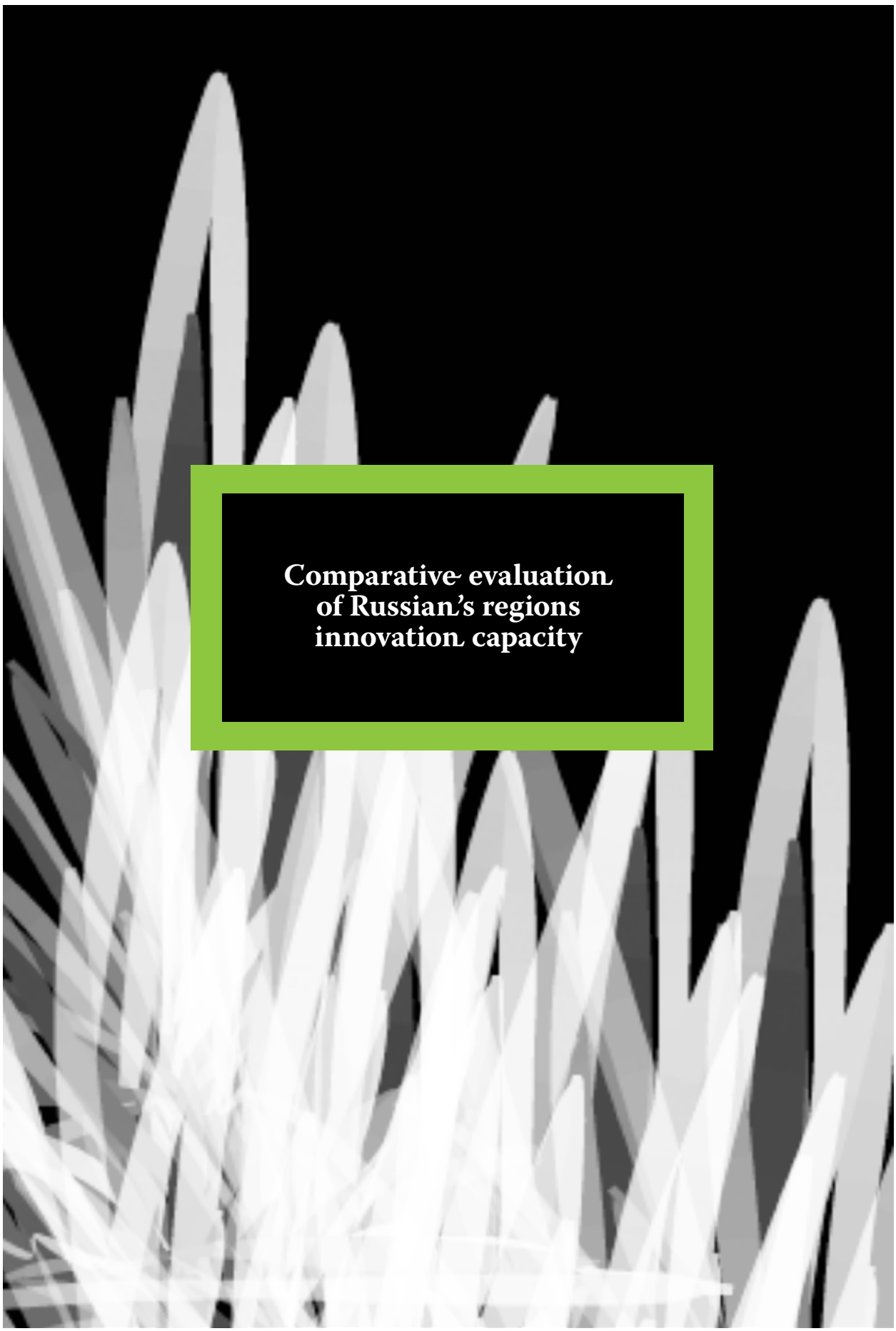
Comparative evaluation
of Russian's regions
innovation capacity

Comparative evaluation of Russian's regions innovation capacity

Evaluación comparativa de la capacidad de innovación de las regiones rusas.

ABSTRACT

The economy of regions needs cardinal increase in efficiency of use of innovative potential, stimulation of scientific research, creation of effective system of commercialization of results of scientific activity. In work the analysis of genesis of the concepts «innovation», «innovative potential», «innovative activity» is carried out; methodological bases of assessment of innovative potential and innovative activity at the regional level are investigated and the system of indicators of their assessment is developed; to carry out the analysis of innovative potential and innovative activity of regions of the Southern and North-Caucasian federal districts; organizational, financial and standard and legal factors of state regulation of innovative activity of the region are offered.

KEYWORDS: innovations, region, innovative potential, innovative activity.

