Scientific and methodological approach to the assessment of the region financial and production structure

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Abstract. The proposed methodology for assessing the system of indicators of the region financial and production structure includes 8 main components. The purpose of the study: to propose a scientific and methodological approach to assessing the region, taking into account the financial and production structure. The calculated indicators characterize how the region is provided with financial and production factors, as well as how financially stable and independent it is.

1 Introduction

Many scientists are engaged in research in the field of regional finance [1-5], while the systematization of indicators of the financial and production structure of the region remains relevant.

The purpose of the study is to offer a scientific and methodological approach to assessing the region, taking into account the financial and production structure.

2 Methodology

The financial and production structure of the region shows how much the enterprises operating in the region are profitable and provided with financial resources. The indicator group is shown in Fig. 1.
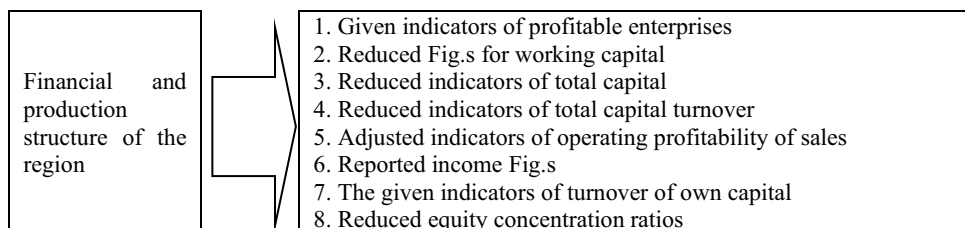

Fig. 1. Group of indicators of the financial and production structure of the region. Source: [4].

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Financial and production structure of the region is a set of indicators that characterize the financial component of the region.

• Adjusted indicators of profitable enterprises show the change in the share of profitable enterprises in dynamics. The values of municipalities are given to the total value for the Republic of Crimea.

• The above indicators of working capital show the adequacy of capital to ensure the continuity of the production process, the capital that is invested in current activities, including raw materials. The values of municipalities are given to the total value for the Republic of Crimea.

• The given indicators of the total capital of enterprises are the sum of working capital and non-current capital involved in the production process. The values of municipalities are given to the total value for the Republic of Crimea.

• The given indicators of turnover of the total capital of enterprises show the speed of turnover and reflect the effectiveness of capital management. The values of municipalities are given to the total value for the Republic of Crimea.

• Adjusted indicators of the operating profitability of sales of enterprises - this is the difference between revenue and expenses for the main activities of enterprises. This indicator shows the change in the share of the level of return on equity in dynamics. The values of municipalities are given to the total value for the Republic of Crimea.

• The given indicators of the enterprises income are the main indicator of financial and economic activity of enterprises. In general, income is defined as the difference between total revenue and total costs, that is, the difference between income and expenses. This indicator shows the change in income over time.

• The given indicators of turnover of the enterprises equity capital show the rate of turnover of equity capital for the billing period. The values of municipalities are given to the total value for the Republic of Crimea.

• The given capital concentration ratios of enterprises show the share of capital and reserves that are covered by the total capital. The values of municipalities are given to the total value for the Republic of Crimea.

The calculated indicators characterize how the region is provided with financial and production factors, as well as how financially stable and independent it is. Table 1 presents the calculation formulas.

Table 1. Formulas for calculating indicators Source: [4].

Formula name	Formula	Notation
The above indicators were calculated for each municipality, urban district and municipal district, from 2015 to 2020.	$GI = (I_n/I_{n-1})/(IR_n/IR_{n-1})$	GI − given indicators; I_n – indicator of the current year of the municipality, city district and municipal district, I_{n-1} indicator of the previous year of the municipality, city district and municipal district, IR_n− indicator of the current year of the region, IR_{n-1} − indicator of the previous year of the region.
Growth rate as the ratio of the current year to the previous one in the Republic of Crimea for each municipality, urban district and municipal district, from 2015 to 2020	$GR = I_n/I_{n-1}$	GR – growth rate; I_n – indicator of the current year of the municipality, municipal city or municipal district, I_{n-1} indicator of the previous year of the municipality, city district and municipal district.

