

Directions of State Regional Policy of Spatial Development

Dmitriy Vasilyevich Tyutin, Alexander Viktorovich Gorbatov, Aleksandr Olegovich Gomaleev,
Natalia Vladimirovna Maslennikova, Lubov Konstantinovna Ulibina

Abstract: *The issues of spatial imbalances in the regional development of the Kaluga region are studied to substantiate the directions of regional spatial development policy. The paper proposes a multi-dimensional classification of municipal entities of the Kaluga region based on the municipal statistics of territorial development in terms of demography, social and economic status, infrastructure and investment. The conducted classification helped to identify groups of municipal entities with similar parameters and issues of socio-economic development. To improve the performance of the regional spatial development policy in the Kaluga region, the directions of its implementation are substantiated for each identified group of municipal entities. The proposed solutions help to differentiate the instruments of the regional policy taking into account the specifics of the development of municipal entities.*

Index Terms: *regional development, spatial imbalances, regional spatial development policy, Kaluga region.*

I. INTRODUCTION

The Decree of the President of the Russian Federation (RF) "On National and Strategic Development Objectives of the RF until 2024" No. 204 dated 7 May 2018 [1] sets forth the objectives of breakthrough scientific, technological and socio-economic development. The major set priorities of socio-economic development of the RF and regions near-term include maintaining steady natural population growth, real income growth, the improvement of living conditions, ensuring high growth rates, productivity improvement and employment support. The assessment of the governors' performance will be carried out according to the amendments introduced in the Decree of the President of the RF "On Assessment of Performance of Government Authorities in the RF Federal Subjects" No. 548 dated 14 November 2017 [2], taking into account 15 criteria of regional authority performance. The economic criteria include real average monthly salary and poverty levels. A

significant economic indicator is fixed capital investment. Non-economic indicators include infrastructure (share of regional motorways compliant with the set requirements) and social (life expectancy, parameters of improvements). Therefore, federal policy has adopted a stronger focus on the levelling-off of spatial differentiation in the levels of social, economic and infrastructure development of the RF territories.

II. PROBLEM SETTING

The purpose of the paper is to assess spatial imbalances in the social, economic, infrastructure and investment development of municipal entities of the Kaluga region and substantiate the directions of regional policy in mitigating differentiation in territorial development.

III. RESULTS

In accordance with the Decree of the President of the RF "On Assessment of Performance of Government Authorities in the RF Federal Subjects" No. 548 dated 14 November 2017, ensuring positive steady change in line with the 15 performance criteria of regional authority performance becomes the area of competence of regional authorities, which are required to promote quality development of territories of the RF subjects. This constitutes, in our view, a major managerial problem, as the majority of subjects of the RF are still haunted by the problems of spatial imbalances. The problem of spatial imbalances in regional development has numerous aspects to it, which is reflected in the works by many researchers [3-9]. The cumulative nature of social issues and environmental conditions, the state of social, engineering, and general-purpose infrastructure of municipal entities has led to the depopulation of the territories, considerable declines in their investment, business and tourist attractiveness. A number of researchers make the point that the current situation will require considerable effort from regional authorities to mitigate spatial differentiation and balance socio-economic development within regions [10-14]. This objective is equally significant for the regions with unrealised growth potential and federal subjects holding leading positions in national rankings by various indicators of social, economic, innovation development, industry-level development (manufacturing, agriculture, tourism and entertainment industry, logistics, digitalisation, etc.). According to A. I.

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* Correspondence Author (s)

Dmitriy Vasilyevich Tyutin*, Kaluga Branch of RANEPa, Kaluga, Russia.

Alexander Viktorovich Gorbatov, Kaluga Branch of RANEPa, Kaluga, Russia.

Aleksandr Olegovich Gomaleev, Kaluga Branch of RANEPa, Kaluga, Russia.

Natalia Vladimirovna Maslennikova, North Caucasus Federal University (NCFU), Stavropol, Russia.

Lubov Konstantinovna Ulibina, Kuban State Agrarian University named after I.T. Trubilin (FSBEI HE Kuban SAU), Krasnodar, Russia.

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Tatarkin, "In a market economic system, the territorial authorities inevitably turn into market agents and, in essence, into corporations designed, on the one hand, to provide for the public needs of people and commercial entities with the works, services and other public benefits and, on the other hand, to exercise these obligations and powers based on their cost-effectiveness by introducing, to a limited extent, payment for provision of public benefits and services to people and businesses, by expanding the revenue base of the region through development of production capabilities, by facilitating the development of small and medium-sized businesses, and by increasing the employment of the population" [15, p. 18]. In recent years, the Kaluga region has quite often appeared in various national rankings close to the top and was praised by the national leadership as of the leading regions. At the same time, the existing positive development trend in the region's social, economic, investment and other areas has failed to cardinal solve the problem of intraregional imbalances, and the implementation of major investment projects, while bringing considerable multiplication effects, has not covered the whole territorial scope. In fact, no such objective was contemplated in the implementation of these projects in the first place, as it is hardly achievable. However, addressing socio-economic balancing requires joint efforts of regional and municipal authorities to stimulate additional social and economic activity in municipal entities in the Kaluga region. As to the current state of spatial imbalances, there is no crisis in the Kaluga region in terms of the levels of territorial differentiation. However, there are municipal entities with high levels of socio-economic dynamics and weights of localised resources as compared to other entities with low demographic, infrastructure, investment and fiscal profiles. This paper proposes a multi-dimensional classification of municipal entities in the Kaluga region based on the municipal statistics characterising to some extent the preconditions and prospects of the regional authorities' performance in implementing the decree of May 2018. As part of the multi-dimensional classification, municipal entities in the Kaluga region were grouped into blocks by the

