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COMPETITIVENESS OF AN INDUSTRIAL REGION UNDER PANDEMIC RESTRICTIONS

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Abstract

Today we are witnessing cardinal changes in the world economic order. The reason for such highly dynamic changes in the world economic order was the pandemic of the coronavirus infection COVID-19 caused by the SARS-CoV-2 coronavirus. Widespread pandemic restrictions introduced to contain the pandemic development have exacerbated a long period of recession, which is observed both in the global economy and in national economies. The article deals with increasing the competitiveness of an industrial region in the context of pandemic restrictions. The research's methodological basis is the neoclassical economic theory, which describes, within the framework of the production function, the dependence of the produced volume of output on the applied factors of production. The trends in the economy of the Ural region are described. It was substantiated that the way of an industrial region to the trajectory of explosive growth can be ensured through the process of diversification of the leading industrial enterprises of the region, which will ensure a high level of self-sufficiency of the region with various types of products and enhance expansion to foreign markets.

Keywords: Competitiveness, diversification, industrial region

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1. Introduction

Low economic growth and increased uncertainty become factors in developing the national economy's core and regional economy. To explain the world's ongoing processes, national and regional economies laid the foundation for such concepts as "new reality" or "new normal, " which are increasingly used when discussing economic systems' development. Combinations of production factors, which until recently served as drivers of economic development of both the regional and national economy, and the world one today cannot give an impetus to further economic development after the lifting of pandemic restrictions. The chosen topic's high relevance is dictated by the need to develop a new strategy for economic growth and sustainable development of Russian regions. Achieving economic growth remains a controversial issue both today and ten to twenty years ago. The most promising direction for achieving the subject of discussion is the concept of neo-industrialization, which is understood as industrialization based on the latest technological advances. A good goal of neo-industrialization is the transition to modern results of scientific and technological progress. Therefore, determining the main goals and mechanisms and the objects of the neo-industrial concept arises. To solve this problem, it is necessary to study the specific features of industrial regions, the characteristics, and factors of their development, and identify the criteria and indicators that underlie industrial regions' development (Animitsa & Ivleva, 2013); (Silin et al., 2017); (Silin et al., 2018). This kind of research is needed when developing regional industrial policy. Besides, a study of the essence of industrial regions, the specifics of their development, and the problems these regions face is necessary to determine their sustainable development from an environmental perspective. Environmental problems in the 21st century are among the most important in the world. In industrial regions, environmental problems also come first, which should be considered when planning industrial policy in these regions. This study examines the main approaches to the definition of the term "industrial region." It is essential to define this term because Russia is a predominantly industrial country.

2. Problem Statement

In this paper, the study of promising directions for increasing the competitiveness of an industrial region was carried out based on the Ural Federal District's regions. The Ural Federal District includes the Sverdlovsk, Chelyabinsk, Kurgan, Tyumen regions, as well as the Yamalo-Nenets and Khanty-Mansi Autonomous Okrugs. The administrative-territorial center of the Ural Federal District is Yekaterinburg. The federal district area is 1,788.9 thousand km2, or 10.5% of the territory of Russia. Geographically, the Ural Federal District occupies a favorable economic and geographical position, located between the industrially developed regions of the Volga and the rich in the eastern regions' natural resources. For the eastern regions, the Ural acts as a support base for economic development, and with the west, it is connected with the transportation of raw materials, fuel, and the supply of finished industrial products. The Ural Federal District regions are close to the markets for finished products, consumed both in the country's western and eastern regions (Abdurakhimov, 2018).

The Ural Federal District is an urbanized area (the urban population's share is 80.7%). Two cities have over a million people: Yekaterinburg and Chelyabinsk. Urban agglomerations were formed around

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these cities. The Urals Federal District's economy is based on the fuel and energy complex, based on Russia's richest oil and gas reserves. The industry also plays an essential role in the district's economy, particularly ferrous and non-ferrous metallurgy, which is concentrated in the Sverdlovsk and Chelyabinsk regions. In these regions' administrative centers, the overwhelming part of regional budget revenues is formed: in Yekaterinburg - up to 50%, in Chelyabinsk - about 75%.

