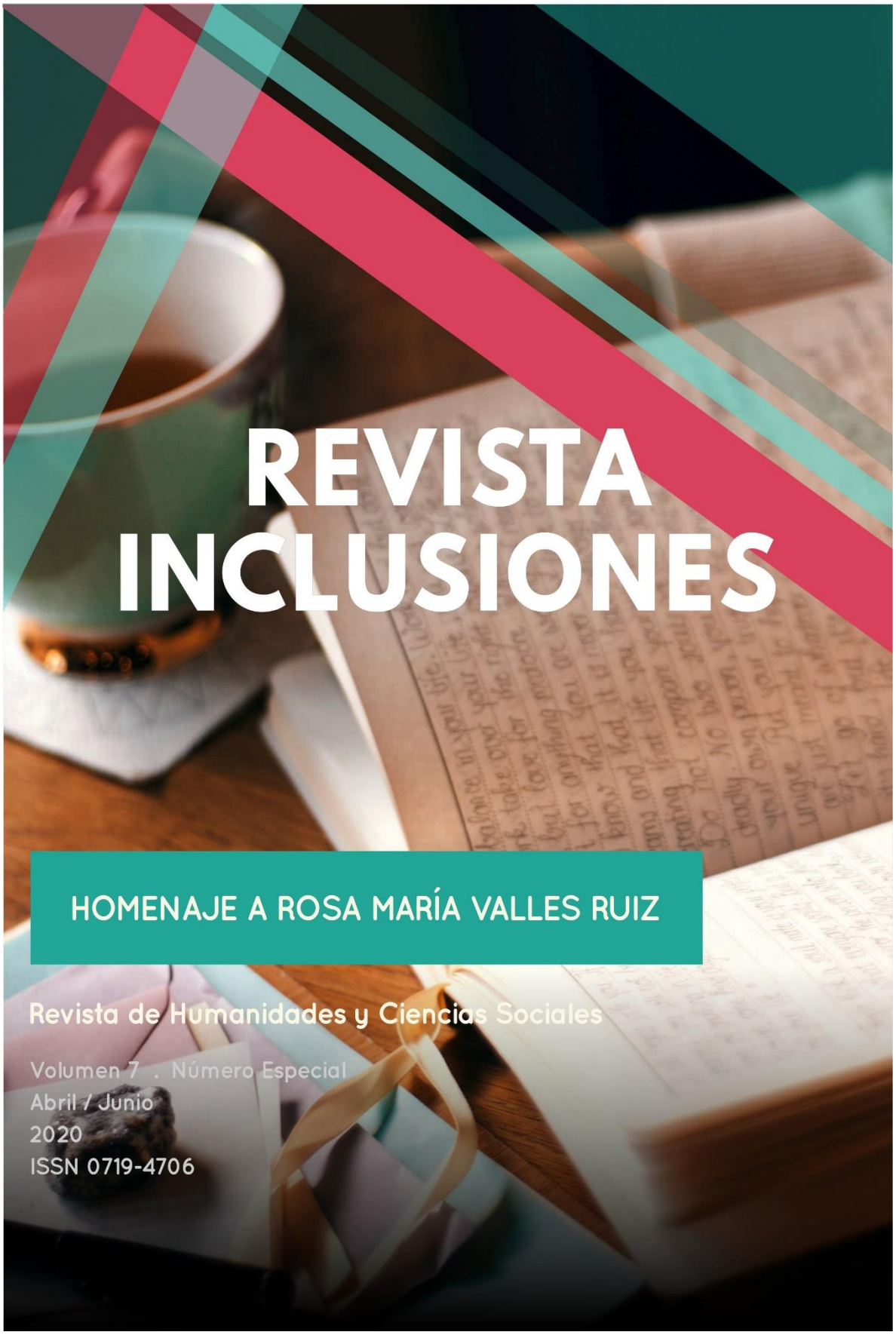

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FORECASTING COMPETITIVENESS OF A REGION

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Abstract

The work has been aimed at developing an economic and mathematical model for forecasting an integral indicator of the competitiveness of Russian regions, taking into account the most significant factors determining its dynamics. The algorithm for forecasting the competitiveness, including the estimation and analysis of competitiveness in the retrospective period, the formation of the economic and mathematical model, the interpretation of the results and the development of offers to improve the regional competitiveness, has been offered. The model for forecasting the competitiveness of regions has been tested in regions of the Central Black Earth economic region of Russia. The values of the integrated indicator of competitiveness of the areas under study have been analyzed in the dynamics of 2000 – 2018. The forecasting data for 2019 – 2022 have been interpreted. Negative factors hindering the improvement of the competitiveness of regions have been singled out. The results of the study can be used when generating development strategies and developing state and regional programs aimed at ensuring and improving the sustainability and balance of the socio-economic development of the federation subjects.

Keywords

Regional competitiveness – Competitive advantages – Forecasting

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Introduction

Over the recent years, scientists and practitioners have been paying special attention to studying the competitiveness of spatial systems at various levels, primarily regions and municipalities. The interest in this problem is due to the enhanced contribution of the territories to ensuring the competitiveness of countries as the basis for their sustainable and balanced socio-economic development.

Despite its relevance, in the scientific and practical references there is rather limited number of approaches to estimating the competitiveness of regions. Most of them do not allow forecasting its dynamics in the medium and long term, although both national and foreign methods are based on “calculated” integral indicators and indices of the competitiveness of territories.