RESUMEN

La economía de las regiones necesita un aumento cardinal en la eficiencia del uso del potencial innovador, la estimulación de la investigación científica, la creación de un sistema efectivo de comercialización de los resultados de la actividad científica. En el trabajo se realiza el análisis de la génesis de los conceptos «innovación», «potencial innovador», «actividad innovadora»; Se investigan las bases metodológicas de la evaluación del potencial innovador y la actividad innovadora a nivel regional y se desarrolla el sistema de indicadores de su evaluación. llevar a cabo el análisis de la actividad innovadora potencial e innovadora de las regiones de los distritos federales del sur y del norte de los caucásicos; Se ofrecen factores organizativos, financieros, estándar y legales de la regulación estatal de la actividad innovadora de la región.

PALABRAS CLAVE: innovaciones, región, potencial innovador, actividad innovadora.

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ARTÍCULO RECIBIDO: 20 DE NOVIEMBRE DE 2018
ARTÍCULO ACEPTADO PARA PUBLICACIÓN: 12 DE DICIEMBRE DE 2018
ARTÍCULO PUBLICADO: 28 DE DICIEMBRE DE 2018

INTRODUCTION

The economic and social position of different regions of Russia is extremely non-uniform and differs in sharp contrasts. Inequality is defined by the specifics of each region which are characterized by historically developed specialization, a special geographical location and a demographic state. Growth of territorial inequality is promoted by unevenness of distribution between regions of investments, fixed capital, material and a manpower. In this regard the problem of assessment of differentiation of regions on the level of development and development of the mechanism of innovative development of regions of different level is relevant.

METHODS

Theoretical and methodological basis of a research modern concepts of the public and regional policy in the field of innovative development of Russia and its regions make, the systems of scientific views on innovative processes and management of innovative development of economy of regions, the conceptual regulations on bases of innovative development of the country and regions reflected in laws and regulations in classical works of domestic and foreign scientists. At the solution of the tasks set in work were used: system approach to the studied object and a subject, a logical method, statistical methods, such as methods of the correlation and regression analysis, tabular and graphic methods of submission of statistical data. For processing of statistical information spreadsheets Microsoft Excel were used.

RESULTS

Rich natural resources, high scientific and industrial potential, highly skilled labor, potentially large domestic market with pent-up demand for consumer goods allow to consider with optimism the prospects of innovative activity in Russia.

We will begin the analysis of content of category «innovative potential» with a research of essence of the concept «innovation».

I. Schumpeter introduced category «innovation» in scientific use for the first time and defined it as any change of production happening under the influence of new or advanced technical and technological or organizational and administrative decisions [1].

L.M. Gohberg defines innovations (innovation) as «a resulting effect of innovative activity which receives the embodiment in the form of the new or advanced product introduced in the market, new or advanced engineering procedure which is used in practical activities, or in new approach to social services» [2].

Thus, the innovation is defined as the result of innovative activity in the form of a new product, service or technology providing economic and/or public benefit, additional in comparison with production of the previous product and/or reproduction of an organizational and economic form [3].

So, innovative potential is defined as the scientific and technical capacity of the country, realized by the research, design, technological organizations [4], and the innovative capacity of the region is a set of innovative capacities of economic entities of the region [5].

Innovative capacity of the region characterizes a complex of organizational and economic and legal conditions of creation, development and distribution of innovations, and it is expedient to consider it on interindustry complexes, consumer goods and services and also on stages of a research and production (innovative) cycle [6].

In Russia on macro and mesolevel it is expedient to develop and realize public policy in the field of support of scientific and technical and innovative activity. For formation of the uniform innovative environment of the South of Russia strengthening of integration processes between various subjects of the Southern Federal District (SFD) and the North-Caucasian Federal District (NCFD), public associations, the educational, research and industrial enterprises is necessary.

For implementation of innovative activity regions have to have the sufficient size of innovative potential. The number of the organizations which were carrying out research and development is presented in table 1.

Table 1 – The number of the organizations which were carrying out research and development. (See Annexes)

Source: It is calculated by the author on: Regions of Russia. Socio-economic indexes. 2016: Stat. sb. / Rosstat. - M, 2016. – 780 p.

In 2015 in comparison with 2005 the number of the organizations which are carrying out research and development increased by 6 times in the Republic of Ingushetia (from 1 to 6 organizations), by 4 times in the Republic of Adygea (from 3 to 12 organizations) and by 3,7 times in Stavropol Krai (from 14 to 52 organizations). At the same time the number of the organizations which are carrying out research and development decreased only in one region – the Republic of Kalmykia.

In the specific parameter of number of researchers on 10 thousand busy Russia an undisputed leader is the Rostov region, the second place occupy Krasnodar Krai, the third – the Volgograd region. Obvious outsiders are the Chechen Republic, the Republic of Adygea, the Republic of Kalmykia and the Republic of Dagestan and Stavropol Krai (see table 2).

Table 2 - Indicators of number of staff, occupied with research and development, per 10 thousand occupied in the region. (See Annexes)

Source: It is calculated by the author on: Regions of Russia. Socio-economic indexes. 2016: Stat. sb. / Rosstat. - M, 2016. – 780 p.