The Ural Federal District has a competitive advantage based on the accumulated production potential, characterized by a high degree of integration and market interdependence. The position of the Ural Federal District on key macroeconomic indicators is presented in Table 1. This ensures sales guarantees and the stability of business entities' contacts along the technological chain and leads to a "stagnation" of the established relations, which affects the quality of product competitiveness (Barkhatov & Benz, 2018).

Table 1. The leading macroeconomic indicators by Federal Districts in 2019

Name of the federal district	Mining and quarrying		Manufacturing industries		Balanced financial result of organizations' activities		Foreign trade turnover Investments in fixed assets		Investments in fixed assets	
Central	12.6	5	33.3	1	37.8	1	53.9	1	29.3	1
North-West	5.9	6	13.4	3	11.7	3	13.4	2	10.4	4
South	2.5	7	6.4	6	4.9	7	3.9	7	6.8	7
North-Caucasian	0.1	8	0.9	8	0.6	8	0.4	8	3.2	8
Volga	14.2	3	21.4	2	11.6	4	8.1	3	13.9	3
Ural	**37**	**1**	**12**	**4**	**16.3**	**2**	**7.5**	**4**	**15.1**	**2**
Siberian	14.4	2	10.5	5	11.1	5	7.2	5	9.3	5
Far East	13.3	4	2.1	7	6	6	5.7	6	8.2	6

Having sufficiently advantageous types of resources and territorial position in the subjects of the Ural Federal District, there are problems associated with the accumulated physical and moral depreciation of fixed assets of most large industrial enterprises, low investment in fixed assets of most enterprises in the processing industry, low labor productivity in the processing industry (Barkhatov & Silova, 2018).

Based on the above characteristics of the Ural Federal District as a whole and some of its regions, this work's main task is to study the theoretical and methodological aspects of increasing an industrial region's competitiveness in current conditions. Through the use of econometric tools, it is necessary to

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confirm or refute the hypothesis that the economy of the Urals Federal District can enter the trajectory of explosive growth through the process of full or partial diversification of the leading industrial enterprises of the regions, which will ensure a high level of self-sufficiency of the region with various types of products and enhance expansion to foreign markets.

3. Research Questions

Despite numerous studies in the field of regional economics, the term "industrial region" still has no precise definition. In the study of regional development, different terminology is used, namely, "old industrial region", "industrial region", "industrial region", etc. In the 1970s, the concept of "old industrial region" entered the scientific circulation. This region type differs from problem regions, characterized by severe technological backwardness, despite the available resources and human potential. Typically, these regions are defined as depressed because they show lower growth rates than the national average. The concept of an industrial region is used in many classifications, but there is no precise definition of this term in the Russian regional economy.

Gilmanova (2011) defines an industrial region as an administrative subject of the Russian Federation, where the share of the gross value added of the industry in the gross regional product is at least 33%. However, in our opinion, one criterion for defining an industrial region is not enough, and the level of the share of industrial production proposed by the author of 33% is not justified in any way. When using the share of industrial production in GRP as a criterion for defining an industrial region, it is necessary to understand what is related to the industry. Following Federal Law No. 488 of December 31, 2014 "On Industrial Policy in the Russian Federation", the industry is understood as "the totality of economic activities related to mining, processing, a supply of electricity, gas, and steam, air conditioning, water supply, sewerage, organization of waste collection and disposal, as well as the elimination of pollution determined based on the All-Russian classifier of types of economic activity."