indicators of the region's social, economic and infrastructure development. The analysis was based on the available figures of municipal statistics associated in essence with the criteria of assessment of the performance of regional authorities. The latter were grouped as follows: sociodemographic indicators (population numbers and density, natural population growth and balance); physical infrastructure indicators (road density, housing per capita, share of dilapidated housing, housing construction rates); social infrastructure indicators (availability of preschool education institutions, cultural and recreational organisations, medical staff sufficiency); financial and economic indicators (unemployment, business turnover, average fiscal capacity); indicators of investment activities of the municipal entity. It is worth noting that none of the above blocks of indicators was prioritised in shaping the assessment algorithm. However, the indicators of the sociodemographic block were used as the "entry" criterion in conducting the multi-dimensional classification. The rationale for this choice is obvious: today, business capital and development resources are redistributed to those destinations where the major competence is localised, that is, human capital, people. High population levels in an area predetermine its growth potential and, at the same time, issues in terms of the quality of environmental conditions, the state of infrastructures, and job availability, including skilled jobs. The modern-day population human flows are skewed toward locations with comfortable and favourable conditions and with the availability of relatively high-productive jobs. Vice versa, high population levels in areas with inferior habitual structure quality will exert a certain pressure on the social and physical infrastructure, while the lack of jobs and the subsequent stagnation of the territorial economic basis will bring down the government's potential in implementing the development projects. By this logic, the second criterion in the assessment of spatial imbalances is the block of development indicators of physical and social infrastructure. The data in Table 1 shows that, based on the levels of demographic development, the municipal entities of the Kaluga region (urban districts and municipal districts) can be divided into three classification groups.

Table 1. Grouping of municipal entities of the Kaluga region by sociodemographic indicators

Urban district, municipal district	Share of population, %	Population density, people per ha	Migration balance, per 1,000 population	Natural population growth (loss)
Kaluga region (median)	1.45	0.13	-0.315	-8.35
First group				
Kaluga urban district	35.3	6.53	-0.85	-1.6
Obninsk urban district	11.4	26.77	12.08	0.1
Borovsky district	6.1	0.81	4.61	-2.3
Zhukovsky district	5.2	0.42	23.70	-1.9
First group (median)	8.75	3.67	8.345	-1.75
Second group				
Babyninsky district	1.8	0.22	-14.55	-4.9
Dzerzhinsky district	5.2	0.40	1.55	-7.4
Duminichsky district	1.4	0.12	3.98	-9.6
Zhizdrinsky district	1.0	0.08	2.61	-10.2
Kirovsky district	4.0	0.40	-1.61	-7.2

Kozelsky district	3.6	0.24	-7.48	-6.7
Lyudinovsky district	4.2	0.44	-8.77	-6.1
Maloyaroslavetsky district	4.9	0.32	-3.09	-5.6
Medynsky district	1.3	0.11	15.65	-10.9
Peremyshlsky district	1.4	0.12	-5.78	-8.2
Sukhinichsky district	2.3	0.19	-3.23	-8.5
Tarusky district	1.5	0.21	-0.53	-11.1
Ferzikovsky district	1.8	0.14	17.45	-4.4
Second group (median)	1.8	0.21	-1.61	-7.4
Third group				
Baryatinsky district	0.6	0.05	-1.99	-9.4
Iznoskovsky district	0.7	0.05	12.90	-11
Kuybyshevsky district	0.8	0.06	-2.50	-11.3
Mosalsky district	0.9	0.07	15.69	-9.2
Meshchovsky district	1.2	0.10	-51.00	-5.8
Spas-Demensky district	0.7	0.05	7.43	-14
Ulyanovsky district	0.7	0.04	9.66	-9.1
Khvastovichsky district	1.0	0.07	-0.10	-9.9
Yukhnovsky district	1.1	0.08	-7.11	-9
Third group (median)	0.8	0.06	-0.1	-9.4

The distribution of municipal entities of the Kaluga region was based on the multi-dimensional statistical grouping by various indicators of municipal statistics. The best approach illustrating the distribution and the corresponding differences in the regional demographic indicators is to use median values. As can be seen from the presented assessments, the first group includes territories with their median values significantly above the regional medians. These include urban districts (regional "capitals"), namely, the cities of Kaluga and Obninsk, and municipal entities constituting the so-called Moscow wedge, i.e., the territories having a common border with the Moscow region and, subsequently, subject to the positive influence of such neighbourhood. The examples of such influence include the deployment of major production facilities in industrial parks having a macroregional specialisation, advantageous logistics and infrastructure in place. The second group of municipal entities is formed by the territories determining the profile of development of the Kaluga region and, therefore, quite typical for the region in general. The medians of this group are relatively close to the regional medians. However, within the group, there is a certain noticeable differentiation of values, which might predict considerable shifts within this group of municipal entities as they are assessed by other blocks of indicators. The third group of municipal entities includes the territories with the sharpest profile of depopulation processes characterised by low population numbers and density and negative balances of natural population growth and migration. The group's medians are considerably lower compared to the regional medians. However, the makeup by individual indicators is also showing considerable differences. For instance, the Mosalsky and Iznoskovsky districts are falling out considerably, with high migration increase levels. However, the respective values are due not as much to the absolute migration inflows, as to the effect of low base numbers, i.e., low population numbers in these districts as a result of territorial depopulation. However, no conclusion about the stability of the composition of this group could be drawn from the

demographic indicators, and therefore, it's going to be reworked with other groups of indicators.

