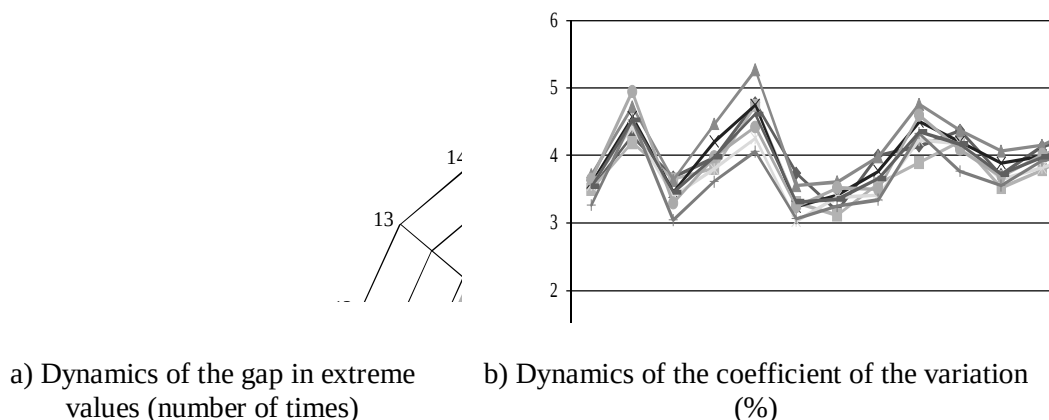


Figure 9. Dynamics of the level of the economic activity of the population in federal districts of Russia in 2002–2015

Source: made on the basis of the data: Federal Service for State Statistics of Russia. URL: <http://www.gks.ru/>

The coefficient of variation of this indicator during the period in question did not exceed 7% what proves a considerably sufficient homogeneity of the range. The share of regions where the value of this indicator is higher than in average in Russia makes 54%. The maximal value of the gap was observed in 2008 and made 2 times. Further a stable tendency for its reduction was observed what was typical and for the coefficient of the employment of the population (Figure 10).

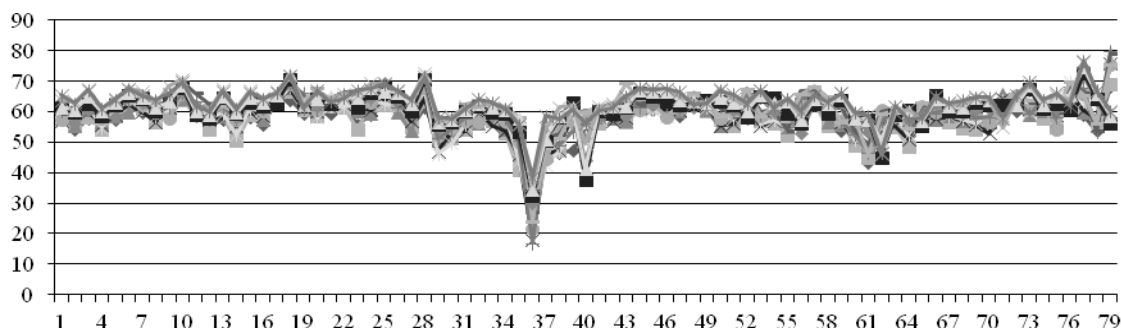


Figure 10. Dynamics of the level of employment of the population in the regions of Russia (%) in 2002–2015

Source: made on the basis of the data: Federal Service for State Statistics of Russia

The Southern Federal District was among the federal districts with stably low values of the employment level. The highest rates of this coefficient are calculated in the regions of the Far Eastern District (from 72% to 80%). The gap between the extreme values of this index changed in the dynamics from 2 till 5 times and averaged at the macroregional level (district level) till 1.1 times. In the largest part of the regions (56%) the value of this index exceeded the average value across the regions of the Russian Federation in total i.e. the labour market was characterized by a relatively balanced dynamics of development.

The main indicator of the innovation factor of economic production systems is the volume of the innovative production per capita [Ivanov, V. V. (1999); Soboleva, T. S. (2009); Petrova, E. A. (2017)] (Figure 11).