Kumaneeva (2014) uses the concept of "regions of industrial-type" in the study of the problems of sustainable development of regions, but does not give an exact definition of this concept. The author gives the main features of an industrial region: a large resource base (and, as a consequence, a high resource intensity of the economy); weakness of the agricultural sector (less than 10% of GRP); use of traditional technologies and low innovativeness of the regional economy. These factors are combined with high environmental stress, urban predominance and many others. However, in our opinion, these signs are not exhaustive, on the one hand, on the other hand, if we talk about individual industries in certain regions, they can be quite high-tech. Also, the author does not provide a metric for assessing the level of environmental stress in industrial regions, even though the problem of environmentally sustainable development of industrial regions, in our opinion, is especially relevant today. This problem is complex and interdisciplinary since stability can be understood in physical, economic, environmental, geopolitical and other senses.

Issues related to the sustainable development of regions, clustering and competition between the regions of the Ural Federal District (industrial regions) are studied in Tatarkin et al., (2015). Tatarkin et al. (2016) propose to consider the region as a spontaneous system. By self-development, they mean "the ability of the region to ensure expanded reproduction of the gross regional product based on the existing

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potential of its own resource opportunities and income sources in the interests of realizing both macroeconomic goals and national priorities, and regional goals in terms of its external environment." Thus, for sustainable development, the region needs to ensure an increase in GRP from internal sources and the development of the necessary regional institutions.

In the international literature on regional development, today the dominant theory is the cluster theory. Cluster theory assumes that firms that are part of clusters acquire additional competitive advantages, positively affecting economic growth and business activity in the region. The core of such studies is the influence of substantiates industrial regional clusters' influence on poverty reduction in the regions, showing the main patterns of this process.

The concept of a "resource" region is studied as part of the analysis of a new strategy for regional growth. Pointing to the need to integrate regional policy, the concept of a resource region is put forward, which outlines a set of opportunities and conditions necessary for development. Consolidation and optimization of existing capabilities becomes the main task of regional policy.

4. Purpose of the Study

The paper aims to analyze the competitive advantages of the Ural Federal District's industrial regions. Based on this, directions for increasing the Ural Federal District's industrial regions' competitive advantages will be proposed.

5. Research Methods

The study is based on official statistical information provided by the official bodies of state statistics annual statistical reports on the leading indicators of the socio-economic development of federal districts and regions of Russia.

Methods of graphical and comparative analysis, synthesis, inductive and deductive system approaches were used as methodological tools. For a detailed understanding of the essence of an industrial region's development, an array of statistical data was analyzed for the leading regions of the Ural Federal District - Sverdlovsk, Chelyabinsk, Tyumen regions. General economic indicators were identified as crucial indicators for conducting a comparative analysis: gross regional product, the sectoral structure of GRP, investments in fixed assets, population size, the population of working age, the average annual number of employed, number of unemployed, labor productivity, industrial production index (Benz et al., 2018).

6. Findings

Gross regional product is a generalized indicator of a region's economic activity, which characterizes producing goods and services for end-use. It is an essential indicator of the region's development since it represents the gross value added of goods and services created by residents of the region and is defined as the difference between output and intermediate consumption (Figure 1).

