Impact of Human Capital on the Development of the Arctic

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Abstract: The relevance of the issue under study is due to the fact that human capital is currently of great importance for the development of the economy of both a country and a separate region, such as the Arctic. The purpose of the article is to draw up recommendations for the development of the Arctic, through the effective use of human capital. Leading approach to researching the problem. The leading methods of researching the problems of the article include the analysis of theoretical sources, analysis of statistics, and comparison. The analysis of statistical indicators plays a crucial role in the study, since data on the development of the Arctic and on human capital can be directly obtained from statistical databases. The article discusses the concept of human capital, ways of developing the human capital with the goal of developing the territory, analyses the influence of human capital on the development of the Arctic, identifies problems in the development of the Arctic, and develops solutions to them. The development of the Arctic through the efficient use of human capital can be achieved by investing in human capital. The materials of the article are of practical value for the development of the Arctic or other regions of the country through the use of human capital.

Keywords: sustainable development, Arctic regions, socio-economic aspects, economic growth.

INTRODUCTION

In the face of increasing global competition of technology and labour, human capital is becoming the main factor in the development of Russian regions. The level and quality of life of the population are the most important for the state, so the priority is to activate the social factors of economic growth, especially those that are responsible for the process of formation of human capital. Improving the management of territorial development through the use of all resources, among which human capital, intellectual capital and social capital plays an important role, requires determining new management approaches and methods. The main factor in economic development is

human capital. A person is a carrier of intelligence and a producer of the latest knowledge, the result of which acts on the surface of economic relations as human capital. Human capital is a measure of the natural abilities embodied in a person, talent, level of education, qualification, professional experience, health status, nutrition quality and their ability to generate income. Since human potential is a complex socio-economic system, its condition is characterised by a set of indicators that complement each other: the life potential of the population, investment in the formation and accumulation of human potential; employment potential, educational potential, health potential, cultural potential. In the context of the transition from industrial to post-industrial society, the main factor in production is human capital and its forms: intellectual, social, etc. The state policy of Russia is largely aimed at human development. State power recognises human security, living standards, the environment, social status and choice as the basis for progress. However, in the country there are significant differences in the living standard of the population, in the level of development of human capital, in the level of innovative development of the regions.

In Russia, the growth rate of the transition to an innovative development path compared to developed countries can be considered low, and the problem of finding effective innovative development in the strategically important territories of the Arctic, with its severe climatic conditions, is especially acute (Levkina, Gladun, 2018). The Russian Arctic is a very resource-rich region that makes a great contribution to the export of the state and has great potential for developing the mineral resource base and ensuring the country's military security. The problems of the development of the Arctic are associated with the climatic conditions, the remoteness of the regions from the political centre, the underdeveloped transport infrastructure and, consequently, the high costs of production and livelihoods for citizens of this region. For the development of the Arctic, it is important to invest in human capital, for which it is necessary to systematise existing knowledge and develop new in relation to the most important factor of economic growth in the form of human capital. The theoretical significance of the article is in the study of the essential and substantial features of the influence of human capital on the development of the Arctic. The practical significance of the paper is in proposing directions for the development of the Arctic through the use of human capital or other regions of the country. The theoretical basis of the article is constituted by fundamental developments on the topic under study, which were presented in the works of domestic and foreign authors.

Many authors paid attention to the problems of the influence of human capital on the development of the region and proposed ways to solve them. According to N.G. Menshikh, V.A. Tsukerman (2013) in order to improve the economy, increase the capabilities of society, increase the intellectual resource of the country, it is necessary that members of the society have the necessary educational, intellectual, informational capabilities. N.V. Govorova (2018) believes that it is possible to reverse the negative trends in socio-demographic development in territories with difficult climatic conditions only if welfare and quality of life are improved, the environment is improved, traditional activities are promoted, and optimal conditions for personal and professional self-realisation of the indigenous people of the Arctic are created. O.Yu. Krasulina (2017) believes that in order to improve the socio-economic climate of the Arctic region, it is necessary to actively develop small business. According to E.E. Emelyanova (2019), for economic growth, for the development of small and medium-sized businesses in the Arctic, the state needs to improve labour legislation in the field of remuneration and

various preferences for workers in the Arctic regions in terms of compensation for travel expenses to the place of vacation, regional allowances and coefficients for small business. However, in the literature there are no relevant studies of the problems of the influence of human capital on the development of the region (in particular, the Arctic), which will be discussed later in this article.

