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INDIVIDUAL ENTREPRENEURSHIP IN RUSSIA: MEASURING DATA OF 2018

Ph. D. Iuliia Pinkovetskaia

Ulyanovsk State University, Ulyanovsk, Russia
ORCID: <http://orcid.org/0000-0002-8224-9031>
judy54@yandex.ru

Dr. Natalya Schennikova

Penza State University, Penza, Russia
ORCID: <https://orcid.org/0000-0001-8192-5862>
schennikova@list.ru

Ph. D. Liudmila Kryukova

Penza State University, Penza, Russia
ORCID: <https://orcid.org/0000-0002-7465-3798>
liudmila.kriukova@yandex.ru

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Abstract

The aim of this research is discussion of level development of individual entrepreneurs in Russia and its regions. Analysis data on types of economic activity and regions presented in official statistical report of 2018. Methodology of this study was based on economic-mathematical modeling. These models were functions of normal distribution. As indicators offered: number of employees and income per one individual entrepreneur, income per one employee in individual entrepreneurship, number of entrepreneurs per thousand residents in the region and number of employees in individual entrepreneurship per thousand residents. We showed that entrepreneurs in the field of wholesale and retail trade predominate in Russia.

Keywords

Individual entrepreneurs – Types of economic activity – Normal distribution functions

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Introduction

The role of entrepreneurship in Russian modern economics is very significant. Due to the development of the entrepreneurship sector, the production of goods and services increases, created jobs, competition develops and innovations are introduced. The number of individual entrepreneurs exceeded 2.6 million by 2018, and the total number of all employed in individual entrepreneurship amounted to almost 6 million people. The volume of production of this sector of the national economy reached 13 trillion rubles¹. That means that individual entrepreneurs create a significant number of jobs for themselves and employees and saturate regional markets with their goods, works and services. It should be noted that individual entrepreneurs with the number of employees up to 100 and 250 people belong to small and medium enterprises respectively.

At the same time, entrepreneurship, including not only individual entrepreneurs, but also legal entities, has not yet reached the level characteristic of economically developed countries. Thus, in Russia the share of small and medium-sized entrepreneurship is not more than 20% in gross output and 25% in the number of employees of all enterprises². In the countries of the European Union it accounts for 58% of gross value added and employment of 67% of able bodied population³, in Germany these figures are 60% and 48% respectively⁴. The strategy for improving entrepreneurial activity in our country by 2030 provides for a significant (by half) increase in the number of employees in this sector of the economy. The solution of this problem requires understanding of the current level of entrepreneurship. In particular, the issue of evaluating the current indicators of individual entrepreneurship in our country is being put forward as one of the urgent at the present stage.

The analysis of the information in the national bibliographic database of scientific citation (RSCI) showed that 121 scientific articles were devoted to the problems of individual entrepreneurship in Russia over the period from January to October 2019. Of these, 45 publications (37%) addressed legal aspects of individual entrepreneurship, 44 articles (36%) analyzed taxation systems of individual entrepreneurs, 8 described peculiar features of their bankruptcy, and 9 focused on financing and management. Only 6 scientific publications (5%) were devoted to evaluating the performance of individual entrepreneurs in individual regions of Russia. Four of them examined indicators for the regions of the country, and two articles analyzed indicators in agriculture. The study of employment in individual entrepreneurship in the Magadan region is given in article⁵. Along with the comparative analysis of performance data of the individual entrepreneurs in the regions of the Far Eastern Federal District the article contains proposals for reducing structural unemployment in the areas

¹ Federal service of state statistic. 2020. Retrieved from http://old.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/enterprise/reform/ (accessed date: 20 July 2020).

² Strategy for development of small and medium entrepreneurship in the Russian Federation for the period up to 2030. Government Order N° 1083-R of June 2, 2016. Assembly of legislation of the Russian Federation, 24, article 3549. 2016.

³ The development of small and medium entrepreneurship. Foreign experience. Moscow: SME Bank. December. 2015.

⁴ R. Sollner, "The economic importance of small and medium enterprises in Germany", *Wirtschaft und Statistik* Vol: January (2014): 40-51.