Integral indicator "financial and production structure of the region"	$II = \dfrac{\sum_{i=0}^{n}(GI, GR)}{n}$	II – integral indicator; $\sum_{i=0}^{n}(GI, GR)$ – The sum of the given indicators and growth rates; n – number of indicators.

This makes it possible to identify the most lagging municipalities, which will help balance the development of all regions in the aggregate as a whole, but, first of all, according to the Strategy for the Development of Small and Medium Enterprises in the Russian Federation for the period up to 2030, take into account "an important direction in improving the information support of state policy in the field of small and medium-sized businesses is the development of a system for collecting statistical information" [8].

3 Results and discussion

3.1 Analysis of a group of indicators of the region financial and production structure

1. The given indicators of the share of profitable enterprises, which show the change in the share of profitable enterprises in dynamics in the period 2016-2020 by urban districts and municipal districts of the Republic of Crimea. Data for municipalities were reduced to the value of the region. A deviation from 1 indicates a negative result. An illustration is shown in Fig. 2.
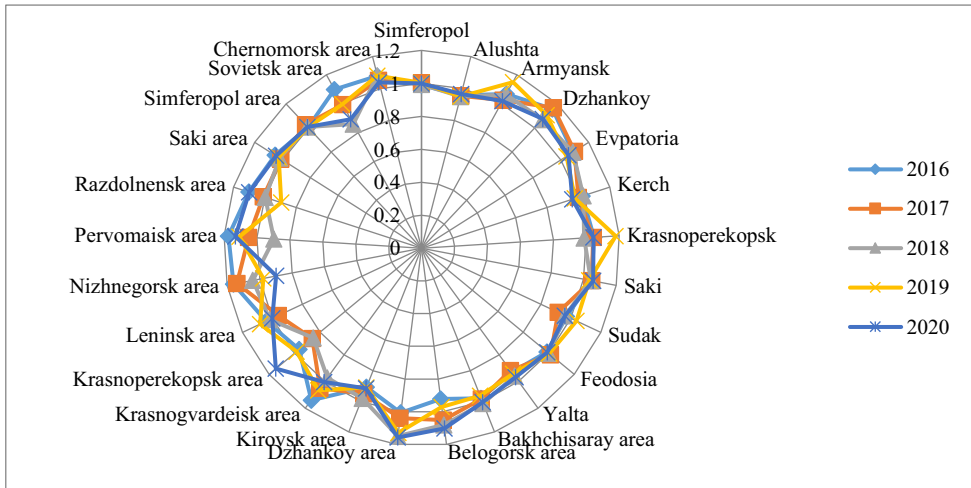

Fig. 2. Illustration of the given indicators of the share of profitable enterprises (compare with the value for the Republic of Crimea) by urban districts and municipal districts of the Republic of Crimea for 2016-2020. Source: built by [6,7]

The best values for this indicator without deviations from the value of 1 were recorded in the cities of Armyansk, Dzhankoy, Evpatoria, Saki, in the municipal districts: Dzhankoysky, Leninsky, Saksky, Simferopolsky, Chernomorsky.

The worst values and the largest number of deviations from 1 were recorded in Alushta, Yalta, in the Kirovsky, Krasnoperekopsky municipal districts.

2. The above indicators of working capital show the capital adequacy to ensure the continuity of the production process, the capital that is invested in current activities, including raw materials and supplies in dynamics in the period 2016-2020 for urban

