Tools for prioritizing the development of industrial and agricultural territories of the region

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Abstract. The article reveals the possibilities of applying the methods of ranking big data based on the search for the Kemeny median in order to diagnose priorities in the development of industrial and agricultural territories of the region. The authors obtained conclusions regarding the balanced development of territories, revealed a general trend in the economic and industrial areas. This made it possible to take into account the unstructured nature of data with various metrics, as well as diagnose groups of indicators that are crucial in the industrial and agro-industrial development of the region, and determine priorities in individual territories.

1. Introduction
Recently, quite a lot of authors devote their research to the search for methods and determining priorities in the development of individual territories and sectors of the regional economy. So, for example, Shelegeda B.G., Sharnopolskaya O.N., Russiyan S.A., Pogorzelskaya N.V. Thoroughly studied the development of extractive industries [1]. The problems of applying graph theory in the economy of territories are represented by the works of Hooker OL, Skuby RV, Bugrova OS [2]. Many authors connect the features of industrial and agro-industrial development of territories with modern conditions. In particular, with technologies and technological structures [3], digital economy [4], macroeconomic indicators [5], etc. Thus, the question of the necessity of finding new methods and techniques to adequately respond to new challenges, building spatial and sectoral politics in the regions and territories [6-8]. In this regard, in the framework of this work, the authors set out to reveal the possibilities of ranking methods based on the search for the Kemeny median as applied to the process of prioritizing the development of industrial and agro-industrial territories of the Perm Territory, as one of the leading subjects of the Russian Federation in these areas.

2. Main part
In order to compare the group of production and the group of economic indicators of municipalities of the Perm Territory, for each municipal formation, rank values were calculated for the group of production and for the group of economic indicators.

The method of searching for the Kemeny median was chosen to determine the final values insofar as it allows you to bypass such a limitation as the difference in the units of measure of the indicators included in the group. The search method for the Kemeni median is based on expert assessments obtained during the study: representatives of state and municipal authorities, representatives of civil...
society institutions (members of Public Chambers, councils of municipalities, etc.), representatives of the scientific community of specialized areas and specialties.

Ranking allows you to display generalized indicators that do not directly take into account the units of measurement, but take into account the actual value of a particular indicator, and also make it possible to group subjects according to their assigned rank values.

Based on the values of these indicators, average (raw) rank values were determined for each municipality. Based on the average ranking values, the final ranks were determined for each MO for the group of production and for the group of economic indicators (Table 1).