The accomplished multi-dimensional classification enabled us to form groups of municipal entities close by their demographic profiles and, presumably, similar development issues. However, whether this assumption is true will be established with a complete classification of municipal entities of the Kaluga region as a result of the formation of typological groups. The proposed logic of the multi-dimensional statistical grouping of municipal entities with subsequent verification of correctness using median values is further applied for infrastructure and financial and economic indicators. Apparently, it is not the mechanism of classification but rather the resulting distribution of the municipal entities of the Kaluga region that is of interest, as the mechanism is the same. The gradual application of the layers of classification using the identified blocks will produce groups of entities with similar landscape factors, which will help to determine the directions of regional policy of spatial development and mitigating regional imbalances in the Kaluga region. As can be seen from Table 2, the composition of the groups changed; the Maloyaroslavetsky district joined the first "leader" group. This municipal entity is the absolute leader by per capita housing and shows strong results by housing construction rates and low weight of dilapidated housing. The first group's median values are above the regional medians, as well as in the previous classification. As an exception, per capita housing is 0.5 sq. m below the regional level. However, as long as the first group includes two urban districts, such gap is objective. Traditionally, property prices are higher in cities; therefore, the relative share of housing area per capita is lower. Moreover, the lifestyles of modern urban citizens are considerably different from those of the residents of rural or smaller urban locations where a considerable share of subsistence functions are administered in the households, which implies larger living spaces.

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Table 2. Grouping of municipal entities of the Kaluga region by the indicators of physical infrastructure

Urban district, municipal district	Road density	Engel coefficient	Housing per capita (per one resident), sq. m.	Relative share of dilapidated housing, %	Housing commissioning per 1,000 population, sq. m.
Kaluga region (median)	0.017	0.00448	31.7	1.6	561
First group					
Kaluga urban district	0.019	0.00061	25.3	4.8	861
Obninsk urban district	0.020	0.00072	26.3	0	1188
Borovsky district	0.037	0.00407	33	0	1772
Zhukovsky district	0.028	0.00428	31.2	0	1195
Maloyaroslavetsky district	0.019	0.00334	41.6	0.3	1302
First group (median)	0.02	0.00334	31.2	0	1195
Second group					
Babyninsky district	0.022	0.00480	28.4	0.4	561
Baryatinsky district	0.017	0.00730	36.6	6.8	346
Dzerzhinsky district	0.024	0.00373	31.5	0.3	593
Kirovsky district	0.020	0.00316	27.8	1.6	175
Kozelsky district	0.016	0.00326	30.8	2.4	726
Lyudinovsky district	0.017	0.00258	26	1.3	685
Medynsky district	0.014	0.00424	36.9	0.3	726
Mosalsky district	0.017	0.00656	42.1	2.4	273
Peremyshlsky district	0.019	0.00551	32.5	6.6	773
Sukhinichsky district	0.017	0.00398	31.7	8.3	3,700
Tarussky district	0.017	0.00370	43.7	1.6	1,860
Ferzikovsky district	0.017	0.00459	28.3	0	806
Yukhnovsky district	0.016	0.00566	47.3	7.8	387
Second group (median)	0.017	0.00424	31.7	1.6	685
Third group					
Duminichsky district	0.017	0.00509	30.6	0.9	234
Zhizdrinsky district	0.015	0.00533	27.1	0	311
Iznoskovsky district	0.015	0.00663	34.7	1.8	538
Kuybyshevsky district	0.014	0.00533	35.1	26.9	179
Meshchovsky district	0.017	0.00646	28.9	23.7	381
Spas-Demensky district	0.017	0.00733	41.5	2.8	186
Ulyanovsky district	0.012	0.00567	40.7	0.5	333
Khvastovichsky district	0.012	0.00448	41.6	5.3	131
Third group (median)	0.015	0.0055	34.9	2.3	272.5

A comparison of the geographical distribution of municipal entities by the demographic profile and the state of physical infrastructure indicates there is similarity in the grouping results. Taking into account the indicators of social infrastructure development, as shown in Table 3, results in significant changes to the composition of the previously established groups. However, in our view, these conclusions

should be accepted with a degree of criticism. High levels of socio-economic infrastructure indicators for some of the regions are not primarily a reflection of improved availability of social services to the residents but are rather due to the observed depopulation processes, lower population numbers and the proportional growth of statistical adequacy rates.

Table 3. Grouping of municipal entities of the Kaluga region by the indicators of social infrastructure

Urban district, municipal district	Number of children per 100 places in preschool educational institutions	Hospital beds per 10,000 of population	Number of doctors per 10,000 of population	Number of cultural and recreational organisations per 1,000 population
Kaluga region (median)	98	28.9	16.9	0.82
First group				
Kaluga urban district	121	122	60.1	0.06
Obninsk urban district	99	99.9	59.7	0.03
Kirovsky district	93	52.1	24	0.54
Kozelsky district	98	32.3	54.3	0.41