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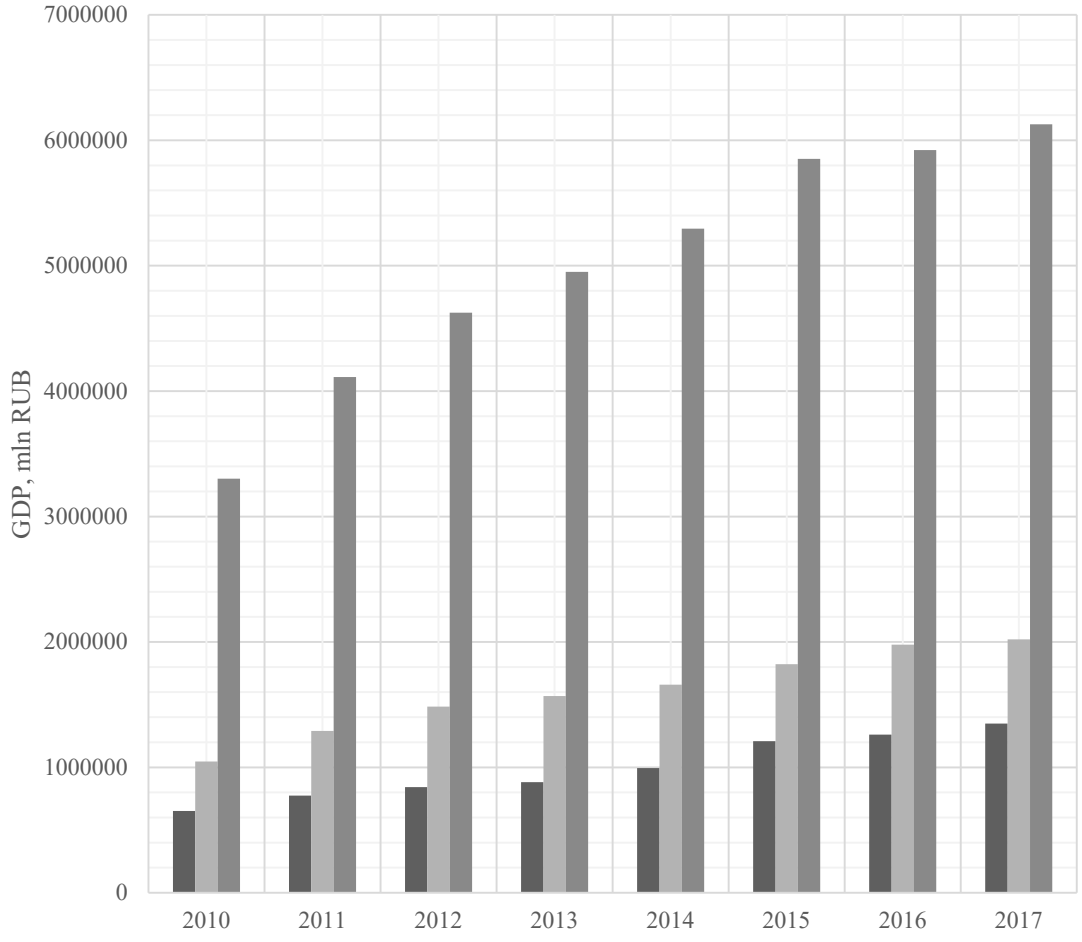

Figure 1. Comparison of the GRP of the leading industrial regions of the Ural Federal District (dark grey – Chelyabinsk region, light gray – Sverdlovsk region, grey – Tyumen region)

When comparing the leading industrial regions of the Urals Federal District in terms of gross regional product, the apparent leader is the Tyumen region with a continually upward trend. The Sverdlovsk region takes second place, and the Chelyabinsk region closes the list. This indicator has an upward trend in all three regions, which indicates a constant increase in the volume of products and services provided. Nevertheless, here it is worth making a reservation in the direction of the significantly surpassing GRP of the Tyumen region since a large share of this indicator is made up of the GRP of the Khanty-Mansiysk Autonomous District (2nd place at the end of 2018) and the Yamalo-Nenets Autonomous District (5th place at the end of 2018), which, according to this indicator, occupy the leading positions in Russia as a whole. The position of the Ural Federal District region in terms of gross regional product is shown in Table 2.

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Table 2. Position of the regions of the Urals Federal District in terms of gross regional product, billion rubles