districts and municipal districts of the Republic of Crimea. Data on municipalities were reduced to the value of the Republic of Crimea. A deviation from 1 indicates a negative result. An illustration is shown in Fig. 3.
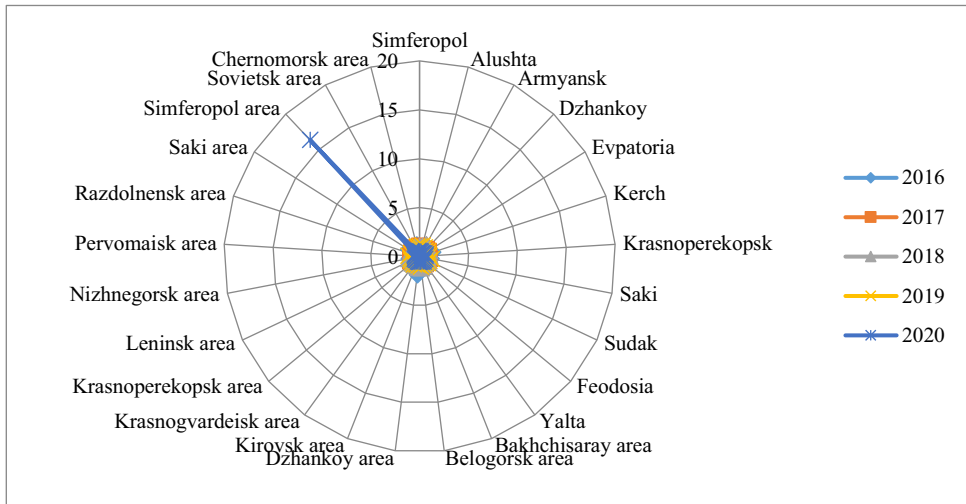

Fig. 3. Illustrates the given indicators of the working capital of enterprises (compare with the value for the Republic of Crimea) by urban districts and municipal districts of the Republic of Crimea for 2016-2020. Source: built by [6,7].

The best values for this indicator were recorded in Simferopol district in 2020, in Alushta in 2019, in Armyansk in 2018, in Evpatoria in 2018, in Saki in 2019, in Belogorsk, Dzhankoy districts in 2018, in Pervomaisky in 2019 year, in the Chernomorsky region in 2016.

The worst values and the largest number of deviations from 1 were recorded in Dzhankoy, Evpatoria, Kerch, Krasnoperekopsk, Saki, Sudak, Feodosia, Yalta and all municipal districts except Simferopol in 2020.

3. The given indicators of total capital show the amount of working and non-working capital involved in the production process in dynamics in the period 2016-2020 by urban districts and municipal districts of the Republic of Crimea. Data on municipalities were reduced to the value of the Republic of Crimea. A deviation from 1 indicates a negative result. An illustration is shown in Fig. 4.
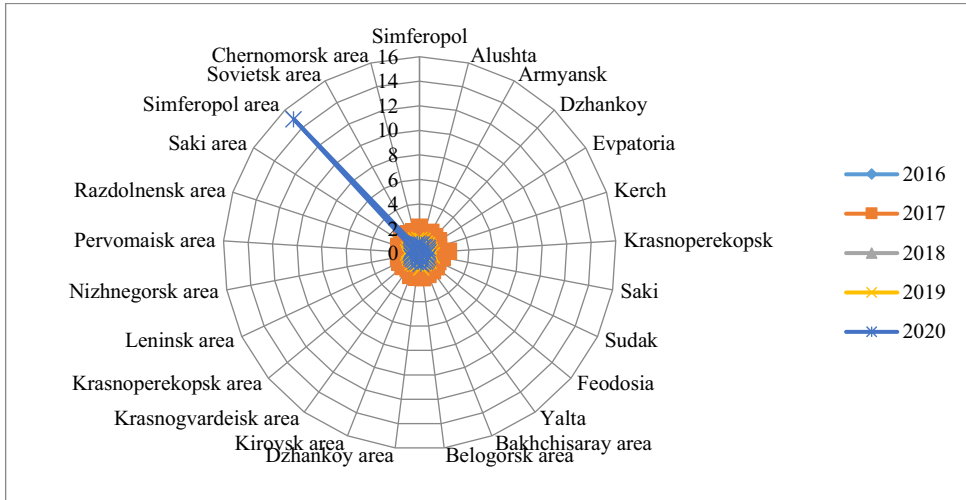
Fig. 4. Illustration of the given indicators of the total capital of enterprises (compare with the value for the Republic of Crimea) by urban districts and municipal districts of the Republic of Crimea for 2016-2020. Source: built by the author [6,7].