Kuybyshevsky district	83	35	62.5	1.75
Ulyanovsky district	100	61.6	15.4	2.10
First group (median)	98.5	56.85	57	0.475
Second group				
Baryatinsky district	95	33.2	11.6	2.16
Borovsky district	100	40.8	22.8	0.24
Duminichsky district	88	14.9	13.5	1.28
Zhizdrinsky district	90	25.2	12.6	1.45
Iznoskovsky district	91	14.7	14.7	1.17
Lyudinovsky district	96	34.2	22.2	0.19
Medynsky district	69	33.5	16.4	0.86
Mosalsky district	100	27.9	16.3	2.09
Peremyshlsky district	98	21	16.1	1.10
Sukhinichsky district	94	38.8	16.4	0.82
Second group (median)	94.5	30.55	16.2	1.135
Third group				
Babyninsky district	110	12.5	16.9	0.93
Dzerzhinsky district	101	28.9	16.4	0.43
Zhukovsky district	102	11.5	15.3	0.32
Maloyaroslavetsky district	101	39.4	24.5	0.34
Meshchovsky district	101	16.4	39.4	1.07
Spas-Demensky district	113	28.9	20.7	1.93
Tarussky district	161	31.3	18	0.67
Ferzikovsky district	37	13.9	15.5	0.78
Khvastovichsky district	85	25.3	19.4	0.78
Yukhnovsky district	84	13.9	21.3	1.20
Third group (median)	101	20.85	18.7	0.78

Population declines in the areas in the past years now predetermine the sound rates of availability of preschool education and recreational institutions, as well as medical staff sufficiency. However, this is not due to the growth of social infrastructure but to the decline in the number of service recipients. On the other hand, actively developing municipal entities, such as the Dzerzhinsky and Zhukovsky districts, fall into the third group. However, the reason for this displacement is not the degradation of social infrastructure of

these and some other territories, but, in contrast, the advanced rates of economic development and the corresponding population growth, which statistically point at lagging social infrastructure development. Therefore, at this stage of analysis, the lack of accounting for the economic factor is felt. The existing contradictions in the grouping of municipal entities of the Kaluga region based on the demographic and social infrastructure indicators can be mitigated by the application of financial and economic criteria.

Table 4. Grouping of municipal entities of the Kaluga region by financial and economic indicators

Urban district, municipal district	Unemployment, %	Average monthly nominal gross payroll, roubles	Relative share of business turnover, thousand roubles	Retail sector turnover per capita, million roubles	Average fiscal capacity per capita, thousand roubles
Kaluga region (median)	0.8	26,078	1,031.82	0.04	32.285
First group					
Kaluga urban district	0.3	39,653	4,839.61	0.13	30.644
Obninsk urban district	0.4	46,067	3,082.86	0.10	33.933
Borovsky district	0.4	47,475	9,889.51	0.07	24.488
Zhukovsky district	0.3	37,501	2,638.24	0.05	22.555
Maloyaroslavetsky district	0.5	36,226	3,754.21	0.09	28.651
First group (median)	0.4	39,653	3,754.21	0.09	28.651
Second group					
Babyninsky district	0.6	32,272	1,337.71	0.04	31.516

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Dzerzhinsky district	0.5	31,195	2,143.81	0.05	29.053
Kozelsky district	0.8	30,511	1,031.82	0.05	29.413
Lyudinovsky district	0.8	26,845	1,485.34	0.03	30.611
Peremyshlsky district	0.5	28,452	1,575.63	0.01	38.955
Sukhinichsky district	0.5	26,078	869.27	0.04	30.643
Tarussky district	0.4	29,955	827.83	0.06	28.303
Ferzikovsky district	0.5	31,506	3,066.36	0.02	31.485
Second group (median)	0.5	30,233	1,411.525	0.04	30.627
Third group					
Baryatinsky district	1.2	23,871	423.80	0.04	34.740
Duminichsky district	1.4	20,377	375.33	0.03	34.184
Zhizdrinsky district	1.0	21,725	517.00	0.03	37.893
Iznoskovsky district	1.1	25,053	966.60	0.20	35.543
Kirovsky district	1.3	27,876	1,251.82	0.01	22.933
Kuybyshevsky district	1.3	22,097	202.13	0.01	50.541
Medynsky district	1.4	23,678	799.63	0.04	32.285
Meshchovsky district	1.6	23,706	1,412.00	0.03	32.412
Mosalsky district	1.2	22,076	331.11	0.03	41.397
Spas-Demensky district	1.8	24,119	934.55	0.02	39.678
Ulyanovsky district	1.2	23,458	262.17	0.00	40.589
Khvastovichsky district	0.8	21,978	457.69	0.02	52.654
Yukhnovsky district	1.3	24,978	1,245.00	0.05	35.751
Third group (median)	1.3	23,678	517	0.03	35.751

The extension of the above classification taking into account the analysis of financial and economic development indicators of municipal entities of the Kaluga region indicates similarity of assessments obtained in the first two blocks of indicators, namely, demographic development and physical infrastructure development. Based on the obtained results, one can with greater confidence observe that the leader (green) group of municipal entities comprises territories with the best demographic results and relatively developed

infrastructure. Vice versa, territories characterised by the lowest demographic development profile but at the same time demonstrating a high level of sufficiency of social infrastructure belong, in terms of economics, to the third (red) group. As follows from Table 5, the grouping of municipal entities of the Kaluga region by investment activity indicators demonstrates the high potential of municipal entities not necessarily present in the leader (green) group in previous classifications.