№	The subject of the Russian Federation	2014	2015	2016	2017	2018
1	Moscow	12,779	13,520	14,299	15,724	17,881
2	**Khanty-Mansy AD**	2,860	3,154	3,031	3511	4,447
3	Moscow oblast	2,742	3,180	3,565	3803	4,201
4	Sankt-Petersbourg	2,661	3,387	3,742	3866	4,193
5	**Yamalo-Nenets AD**	1,633	1,791	1,963	2461	3,083
6	Republic of Tatarstan	1,661	1,867	1,937	2114	2,469
7	Krasnodar kray	1,784	1,933	2,015	2225	2,344
8	Krasnoyarsk kray	1,410	1,667	1,767	1882	2,280
9	**Sverdlovsk oblast**	1,659	1,822	1,978	2142	2,277
10	Republic of Bashkortostan	1,260	1,316	1,344	1396	1,673
11	Samara oblast	1,149	1,264	1,275	1349	1,510
12	**Chelyabinsk oblast**	993	1,209	1,260	1348	1,473
13	Rostov oblast	1,007	1,189	1,270	1347	1,446
14	Irkutsk oblast	916	1,001	1,068	1192	1,392
15	Nizhegorod oblast	1,009	1,104	1,182	1260	1,367
16	Permski kray	974	1,063	1,091	1191	1,318
17	**Tyumen oblast**	801	905	927	1013	1,259

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To identify such a high GRP indicator of the constituent entities of the Ural Federal District (the leading industrial regions of the Ural Federal District are in the top ten for this indicator), it is necessary to disclose the sectoral structure of the GRP, i.e. identify the driving sectors of the region's economy.

The large gap in the region's socio-economic development can be reflected through the concept of "Center-periphery", which is described in sufficient detail in the works of Barkhatov (2018). The central-peripheral orientation's resource dependence is divided into a federal district scale and a regional scale. Resource dependence throughout the country can manifest itself as the dependence of any subject of the Russian Federation (or a group of subjects of the Russian Federation) on Moscow's administrative center. Resource dependence on the federal district's scale also manifests itself as the periphery's dependence on the center, and the same situation is similar at the regional level (Barkhatov & Benz, 2018).

Table 2 shows the position of the Ural Federal District regions in terms of gross regional product. The list of 10 leading regions includes regions rich in raw materials, a developed manufacturing sector, institutional rent (profit associated with capital privileges), and a high share of the extractive industries. Raw material specialization affects not only the rate of economic growth, it also predetermines regional disparities in socio-economic development. Raw material regions attract investments, attract skilled and mobile labor resources, which affects the level of socio-economic indicators as a whole (Table 3).

Table 3. Structure of gross domestic product of the regions of the Ural Federal District, in%

Type of production	Ural Federal District	Kurgan oblast	Sverdlovsk oblast	Tyumen oblast	Chelyabinsk oblast
A	1.6	9.5	2.4	0.6	5.4
B	**44.4**	0.8	1.6	**63.7**	2.6
C	**13.4**	**23.2**	**32.5**	4.3	**36**
D	2.5	7.2	4.3	1.8	3
E	0.5	1	1	0.2	1.2
F	7	3.8	4.2	8.1	5.8
G	7.6	9.6	15.3	4.8	11.1
H	6	10.3	8.7	5.1	6.6
I	0.6	0.9	1.1	0.4	0.7

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J	1.1	2.8	2.5	0.6	2.0
K	0.2	0.3	0.4	0.1	0.3
L	3.1	4.7	6.3	1.7	6.6
M	2.4	1.5	4	1.8	3.5
N	2	1.7	2.5	1.9	1.7
O	2.5	8.5	4.6	1.5	4.3
P	1.9	5.4	3.1	1.3	3.3
Q	2.6	7.5	4.1	1.7	4.8
R	0.4	0.9	0.8	0.3	0.6
S	0.2	0.4	0.6	0.1	0.5
T	0	0	0	0	0

The Ural Federal District currently occupies one of the top places in the country's economy. It has a unique natural resource potential in terms of reserves and diversity, a developed industrial complex, powerful, albeit unevenly developed, transport and energy infrastructure, a high share of export products, qualified labor resources, an extensive educational network, and research centers. On the territory of the Yamalo-Nenets Autonomous District 4, up to 44% of the all-Russian and almost one-third of the domesticated reindeer's global population are concentrated. The highest population density is characteristic of the central and southern parts of the federal district, which is explained by the peculiarities of the regions' geographical location and their industrial production structure. Most of the constituent entities of the Ural Federal District have large deposits of mineral raw materials. In the Khanty-Mansiysk and Yamalo-Nenets Autonomous Districts, oil and gas fields have been explored and are being exploited in the West Siberian oil and gas province, which contains 66.7% of Russia's oil reserves (6% of world reserves) and 77.8% of Russia's gas reserves (26% of world reserves).