The best values for this indicator were recorded in the Simferopol region in 2020, in Simferopol, Armyansk, Dzhankoy, Saki, Feodosia, Yalta, Belogorsk, Dzhankoy, Kirovsky, Simferopol regions in 2017.

The worst values and the largest number of deviations from 1 were recorded in Krasnoperekopsk, Saki, Sudak, Feodosia, Pervomaisky, Razdolnensky, Saksky districts in 2018.

4. The given total capital turnover indicators show the turnover rate and reflect the efficiency of capital management in the period 2016-2020 for urban districts and municipal districts of the Republic of Crimea. Data for municipalities were reduced to the value of the region. A deviation from 1 indicates a negative result. An illustration is shown in Fig. 5.
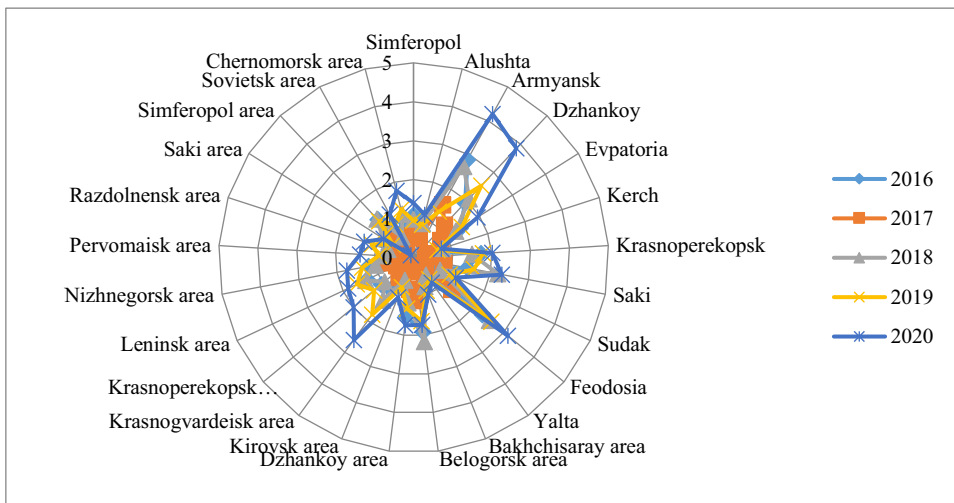

Fig. 5. Illustration of the given indicators of the turnover of the total capital of enterprises (compare with the value for the Republic of Crimea) by urban districts and municipal districts of the Republic of Crimea for 2016-2020. Source: built by [6,7].

The best values for this indicator were recorded in Armyansk, Dzhankoy, Feodosiya and Yevpatoriya, Belogorsk district.

The worst values and the largest number of deviations from 1 were recorded in Kerch, Yalta in 2016, 2017, in Sudak, Bakhchisarai, Kirovsky, Razdolnensky, Saksky, Sovetsky districts in 2017.

5. The given indicators of the operating profitability of sales are the difference between revenue and expenses for the main activities of enterprises. This indicator shows the change in the share of the level of return on equity in dynamics in the period 2016-2020 for urban districts and municipal districts of the Republic of Crimea. Data for municipalities were reduced to the value of the region. A deviation from 1 indicates a negative result. An illustration is shown in Fig. 6.
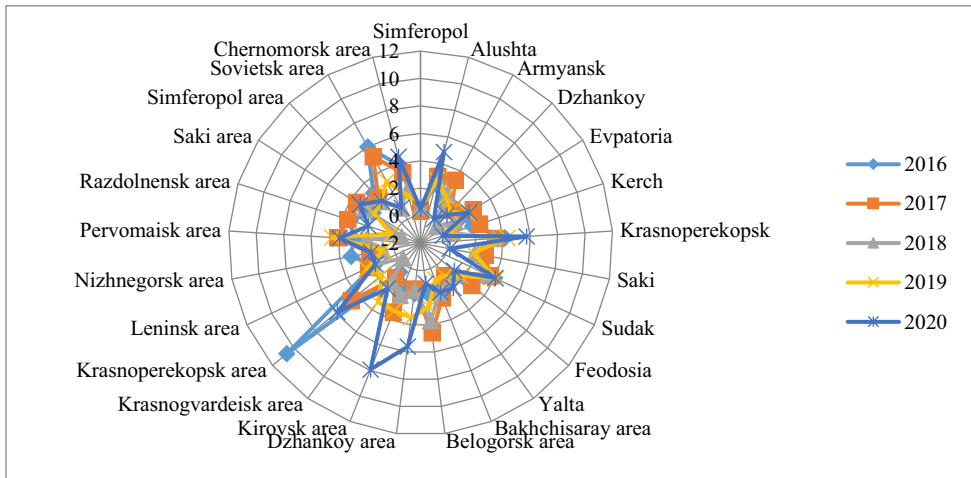