Table 5. Grouping of municipal entities of the Kaluga region by the indicators of investment activity

Urban district, municipal district	Relative weight of fixed capital investment in the overall regional fixed capital investment, %	Fixed capital investment per 1 enterprise employee, thousand roubles	Fixed capital investment from municipal budgets per 1 enterprise employee, thousand roubles	Capital/labour ratio, thousand roubles
Kaluga region (median)	0.8	154,412.27	0.37	486.52
First group				
Borovsky district	35.36	791,111.54	4.10	6,468.77
Lyudinovsky district	16.23	668,515.23	0.72	1,975.91
Peremyshlsky district	10.62	2,406,025.00	0.31	5,348.75
Dzerzhinsky district	9.57	306,949.20	0.26	1,278.50
First group (median)	13.425	729,813.385	0.515	3,662.33
Second group				
Kaluga urban district	0.08	249.10	1.76	3,038.56
Obninsk urban district	0.02	323.59	0.32	1,447.17
Zhukovsky district	4.05	161,506.04	0.73	1,728.24
Kirovsky district	5.85	275,340.26	0.05	2,914.81
Kozelsky district	2.81	154,412.27	17.94	486.52
Maloyaroslavetsky district	3.86	147,377.68	0.30	1,813.79
Second group (median)	3.335	150,894.975	0.525	1,771.015

Third group				
Babyninsky district	1.54	159,556.29	0.37	939.43
Baryatinsky district	0.17	126,022.00	0.34	28.00
Duminichsky district	0.42	101,797.33	0.38	576.67
Zhizdrinsky district	0.47	168,861.00	0.10	24.00
Iznoskovsky district	0.10	75,546.00	0.37	132.00
Kuybyshevsky district	1.69	764,485.00	0.02	31.25
Medynsky district	0.80	107,452.96	0.55	1,555.56
Meshchovsky district	0.36	130,243.00	0.32	145.00
Mosalsky district	0.52	210,191.11	0.54	366.67
Spas-Demensky district	1.04	341,076.36	0.43	322.73
Sukhinichsky district	2.15	190,377.07	0.11	192.68
Tarussky district	0.31	49,385.65	2.09	134.78
Ulyanovsky district	0.05	29,205.00	2.03	71.67
Ferzikovsky district	1.12	183,875.00	0.40	9,256.36
Khvastovichsky district	0.52	144,212.31	0.36	406.15
Yukhnovsky district	0.28	57,016.67	0.08	196.67
Third group (median)	0.495	137,227.655	0.37	194.675

Remarkably, "capital" municipalities, namely, the Kaluga urban district and the Obninsk urban district, left the first group, which was made up by the municipalities localising more than 70% of the overall regional investment of the Kaluga region. This high investment localisation level of individual municipal entities is a consequence of the conducted regional policy aimed at steady development of territorial investment potentials. For more than ten years, major investment projects have been implemented in the region. The first successful outcomes of the regional policy are traditionally linked with the opening of car assembly facilities and autocomponent production in the Kaluga region. The first group of municipal entities of the Kaluga region with the best profile by investment indicators includes the Borovsky and Ludinovsky districts where the industrial Special Economic Zone of Kaluga is established. In the

Dzerzhinsky district, projects are implemented in construction materials manufacturing and pulp and paper production. Moreover, work is underway on establishing an area of advanced socio-economic development in the economy of the Dzerzhinsky district. In the Peremyshlsky district, major investment projects are conducted in agricultural production. Therefore, the accomplished multi-dimensional classification of municipal entities using the blocks of indicators produced typological groups of territories with close development parameters. The next objective is to aggregate the classification results into clusters (arrays) of municipal entities facing similar development issues. The first stage of clusterisation involves compiling groups of municipal entities by the blocks of demographic indicators and indicators of financial and economic development (Figure 1).

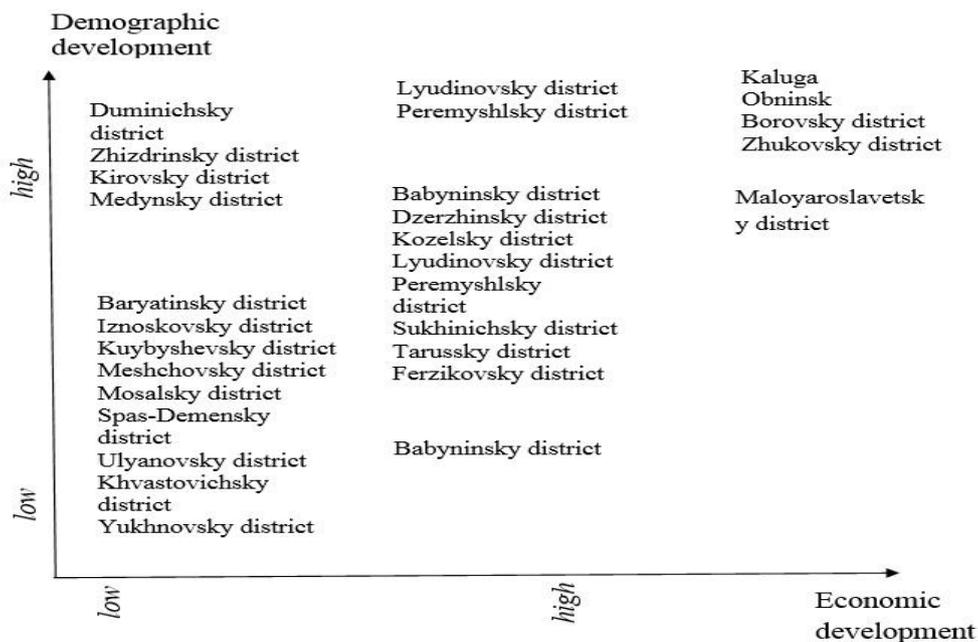


Fig. 1: Clusterisation of municipal entities by the criteria "Demography/Economy"



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As can be seen from the above clusterisation, all municipal entities of the Kaluga region, in terms of development issues, can be attributed to one of the clusters. The first cluster, with "poor" demographic and "poor" economic profile, is the most numerous. Territories with relatively sound demography and stagnating economy constitute the second cluster; they include four municipal districts (the Duminichsky, Zhizdrinsky, Kirovsky and Medynsky districts). The third cluster including territories with sound demography and sound economic development level is also quite big. Undoubted leaders of this cluster are exactly the same municipal entities, which appeared in the leader groups in various groupings: they are the Kaluga and Obninsk urban

districts, Zhukovsky, Borovsky and Maloyaroslavetsky municipal districts, i.e., the so-called "Moscow wedge". The application of the second clusterisation criterion, "Infrastructures/Investment" (Figure 2) enables additional refinement in terms of attractiveness of the territory for the residents and potential residents, as well as for businesses and potential investors. Just as with the first clusterisation, the affiliation of a municipality with a specific cluster is also determined here:

- low investment and "poor" infrastructures;
- low investment and "sound" infrastructures;
- high investment and "sound" infrastructures.