On average in Russia from 10 thousand the working 133 persons it was busy with research and development. According to statistical data in 2013 - 2015 this indicator for regions of the Southern Federal District was 36 people, and North-Caucasus federal district – 24 persons and only the Rostov region treats with an indicator more than 80 people on 10 thousand busy, the region with the high level of development of innovative potential.

Leading regions in size of specific weight of number of researchers with academic degrees are the Chechen Republic, the Republic of Ingushetia and Stavropol Krai, and outsiders – the Rostov and Volgograd regions.

Table 3 – Specific weight of number of researchers with academic degrees, %. (See Annexes)

Source: Regions of Russia. Socio-economic indexes. 2016: stat. sb. / Rosstat. – M, 2016. – P. 820.

For the characteristic of the environment making knowledge we will calculate internal current costs of research and development by types of works.

Let's define specific structure of research and development, characterized by allocation of costs between basic, applied researches and developments (see table 4).

Table 4 – Internal current costs of research and development by types of works (one million rub) (See Annexes)

Source: It is made by the author on: Regions of Russia. Socio-economic indexes. 2009: stat. sb. / Rosstat. – M, 2009. – P. 798-799; Regions of Russia. Socio-economic indexes. 2016: stat. sb. / Rosstat. - M, 2016. - 794 p.

Apparently from table 4, the specific structure of research and development does not answer production development proportions (1,0: 3,0: 9,0). The discrepancy of specific structure of research and development in the Southern Federal District and North-Caucasus federal district to the specified parameters occurs mainly due to reduction of a share of applied researches which results are a prototype of future production.

Allocation of costs on stages of research and development between basic and applied researches does not correspond optimum in the Republic of Adygea, Kalmykia, the Astrakhan region, the Republic of Dagestan and the Chechen Republic. Only three regions Krasnodar Krai, Stavropol Krai and the Volgograd region have the specified ratio rather near optimal, and only the Rostov region is closest to a necessary ratio between basic and applied researches.

In the Southern Federal District by criterion internal costs of research and development counting on 1000 rub of GRP (on average in the Russian Federation - 13,4 rub) only the Rostov region was close to the average Russian indicator (see table 5).

Table 5 – Internal costs of research and development counting on 1000 rub of GRP. (See Annexes)

Source: It is made by the author on: Regions of Russia. Socio-economic indexes. 2009: stat. sb. / Rosstat. – M, 2009. – P. 798-799; Regions of Russia. Socio-economic indexes. 2016: stat. sb. / Rosstat. - M, 2016. - 794 p.; The central base statistical these / National accounts / the Gross regional product / In the current basis prices / The access Mode: http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/accounts/#

According to table 5, only the Rostov region treats leaders in an indicator of internal costs of research and development counting on 1000 rub of VRP, having slightly surpassed the average Russian indicator, the second group treat the Karachay-Cherkess Republic, the third - the Volgograd region and, the obvious outsider – the Republic of Ingushetia.

Among regions there is the Southern Federal District and North-Caucasus Federal District on an indicator «Number of the created and used advanced production technologies» the obvious leader are Krasnodar Krai and the Rostov region with amount of the created advanced production technologies 35 and 22 respectively, the Republic of Dagestan and the Chechen Republic, obvious outsiders – Adygea, Kalmykia belong to the second group (see table 6).

Table 6 - Number of the created and used advanced production technologies of regions of the Southern Federal District and North-Caucasus federal district. (See Annexes)

Source: It is made by the author on: Regions of Russia. Socio-economic indexes. 2009: stat. sb. / Rosstat. – M, 2009. – P. 798-799; Regions of Russia. Socio-economic indexes. 2016: stat. sb. / Rosstat. - M, 2016. - 794 p.

On number of the used advanced production technologies in 2005 - 2015 Krasnodar Krai, the Rostov region and the Volgograd region, in group of outsiders – Northern Ossetia-Alania and Kalmykia are in the lead.

Thus, diffusion of the Russian inventions is extremely low, and the market of intellectual property in the Southern Federal District and North Caucasus federal district is practically absent.

We will characterize innovative activity of the organizations of the Southern Federal District and North Caucasus federal district by means of calculation of specific weight of the enterprises which are carrying out technological innovations (see table 7).

Table 7 – Specific weight of the enterprises which are carrying out technological innovations, percent, value of an indicator in a year. (See Annexes)

Source: Regions of Russia. Socio-economic indexes. 2016: stat. sb. / Rosstat. – M, 2016. – 820 p. sia. Socio-economic indexes. 2016: stat. sb. / Rosstat. – M, 2016. – 820 p.