⁵ E. Shershakova, "Employment of population of the Magadan region in the field of individual entrepreneurship", *Economics and entrepreneurship* Vol: 3 num 104 (2019): 319-322.

where there are not enough enterprises and organizations. In publication⁶ the authors consider the existing problems of individual entrepreneurship due to the complex and voluminous legislation governing entrepreneurial activity, high interest rates on loans, and high deductions for compulsory pension and medical insurance. Article⁷ considers the implementation of municipal programs related to the development and support of entrepreneurship in the Republic of Sakha (Yakutia). Publication⁸ presents the analysis of individual entrepreneurship in the Arkhangelsk region and prospects for its development. Article⁹ is devoted to the analysis of changes in indicators of individual entrepreneurship in the agricultural industry. The volumes of production of different types of agricultural products are investigated. Measures for financial support of entrepreneurs are considered. Article¹⁰ assesses the effectiveness of individual entrepreneurs in the Bryansk region. The analysis of specific indicators made it possible to determine the main directions for increasing the use of existing lands in the region.

Our analysis of the data obtained by Russian researchers for the period from 2013 to 2018 confirmed the pattern indicated above: with a relatively large number of scientific publications, the issues of a comprehensive assessment of the performance indicators of individual entrepreneurs in our country do not receive the necessary attention. In addition, the analysis of the literature showed that the tasks of further developing individual entrepreneurship and increasing its effectiveness require an understanding of the peculiar characteristics of individual enterprises operating in different industries and located in different regions.

Materials and methods

The purpose of our study is to determine the structure of individual entrepreneurship activity in Russia in 2018 and to evaluate indicators characterizing the level of this sector in the economy of the regions. The study used the author's methodological approach based on the consideration of specific indicators describing the performance features of individual entrepreneurs grouped by industry and region.

The analysis of the sectoral structure of individual entrepreneurship in Russia was based on the calculation of the shares of four indicators characterizing the activities of individual entrepreneurs specializing in various types of economic activity in comparison with overall average indicators of individual entrepreneurship in Russia. These indicators include: the number of actually operating individual enterprises; the volume of employment in the sector of individual entrepreneurship; the number of employees; the total volume of revenue of individual entrepreneurs from the sale of goods, products, works and services.

⁶ N. Titova y L. Kanivets, "On the issue of individual problems of small entrepreneurship at the present stage", *Modern problems of law, economics and management* Vol: 1 num 8 (2019): 233-236.

⁷ M. Grenaderova y E. Romanova, "Implementation of municipal programs of development and support of entrepreneurship", *Eurasian scientific association* Vol: 3-4 num 49 (2019): 268-272.

⁸ A. Smetanin; A. Tutygin; L. Siluanova y L. Smetanina, "Entrepreneurship in the Arkhangelsk North: state, development, trends". *Scientific works of the Free economic society of Russia* Vol: 218 num 4 (2019): 449-458.

⁹ G. Olkhovaya y M. Dementyev, "On the development of small business in agriculture of the Republic of Crimea", *Management of economic systems: electronic scientific journal* Vol: 2 num 120 (2019): 1-16.

¹⁰ M. Dolganova, "Geographical analysis and evaluation of land use efficiency by peasant (farmer) farms and individual entrepreneurs of the Bryansk region", *Scientific and technical Bulletin of the Bryansk state University* Vol: 1 (2019): 129-146.

Evaluation of the indicators characterizing the level of development of the entrepreneurial sector in the economy of the regions allowed a comparative analysis. The study included the development of economic and mathematical models that describe five indicators that characterize the activities of all categories of individual entrepreneurs in each of the regions of the country. As the author's works¹¹ showed, it is advisable to use the functions of the density of the normal distribution for modeling.

To ensure a comparative analysis by regions, the following indicators were used as relative indicators: number of employed per individual entrepreneur, revenue per individual entrepreneur, revenue per employee, number of individual entrepreneurs per thousand inhabitants in the region, number of employees in individual entrepreneurship per thousand residents of the region.

Performance indicators of individual enterprises largely depend on the regions in which entrepreneurs operate, as well as on their industry specialization. This is shown in a number of studies¹². Given this, our study tested the following two hypotheses:

- hypothesis 1 - there are significant differences in the shares of individual enterprises depending on the type of economic activity in which they specialize;
- hypothesis 2 - there is differentiation of indicators characterizing the activities of individual entrepreneurs in different regions.