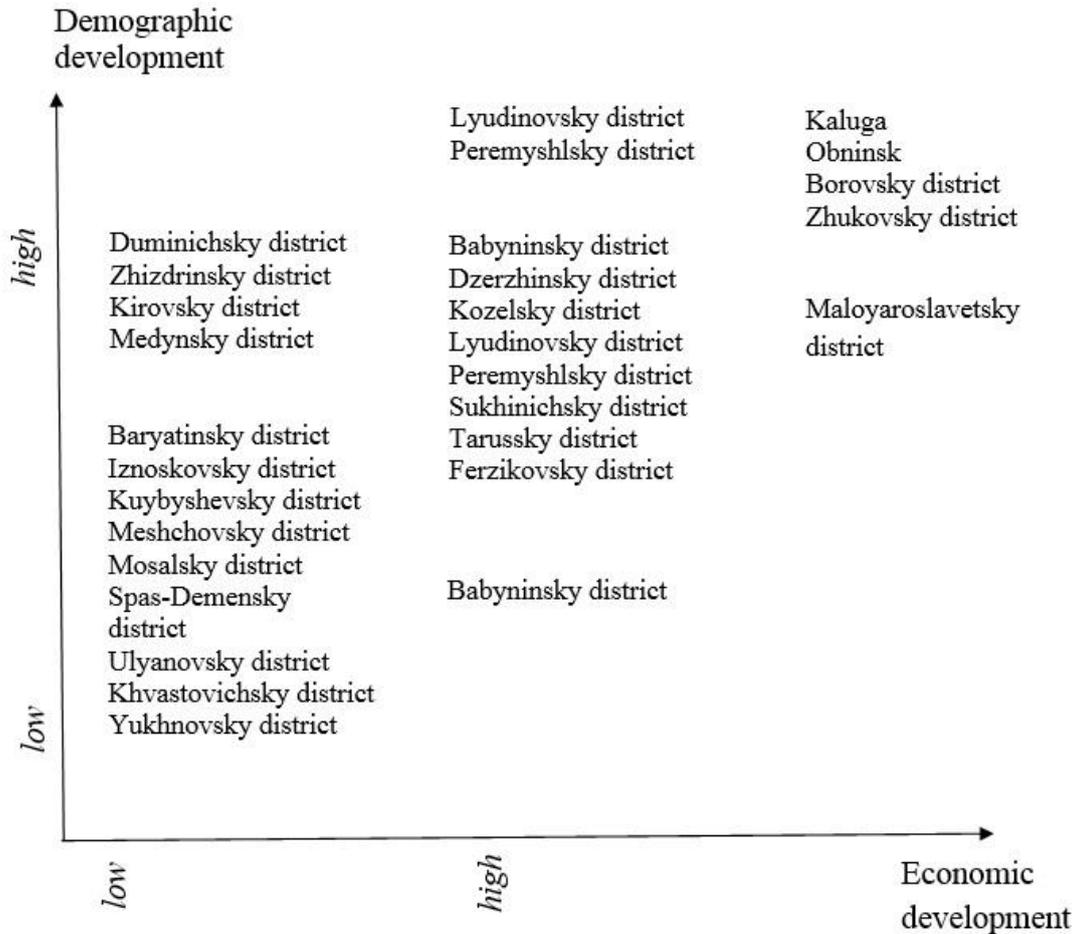


Fig. 2: Clusterisation of municipal entities by the criteria of "Infrastructures/Investment"

A comparison of the two clusterisation approaches shows that a considerable number of municipal entities fall within the low-profile zones in both cases. A comparison of the obtained assessments suggests that three groups of municipal entities of the Kaluga region can be drawn. For these groups, different tools of spatial development and mitigating

territorial imbalances should be applied. Taking into account the attained results of the regional socio-economic development and investment policy, all proposed directions of the regional spatial development policy can be determined along the lines of the terminology proposed by Ph. Kotler (Table 6).

Table 6. Directions of regional spatial development policy for municipal entities of the Kaluga regions

Direction of regional policy	Municipal entities	
"Bidding for smokestacks"	Babyninsky district, Baryatinsky district, Duminichsky district, Zhizdrinsky district, Iznoskovsky district, Kuybyshevsky district, Medynsky district, Meshchovsky district,	Mosalsky district, Spas-Demensky district, Sukhinichsky district, Tarussky district, Ulyanovsky district, Ferzikovsky district Khvastovichsky district, Yukhnovsky district
Target marketing of the territory	Dzerzhinsky district, Kirovsky district, Kozelsky district,	Lyudinovsky district, Maloyaroslavetsky district, Peremyshlsky district
Development of a competitive niche	Kaluga, Obninsk	Borovsky district, Zhukovsky district

According to A.B. Savchenko, "Regional and urban development, particularly in terms of changes of regional and urban territorial structure, shows considerable inertia. The existing specialisation, spatial orderliness, population and development levels were shaped over decades or even centuries and they are frequently a result of the interaction of many factors within the respective territory and beyond. Consequently, successful regional and urban development can be only based on a detailed analysis and use of the existing condition and major change trends.