According to table 7, the specific weight of the organizations which were engaged in innovative activity in the Southern Federal District and the North Caucasian Federal District, in total number surveyed by Goskomstat in 2015 was 7,8% and 4,7% respectively (decrease in this indicator in comparison with 2005 in the Southern Federal District made 0,8%, in North Caucasus federal district – 2,3%). For comparison, on federal districts the share innovatively - the active enterprises fluctuate in the range from 12,4% to 1,1% in regions of the Southern Federal District and in the range from 20% to 0,8% in regions of North-Caucasus federal district, and in the countries of OECD this indicator is about 25%. Thus, the level of innovative activity of the organizations of the Southern Federal District and North Caucasus federal district remains extremely low.

Characterizing the purposes of innovative activity, we will note that the innovation-active organizations of the Southern Federal District and North-Caucasus federal district do not seek for gaining the competitive foreign markets.

Analyzing indicators of innovative activity of the enterprises of the Southern Federal District and North Caucasus federal district

we will note that the share of innovative production in total amount of the shipped production is insignificant. If in 2005 it made 1,8% in the Southern Federal District, in 2015 increased up to 6,0%, then in regions of North Caucasus federal district in 2005 it made 3,7% in the Southern Federal District, in 2015 increased up to 8,9% (see table 8).

Table 8 – The volume of innovative production percentage of the total amount of the shipped goods, the performed works, services. (See Annexes)

Source: Regions of Russia. Socio-economic indexes. 2009: stat. sb. / Rosstat. – M, 2009. – 820 p.; Regions of Russia. Socio-economic indexes. 2016: stat. sb. / Rosstat. - M, 2016. - 816 p.

An integrated approach which assumes existence of the proved and scientifically verified system of indicators and existence of statistical base for definition of degree of readiness of the region for creation, development and distribution of different type of innovations, to realization of results of innovative activity is necessary for assessment of innovative capacity of the region.

The purpose of development of complex assessment of innovative potential is development of concrete practical recommendations about stimulation of innovative activity of the region.

Let's consider a technique of assessment of innovative activity of the region.

The algorithm of creation of an integrated indicator of innovative potential of economy consists of seven consecutive stages:

- at the first stage the problem of collecting reliable statistical data is solved, namely information sources, ways of its collecting are established, the reliability and reliability of basic data is estimated;

- at the second stage accounting of the available human, natural resources, definition strong and weaknesses of the territory for the purpose of adoption of reasonable administrative decisions is carried out;

- at the third stage the analysis of tendencies, structural interrelations of economic development of the region which is carried out for the purpose of identification of the key indicators defining position of the territory in general is carried out;

- at the fourth stage selection of classification signs on the basis of expert judgments and the correlation analysis is carried out;

- at the fifth stage the generalizing characteristics of quality of economic development of the country by means of identification aggregated a component, characterizing development of economy from the qualitative party come to light;

- at the sixth stage the summary indicator or the index of innovative potential of national economy is under construction.

When calculating the unified minimum and maximum values of statistics are used:

$$I_i = \frac{x_i - x_{imin}}{x_{imax} - x_{min}},\ i=1,2,3,4.$$

Each private index is calculated by a formula:

But such way of calculation of indexes has the shortcomings: the insufficient argument of the accepted limits of change of basic indicators, almost free mutually replacement of basic indicators.

The way of rationing is based on definition «optimum» and «least favorable» values of each indicator on set of territories. The formula of rationing of values of the indicators exerting positive impact on quality of economic development has an appearance:

$$y_{norm} = \frac{y_{fact} - y_{least\ fav.val.}}{y_{opt.val..} - y_{least\ fav.val.}}.$$

For the indicators exerting negative impact, the formula will be transformed as follows:

$$y_{norm} = \frac{y_{opt.val.} - y_{fact}}{y_{opt.val.} - y_{least\ fav.val.}}$$

where ynorm – rated value of an indicator;

yfact – actual value of an indicator;

yopt.val. – optimum value of an indicator;

y least fav.val. –least favorable value of an indicator.

Such approach allows to consider positive or negative impact in assessment procedure this or that factor exerts on a condition of the territory, proceeding from sense or the nature of the indicator relating to it.

- on the seventh a stage develops models of development of innovative potential of regional economy.

Realization of the offered algorithm allows to give a quantitative assessment of quality of development both economy in general, and its certain regions.

The complexity of approach provides reliability of results of a research. The rating scale of the complex index of innovative capacity of the region looks as follows:

0,9< Yp<1 – Zone of absolute innovative development;

0,8 < Yp < 0,9 – Zone of high innovative development;

0,7 < Yp < 0,8 – Zone of normal innovative development;

0,6 < Yp < 0,7 – Zone of stabilization of innovative development;

0,5 < Yp<0,6 – Zone of slaboustoychivy innovative development;

0,4 < Yp< 0,5 – Zone of unstable innovative development;

0,3<YP<0,4 – Zone of critical innovative situation;

Yp <0,3 – Zone of crisis innovative situation.

Let's calculate by the technique given above the complex index of innovative capacity of the region on federal districts of the Russian Federation for 2011-2015.