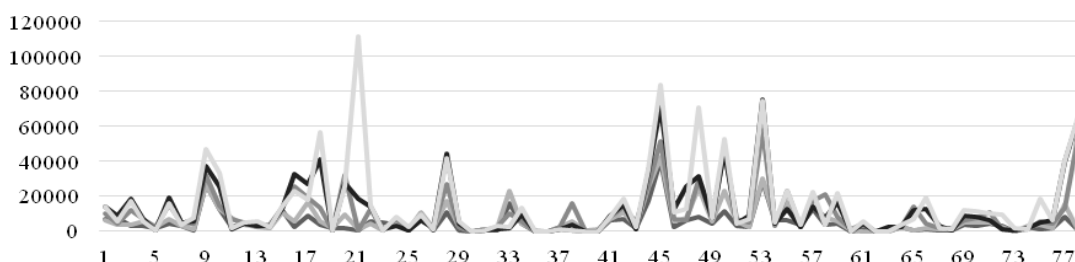


Figure 11. Dynamics of the volume of the innovation production per capita in the regions of Russia (rubles) in 2011-2015

Source: made on the basis of the data: Federal Service for State Statistics of Russia

During 2011–2015 a stable tendency of the increase of the regional differentiation of the level of the innovative activity was made. The values of the coefficient of variation grew from 138% to 143% what shows the presence of considerable fluctuations in total and the strengthening of the unequal character of the distribution of the innovative potential. The share of regions where the value of this index was higher than in average in Russia totally and this percentage made up 29%. The highest level of the innovative activity was in the regions of the Northwestern and Volga Federal Districts.

For the assessment of the foreign trade potential the coefficient of coverage of imports by exports is used (Figure 12).

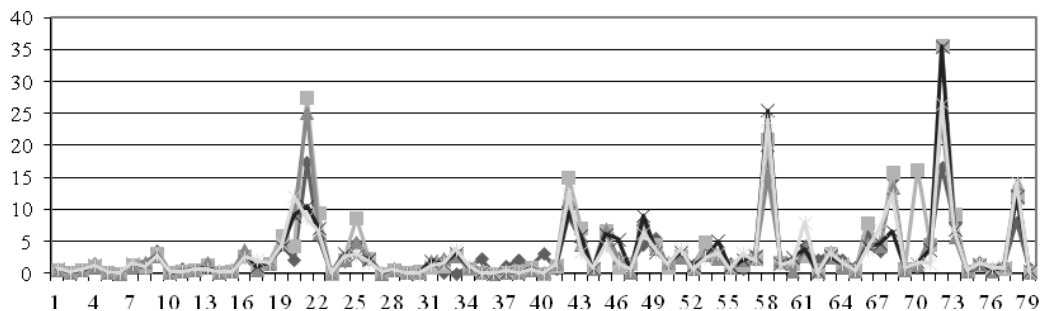


Figure 12. Dynamics of the coefficient of the coverage of imports by exports in the regions of Russia (number of times) in 2011-2015

Source: made on the basis of the data: Federal Service for State Statistics of Russia

Considerable variations in the values of this index in the regional section are obvious. During the period under analysis the coefficient of variation increased from 135% to 157%. This fact allows drawing the conclusion about the increase of the unequal character of the distribution of the export potential. The share of the regions whose indicator exceeds the average value makes 28%. The highest rates of this indicator are observed in the regions of the Far Eastern, Ural and Northwestern Federal Districts. The lowest values are typical for the Southern Federal District.

The misbalances in the economic subsystems lead to considerable shifts in social subsystems in the regions. The main indicator of the standard of living of the population is the coefficient of the income per capita (Figure 13).

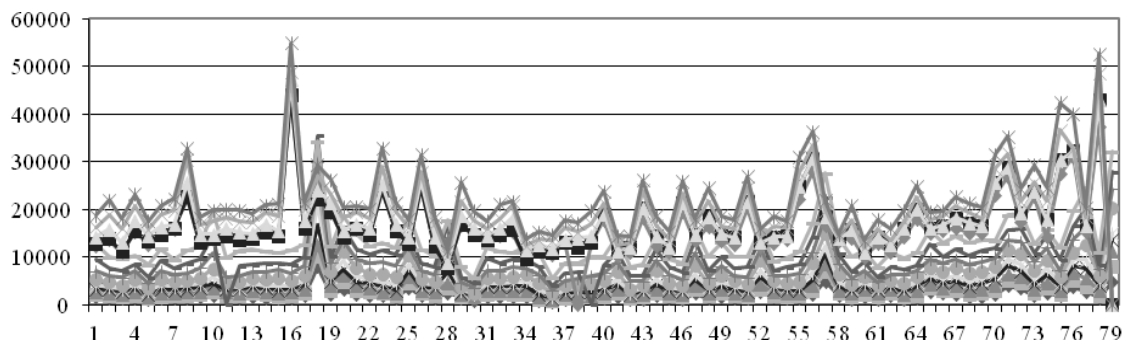


Figure 13. Dynamics of income per capita in regions of Russia (rubles) in 2002-2015

Source: made on the basis of the data: Federal Service for State Statistics of Russia

Despite the reduction of the values of the coefficient of variation from 56% to 37% during the period in question its value remains at a high level and speaks about an insufficiently homogenous sample. A percentage distribution of the regions according to groups with high and low levels of this indicator makes correspondingly 32% and 68%. The highest values of this indicator during the periods under analysis are observed in the regions of the Central Federal District.