The development objective is actually concerned with the most efficient "fitting" of the currently practicable actions, as well as those possible in the plan period, often quite moderate in their scope, into the identified "naturally existing" trends to achieve maximum intended outcome effect" [16, p. 85].

IV. CONCLUSION

As follows from the results of the conducted analysis, a significant range of municipal entities of the Kaluga region has lower development profile as compared to the region overall. The demography and economy of such territories, the state of infrastructures and investment development trends shape considerable imbalances in the development of the Kaluga region, which calls for working out specific separate measures of regional spatial development policy. In our view, regional policy in respect of such territories may, in essence, implement the concept of "bidding for smokestacks" proposed by Ph. Kotler [17]. The target function of such policy is job creation, primarily in industrial production. However, in our view, the implementation of the policy of attracting new production sites to such territories should not always be solely about industrial production. A principal feature of this group of municipal entities is stagnant or insufficiently dynamic economic base, limited supply of jobs, problems in the infrastructure. The identified municipal entities will need regional policy measures aimed at attracting an investor on a major scale relative to the resource potentials of these territories, meanwhile, in our view, attracted investment may not necessarily be associated with the existing economic profile of the local economy. Based on the existing development dynamics in the territories, the main rationale for attracting new investment into the municipal economy may be the relatively low cost level due to the utilisation of local resources, and regional projects aimed at the development of the required infrastructures of investment

sites. The second group of municipal entities of the Kaluga region, for which the targeted marketing policy is proposed, is characterised by moderate levels of socio-economic development. The respective municipal entities have already been engaged in the implementation of projects that might be characterised in terms of "bidding for smokestacks" in recent years. The result of such policy is the presence of "anchor" production or even industries. However, the dynamics of their development has yet failed to contribute the required growth rates, tax potential increase, technical modernisation and increases of highly productive jobs. Target marketing in respect of such territories, in our view, should be aimed at the development of target production and types of activities determined in the Strategy of Socio-economic Development of the Kaluga Region until 2030 [18]. An example of the successful regional policy implementation in respect of such territories is the establishment of the Lyudinovo site of the industrial Special Economic Zone of Kaluga. The presented measures are the result of the regional policy of the Kaluga region aimed at socio-economic development of municipal entities with direct engagement of federal authorities. Such initiatives are intended to create conditions for attracting high-marginal businesses by improving physical infrastructure and implementing efficient public-private projects. The third group of municipal entities comprises the regional leaders — the Kaluga and Obninsk urban districts, the Zhukovsky, Borovsky and Maloyaroslavetsky municipal districts located within the reach of the influence of the Moscow agglomeration. High results of socio-economic development of these territories are due to the implementation of large-scale investment and innovation projects and high-tech production. The most important of them are car assembly facilities and autocomponent production in Kaluga, the industrial park in Obninsk localising innovation development in pharmacy, cosmetology, food, the industrial park Vorsino in the Borovsky district and others. By now, these municipal entities have grown to the required level of economic activity, and the prospects of development will be probably concerned not with the further extensive buildup of investment capital, but rather the search of breakthrough development routes amid global competition.



The high level of territorial socio-economic development dynamics shapes the requirements to the environmental conditions accordingly. Capital and, primarily, human capital mobility brings in the need to prime the municipal economies for job creation in new industries, stimulating local entrepreneurial initiative and "nurturing" own business, developing technological resources and proactive training. Apart from that, post-industrial production poses advanced demands in terms of the quality of life. The ability of municipal authorities to respond to these demands going forward will shape the intensification or stagnation of economic activity in the areas. A significant threat to the development prospects of municipal entities of this group will be posed by the state of social infrastructures. It was observed as part of the analysis that intense socio-economic dynamics, i.e., growth of production, income levels, population inflows, created an increased burden on the social infrastructure of municipal entities, while its development is now lagging behind.

CONFLICT OF INTERESTS

The authors confirm that the presented data does not contain any conflict of interests.