The main prospects for the development of the Ural Federal District economy are associated with two mega-clusters, namely in the north (Western Siberia) - the fuel and energy complex, provided with a resource base of global importance, a unique pipeline transport system and providing up to 50% of the Russian Federation's exports, characterized by the development of electric power industry, oil and gas

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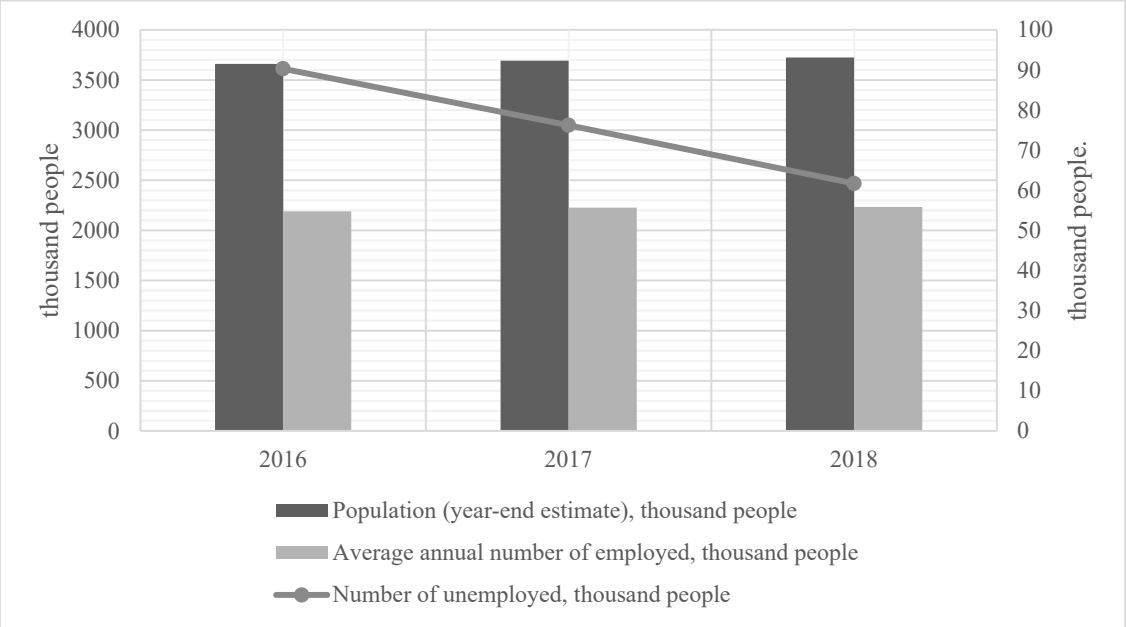
processing and petrochemical; in the south (industrial Urals) - the country's essential manufacturing industry center, primarily mechanical engineering and metallurgy, the core of the defense industry complex, which includes leading enterprises developing the most modern technologies (nuclear, rocketry), a complex of research and educational centers (Bodrunov, 2018).

Based on the comparison of the sectoral structure of the GRP of the leading industrial regions of the Urals Federal District, it becomes clear that in terms of industry affiliation, the Chelyabinsk and Sverdlovsk regions are classified as manufacturing (Section C), and the Tyumen region is classified as mining.

Based on the approaches to the definition of an industrial region, which we cited earlier, industry share (section B and C) significantly exceeds all others' share. A large machine-building complex has historically been formed in the Sverdlovsk and Chelyabinsk regions, and a large mining complex has also historically been formed in the Tyumen region (Benz & Barkhatov, 2018).