The official statistics presented on the Rosstat website were considered as reference information, which characterize the performance indicators of individual entrepreneurs in 2018 grouped according to types of economic activity and regions of Russia.

Sectoral performance indicators

In 2018 specialization of individual entrepreneurs covered 18 types of economic activity. Let us consider them in more detail:

- 1 type - agricultural production, hunting and fishing;
- 2 type - quarry development for mining;
- 3 type - production of goods based on the processing of various materials;
- 4 type - participation in providing enterprises and the public with electric energy, gas and steam;
- 5 view - participation in water supply and sanitation, as well as waste collection and waste disposal;
- 6 type - construction and finishing work, maintenance, installation of electrical and information networks, plumbing;
- 7 type - retail, wholesale, car service stations;

¹¹ I. Pinkovetskaia, "Modeling indicators of small and medium enterprises in the regions using the density function of the normal distribution", *Problems of development of the territory* Vol: 6 num 80 (2015): 93-107 y I. Pinkovetskaia, "Statistical estimates of the creation and liquidation of organizations in Russia: sectoral and regional aspects". *Statistics and Economics* Vol: 3 num 16 (2019): 44-51.

¹² S. Djankov; Q. Yinglyi; R. Gerard y E. Zhuravskaya, "Who Are China's Entrepreneurs?". *The American Economic Review* Vol: 96 num 2 (2006): 348-352; G. Fields, *Self-Employment in the Developing World: A Report to the High-Level Panel of Eminent Persons*. Cornell University and IZA. 2013 y T. Gindling y D. Neuhause, "Self-Employment in the Developing World". *World Development* Vol: 56 (2014): 313-331.

8 type - transportation of passengers (mainly by road), delivery of goods and their storage;

9 view - organization of hotel activities and catering;

10 view - communication services and information technology services;

11 type - financial and insurance services;

12 type - real estate operations;

13 type - services related to professional, scientific and technical activities;

14 type - administrative activities and related services;

15 type - educational activity;

16 type - healthcare and social services;

17 type - services related to culture, sports, leisure and entertainment;

18 type - other types of services.

The indicators characterizing the industry structure of individual entrepreneurship in our country are shown in Table 1. It contains data on four indicators for the 18 types of activities indicated above: number of actually operating individual entrepreneurs; volume of employment; number of employees; revenues from sale of goods and services. The table shows the shares of these indicators in the total values of four indicators for all individual enterprises operating in the country.

Types of economic activity	Number of actually operating individual entrepreneurs	Volume of employment in individual entrepreneurship including entrepreneurs	Number of employees	Revenue from sales of products
type 1	4.14	5.53	5.02	3.02
type 2	0.01	0.01	0.02	0.01
type 3	4.52	7.09	10.12	4.15
type 4	0.04	0.05	0.06	0.02
type 5	0.17	0.17	0.17	0.15
type 6	4.52	4.25	3.79	2.63
type 7	43.55	50.63	56.52	67.28
type 8	12.11	8.96	6.47	4.81
type 9	2.27	3.85	5.38	2.03
type 10	2.86	1.72	0.76	1.71
type 11	0.74	0.42	0.16	0.52
type 12	5.70	3.88	2.51	6.39
type 13	2.59	2.14	1.82	1.68
type 14	1.10	0.74	0.49	0.27
type 15	0.63	0.47	0.36	0.17
type 16	1.38	0.99	0.59	0.65
type 17	6.93	4.70	3.17	1.36
type 18	6.74	4.40	2.59	1.15

Source: Authors calculation, based on official statistical information of Federal service of state statistic

Table 1
Sector structure of individual entrepreneurship in 2018, %

The information given in table 1 shows that individual enterprises operating in the field of wholesale and retail trade predominate in our country. More than 43% of all entrepreneurs specialize in this activity. The share of all employed in individual entrepreneurship is more than half. And the share of revenue from such activities reached 67% of the total revenue of all individual entrepreneurs in the country. The excess of the share of revenue over the share of the number of entrepreneurs is due to the fact that the value of revenue in trade includes not only the value added created by an individual enterprise, but also the producer price of the goods sold.