The methodology for estimating the integral indicator of competitiveness of regions developed by Robert Huggins Associates is deservedly popular in foreign countries[1]. Using it, it is possible to estimate the competitiveness of regions, and specify the competitive advantages of territories (countries and macroregions). The system of comprehensive analysis of the competitive advantages of regions was developed by the *Joint Research Center*, an authoritative research organization of the European Union (EU)[2], specializing in research in various areas of the association functioning. In order to estimate the competitiveness of regions, a system of indicators characterizing key parameters of the socio-economic development, such as gross regional product (GRP), unemployment, population dynamics, etc. is used. The system was tested when estimating the competitiveness of regions in the EU countries and proved to be efficient when forming the coordinated policy to ensure the competitive advantages of the territories[3].

The United States, as well as a number of EU countries, in particular the United Kingdom and Finland, have their own methodologies for estimating the competitiveness of regions. Despite the demand, most methods developed abroad are not used for forecasting purposes, although they have a certain potential for development in this area[4].

In the Russian Federation, the competitiveness of territories is studied by a number of scientific organizations and research centers, as well as by individual scientists and research teams, in particular R.A. Fathutdinov[5], V.A. Andreev[6], S.V. Kazantsev[7] et al.

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[1] Foundation Focus – Social dialogue: For a competitive, fair and modern Europe. Available at: https://www.eurofound.europa.eu/publications/foundation-focus/2015/industrial-relations/foundation-focus-social-dialogue-for-a-competitive-fair-and-modern-europe

[2] Joint Research Centre. Available at: https://ec.europa.eu/

[3] B. Gardiner; R. Martin y P. Tyler, “Competitiveness, Productivity and Economic Growth across the European Regions”, Regional Studies num 38 (2004):1045 – 1067.

[4] A. Korauš; M. Mazák y J. Dobrovič, “Quantitative analysis of the competitiveness of Benelux countries“, Entrepreneurship and Sustainability Issues 5 Vol: 4 (2018): 1069-1083; D. Kiseľáková; B. Šofranková; V. Čabinová y E. Onuferová, “Competitiveness and sustainable growth analysis of the EU countries with the use of Global Indexes' methodology”, Entrepreneurship and Sustainability Issues 5 Vol: 3 (2018): 581-599 y Z. Zeibote; T. Volkova y K. Todorov, “The impact of globalization on regional development and competitiveness: cases of selected regions”, Insights into Regional Development Vol: 1 num 1 (2019): 33-47.

[5] R.A. Fathutdinov, Konkurentosposobnost: Rossiya i mir. 1992 – 2015 (Moscow: Economy, 2005).

Nowadays one of the most popular approaches is the one based on calculating the index of the competitiveness of Russian regions offered by the *Leontief Center Consortium*. The index is the result of the comprehensive estimation of the potential and abilities of the territory to compete for resources and markets for such positions as the economic development of the region as a whole, economic zones, basic economic complexes, intersectoral clusters, and projects that ensure the socio-economic development of the territory[8].

It is necessary to note that national methods for estimating the competitiveness of regions are characterized by the breadth of covering the subject area of the study, the variety of approaches and estimation procedures, and the scale of the composition of indicators estimated both according to the official statistical observation and by involving experts. At the same time, most Russian competitiveness estimation methods have been developed to analyze and monitor changes in the competitive advantages of regions. Their prognostic potential has not yet been fully realized.

Thus, the formation of the methodology for forecasting the competitiveness of the region, which makes it possible to estimate its level in the near and long term, is an urgent scientific and practical task whose solution will help to ensure the terms and conditions to more fully realize the potential for the self-development of territories as the basis for their sustainable socio-economic development.

Methods

The competitiveness of a region is forecast on the basis of the authors' methodology that includes the following stages:

1. *Estimation and analysis of the competitiveness of regions.*

In order to estimate the competitiveness of the region, it is offered to use an integral indicator that includes the following particular indicators: profitability of the GRP (calculated as the ratio of the balanced financial result of organizations in the region to the GRP), the share of investments in fixed assets in GRP, the share of innovatively active enterprises, the proportion of small enterprises in the total number of registered enterprises, the number of students of higher educational establishments per 10,000 people, and the incidence of the population in the region per 1,000 people.

The analysis was based on the dynamics of the calculated values related to the competitiveness of a region.

2. Formation of the economic and mathematical model for the forecasting estimation of competitiveness and its economic interpretation.

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[6] V. A. Andreev. Konkurentosposobnost regiona i metodika ee otsenki (Yaroslavl: Publishing House of the Yaroslavl University, 2000).

[7] S. V. Kazantsev, "Potentsial ekonomiki regionov Rossii kak osnova ikh vnutrennei konkurentosposobnosti", Region num 1 (2004): 191–199.

[8] Indeks konkurentosposobnosti regionov AV RCI — polyusa rosta Rossii. Available at: http://av-group.ru/av-strategy/av-rci/

Saturation functions are used as a forecast function for changing the economic indicator, e.g., the logistic and exponential functions as follows[9]:

$$y_t = \frac{m}{1 + b e^{-\alpha t}}, \quad (1)$$

$$y_t = m(1 - e^{-\alpha t}) \quad (2)$$

where m is the maximum value of the function (the maximum possible value of the parameter under study), α, b are the constant indicators, t is the current value of the argument, time, and e is the base of the natural logarithm.