Literature Review

Throughout the history of mankind, one of the most important tools for influencing individuals and society as a whole has been the social system and its main component – human capital. The reasons for the interest in this concept are that: it is a general pattern of development of modern science as a whole, which draws the attention of scientists to the study of human problems; it is a recognition of the fact that activating human potential is the most effective way to achieve a country's economic growth. In a post-industrial society, the importance of human capital is growing. Therefore, the natural question is about the mechanisms of using human capital in the period of globalisation of society. In recent years, the concept of human capital has become increasingly popular. The study of human capital with the involvement of this category in scientific use was of an interdisciplinary nature and took place within the framework of sociology, economic theory and cultural studies. The prerequisites for the development of the theory of human capital were laid in the works of representatives of classical political economy, who paid very serious attention to this problem. They began a scientific analysis of human ability to work, their formation, reproduction and effective functioning. The founders of the theory of human capital as a scientific direction were T. Schulz (1961) and G. Becker (1964) in the 60s of 20th century. Also, domestic and foreign scientists, such as: A. Toffler (1980), I. Fisher (1906), M. Blaug (1970), R.I. Kapelyushnikov (2012), A.A. Chukhno (2003), A.V. Koritsky (2000), etc. also studied this issue.

However, despite the existing scientific achievements of researchers on the topic of human capital, it is impossible to talk about the formedness of the theory of human capital as a concept. T. Schulz (1961) at the turn of the 1950-1960s defined human capital as everything that constitutes a source of future pleasures or future earnings, or both; any asset – material or human, which is capable of generating a stream of future income. G. Becker (1964) believed that human capital is a combination of knowledge, health, skills and experience that an individual uses to generate income. There are two types of investments in human capital: general and specific, according to which general or specific human capital is created. The scientist understands the first as the investments made in the process of the general training of an employee. That is, an employee makes the general investment himself, getting an education in educational institutions. Special investments are made directly at the workplace, associated with training conducted at an enterprise. With the help of this concept, the attitude of parliamentarians towards the problems of financing education has changed. Further development of the theory of human capital occurred in line with the neoclassical direction of economic theory, using its methodological apparatus for the quantitative assessment of the return of education, industrial training, work experience, personal abilities and the like. In contrast to the theory of human capital, the so-called alternative concepts of human capital or, as they are also called, expanding (UN social Council..., 2013) arose. These theories try to take into account the whole spectrum of human

qualities that were ignored by the traditional approach. In the 70s of the 20th century the theory of a "filter" was created (A. Berg, M. Spence, K. Arrow), which considers education as a mechanism that can divide people according to their level of ability. The central idea of this theory is to highlight not the productive, but the selective (informational) function of education.