Fig. 6. Illustration of the given indicators of the operating profitability of sales of enterprises (compare with the value for the Republic of Crimea) by urban districts and municipal districts of the Republic of Crimea for 2016-2020. Source: built by [6,7].

The best values for this indicator were recorded in Alushta in 2018, 2020, in Armyansk in 2018, in Saki in 2018, in Sudak in 2018, 2020, in Bakhchisarai, Belogorsk. Dzhankoy, Kirov, Krasnogvardeisky municipalities in 2018, in Krasnoperekopsky, Leninsky, Pervomaisky, Saksky, Chernomorsky in 2020.

6. The given indicators of income are the main indicator of the financial and economic activities of enterprises. In general, income is defined as the difference between total revenue and total costs, i.e. difference between income and expenses. This indicator shows the change in income in dynamics in the period 2016-2020 for cities and municipal districts of the Republic of Crimea. Data on cities and municipalities were reduced to the value of the Republic of Crimea. A deviation from 1 indicates a negative result. An illustration is shown in Fig. 7.
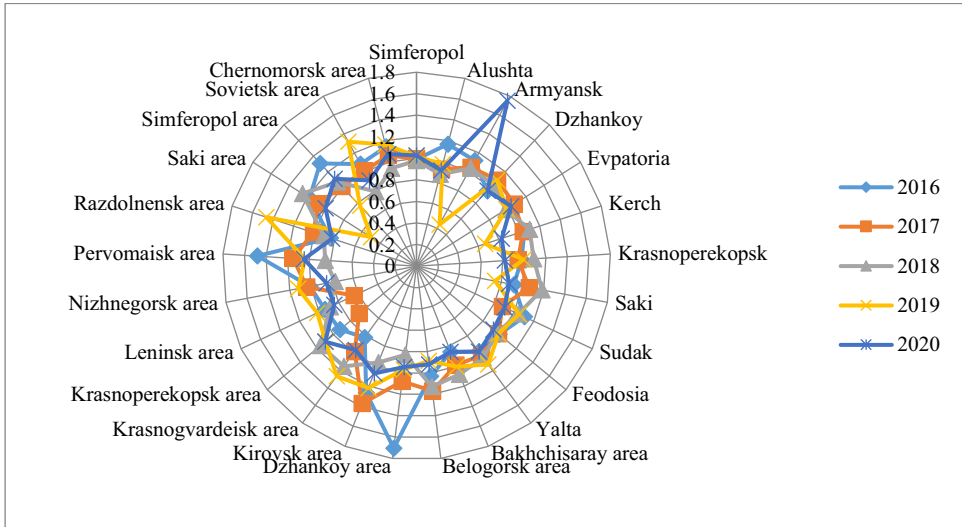
Fig. 7. Illustration of the given indicators of income of enterprises (compare with the value for the Republic of Crimea) by urban districts and municipal districts of the Republic of Crimea for 2016-2020. Source: built by [6,7].

The best values for this indicator were recorded in Armyansk in 2017, 2020, Yalta in 2019, in municipalities: Belogorsk in 2017, 2018, Kirovsky in 2019, Krasnogvardeisky and Krasnoperekopsky in 2018, Pervomaisky in 2017.

The worst values were noted in Armyansk, Kerch, Saki in 2019, in the municipal district of Krasnoperekopsky, Leninsky in 2017.