One of the criteria for choosing a function in forecasting is the smallest number of unknown parameters. The equation of the exponential curve (2) graphically presented in Fig. 1 corresponds to this criterion.

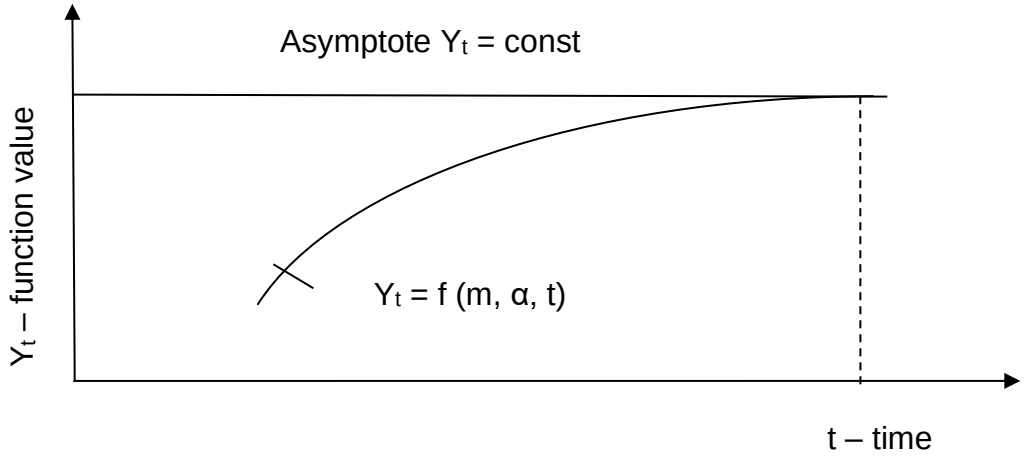

Fig. 1
The Exponential Curve of the Saturation Function

The analysis of the graphical dependence (Fig. 1) and equation (2) shows that when the time (t) increases for some values of (m, α), the function Y (t) reaches a constant maximum value. When forecasting the competitiveness of a region, precisely such function is required, sometimes it reaches its maximum value, i.e., saturation limit, over time.

The parameters of the exponential function (2) depend on many factors. The most important ones are the correctness of the problem setting, the correctness of the choice of the dependent indicator, and the reliability and sufficiency of the initial information. It is also necessary to note that at present no perfect parameterization method that would ensure the reliability of the results under various conditions[10] has been offered.

[9] E. V. Freydina, Issledovanie sistem upravleniya (Moscow: Omega-L Publishing House, 2008).
[10] A. F. Grishin; S. F. Kotovdarti y V. N. Yagunov, Statisticheskie modeli v ekonomike (Rostov-on-Don: Fenix, 2005).

The unknown parameter of equation (2) is the maximum value of the indicator under study, i.e., the competitiveness of a region that characterizes the saturation parameter. The competitiveness value that is equal to unity is taken as the maximum value. Then the saturation parameter in equation (2) will also be equal to unity, i.e., m = 1.

The next parameter in exponential equation (2) is a constant number (α) that characterizes the degree of the curve curvature (Fig. 1) and is associated with deviations (variability) of the function values. The degree of curvature can be estimated by the value of the variation coefficient (V) that is the ratio of the mean square deviation σ of the variable under study to the arithmetic mean $\bar{x}$, i.e., α = σ / $\bar{x}$ [11, 12, 13]. The variation coefficient (V) is a dimensionless coefficient that is most convenient in measuring option conditions. The numerical value of the indicator (V) can range from 0 to 1. The variation is considered insignificant if its relative level is below 10 % (0.1), the average one – when it is within 10 ... 30 % (0.1 ... 0.3), and the high one – if it exceeds 30 % (0.3)[14]. Therefore, changing the variation coefficient V, it is possible to set the desired curvature of the path of change in the competitiveness of a region for the relevant forecast period.

In order to give economic sense to equation (2), it is necessary for all constant and variable parameters (m, α, t) to reflect the factors of change in the function under study – the competitiveness. Based on this, according to the authors, in equation (2) the parameter (α) should show the rate of increase in the competitiveness (T_p).

The analysis of the curve (Fig. 1) and equation (2) shows that the competitiveness of a region at t = 0 is zero (CR = 0), but in fact the forecast time t = 0 corresponds to the present time. It is logical to think that at the initial point of the curve (Fig. 1) at t = 0, the competitiveness of a region will not be equal to zero, but to the value that has been achieved at present. Then the formula for calculating the forecast competitiveness of a region (CR) will take the following form:

$$CR = U_{CR}^{in.} + m(1-e^{-T_n t}), \quad (3)$$

where $U_{CR}^{in.}$ is the initial level of competitiveness of a region achieved at present, and corresponds to the time t = 0 in Fig. 1.

The economic-mathematical model (3) makes it possible to obtain variant predictive calculations, which is important for making managerial decisions, especially under uncertainty.