First of all, we will carry out rating assessment of regions on innovative activity with use of the following statistics:

- the organizations which were carrying out research and development;

- number of staff, occupied with research and development, the people;

- the number of researchers with academic degrees, the people;

- internal costs of research and development, million rubles;

- the developed advanced production technologies;

- the used advanced production technologies;

- innovative activity of the organizations (specific weight of the organizations which are carrying out technological, organizational, marketing innovations in a total amount of the surveyed organizations, %);

- costs of technological innovations, million rubles;

- volume of innovative goods, works and services, million rubles.

We will range results of calculations for degree of the importance and it is representable in table 1.

Table 9 – Distribution of federal districts on extent of decrease of rating of innovative activity and competitiveness for 2011-2015.(See Annexes)

Source: Regions of Russia. Socio-economic indexes. 2016: krat.sb. / Rosstat. - M, 2016. - 1326 pages; Russian statistical year-book. 2016: stat.sb. / Rosstat. - M, 2016 – 725 pages; Russia in figures. 2017: krat.sb. / Rosstat - M., 2017 - 511 pages. Access mode: http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/publications/catalog/

Apparently from table 9, the value of this indicator in general across the Russian Federation was 0,910. The leading position is taken by the Southern Federal District, in this region an indicator 0,897 was. Low level is ob-

served in the Far East, North Caucasian and Siberian federal districts. The lowest complex index of innovative activity of the region is observed in the Northwestern Federal District.

On the basis of the submitted statistical data the ratings of innovative activity of certain regions of the Southern and North Caucasian federal districts for 2011-2015 (table 10) were calculated.

Table 10 – Distribution of regions of federal districts of the Southern and North Caucasian federal districts for 2011-2015 according to the complex index of innovative activity. (See Annexes)

Source: Regions of Russia. Socio-economic indexes. 2016: stat. sb. / Rosstat. - M, 2016. - 1326 pages; Russian statistical year-book. 2016: stat. sb. / Rosstat. - M, 2016 – 725 pages; Russia in figures. 2017: stat. sb / Rosstat - M., 2017 - 511 pages. Access mode: http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/publications/catalog/

The highest value of an indicator of the complex index in a section of the Southern Federal District at Krasnodar Krai which size is 0,825. High values are noted at the Rostov region (0,777%) and the Astrakhan region (0,721%) that on a rating scale of the complex index of innovative capacity of the region corresponds to a zone of normal innovative development. The Republics of Adygea and Kalmykia which size 0,400 and 0,498 respectively, and it means that these regions are in a zone of unstable innovative development have the lowest indicator among regions.

According to the table 10 the leader in the level of the complex index in the North Caucasian Federal District is Stavropol Krai, the size of the complex index in it was 0,729 (a zone of normal innovative development). The lagging behind region, on an indicator the complex index, the Republic of Ingushetia with value of an indicator 0,498 is that corresponds to a zone of unstable innovative development.

From there is also a need for development and realization of innovative policy of the state which main task consists in creation of such system which will allow in the shortest possible time and with high efficiency to use the intellectual and scientific and technical potential of each region in production [9].

CONCLUSIONS

Competently pursued innovative policy promotes improvement of macroeconomic indicators of the region that has important social and economic value, providing implementation of the state social programs [7, 8].

The state has to carry out all types of regulation of innovative activity – organizational, financial, standard and legal (Figure 1).

Figure 1. State regulation of innovative activity of the region. (See Annexes)

The interrelation of innovations with state of the economy of Russia in modern conditions is shown that innovations provide sustainable development of national economy through the budgetary and scientific and technical policy, create economic opportunities for ensuring growth of welfare of the people.

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ANNEXES

	2005	2010	2011	2012	2013	2014	2015
Republic of Adygea	3	6	8	8	9	10	12
Republic of Kalmykia	8	7	7	6	6	6	6
Krasnodar Krai	62	53	53	52	56	66	106
Astrakhan region	21	23	36	17	20	20	25
Volgograd region	45	42	42	38	45	47	53
Rostov region	100	100	109	101	98	87	100
Republic of Ingushetia	1	4	4	4	4	4	6
Republic of Dagestan	22	29	29	26	30	30	41
Kabardino-Balkar Republic	12	14	14	14	14	14	20
Karachay-Cherkess Republic	5	6	5	5	7	8	11
Republic Northern Ossetia-Alania	12	15	17	16	17	18	24
Chechen Republic	5	8	8	9	9	8	8
Stavropol Krai	14	16	28	23	35	35	52

Table 1 – The number of the organizations which were carrying out research and development.
Source: It is calculated by the author on: Regions of Russia. Socio-economic indexes. 2016: Stat. sb. / Rosstat. - M, 2016. – 780 p.