A continuation of the "filter" theory is the signal concept proposed by M. Spence, whose main idea is that the education system does not aim at increasing the individual's productivity, but only selecting a person who will bring the greatest productivity in the future. Thus, the diploma received is only a signal to an employer. In the late 70s of the 20th century, there was a massive influx of students to universities and the excess of the labour market; this phenomenon was explained in the theory of congestion by S. Diebolt, which was constructed similarly to M. Freeman's "Web" models, establishing a causal relationship between the increase in the number of students due to movement in the labour market. Further development of the concept of human capital is reflected in new models of endogenous growth of P. Romer (1986) and R. Lucas (1988). According to the model of S. Romer, R. Mankiw and V. Weil, new theories of growth were able to more accurately determine human capital and its contribution to the economic growth of countries under development (Parshina, 2013). A. Sen proposes to consider the theory of human capabilities as a continuation of the theory of human capital. The approach in terms of opportunities considers, first of all, individual preferences, which are evaluated in terms of the ability to carry out a certain set of actions that are important during a person's life. It can be argued that in modern economic literature, human capital is considered as a fundamental category. Today, two theoretical platforms can be generalised to determine the essence of human capital, on which modern scientists are based in their searches. Thus, according to the first approach, which was laid down by K. Marx in the process of researching labour force, human capital is a combination of productive abilities, personal qualities and motivation of individuals who are in their ownership, which are used in economic activity as a result of investments. A. Dobrynin et al. (1999) present a different, institutional, methodological approach, according to which human capital is considered as a structured set of economic institutions. T.I. Gurova, I.P. Konev (2019) believe that human capital is the ability, qualities of a person, social conditions that determine the mechanisms of reproduction of the human ability to work and the full satisfaction of his needs.

Human capital is a combination of knowledge, professional qualities, experience that individuals possess and which make them "economically productive". Human capital can be increased through investments in education, health, and training (Measuring human capital..., 2013). Depending on the type of work performed, human capital is divided into total human capital, specific human capital, human intellectual capital. Thus, the most general definition of human capital is: knowledge, competencies and properties embodied in individuals that contribute to the creation of personal social and economic well-being. A number of definitions of human capital emphasise the market nature of the category; in other definitions, emphasis is placed on reproducibility of human capital as an economic resource. A variety of approaches both to the content of this concept, and to methods for measuring and evaluating the stocks of human capital, its returns, efficiency of use, contribution to economic growth is growing. It should be noted that the level of development of human capital is significantly affected by the interest of the state in increasing it by financing the population from the state budget for education, health care and spiritual and physical development. In the developed

countries of the world, the state takes on an increasing share of the costs of human development. This is due to the extremely important strategic importance of such investments and the fact that they have a significant positive external effect for social and innovative development. Human capital is central to the sustainable development system. An important growth factor in the European Economic Development Strategy "Europe 2020" is increasing employment (Europa 2020..., 2020). However, by investing in professional development or social security of employees, it is possible to obtain an economic effect only under the conditions that employees will understand the importance of improving their work and increasing the quantitative and qualitative results of labour.

There are different forms of investment in human capital, but the main and most significant form of investment is education, from which the greatest efficiency is achieved. The experience of economically developed countries of the world indicates that investing in human capital even in small amounts allows to get much greater economic returns in the long term than significant investments in the technical development of the enterprise. Investing in human capital is seen as a very important source of economic growth, more important than investing in physical capital. Such investments include the costs of obtaining education, advanced training, maintaining and strengthening health, giving birth and raising children, and improving communication skills. For the sustainable development of human capital, it is necessary to ensure equal access of citizens to high-quality medical services by creating a new organisation of the health system based on the principles of medical insurance, reforming and improving medical care; improving the education system in which pupils and students will acquire the knowledge and skills necessary for a successful life in the modern world, and scientists will have all the necessary capabilities and resources for their work; the introduction of honest and fair pension payments, where a significant gap between special and ordinary pensions has been bridged, and citizens who, during their working life, paid contributions without hiding income, receive worthy compensation; improving the effectiveness of social support for the population, which will make it possible to provide assistance to those who need it most, protect the poor and support them in the process of social integration; preserving the life and health of citizens, raising the level of education and effective financial support of scientists, honest pensions and social protection – these are the tasks that need to be solved in Russia.