3. Forecast calculations of the competitiveness of the region.

[11] G. L. Azoev y A. P. Chelenkov, Konkurentnye preimushchestva firmy (Moscow: News, 2000).
[12] A. Godin, Statistika. 2nd edition, amended (Moscow: Dashkov&Co. Publishing and Trading Corporation, 2003).
[13] I. I. Eliseeva; I. I. Egorov, et al., Statistika (Moscow: Velby TC; *Prospect* Publishing House, 2004).
[14] A.F. Grishin, S. F. Kotovdarti, V. N. Yagunov. Statisticheskie modeli v ekonomike [Statistical models in economy]. (Rostov-on-Don: Fenix, 2005).

Solving equation (2), the following equation is obtained for determining the required growth rate $Tn_{U_{CR}}^{mp.}$:

$$Tn_{U_{KCP}}^{mp.} = \frac{-\lambda n U_{CR}^{init.}}{t}, \quad (4)$$

4. Interpretation of the results and development of offers on improving the competitiveness of the region.

Results

The authors selected the regions of the Central Black Earth economic region (Belgorod, Voronezh, Kursk, Lipetsk, and Tambov regions), specializing in the mining, metallurgical, engineering, chemical, and food industries and in the production of certain types of building materials, as well as in intensive agricultural production as the object of the study.

Table 1 shows the values of the particular and integral indicators of the competitiveness of the regions in the Central Black Earth economic region.

Particular competitiveness indicators	2014	2015	2016	2017	2018
Belgorod Region					
Profitability of GRP, %	28.8	8.3	29.63	17.63	18.0
Share of investments in fixed assets in GRP, %	19.47	21.33	19.72	17.92	18.1
Share of innovatively active enterprises, %	11.5	12.7	14.1	14.8	16.1
Proportion of small enterprises in the total number of registered enterprises, %	67.54	56.8	46.06	60.51	49.77
Number of students in higher educational institutions per 10,000 people, persons	358	382	342	326	318
Incidence of the population per 1,000 people in the region	736.4	707.4	745.7	696.6	696.6
Integral index of competitiveness	**0.78**	**0.64**	**0.633**	**0.71**	**0.73**
Voronezh Region					
Profitability of GRP, %	2.79	5.54	4.5	2.11	2.965
Share of investments in fixed assets in GRP, %	33.48	32.84	33.16	34.0	33.84
Share of innovatively active enterprises, %	10.3	11.0	11.6	11.7	12.35
Proportion of small enterprises in the total number of registered enterprises, %	40.46	56.17	58.26	64.27	74.19
Number of students in higher educational institutions per 10,000 people, persons	401	425	393	381	377
Incidence of the population per 1,000 people in the region	527.3	545.6	549.9	540.5	551.8
Integral index of competitiveness	**0.59**	**0.67**	**0.643**	**0.68**	**0.71**
Kursk Region					
Profitability of GRP, %	11.36	15.04	13.74	14.59	15.78
Share of investments in fixed assets in GRP, %	24.71	21.88	25.84	25.95	26.515
Share of innovatively active enterprises, %	9.9	7.3	6.5	5.0	3.3
Proportion of small enterprises in the total number of registered enterprises, %	48.24	44.65	47.04	49.67	49.5657
Number of students in higher educational institutions per 10,000 people, persons	376	499	488	397.0	453

Incidence of the population per 1,000 people in the region	534.8	542.6	540.2	535.0	537.7
Integral index of competitiveness	**0.62**	**0.66**	**0.596**	**0.63**	**0.62**
Lipetsk Region					
Profitability of GRP, %	14.43	22.05	8.95	28.9	26.16
Share of investments in fixed assets in GRP, %	26.5	25.86	26.44	28.1	28.07
Share of innovatively active enterprises, %	18.6	20.0	19.2	18.5	18.8
Proportion of small enterprises in the total number of registered enterprises, %	67.54	60.6	62.67	64.62	62.185
Number of students in higher educational institutions per 10,000 people, persons	222	247	216	192	189
Incidence of the population per 1,000 people in the region	698.4	671.0	666.2	669.9	653.8
Integral index of competitiveness	**0.75**	**0.88**	**0.8128**	**0.89**	**0.92**
Tambov Region					
Profitability of GRP, %	5.33	13.06	6.87	2.78	3.55
Share of investments in fixed assets in GRP, %	38.72	37.09	35.28	37.16	35.44
Share of innovatively active enterprises, %	9.1	8.5	10.6	11.0	11.75
Proportion of small enterprises in the total number of registered enterprises, %	48.58	52.13	58.35	61.68	66.565
Number of students in higher educational institutions per 10,000 people, persons	295	312	278	286	277.5
Incidence of the population per 1,000 people in the region	645.8	646.8	652.6	632.0	635.4
Integral index of competitiveness	**0.62**	**0.72**	**0.707**	**0.66**	**0.7**

Calculated by the authors

Table 1

Particular and Integral Indicators of Competitiveness of Regions

Based on the calculated data of the integral indicator of the competitiveness (Table 1), the competitiveness of the regions in the Central Black Earth economic region was ranked (Table 2).