The share of entrepreneurs working in passenger and freight transportation, as well as storage of various goods is relatively high (more than 12%). It should be noted that the share of employees and revenue for this type of activity is significantly lower and amounts to about 6% and 5%, respectively. This situation is due to the fact that individual enterprises carry out mainly transportation by road, and the entrepreneur often performs the functions of a driver himself. This assumption is confirmed by the ratio of the number of employees and the number of entrepreneurs, which is 0.54 in this type of activity. That is, the number of individual entrepreneurs is 2 times more than that of employees.

The shares of entrepreneurs engaged in real estate transactions, provision of other services, as well as activities in the field of culture, sports, leisure and entertainment are within 5-7%. The low share of revenue in the last two types of economic activity is due to two reasons. Firstly, provision of these services by individual entrepreneurs is not associated with complex technological processes and does not require expensive equipment. Secondly, the ratio of the number of employees and the number of entrepreneurs in these types of activities is small and amounts to about 0.4. The share of revenue from operations with real estate is higher than the share of the number of entrepreneurs in this type of activity. This seems logical, since a significant part of these operations is connected with real estate lease, when the cost of services includes depreciation, repairs and taxes, and not just the work performed by the entrepreneur.

In the total number of all individual entrepreneurs, from 4% to 5% falls on each of the following three types of activity: construction, processing of various materials, and agricultural production. It should be noted that manufacturing accounts for more than 10% of all employees in the country. This seems logical in connection with more labor-intensive technological processes characteristic of this type of economic activity.

Individual entrepreneurs associated with hotel business and catering; provision of communication services and services in the field of information technology; provision of professional, scientific and technical services; administrative activities and related additional services; healthcare and social services account for 1-3%. The share of individual entrepreneurs specializing in the other five activities is less than one percent, that is, insignificant.

In 2018, eight types of economic activity were most prevalent among individual entrepreneurs. Given the specific nature of individual entrepreneurship in Russia, they included:

- trading activities;
- transportation of goods and passengers;
- leasing out real estate and real estate services;
- services for the organization of cultural, leisure and sports events;

- construction works;
- processing materials;
- agricultural production;
- other types of services.

These eight types of activities account for 88.21% of all individual entrepreneurs in the country. They account for 89.44% of all employed in this sector of the economy. The total volume of production for these eight types of activities is 90.79%. Accordingly, the remaining 10 activities account for less than 12% for all the indicators considered.

Thus, hypothesis 1 for the presence of significant differences in the shares of certain indicators depending on the type of economic activity in which individual entrepreneurs specialize was confirmed.

Evaluation of indicators individual entrepreneurship activity by regions

As mentioned above, evaluation of the indicators of individual entrepreneurship activity by region was based on the development of corresponding models that approximate the initial empirical data. The developed economic and mathematical models describe the patterns of regional distribution of the following five indicators: the number of employees per 1 individual entrepreneur (x_1 , people), income per one individual entrepreneur (x_2 , thousand rubles), income per 1 employee in individual entrepreneurship (x_3 , thousand rubles), the number of entrepreneurs per thousand residents in the region (x_4 , people), the number of employees in individual entrepreneurship per thousand people (x_5 , people).

The corresponding functions of probability density have the form:

- the number of employees per 1 individual entrepreneur

$$y_1(x_1) = \frac{35.14}{0.39 \times \sqrt{2\pi}} \cdot e^{\frac{-(x_1-2.09)^2}{2 \times 0.39 \times 0.39}}; \quad (1)$$

- income per 1 individual entrepreneur

$$y_2(x_2) = \frac{102500}{1822 \times \sqrt{2\pi}} \cdot e^{\frac{-(x_2-5717)^2}{2 \times 1822 \times 1822}}; \quad (2)$$

- income per 1 employee in individual entrepreneurship

$$y_3(x_3) = \frac{52714}{715 \times \sqrt{2\pi}} \cdot e^{\frac{-(x_3-2636)^2}{2 \times 715 \times 715}}; \quad (3)$$

- the number of entrepreneurs per thousand residents in the region

$$y_4(x_4) = \frac{512.50}{5.71 \times \sqrt{2\pi}} \cdot e^{\frac{-(x_4-18.18)^2}{2 \times 5.71 \times 5.71}}; \quad (4)$$

- the number of employees in individual entrepreneurship per thousand residents

$$y_5(x_5) = \frac{715.52}{11.04 \times \sqrt{2\pi}} \cdot e^{\frac{-(x_4-37.35)^2}{2 \times 11.04 \times 11.04}} \quad (5)$$

The quality of approximation of the initial empirical data by functions (1) - (5) was verified with the tests of Pearson, Kolmogorov-Smirnov and Shapiro-Wilk. Calculations of the statistics values with the help of these tests showed that these values are smaller than the tabular values of Pearson (9.49) and Kolmogorov-Smirnov (0.152) tests, and also exceed the tabular value (0.93) of Shapiro-Wilk test. This proves high quality of all developed functions.