7. The above indicators of equity turnover show the turnover rate of the organization's equity capital for the billing period in dynamics for the period 2016-2020 by cities and municipal districts of the Republic of Crimea. Data on cities and municipalities were reduced to the value of the Republic of Crimea. A deviation from 1 indicates a negative result. An illustration is shown in Fig. 8.
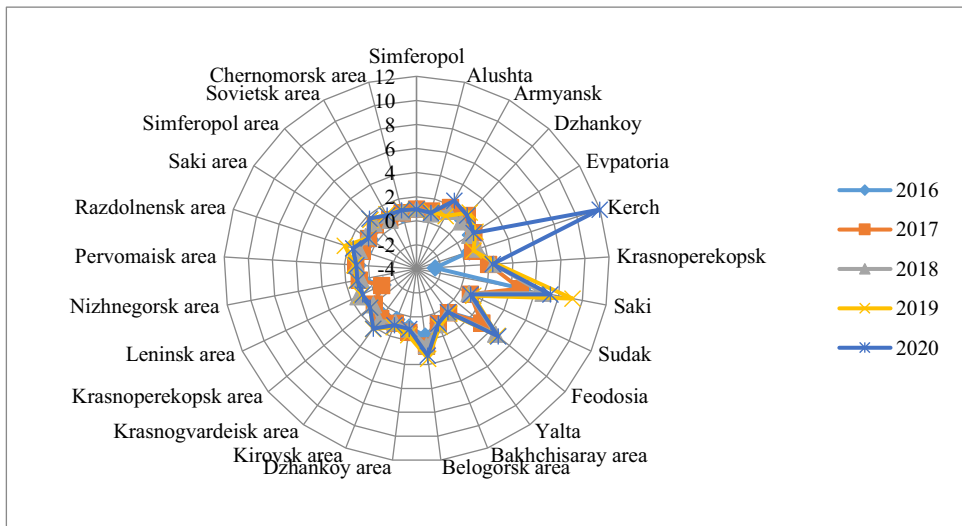

Fig. 8. Illustration of the given indicators of the turnover of equity capital of enterprises (compare with the value for the Republic of Crimea) by urban districts and municipal districts of the Republic of Crimea for 2016-2020. Source: built by [6,7].

The best values for this indicator were recorded in Armyansk, Dzhankoy, Saki, Feodosia, and Belogorsky district.

The worst values and the largest number of deviations from 1 were recorded in Kerch, Kirovsky, Leninsky, Krasnoperekopsky, Nizhnegorsky, Sovetsky Saksky districts in 2016.

8. The given equity concentration ratios show the share of capital and reserves that are covered by the total capital in the period 2016-2020 by urban districts and municipal districts of the Republic of Crimea. Data for municipalities were reduced to the value of the region. A deviation from 1 indicates a negative result. An illustration is shown in Fig. 9.
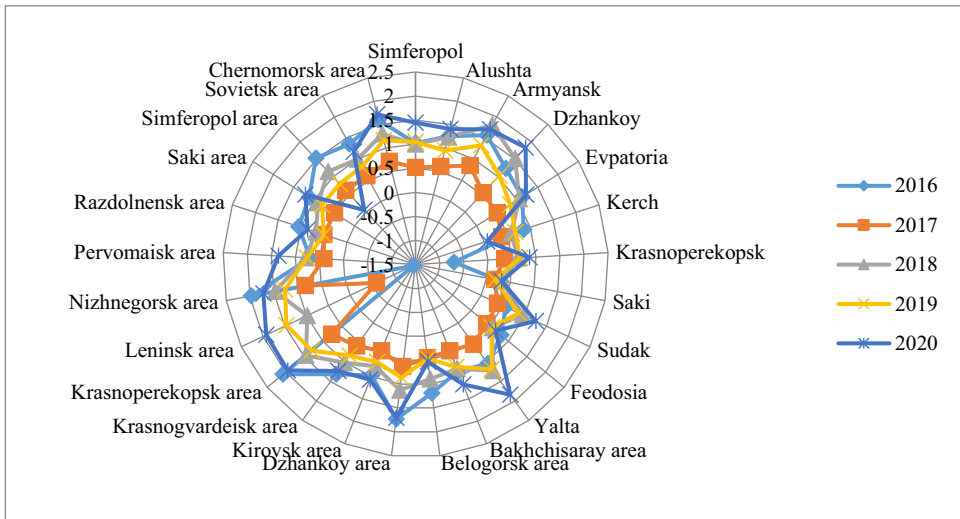

Fig. 9. Illustration of the given concentration ratios of the equity capital of enterprises (compare with the value for the Republic of Crimea) by urban districts and municipal districts of the Republic of Crimea for 2016-2020. Source: built by [6,7].