Regions	2014	2015	2016	2017	2018
Belgorod	1	5	4	2	2
Voronezh	4	3	3	3	3
Kursk	3	4	5	5	5
Lipetsk	2	1	1	1	1
Tambov	3	2	2	4	4

Compiled by the authors

Table 2

Rating of Competitiveness of Regions of the Central Black Earth Economic Region

The analysis of the data from Tables 1 and 2 made it possible to determine the trends in the changes of the competitiveness of the regions of the Central Black Earth economic region. In 2015 – 2018 the Lipetsk region was a leader, while in 2016 the value of competitiveness decreased by 7.95 %. The factors determining the high value of the indicator are the considerable profitability of GRP, innovation activity, and the number of small enterprises in the region. In January – February 2015, the balanced financial result of large and medium-sized enterprises of the Lipetsk region increased 30 times as compared to the respective period of 2014, which increased the GRP profitability indicator. According to the Lipetsk Statistics Committee, its largest share (87 %) in the balanced

financial result falls on the manufacturing organizations[15]. The high competitiveness of the region is due to *Lipetsk-Technopolus,* a special economic zone of the regional level that has a technology-innovative type. In 2017, industrial parks started being formed in the region. The first industrial park included in the federal register was the *Sozidatel* industrial park in Yelets. Its main specializations are engineering and metalworking, as well as machine tool technology.

The Belgorod region is the second in the competitiveness rating for 2017 and 2018. It is necessary to note that in 2014 this region was the first in the rating. The downward trend in the region's competitiveness is mainly due to the decrease in the GRP profitability. According to the results for 2017, a number of manufacturing industries earned RUB 28 billion 953 million, which was almost RUB 20 billion less than in 2016. The positive financial result was achieved mainly by two industries: metallurgy and metal processing, as well as food production[16].

The Voronezh region was the third in the rating of competitiveness of the regions during 2015 – 2018. This position in the rating was due to high values of investments in fixed assets and a high share of small enterprises in the total number of enterprises in the region.

The Tambov region moved from the second place (2015 – 2016) to the fourth place in 2017 – 2018 in the rating, which was also due to the decrease in the GRP profitability. According to the Tambovstat, in 2017, the balanced financial result of Tambov enterprises amounted to about RUB 9.5 billion, which was more than twice less than in 2016. The indicator decreased in the organizations involved in agriculture and forestry, as well as manufacturing and administrative work. In 2017 the financial result was higher as compared to 2016 at the enterprises specializing in culture, sports and leisure activities, as well as catering, construction, wholesale and retail trade[17]. It is necessary to note that the indicator of the share of investments in fixed assets in GRP in 2018 was the highest among the regions of the Central Black Earth economic region.

The outsider in terms of competitiveness was the Kursk region. The low competitiveness of the region is due to the low financial result of organizations of the federation subject. However, in 2014 the Kursk region was the third in the competitiveness rating among the regions of the Central Black Earth economic region. In 2014 the largest profit was obtained by manufacturing, agricultural and construction organizations, while the companies involved in real estate operations demonstrated losses[18]. The region has an extremely low share of innovational active enterprises, which causes the low competitiveness of regional products (goods and services).

[15] Saldirovannyi finansovyi rezultat lipetskikh predpriyatii uvelichilsya v 30 raz. Available at: http://www.lipetskmedia.ru/news/view/50359-Saldirovanniii.html

[16] Finansovyi rezultat belgorodskikh kompanii za god upal na tret. Available at: https://123ru.net/belgorod/141327168/

[17] Saldirovannyi finansovyi rezultat predpriyatii regiona v 2017-om v 2 raza menshe, chem v 2016-om. Available at: http://rating-news.ru/?id=47d69

[18] Saldirovannaya pribyl predpriyatii Kurskoi oblasti v I kvartale upala na 36%. Available at: http://www.interfax-russia.ru/Center/print.asp?id=504634&type=news

In order to forecast the competitiveness of the regions of the Central Black Earth economic region, the authors calculated the integral competitiveness indicators for 2004 – 2018. Fig. 2 shows their dynamics.

It is necessary to note that in the Belgorod and Kursk regions the average increase in competitiveness for 2004 – 2018 is negative ((-0.007) and (-0.002), respectively). Due to this, forecasting values of competitiveness of these regions were not calculated.