An analogous tendency is typical for the indicator of the housing per capita (Figure 14).

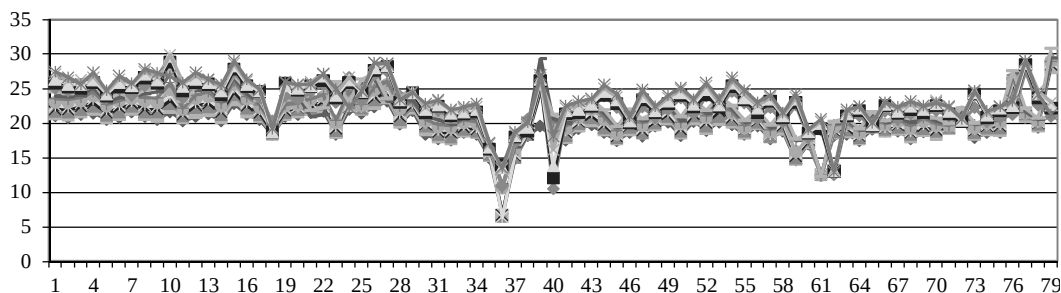


Figure 14. Dynamics of the indicator of the housing per capita in the regions of Russia, m², in 2002-2015

Source: made on the basis of the data: Federal Service for State Statistics of Russia

Despite the tendency of the reduction of the regional differentiation on the basis of this coefficient the gap in the levels remains sufficiently high and makes more than 2 times. The percentage distribution of the regions with high and low levels of the values of this coefficient makes correspondingly 51% and 49% [Piskun, E. I., Kudrevich, V. V. (2015); Petrova, E. A. (2017)]. The most favourable situation is observed in the regions of the Central and Northwestern Federal Districts of Russia (Figure 15).

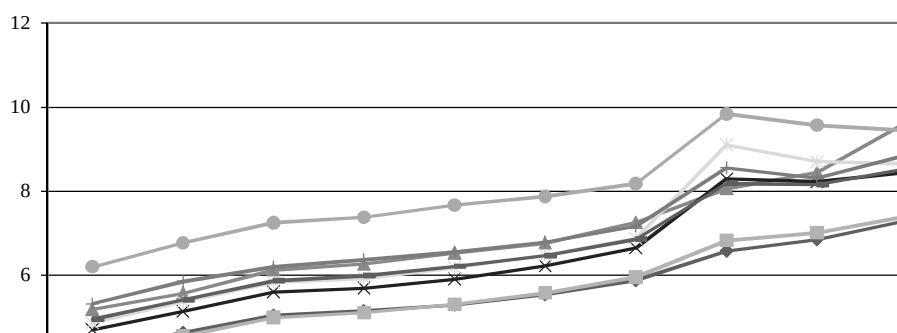


Figure 15. Dynamics of the coefficient of the housing per capita in average in the regions of Russia, % in 2002–2015

Source: made on the basis of the data: Federal Service for State Statistics of Russia. URL: <http://www.gks.ru/>.

4. Conclusion

Thus in 2002-2015 in Russia the considerable misbalances in social and economic development across regions were observed. Despite the tendency of the reduction of the economic regional differentiation according to such an indicator like gross regional product per capita the analysis of relative indicators of variation confirmed the conservation of the present misbalances. The value of the coefficient of variation of the gross regional product per capita still remained considerably high 42% for federal districts of Russia and 79% for regions what proves significant fluctuations in total. Herewith the tendency of the reduction of the regional differentiation slowed down and that's why it is worth studying the problem of the provision of the balanced development of the regions focusing effort not only on the criteria of the reduction of the differentiation levels but also on the criteria of the alteration of such tendencies.

The analysis of the main indicators of the resource potential allowed drawing the conclusion about the unequal distribution of the investment, innovative, foreign trade potential and this situation created prerequisites for an increase of the misbalances of the economic development of regions. The coefficient of variation of the indicator of investment, innovative and foreign trade spheres of life of regional systems made correspondingly 77%, 143%, 157% confirming the fact of a considerable asymmetry of regional development.

The consequence of considerable regional misbalances is the imbalanced development of social subsystems of regions. Despite the tendency of the reduction of social interregional differentiation, the level of misbalances in this sphere remains

significantly high.

The direction of the increase of the efficiency of regional policy is the improvement of the mechanisms of the creation of the strategy of regional development allowing to choose the efficient instruments of the provision of a balanced development of regional subsystems, to increase the efficiency of use of resources, to reduce the degree of the vulnerability of regional systems and the economy in the whole to the influence of external “shocks” [Mitrofanova, I. V., Mitrofanova, I. A., Starokozheva, G. I., Shatyрко, A. V. (2015)].

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