	Number of staff, busy IR per 10 thousand 2005 taken in the region	Number of staff, busy IR per 10 thousand 2011 taken in the region	Number of staff, busy IR per 10 thousand 2013 taken in the region
Republic of Adygea	8,1	17,5	15,5
Republic of Kalmykia	14,9	12,8	12,9
Krasnodar Krai	28,8	23,4	26,2
Astrakhan region	32,6	18,1	20,2
Volgograd region	31,5	29,9	26,5
Rostov region	76,9	74,6	57,2
Republic of Ingushetia	1,3	5,9	5,7
Republic of Dagestan	15,3	12,0	11,8
Kabardino-Balkar Republic	17,9	19,1	18,5
Karachay-Cherkess Republic	26,7	21,7	22,6
Republic Northern Ossetia-Alania	16,6	19,1	18,8
Chechen Republic	4,9	11,6	10,0
Stavropol Krai	13,4	14,4	14,9

Table 2 - Indicators of number of staff, occupied with research and development, per 10 thousand occupied in the region.
Source: It is calculated by the author on: Regions of Russia. Socio-economic indexes. 2016: Stat. sb. / Rosstat. - M, 2016. – 780 p.

ANNEXES

	2005	2010	2011	2012	2013	2014	2015
Republic of Adygea	25,8	21,5	20,4	24,7	20,9	22,9	27,2
Republic of Kalmykia	34,8	32,2	37,4	39,2	42,6	36,2	45,1
Krasnodar Krai	12,5	16,6	16,7	22,2	21,1	22,5	26,4
Astrakhan region	14,0	22,0	22,0	23,4	23,0	31,6	30,8
Volgograd region	10,0	10,6	9,2	10,0	11,0	10,6	13,5
Rostov region	7,4	8,1	9,4	10,8	10,5	11,7	11,1
Republic of Ingushetia	30,4	33,7	36,6	40,4	38,6	33,1	50,0
Republic of Dagestan	28,9	31,4	36,2	38,5	37,9	37,7	43,7
Kabardino-Balkar Republic	33,4	40,8	40,5	38,6	37,8	41,7	44,3
Karachay-Cherkess Republic	18,1	27,3	29,6	28,7	26,2	26,7	27,8
Republic Northern Ossetia-Alania	20,9	29,5	28,9	29,9	29,5	28,4	26,3
Chechen Republic	44,6	59,0	70,9	57,4	63,9	60,2	56,7
Stavropol Krai	14,9	23,2	48,4	52,6	33,3	42,4	46,4

Table 3 – Specific weight of number of researchers with academic degrees, %
Source: Regions of Russia. Socio-economic indexes. 2016: stat. sb. / Rosstat. – M, 2016. – P. 820.

	In total 2011	Basic researches of 2011	Applied researches of 2011	Developments 2011	In total 2015	Basic researches of 2015	Applied researches of 2015	Developments 2015
Republic of Adygea	146,3	79,6	63,8	2,8	202,1	98,0	41,6	62,5
Republic of Kalmykia	80,8	69,4	10,7	0,7	75,3	42,3	19,4	13,6
Krasnodar Krai	3601,0	958,0	1352,74	1290,2	6423,8	1414,3	2608,4	2401,1
Astrakhan region	539,1	117,2	342,7	79,2	545,0	295,0	197,3	52,6
Volgograd region	3033,3	313,5	665,5	2054,3	3226,6	334,1	457,0	2435,5
Rostov region	7895,4	838,4	1152,1	5904,9	13381,7	1500,1	2074,4	9807,2
Republic of Ingusheti a	28,9	28,9	-	-	63,6	14,5	-	-
Republic of Dagestan	767,6	595,0	49,8	122,8	949,8	661,7	175,6	112,5
Kabardino-Balkar Republic	477,1	328,6	98,7	49,8	488,9	307,1	171,7	10,1
Karachay-Cherkess Republic	291,6	280,4	11,2	-	590,7	531,9	45,6	13,2
Republic Northern Ossetia-Alania	277,6	147,4	71,8	58,4	377,4	214,8	43,5	119,1
Chechen Republic	118,7	96,4	16,2	6,1	268,6	155,3	97,2	16,1
Stavropol Krai	1761,7	203,9	991,8	566,0	1436,9	355,6	872,6	208,6

Table 4 – Internal current costs of research and development by types of works (one million rub)
Source: It is made by the author on: Regions of Russia. Socio-economic indexes. 2009: stat. sb. / Rosstat. – M, 2009. – P. 798-799; Regions of Russia. Socio-economic indexes. 2016: stat. sb. / Rosstat. - M, 2016. - 794 p.