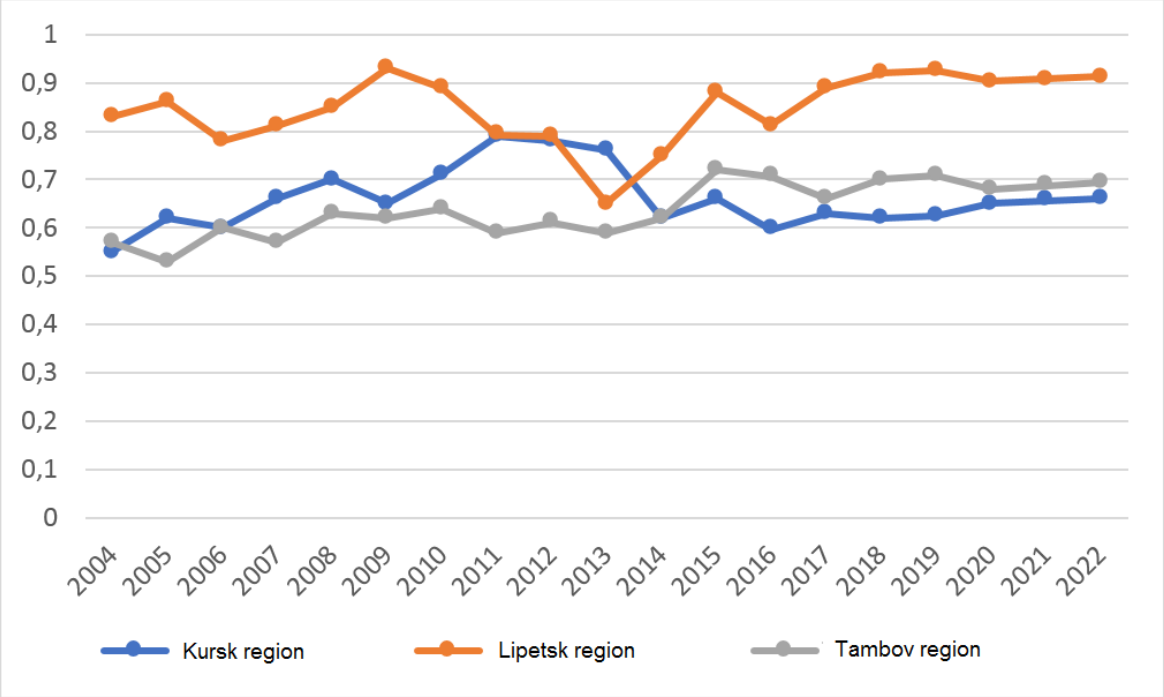

Fig. 2
Dynamics of the Integrated Indicator of Competitiveness of a Region
Calculated and compiled by the authors

Figure 2 and Table 3 show the forecast values obtained by using formula (3).

Regions	Estimate	Forecast		
	2019	2020	2021	2022
Kursk region	0.625	0.65	0.655	0.661
Lipetsk region	0.9264	0.904	0.908	0.913
Tambov region	0.7093	0.68	0.687	0.694

Calculated by the authors

Table 3
Forecast Values of the Competitiveness of the Regions of the Central Black Earth Economic Region

The analysis of the estimated and forecast data presented in Table 3 indicates that the values of competitiveness during 2019 – 2024 will not change considerably. This trend is due to the extremely low average growth rate of the competitiveness indicator of the Kursk, Lipetsk and Tambov regions (0.005, 0.0064, and 0.0093, respectively).

According to the estimates, the competitiveness of the Kursk region for 2019 – 2022 will increase only by 0.036 units. The *Long-Term Forecast of the Socio-Economic Development of the Kursk Region*[19] identifies the following factors of the internal constraint on the economic growth:

– Reduction of the share of the working-age population in the total number of population and the simultaneous increase in the share of the population that is older than the working age,

– High competition in placing investment projects with neighboring regions, primarily with the subjects of the Central Black Earth economic region,

– High degree of depreciation of fixed assets, weak pace of technical re-equipment,

– Imbalance of the regional settlement system, the existing differentiation in the development of municipalities,

– Insufficient level of innovative development of the economy, and

– Limited budget funds.

The reduction of the above threats and risks that restrain the development of the region will improve the competitiveness of the Kursk region.

According to the forecast estimates, in 2022 the Lipetsk region will still be the leader in competitiveness among the regions of the Central Black Earth economic region. However, along with the achieved positive results, at present, there are some restrictions that impede the further socio-economic development of the region, including the ones that affect its competitiveness:

– The imperfection of state regulation mechanisms and the lack of state support measures from the federal budget restrain the development of collective forms of ownership – cooperatives and national enterprises,

– The high cost of bank loans and the absence of preferential rates for banks with state participation in lending to import-substituting investment projects under economic sanctions reduce the efficiency of state support and can cause the freeze of investment projects that are implemented and offered for implementation,

– Insufficient level of the innovative activity of industrial enterprises of the region,

– Insufficient growth rates of labor productivity, and

– High energy intensity of the regional economy[20].

[19] Dolgosrochnyi prognoz sotsialno-ekonomicheskogo razvitiya Kurskoi oblasti. Available at: http://adm.rkursk.ru/index.php?id=1631&mat_id=91207

[20] Poyasnitelnaya zapiska k utochnennomu prognozu sotsialno-ekonomicheskogo razvitiya Lipetskoi oblasti na 2019 god i na planovyi period 2020-2021 godov. Available at:

In 2019 – 2022 the absolute importance of the competitiveness of the Tambov region (Table 3) is considerably lower than that of the leading region. The main problems restraining the socio-economic development and, as a result, the improvement of the Tambov region's competitiveness include the geopolitical tension, the negative consequences of sanctions and countersanctions that decreased the consumer demand and population's income, the decline of the growth rate of retail trade and paid services to the population, as well as the rise in the cost of credit resources. Against the background of underfunding from budgetary sources, this slowed the terms of investment projects and lowered investments in new large-scale projects[21].

Discussion

The issues on improving the competitiveness are actively considered by Russian scientists. In particular, N.N. Grineva studies the competitiveness of the regions of the Central Black Earth economic region and comes to the similar conclusion that the improvement of the region's competitiveness is based on the creation of industry and inter-industry clusters focused on interregional and foreign markets. Fig. 3 shows the main areas of improving the competitiveness of the regions.