It also analyzed factors such as population and labor force. In the 21st century, the attitude towards human capital has changed dramatically. This happened mostly due to the overestimation of human capital's contribution to the development of any system. Figure 2 shows the data of the Urals Federal District's leading industrial regions' analysis of labor resources. The leading positions in terms of both population and average annual numbers are occupied by the Sverdlovsk Region, followed by the Chelyabinsk Region and the Tyumen Region. In all three areas, we can observe a downward trend in reducing the number of unemployed, which is undoubtedly a positive fact.



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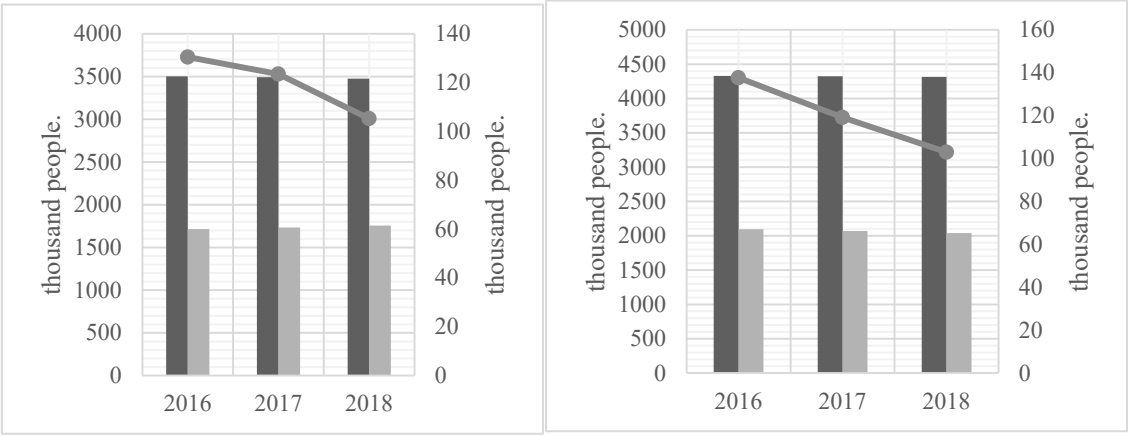

Figure 2. The ratio of the population, the average annual number of employed and the number of unemployed in the leading industrial regions of the Ural Federal District, in a thousand people

The most pronounced gap between the population and the average annual number of employed is manifested in the Sverdlovsk and Chelyabinsk regions and the smallest in the Tyumen region. Such heterogeneity in the analysis of these indicators in different regions can be justified by the fact that in the Tyumen region (in particular, in the Khanty-Mansi Autonomous Okrug and Yamalo-Nenets Autonomous Okrug), the unemployment rate and staffing level in the field of oil and gas production and oil and gas processing is high compared to the mechanical engineering (manufacturing industry).

7. Conclusion

Thus, the spatial development of the Ural Federal District regions under the conditions of restrictive measures is characterized by high unevenness, which increases with their tightening. The contrast between the mining and manufacturing regions looks incredibly sharp.

The analysis of the key economic indicators of the leading industrial regions of the Urals Federal District demonstrates the predominance of specialization in certain types of economic activity (section B and C) of the economies. The efforts made by the stakeholders over the years have had little impact on the production structure of the regional product. The main trend was the trend towards a reduction in the dominant share of mining, along with an increase in the share of GRP sections attributed to the auxiliary and social component of economic activity, which occurred due to not controlled, but natural development. Due to this, in the Ural Federal District, there was a slow drift towards more balanced participation of the district's constituent entities in the generation of GRP, which the authorities and administration should pay attention to when developing promising programs for the socio-economic development of territories.

The comparable proportion is explained by the relatively high share of section C in the economy of the autonomous okrugs and the preservation of its size in the GRP structure of the federal okrug as a whole.

The continuing urgency of spatial development problems, both in Russia and abroad, indicates the need to intensify research in this area and expand the range of applied methodological tools in other federal districts or other macroregions.

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