At present, the geopolitical and economic importance of the Arctic is growing, and the basic problem of the development of the Arctic and the Arctic region is being formed (Kartamysheva, Biekenova, 2015). G.V. Ivanov et al. (2017) consider that the key issues of the development of the Arctic zone of the Russian Federation (AZRF) and its human capital are currently concentrated around the following problems: the necessity for a special economic policy in the Arctic; creation of territories of advanced social and economic development; international and interregional cooperation of business associations of the northern territories and the Arctic; Arctic competitive advantages and new growth points; innovative entrepreneurship as the basis of the alternative economy. Abroad, to develop the Arctic territories of Canada, Norway and Alaska, to stimulate the development of human capital, both traditional measures to popularise the territories (the development of healthcare systems, education, infrastructure support, fiscal policy) and unique preferences specific to the northern territories (creating a concept of winter city, involvement of small indigenous peoples in the economy) are applied. According to O.L. Surikova (2018), the introduction of such measures in Russia

can contribute to the accelerated socio-economic development of the Arctic macro-region. Thus, as the main productive and social factor in the development of modern society and as an economic category, human capital has acquired a multifactorial character. World experience shows that the primary task in the development of the Arctic zones is to create soft incentives for the formation and retention of human capital.

Methods

The main method used in the analysis of human capital development factors in the Arctic is the analysis of statistical indicators. In the Arctic regions, the Office of the Statistics service is a service that is responsible for collecting and publishing publicly available statistics on economic, social and demographic situation. All indicators for the regions are also on the website of the Federal State Statistics Service. To analyse indicators characterising the impact of human capital on the development of the Arctic, the author selected the following indicators:

– industrial production index;

– the growth rate of the volume of shipped goods, work performed and services for mining;

– the growth rate of the volume of shipped goods, work performed and services for manufacturing;

– the growth rate of livestock production in agricultural organisations;

– the growth rate of retail sales;

– construction growth rate;

– the growth rate of profit of organisations;

– the subsistence level;

– the growth rate of the average monthly accrued wages;

– unemployment rate;

– level of employment;

– the dynamics of the needs of employers in employees, declared in the employment services;

– migration growth;

– natural increase.

At the same time, to calculate individual indicators, it is necessary to study data for two periods, and to compare part of the indicators with the average indicators for Russia. As the empirical base of the study, socioeconomic indicators were selected for the regions of the Arctic and average for Russia. It is important to characterise the Arctic. The Arctic is the northern "belt" of Russia, a special regional dimension of the country, in which vast territories stretching from the extreme points of Russian borders in Europe to the borders of Russia in Asia, from the Kola Peninsula to Chukotka, are combined by harsh natural and climatic conditions, rich in natural resources, huge potential for the development of maritime transport (Northern Sea Route) – from West to East, along the

entire Russian Arctic coast. Russian territories make up about 1/3 of the total land Arctic, and the Arctic zone of the Russian Federation – about 20% of the entire territory of the country. More than half of the total Arctic population lives in Russia, representatives of 41 indigenous people of Russia, as well as various old-age Russian sub-ethnic groups. According to modern estimates, about 22% of the world's conventional oil and gas reserves are concentrated in the Arctic (about 29.9 billion tons of oil equivalent), which is 13-16% of the world's undiscovered oil reserves and 28-30% of the world's undiscovered reserves natural gas. The Arctic provides about 40% of the world production of palladium, industrial diamonds, about 15% of the world production of platinum. Russia produces 90% nickel and 60% copper. The study of the problem was carried out in three stages:

– at the first stage, a theoretical analysis of the existing methodological approaches to the analysis of the impact of human capital on the development of the Arctic was carried out, statistical indicators were selected for analysis;

– at the second stage, the study of the selected indicators in dynamics, their comparison with the average for Russia;

– at the third stage, generalising conclusions were made regarding the impact of human capital on the development of the Arctic, proposals were made to change the situation for the better.

Results

The authors will consider development indicators of the Arctic and compare them with development indicators of human capital. Figure 1 presents industrial production index on January-November, 2019 in % over the same period of 2018 in regions of Arctic and in average in the RF.