**Table 1.** Rank values for production and economic indicators, for municipalities of the Perm region.

| Municipal District                              | Production Indicators (rank, average) | Economic Indicators (rank, average) | Production Indicators (rank, derivative) | Economic Indicators (rank, derivative) |
|------------------------------------------------|----------------------------------------|-------------------------------------|------------------------------------------|----------------------------------------|
| Gremyachinsky municipal district               | 2                                      | 7.67                                | 2                                        | 2                                      |
| Kizelovsky municipal district                  | 1                                      | 9.33                                | 1                                        | 4                                      |
| Elovsky municipal district                     | 12.66667                               | 3.83                                | 11                                       | 1                                      |
| Cherdynsky Municipal District                  | 8.333333                               | 10.2                                | 8                                        | 6                                      |
| Gazinsky municipal district                    | 6.666667                               | 11.7                                | 5                                        | 9                                      |
| Aleksandrovsky municipal district              | 6.666667                               | 16.2                                | 5                                        | 12                                     |
| Okhansky municipal district                    | 21                                     | 8.67                                | 18                                       | 3                                      |
| Kishtersky municipal district                  | 17.33333                               | 9.83                                | 16                                       | 5                                      |
| Uinsky municipal district                      | 16                                     | 10.8                                | 15                                       | 7                                      |
| Usolsky municipal district                     | 8                                      | 17.2                                | 7                                        | 15                                     |
| Gornozavodsky municipal district               | 3.333333                               | 19.7                                | 3                                        | 19                                     |
| Krasnovishersky municipal district             | 7.333333                               | 23.8                                | 6                                        | 21                                     |
| Kosinsky municipal district                    | 4.333333                               | 25                                  | 4                                        | 23                                     |
| Ilyinsky municipal district                    | 15.33333                               | 17                                  | 14                                       | 14                                     |
| Bolshesosnovsky municipal district             | 25                                     | 11.3                                | 22                                       | 8                                      |
| Ochersky municipal district                    | 18                                     | 16.3                                | 17                                       | 13                                     |
| Berezovsky municipal district                  | 27.33333                               | 11.7                                | 23                                       | 9                                      |
| Yusinsky municipal district                    | 24.66667                               | 14.2                                | 21                                       | 11                                     |
| Osinsky municipal district                     | 14.33333                               | 24                                  | 12                                       | 22                                     |
| Yurlinsky municipal district                   | 9.666667                               | 27                                  | 10                                       | 25                                     |
| Chastinsky municipal district                  | 31.33333                               | 12                                  | 26                                       | 10                                     |
| Kochevsky municipal district                   | 9                                      | 28.7                                | 9                                        | 27                                     |
| Ordinsky municipal district                    | 24.66667                               | 18.3                                | 21                                       | 17                                     |
| Sukansky municipal district                    | 27.33333                               | 17.3                                | 23                                       | 16                                     |
| Sivinsky municipal district                    | 32                                     | 16.3                                | 27                                       | 13                                     |
| Bardymsky municipal district                   | 27.33333                               | 19.3                                | 23                                       | 18                                     |
| Solikamsky municipal district                  | 14.66667                               | 29.8                                | 13                                       | 29                                     |
| October municipal district                     | 23.66667                               | 26                                  | 20                                       | 24                                     |
| Kudymkarsky municipal district                 | 31                                     | 20.5                                | 25                                       | 20                                     |
| Chusovskoy municipal district                  | 21.66667                               | 28.7                                | 19                                       | 27                                     |
| Dobryanskoy municipal district                 | 17.33333                               | 31.5                                | 16                                       | 30                                     |
| Kueldinsky municipal district                  | 35                                     | 24                                  | 29                                       | 22                                     |
| Chernushinsky municipal district               | 23.66667                               | 31.7                                | 20                                       | 31                                     |
| Vereshchaginsky municipal district             | 30                                     | 28.8                                | 24                                       | 28                                     |
| Nytrvensky municipal district                  | 35                                     | 28                                  | 29                                       | 26                                     |
| Kungarsky municipal district                   | 39                                     | 26                                  | 32                                       | 24                                     |
| Karagaysky municipal district                  | 33.66667                               | 35                                  | 28                                       | 34                                     |
| Krasnokamsky municipal district                | 38                                     | 33                                  | 31                                       | 32                                     |
| Tchaikovsky municipal district                 | 36.66667                               | 33.8                                | 30                                       | 33                                     |
| Perm municipal district                         | 40                                     | 35.8                                | 33                                       | 35                                     |
The interdependence of rank values corresponding to the production and economic indicators of the municipalities of the Perm Territory in the period from 2014 to 2018 is also shown in figure 1.

![Figure 1. Medians and average values of production and economic indicators of municipalities of the Perm region in the period from 2014 to 2018.](image)

Table 2. The interpretation of the digital symbols in figure 1.

| Indicator No. | Indicator Name                                      |
|---------------|-----------------------------------------------------|
| 1             | Agricultural output                                 |
| 2             | Crop production                                     |
| 3             | Livestock production                                |
| 4             | The value of local budget revenue                   |
| 5             | The amount of local budget expenditures             |
| 6             | Volume of budget investments                        |
| 7             | Volume of investments of organizations and enterprises |
| 8             | Volume of investments of municipal organizations     |
| 9             | The value of the profit of production in the territory |

Considering the general trend in the development of economic and production indicators of the Perm Territory, we will see the following picture (figure 2).
3. Conclusion

The study proves that the opinion of experts is the most difference with the actual data on the indicator of the volume of investments of organizations and enterprises in fixed assets. In fact, it is this indicator that has the greatest value in the economic development of the territory as a whole. For other indicators, the Kemeny median is relatively consistent with the actual data. At the same time, we note that production indicators have more weight and determine the development of the territory. The identification of the general trend showed that most territories are developed relatively evenly in terms of production and economic indicators, while possessing a very different level of development of both groups of indicators. This confirms the thesis about the high interrelation of production and economic indicators of production and municipal entities of the Perm Territory.
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