	Gross regional product (million rubles) 2011	Internal costs of IR (million rubles) 2011	Internal costs of IR and GRP (million rubles) 2011	Gross regional product (million rubles) 2015	Internal costs of IR (million rubles) 2015	Internal costs of IR and GRP (million rubles) 2015
Republic of Adygea	55225,8	151,6	0,003	82583,7	202,4	0,002
Republic of Kalmykia	28779,4	80,8	0,003	48765	75,3	0,002
Krasnodar Krai	1229738,1	3826,6	0,003	1946760	6792,0	0,003
Astrakhan region	170546,5	612,0	0,003	320735	563,1	0,002
Volgograd region	498968,1	3229,7	0,006	735293,1	3417,7	0,005
Rostov region	761828,6	8005,4	0,011	1171784,1	13682,2	0,012
Republic of Ingushetia	28858,9	28,9	0,001	54330,4	78,1	0,000
Republic of Dagestan	330322,8	773,0	0,002	559673,2	969,5	0,002
Kabardino-Balkar Republic	90594,5	484,6	0,005	118134,7	489,5	0,004
Karachay-Cherkess Republic	49252,1	310,4	0,006	67355,2	602,9	0,009
Republic Northern Ossetia-Alania	85876,7	293,1	0,003	126827,2	394,8	0,003
Chechen Republic	86623	121,2	0,001	160503	285,7	0,002
Stavropol Krai	396791,6	2006,5	0,005	609532	1471,6	0,002

Table 5 – Internal costs of research and development counting on 1000 rub of GRP.
Source: It is made by the author on: Regions of Russia. Socio-economic indexes. 2009: stat. sb. / Rosstat. – M, 2009. – P. 798-799; Regions of Russia. Socio-economic indexes. 2016: stat. sb. / Rosstat. - M, 2016. - 794 p.; The central base statistical these / National accounts / the Gross regional product / In the current basis prices / The access Mode: http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/accounts/#

Federal district	Number of the created advanced production technologies 2005	Number of the used advanced production technologies 2005	Number of the created advanced production technologies 2011	Number of the used advanced production technologies 2011	Number of the created advanced production technologies 2013	Number of the used advanced production technologies 2013	Number of the created advanced production technologies 2015	Number of the used advanced production technologies 2015
Republic of Adygea	-	-	-	128	-	155	-	187
Republic of Kalmykia	-	-	-	16	-	14	-	49
Krasnodar Krai	2	1098	16	2128	4	2575	35	4460
Astrakhan region	4	118	6	591	9	391	6	524
Volgograd region	1	1603	-	1989	2	2223	-	2400
Rostov region	14	1890	13	2670	16	2932	22	3047
Republic of Ingushetia	-	-	-	-	-	-	-	-
Republic of Dagestan	4	1408	8	566	9	426	13	424
Kabardino -Balkar Republic	3	101	4	263	3	282	3	262
Karachay-Cherkess Republic	-	-	-	87	-	80	-	90
Republic Northern Ossetia-Alania	-	18	-	19	-	-	-	30
Chechen Republic	-	-	-	157	13	231	5	356
Stavropol Krai	-	457	-	920	-	1094	2	1176

Table 6 - Number of the created and used advanced production technologies of regions of the Southern Federal District and North-Caucasus federal district.
Source: It is made by the author on: Regions of Russia. Socio-economic indexes. 2009: stat. sb. / Rosstat. – M, 2009. – P. 798-799; Regions of Russia. Socio-economic indexes. 2016: stat. sb. / Rosstat. - M, 2016. - 794 p.

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	2005	2010	2011	2012	2013	2014	2015
Southern Federal District	8,6	7,5	6,5	7,4	7,2	7,7	7,8
Republic of Adygea	11,5	10,0	9,7	6,8	10,4	8,5	7,9
Republic of Kalmykia	-	-	1,1	1,2	4,8	2,4	2,4
Krasnodar territory	7,5	6,2	6,1	7,4	5,6	6,2	6,5
Astrakhan region	3,7	12,8	5,2	5,8	9,0	12,4	12,1
Volgograd region	10,8	8,4	7,9	7,1	8,1	6,3	6,3
Rostov region	10,7	7,3	6,6	8,7	7,7	9,6	9,9
North-Caucasian Federal District	7,0	6,2	5,2	6,4	5,9	6,5	4,7
Republic of Ingushetia	-	-	5,9	-	-	20,0	5,6
Republic of Dagestan	10,9	6,7	2,9	6,5	10,3	12,2	7,3
Kabardino-Balkar Republic	7,4	8,3	9,9	9,4	9,3	6,7	2,5
Karachay-Cherkess Republic	7,3	4,3	4,3	2,8	2,7	3,6	3,1
Republic Northern Ossetia-Alania	2,5	7,7	5,4	4,5	5,3	6,6	3,8
Chechen Republic	-	0,8	0,8	-	-	0,5	1,6
Stavropol Krai	8,1	7,2	5,8	8,8	8,1	8,36	6,8

Table 7 – Specific weight of the enterprises which are carrying out technological innovations, percent, value of an indicator in a year. Source: Regions of Russia. Socio-economic indexes. 2016: stat. sb. / Rosstat. – M, 2016. – 820 p.