REFERENCES

1. Decree of the President of the RF On National and Strategic Development Objectives of the Russian Federation to 2024 No. 204. May 7, 2018. Available: http://www.consultant.ru/document/cons_doc_LAW_297432/ – (Accessed 03.03.2019).
2. Decree of the President of the RF On Assessment of Performance of Government Authorities in the RF Federal Subjects No. 548. November 14, 2017. Available: <http://www.consultant.ru/cons/cgi/online.cgi?req=doc&base=LAW&n=282702&fld=134&dst=100001,0&rnd=0.35844241209392425#08937293539580511>. – (Accessed 03.03.2019).
3. V. V. Lokosov, E. V. Riumina, V. V. Ulianov. Kachestvo naseleniya i regional'naya ekonomika: pryamyie i obratnyie svyazi [Population quality and regional economy: direct and inverse correlation]. *Ekonomicheskie i sotsialnye peremeny: fakty, tendentsii, prognoz [Economic and Social Changes: Facts, Trends, Forecast]*, 2018, vol. 11(1), pp. 32-42.
4. A. G. Granberg. Ekonomicheskoe prostranstvo Rossii: transformatsiya na rubezhe vekov i al'ternativy budushchego [Russian economic space: Transformation at the turn of the centuries and alternatives of the future]. *Obshchestvo i ekonomika [Society and Economy]*, 1999, No. 3, pp. 255-240.
5. S. V. Baranov. Etapy regulirovaniya regional'nogo razvitiya v Rossii [Stages of control of the regional development in Russia]. *Ekonomicheskie i sotsialnye peremeny: fakty, tendentsii, prognoz [Economic and Social Changes: Facts, Trends, Forecast]*, 2011, vol. 6 (18), pp. 34-44.
6. A. I. Tatarkin. Formirovanie regionalnykh institutov prostranstvennogo razvitiya Rossiiskoi Federatsii [Forming of the regional institutions of spatial development of the Russian Federation]. *Ekonomicheskie i sotsialnye peremeny: fakty, tendentsii, prognoz [Economic and Social Changes: Facts, Trends, Forecast]*, 2012, vol. 6 (24), pp. 42-59.
7. A. Borodin, N. Shash. Disbalansy razvitiya i byudzhetye riski regionov [Imbalances and off-budget risks development of regions]. *Ekonomist [Economist]*, 2015, vol. 10, pp. 69-77.
8. D.V. Tiutin. Prostranstvennye disbalansy v regionalnom razviti: case-study po materialam Kaluzhskoi oblasti [Spatial imbalances in regional development: case study of the Kaluga region]. *Fundamentalnye issledovaniya [Fundamental research]*, 2015, vol. 12-1, pp. 214-218.
9. E. S. Gubanova, V. S. Kleshch. Metodologicheskie aspekty analiza urovnya neravnomernosti sotsial'no-ekonomicheskogo razvitiya regionov [Methodological aspects of analysis of unevenness of regional socio-economic development]. *Ekonomicheskie i sotsialnye peremeny: fakty, tendentsii, prognoz [Economic and Social Changes: Facts, Trends, Forecast]*, 2017, Vol. 10(1), pp. 58-75.
10. N. G. Yushkova. Sovershenstvovanie instrumental'nogo obespecheniya prostranstvennogo podkhoda k regionalnomu planirovaniyu: problemy, osobennosti, tendentsii [Improvement of tool support of the spatial approach to regional planning: problems, specifics, trends]. *Ekonomicheskie i sotsialnye peremeny: fakty, tendentsii, prognoz [Economic and Social Changes: Facts, Trends, Forecast]*, 2014, 6 (36), pp. 225-242.
11. K. N. Iusupov, V.M. Timirianova, Iu. S. Toktamysheva, D. V. Popov. Ierarkhicheskie i prostranstvennye efekty v razviti munitsipalnykh obrazovani [Hierarchical and spatial effects in the development of municipal entities]. *Ekonomicheskie i sotsialnye peremeny: fakty, tendentsii, prognoz [Economic and Social Changes: Facts, Trends, Forecast]*, 2018, vol. 11(5), pp. 137-154.
12. E. V. Lukin, T. V. Uskova. Problemy strukturnoi transformatsii regionalnoi ekonomiki [Problems of structural transformation of regional economy]. *Ekonomicheskie i sotsialnye peremeny: fakty, tendentsii, prognoz [Economic and Social Changes: Facts, Trends, Forecast]*, 2018, Vol. 11(6), pp. 26-40.
13. D. A. Gainanov, G. F. Biglova, A. G. Ataeva. Strategicheskoe upravlenie klyuchevymi potentsialami razvitiya raznourovnevnykh territorial'nykh sotsial'no-ekonomicheskikh sistem [Strategic management of major development potentials of territorial economic systems]. *Ekonomicheskie i sotsialnye peremeny: fakty, tendentsii, prognoz [Economic and Social Changes: Facts, Trends, Forecast]*, 2017, vol. 10(2), pp. 77-89.
14. A. A. Kireev. Problemy preobrazovaniya sotsialno-ekonomicheskogo prostranstva. Mezhdue ideologii i nauko [Problems of transformation of socio-economic space. Between ideology and science]. *Prostranstvennaya ekonomika [Spatial Economy]*, 2015, vol. 3, pp. 16-33.
15. A. I. Tatarkin. Regionalnaya napravlennost ekonomicheskoi politiki Rossiiskoi Federatsii kak instituta prostranstvennogo obustroistva territorii [Regional dimension of economic policy of the Russian Federation as an institute of spatial arrangement of territories]. *Ekonomika regiona [Economy of Region]*, 2016, vol. 12(1), pp. 9-27.

16. A. B. Savchenko. Regionalnoe i gorodskoe razvitie: situatsionnyi podkhod k strategicheskomu upravleniyu i monitoringu [Regional and urban development: Situational approach to strategic management and monitoring]. *Balt. reg. [Baltic region]*, 2013, No. 1. Available: <https://cyberleninka.ru/article/n/regionalnoe-i-gorodskoe-razvitie-situatsionnyy-podhod-k-strategicheskomu-upravleniyu-i-monitoringu> (Accessed 03.03.2019).
17. P. Kotler, C. Asplund, I. Rein, D. Haider. *Marketing Places. How to Attract Investments, Industries, Residents and Visitors to Cities, Communities, Regions, and Nations in Europe*. St Petersburg: Stockholm School of Economics in St Petersburg, 2005.
18. Resolution of Kaluga Region Government on the Strategy of socio-economic development of the Kaluga region to 2030 No. 250 dated 29.06.2009 (as amended on 13.07.2012 No. 353, 26.08.2014 No. 506, 12.02.2016 No. 89, 25.05.2017 No. 318) Available: <http://admoblkaluga.ru/sub/econom/strategy/> (Accessed 03.03.2019).