Results Discussion

The developed functions make it possible to establish the main characteristics of the distribution of the indicators of the categories of individual entrepreneurs in different regions. We are talking about the average values of indicators for the country as a whole, as well as standard (mean square) deviations. These characteristics are shown in Table 2. Column 4 of the table presents the ranges of indicators that were noted in most (68%) of the regions.

Indicators	mean value	mean square deviations	deviation ranges
1	2	3	4
number of employees per 1 individual entrepreneur, people	2.09	0.39	1.70-2.48
income per one individual entrepreneur, thousand rubles	5717	1822	3895-7539
income per 1 employee in individual entrepreneurship, thousand rubles	2636	715	1921-3351
number of entrepreneurs per thousand residents in the region, people	18.18	5.71	12.47-23.89
number of employees in individual entrepreneurship per thousand people, people	37.35	10.04	27.31-47.39

Source: Authors calculation.

Table 2
Relative indicators of the categories of individual entrepreneurs in Russian regions

The data in table 2 show that on average the number of employees per 1 individual entrepreneur is about two people. Consequently, the average number of employees is slightly more than one person. In most regions of Russia, the values of this indicator are in the range from 1.7 to 2.5 people. Consequently, in 68% of the regions, the ratio of employees to individual entrepreneurs is from 0.7 to 1.5 people. Values smaller than the lower limit of the range were observed in the Samara and Novosibirsk regions, the republics of Chuvashia, North Ossetia-Alania, Kalmykia, Altai, Dagestan, Sakha (Yakutia), Karelia, Karachay-Cherkessia, the Krasnodar and Stavropol territories, as well as the city of Moscow. Values larger than the upper limit of the range occurred in the Ryazan, Kurgan, Ivanovo, Kostroma, Sverdlovsk and Omsk regions, the Perm and Krasnoyarsk territories, Khakassia, Buryat and Ingush republics.

The average revenue in the regions of Russia per one individual entrepreneur in 2018 amounted to 5.7 million rubles per year, that is, about 475 thousand rubles per month. In most of the regions this indicator was in the range of 3.9-7.5 million rubles. Values of annual revenue for one individual entrepreneur of 2.3-3.5 million rubles were in the Kalmyk, Chuvash, Karelian, Altai, Crimean, Tuva republics, as well as the Pskov, Tver, Novosibirsk, and Kemerovo regions. Large values of revenue for one individual entrepreneur were noted in Tatarstan, Bashkortostan, Buryatia and Kabardino-Balkaria, Magadan, Voronezh, Amur and Sakhalin regions, as well as the Khabarovsk, Zabaykalsky, Perm territories.

The average revenue for the regions of Russia per one employee was 2.6 million rubles per year. This corresponds to 217 thousand rubles per month. In most of the regions the values of the indicator in question range from 1.9 to 3.3 million rubles per year. Values smaller than the lower limit of the range were observed in the republics of Ingushetia, Kalmykia, Tuva, Mordovia, Chuvashia, Mari El, the Tver, Kemerovo, Saratov and Pskov regions. Values larger than the upper limit of the range were noted in the Khabarovsk and Zabaykalsky territories, the Arkhangelsk, Voronezh, Amur, Tyumen, Bryansk, Sakhalin, Magadan regions, the republics of Tatarstan, Bashkortostan, Sakha (Yakutia) and the city of Moscow. It is important to note that these regions include the highly developed subjects of the country, as well as those located in the north and the Far East of the country. This seems logical, since a high level of prices for goods, works and services is characteristic for them.