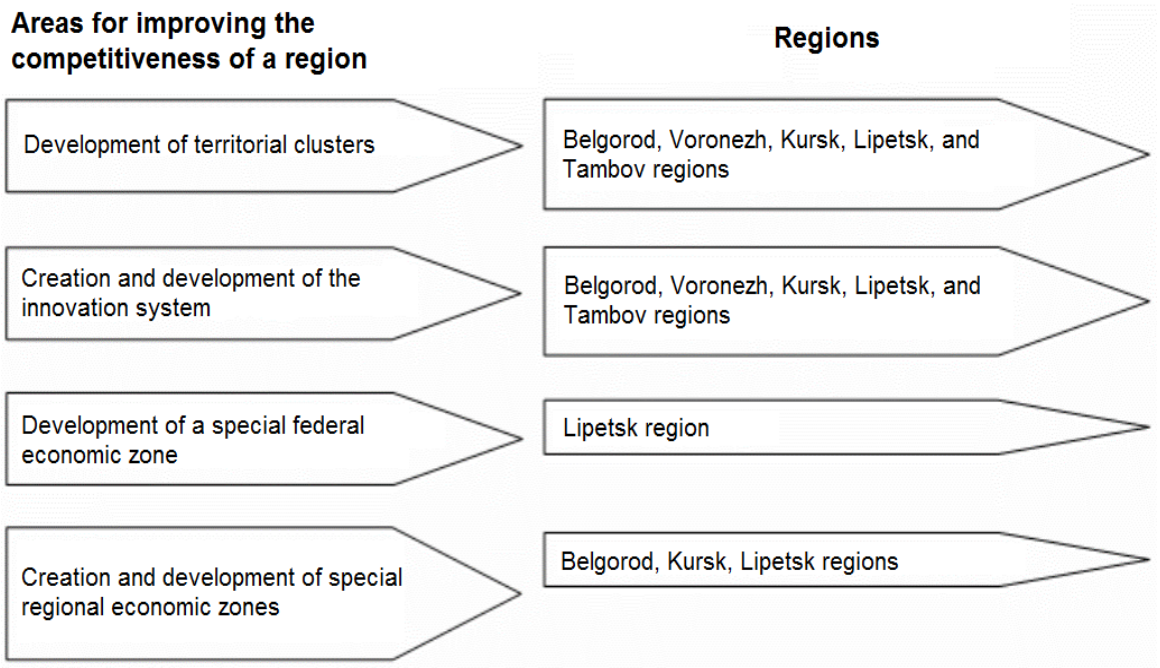

Fig. 3
Basic Areas of Improving the Competitiveness of the Regions of the Central Black Earth Economic Region[22]

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http://admlip.ru/activities/docs/obshchestv-obsuzhdenie-proektov/proekt-utochnennogo-prognoza-sotsialno-ekonomicheskogo-razvitiya-lipetskoy-oblasti-na-2019-god-i-na-/

[21] Poyasnitelnaya zapiska po osnovnym parametram utochnennogo prognoza sotsialno-ekonomicheskogo razvitiya Tambovskoi oblasti na 2018 god i planovyi period 2019 i 2020 godov. Available at: https://pandia.ru/text/80/502/60630.php

[22] Usloviya i faktory konkurentosposobnosti regionov tsentralnogo federalnogo okruga. Available at: http://disus.ru/r-ekonomika/422440-1-usloviya-faktori-konkurentosposobnosti-regionov-centralnogo-federalnogo-okruga.php

The issues of forecasting the competitiveness of regional economies are also studied in the works of Russian authors. In particular, this scientific article offers the model for forecasting the improvement of competitiveness of territories, taking into account indicators of the advanced development[23]. The advantage of the competitiveness forecasting method used by the authors is that it allows determining not only the dynamics of competitiveness in the future, but also certain time (year) of the region under study when it will become a leader among potential competitors. This can serve as a guideline when developing a strategy for the socio-economic development and strategic planning of the region's economic activity.

Conclusion

For forecasting purposes, the economic and mathematical model has been developed. It takes into account the basic level of competitiveness of the regions, the average rate of change of the indicator under study, as well as the time. The model allows forecasting the values of competitiveness of the regions and substantiating efficient management decisions aimed at improving their competitiveness.

During the study, the authors have analyzed the dynamics and developed the forecast of the competitiveness of the regions of the Central Black Earth economic region of Russia.

The forecast estimates have shown that in the medium term, the trends in the dynamics of competitiveness of the regions will continue: the Lipetsk region will maintain its leading positions, and the Kursk region will most likely remain the outsider region.

It has been determined that in the foreseeable future the following particular indicators of competitiveness will have impact on the competitiveness of regions (Table 4).

Particular indicators of competitiveness	Regions		
	Kursk	Lipetsk	Tambov
Profitability of GRP, %	strong	strong	weak
Share of investments in fixed assets in GRP, %	strong	strong	strong
Share of innovatively active enterprises, %	weak	strong	strong
Proportion of small enterprises in the total number of registered enterprises, %	weak	strong	strong
Number of students in higher educational institutions per 10,000 people, persons	strong	weak	weak
Incidence of the population per 1,000 people in the region	strong	weak	weak

Compiled by the authors

Table 4

Impact of Particular Indicators on the Competitiveness of the Region

In the Kursk region, the share of innovative active enterprises is extremely low, and the share of small enterprises in the total number of enterprises registered in the region is noticeably lower as compared to the competing regions. The low values of these indicators

[23] V. M. Ramzaev; E. A. Kukolnikova y S. I. Nesterova, Prognozirovanie dinamiki rosta konkurentosposobnosti territorii na osnove indikatorov operezhayushchego razvitiya. Available at: https://science-education.ru/ru/article/view?id=16011

determine the values and the competitiveness rating of the Kursk region as an outsider region. In the Lipetsk and Tambov regions, the particular indicators of competitiveness characterizing the social area (the number of students of higher educational institutions and the incidence of the population) are lower as compared to other regions of the Central Black Earth economic region, which affects the competitiveness of the regions. In addition, it is necessary to note that the Tambov region demonstrated low GDP profitability, which largely determines the low competitiveness of the region.