	2005	2010	2011	2012	2013	2014	2015
Southern Federal District	1,8	6,5	4,4	3,0	3,4	4,8	6,0
Republic of Adygea	21,4	9,0	9,1	9,3	10,1	9,3	10,5
Republic of Kalmykia	-	-	-	0,4	-	0,1	0,6
Krasnodar Krai	2,1	1,2	1,0	0,7	0,3	1,4	1,0
Astrakhan region	0,2	3,1	2,1	0,7	1,8	4,9	5,4
Volgograd region	0,8	13,5	1,1	0,9	1,1	2,1	2,5
Rostov region	2,7	4,8	5,6	7,1	8,9	10,9	14,3
North-Caucasian Federal District	3,7	8,5	8,1	7,8	6,4	7,6	8,9
Republic of Ingushetia	-	0,1	0,3	1,1	-	0,2	0,1
Republic of Dagestan	5,5	5,9	5,1	0,9	0,1	0,6	0,6
Kabardino-Balkar Republic	3,5	7,4	5,7	3,0	3,3	2,4	4,1
Karachay-Cherkess Republic	4,7	12,0	8,9	4,2	0,4	0,1	0,1
Republic Northern Ossetia-Alania	0,1	1,8	1,5	0,2	-	0,1	0,1
Chechen Republic	-	13,6	10,7	-	-	1,6	0,2
Stavropol Krai	4,0	9,1	9,6	11,1	9,7	11,0	13,5

Table 8 – The volume of innovative production percentage of the total amount of the shipped goods, the performed works, services Source: Regions of Russia. Socio-economic indexes. 2009: stat. sb. / Rosstat. – M, 2009. – 820 p.; Regions of Russia. Socio-economic indexes. 2016: stat. sb. / Rosstat. - M, 2016. - 816 p.

	Complex index	Interpretation of the complex index of innovative capacity of the region	Place
Russian Federation	0,910	Zone of absolute innovative development	-
Central Federal District	0,848	Zone of high innovative development	2
North-West Federal District	0,586	Zone of slaboustoychivy innovative development	8
Southern Federal District	0,897	Zone of high innovative development	1
North-Caucasian Federal District	0,710	Zone of normal innovative development	7
Volga Federal District	0,840	Zone of high innovative development	3
Ural Federal District	0,798	Zone of normal innovative development	4
Siberian Federal District	0,727	Zone of normal innovative development	6
Far East Federal District	0,732	Zone of normal innovative development	5

Table 9 – Distribution of federal districts on extent of decrease of rating of innovative activity and competitiveness for 2011-2015. Source: Regions of Russia. Socio-economic indexes. 2016: krat.sb. / Rosstat. - M, 2016. - 1326 pages; Russian statistical year-book. 2016: stat.sb. / Rosstat. - M, 2016 – 725 pages; Russia in figures. 2017: krat.sb. / Rosstat - M., 2017 - 511 pages. Access mode: http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/publications/catalog/.

	Complex index	Standard
Southern Federal District		
Republic of Adygea	0,400	Zone of unstable innovative development
Republic of Kalmykia	0,498	Zone of unstable innovative development
Krasnodar Krai	0,825	Zone of high innovative development
Astrakhan region	0,721	Zone of normal innovative development
Volgograd region	0,562	Zone of slaboustoychivy innovative development
Rostov region	0,777	Zone of normal innovative development
North-Caucasian Federal District		
Republic of Ingushetia	0,570	Zone of slaboustoychivy innovative development
Republic of Dagestan	0,498	Zone of unstable innovative development
Kabardino-Balkar Republic	0,604	Zone of stabilization of innovative development
Karachay-Cherkess Republic	0,677	Zone of stabilization of innovative development
Republic Northern Ossetia-Alania	0,517	Zone of slaboustoychivy innovative development
Chechen Republic	0,682	Zone of stabilization of innovative development
Stavropol Krai	0,729	Zone of normal innovative development

Table 10 – Distribution of regions of federal districts of the Southern and North Caucasian federal districts for 2011-2015 according to the complex index of innovative activity
Source: Regions of Russia. Socio-economic indexes. 2016: stat. sb. / Rosstat. - M, 2016. - 1326 pages; Russian statistical year-book. 2016: stat. sb. / Rosstat. - M, 2016 – 725 pages; Russia in figures. 2017: stat. sb / Rosstat - M., 2017 - 511 pages. Access mode: http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/publications/catalog/ .

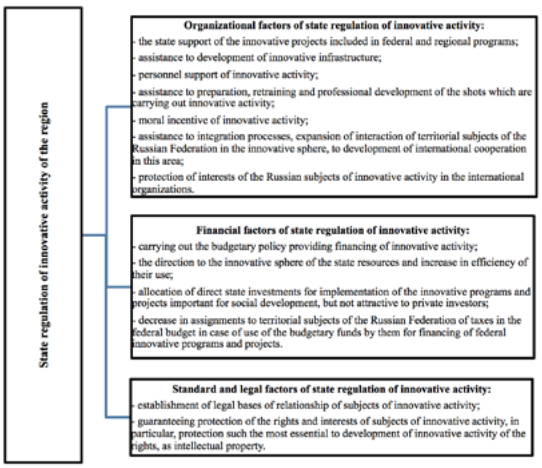

Figure 1. State regulation of innovative activity of the region