The best values for this indicator were recorded in Simferopol, Dzhankoy, Sudak, Yalta in 2020, Alushta, Dzhankoysky, Krasnogvardeisky, Nizhnegorsky, Chernomorsky districts in 2016, 2018, 2020.

The worst values and the largest number of deviations from 1 were recorded in Kerch, Krasnoperekopsk, Saki, Feodosia, Pervomaisky, Razdolnensky districts.

Thus, from the 8 (eight) previously given values for urban districts and municipal districts of the Republic of Crimea, we derive the general integral indicator "financial and production component", which shows the complex total effect on the characteristics of capital at enterprises of the Republic of Crimea. A deviation from 1 indicates a negative result. An illustration is shown in Fig. 10.
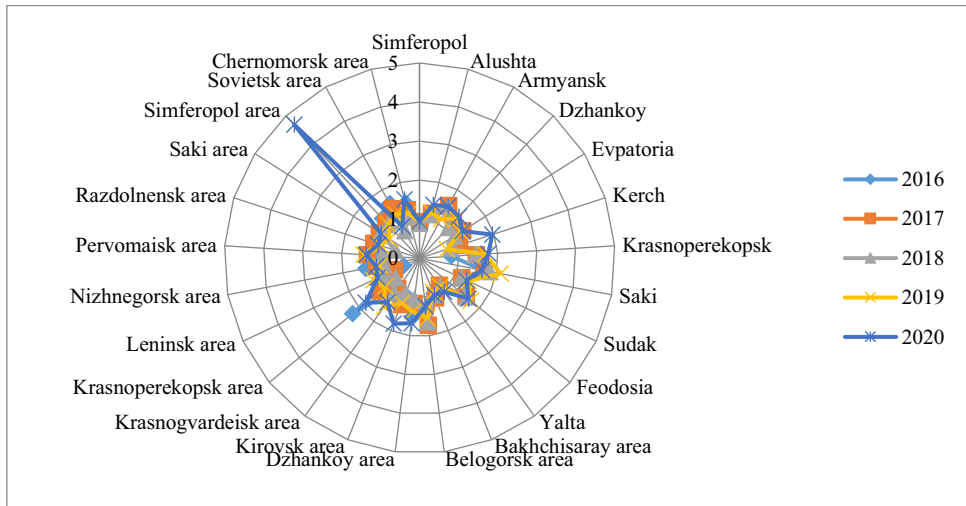
Fig. 10. Illustration of the integral indicator of the financial and production structure by urban districts and municipal districts of the Republic of Crimea for 2016-2020. Source: built by [6,7].

4 Conclusions

The group of indicators of the financial and production structure of the region includes: adjusted indicators of profitable enterprises, adjusted indicators of working capital, adjusted indicators of total capital, adjusted indicators of turnover of total capital, adjusted indicators of operating profitability of sales, adjusted income indicators, adjusted indicators of equity turnover, adjusted concentration ratios of equity capital.

If we analyze the data obtained on the integral indicator "financial and production structure of the region", then it is worth noting the municipalities in which financial indicators are higher than in other regions of the Republic of Crimea - these are Alushta, Armyansk, Dzhankoy, Evpatoria, Kerch, Saki, Sudak, Feodosia , Belogorsky district, Dzhankoysky district, Simferopol district, Chernomorsky district.

The worst indicators for the integral indicator "financial and industrial structure of the region" were noted in Simferopol, Yalta, Krasnogvardeisky district, Leninsky district.

Further research should be directed to the systematization of financial security indicators, namely, the integration of indicators of the region and the country.

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