References

Andreev, V. A. Konkurentosposobnost regiona i metodika ee otsenki. Yaroslavl: Publishing House of the Yaroslavl University. 2000.

Azoev, G. L. y Chelenkov, A. P. Konkurentnye preimushchestva firmy. Moscow: News. 2000.

Dolgosrochnyi prognoz sotsialno-ekonomicheskogo razvitiya Kurskoi oblasti. Available at: http://adm.rkursk.ru/index.php?id=1631&mat_id=91207

Eliseeva, I. I. y Egorov, I. I. et al. Statistika. Moscow: Velby TC; Prospect Publishing House. 2004.

Fathutdinov, R. A. Konkurentosposobnost: Rossiya i mir. 1992-2015. Moscow: Economy. 2005.

Finansovyi rezultat belgorodskikh kompanii za god upal na tret. Available at: https://123ru.net/belgorod/141327168/

Foundation Focus – Social dialogue: For a competitive, fair and modern Europe. Available at: https://www.eurofound.europa.eu/publications/foundation-focus/2015/industrial-relations/foundation-focus-social-dialogue-for-a-competitive-fair-and-modern-europe

Freydina, E. V. Issledovanie sistem upravleniya. Moscow: Omega-L Publishing House. 2008.

Gardiner, B.; Martin, R. y Tyler, P. “Competitiveness, Productivity and Economic Growth across the European Regions”. Regional Studies num 38 (2004):1045 – 1067.

Godin, A. Statistika. 2nd edition, amended. Moscow: Dashkov&Co. Publishing and Trading Corporation. 2003.

Grishin, A. F.; Kotovdarti, S. F. y Yagunov, V. N. Statisticheskie modeli v ekonomike. Rostov-on-Don: Fenix. 2005.

Indeks konkurentosposobnosti regionov AV RCI — polyusa rosta Rossii [Index of competitiveness of regions AV RCI — Russian growth poles]. Available at: http://av-group.ru/av-strategy/av-rci/

Joint Research Centre. Available at: https://ec.europa.eu/

Kazantsev, S. V. “Potentsial ekonomiki regionov Rossii kak osnova ikh vnutrennei konkurentosposobnosti”. Region num 1 (2004): 191–199.

Kiseľáková, D.; Šofranková, B.; Čabinová, V. y Onuferová, E. “Competitiveness and sustainable growth analysis of the EU countries with the use of Global Indexes' methodology”. Entrepreneurship and Sustainability Issues 5 Vol: 3 (2018): 581-599.

Korauš, A.; Mazák, M. y Dobrovič, J. „Quantitative analysis of the competitiveness of Benelux countries“. Entrepreneurship and Sustainability Issues 5 Vol: 4 (2018): 1069-1083.

Poyasnitelnaya zapiska k utochnennomu prognozu sotsialno-ekonomicheskogo razvitiya Lipetskoi oblasti na 2019 god i na planovyi period 2020-2021 godov. Available at: http://admlip.ru/activities/docs/obshchestv-obsuzhdenie-proektov/proekt-utochnennogo-prognoza-sotsialno-ekonomicheskogo-razvitiya-lipetskoy-oblasti-na-2019-god-i-na-/

Poyasnitelnaya zapiska po osnovnym parametram utochnennogo prognoza sotsialno-ekonomicheskogo razvitiya Tambovskoi oblasti na 2018 god i planovyi period 2019 i 2020 godov. Available at: https://pandia.ru/text/80/502/60630.php

Ramzaev, V. M.; Kukolnikova, E. A. y Nesterova, S. I. Prognozirovanie dinamiki rosta konkurentosposobnosti territorii na osnove indikatorov operezhayushchego razvitiya. Available at: https://science-education.ru/ru/article/view?id=16011

Saldirovannaya pribyl predpriyatii Kurskoi oblasti v I kvartale upala na 36%. Available at: http://www.interfax-russia.ru/Center/print.asp?id=504634&type=news

Saldirovannyi finansovyi rezultat lipetskikh predpriyatii uvelichilsya v 30 raz. Available at: http://www.lipetskmedia.ru/news/view/50359-Saldirovanniii.html

Saldirovannyi finansovyi rezultat predpriyatii regiona v 2017-om v 2 raza menshe, chem v 2016-om. Available at: http://rating-news.ru/?id=47d69

Usloviya i faktory konkurentosposobnosti regionov tsentralnogo federalnogo okruga. Available at: http://disus.ru/r-ekonomika/422440-1-usloviya-faktori-konkurentosposobnosti-regionov-centralnogo-federalnogo-okruga.php

Zeibote, Z.; Volkova, T. y Todorov, K. “The impact of globalization on regional development and competitiveness: cases of selected regions”. Insights into Regional Development Vol: 1 num 1 (2019): 33-47.

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