The average number of individual entrepreneurs per thousand residents by region was a little more than 18 people in 2018. In 68% of the regions this indicator is in the range from 12 to 24 people. Moreover, values of less than 10.36 were registered in the Tomsk, Kurgan, Nizhny Novgorod regions, the republics of Sakha (Yakutia), Ingushetia, Tuva, Dagestan and Chechen. A high level of individual entrepreneurship development was noted in the Rostov, Sakhalin and Irkutsk regions, the republics of Crimea and Khakassia, as well as the Krasnodar, Kamchatka, and Altai territories. In these regions of the country there were more than 25.46 people per thousand residents.

The regional average number of employees in individual entrepreneurs per one thousand residents was 37.35 people. That is, more than 3.7% of the residents of our country are engaged in individual entrepreneurship. The values were less than 2.63% in the city of Moscow, the Tomsk, Nizhny Novgorod, Murmansk, Moscow regions, the republics of Sakha (Yakutia), Dagestan, Tuva, North Ossetia-Alania, and Kabardino-Balkaria. The employment rate in individual entrepreneurship of above 4.8% was observed in the Penza, Ivanovo, Belgorod, Rostov, Kostroma, Sverdlovsk, Sakhalin, Irkutsk regions, the Kamchatka, Krasnoyarsk, and Altai territories.

The information given in column 4 of Table 2 as well as the analysis data of the indicators whose values are larger than the upper limit and smaller than the lower limit of the ranges confirm the validity of hypothesis 2 for differentiation of the indicators characterizing the activities of individual entrepreneurs by regions.

Conclusion

The analysis of the statistical data characterizing the performance indicators of entrepreneurs operating in 2018 in 18 types of economic activity and 82 regions of Russia allowed us to draw the following conclusions.

Individual enterprises specializing in trade operations and technical maintenance of cars prevail. More than 43% of all entrepreneurs work in this industry; their revenue reached 67% of the total revenue of individual entrepreneurs in the country.

It is shown that the following eight activities account for 90% of individual enterprises: wholesale and retail trade; transportation and storage; real estate operations; services related to culture, sports, leisure and entertainment; construction work; production of various goods; agricultural production, hunting, fishing; other services.

The values of the five relative indicators of the activity of the categories of individual entrepreneurs located in the regions are estimated based on the developed functions of the density of the normal distribution.

The regions with high and low values of the five relative indicators of the activity of the categories of individual entrepreneurs are identified.

It is proved that there are significant differences in the shares of individual entrepreneurs specializing in different types of economic activity.

The differentiation of the values of indicators of individual entrepreneurship activity by regions of the country is proved.

The study provides state and regional authorities as well as financial, credit, leasing and other organizations with the information about possible ways to saturate regions and industries with entrepreneurs and to increase the number of entrepreneurs, as well as their revenue. The results of the study can be used in the current activities of organizations related to regulation and support of individual entrepreneurship by way of helping them to adjust their actions based on the research data. The results of modeling can be used in compiling performance ratings of the categories of individual entrepreneurs in the regions of Russia and in determining the needs for assistance to these entrepreneurs. Such assistance includes measures to provide government subsidies and reduce interest on loans for individual entrepreneurs. The obtained functions of the density of the normal distribution can be used to evaluate the prevailing business climate and monitor it at the level of regions as well as to solve problems of assessing the activities of the categories of individual entrepreneurs and determining ways to increase their efficiency.

The methodological approach and toolkit for evaluating the activities of the categories of individual entrepreneurs in industries and regions proposed in the article can be used in research on entrepreneurship as well as in substantiating development programs for this sector of the economy. The methodology and tools used in the study can be applied in similar studies in countries with a significant number of territorial (administrative) units. The practical significance of the study is justified by the fact that its results can be used by state and regional authorities for a comparative analysis of the development of individual entrepreneurship and for identification of the imbalance in the values of indicators by industry and region.

The scientific novelty of the study lies in the analysis of the distribution of the indicators characterizing the categories of individual entrepreneurs by industry and region. The methodology and tools that were used in the research can be applied in similar studies for other time periods.

The acquired new knowledge can be used in scientific research on the problems of individual entrepreneurship. The results of the study can be used in the educational process: in the preparation of bachelors, masters, researchers, as well as specialists in state and municipal administration.

Further studies of individual entrepreneurship may be related to the assessment of the distribution of the indicators of the categories of individual entrepreneurs in municipalities.

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