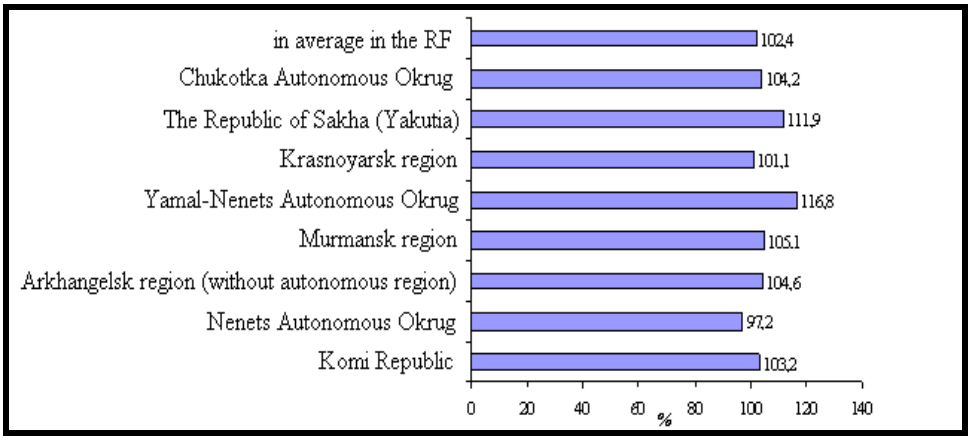

Figure 1. Industrial production index in January-November 2019 in % over the same period in 2018 in the Arctic regions and on average in the Russian Federation, %.
Source: created by the author based on gks.ru data.

From the data presented in the figure, it can be seen that in all regions of the Arctic, with the exception of the Nenets Autonomous Okrug, industrial production increased in 2019. In most Arctic regions, growth exceeded the national average. Figure 2 considers the growth rate of the volume of shipped goods, work performed and

mining services in January-November 2019 in % of the same period in 2018 in the Arctic regions and on average in the Russian Federation.

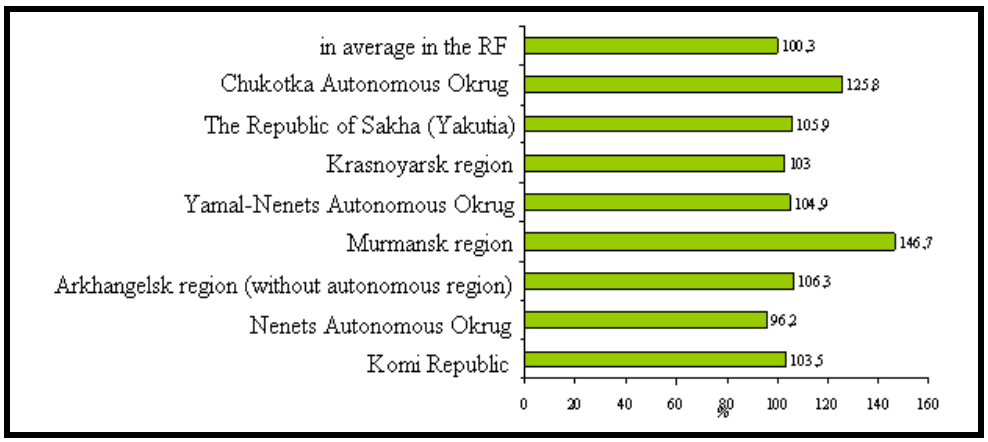

Figure 2. The growth rate of the volume of goods shipped, work performed and mining services in January-November 2019 in % over the same period in 2018 in the Arctic regions and on average in the Russian Federation, %.
Source: created by the author based on gks.ru data.

From the data presented in the figure, it can be seen that in all regions of the Arctic, with the exception of the Nenets Autonomous Okrug, the volume of goods shipped, work performed and mining services increased in 2019. In seven out of eight Arctic regions, the growth rate exceeded the average for Russia. Figure 3 considers the growth rate of the volume of shipped goods, work performed and services for manufacturing in January-November 2019 in % of the same period in 2018 in the Arctic regions and on average in the Russian Federation.

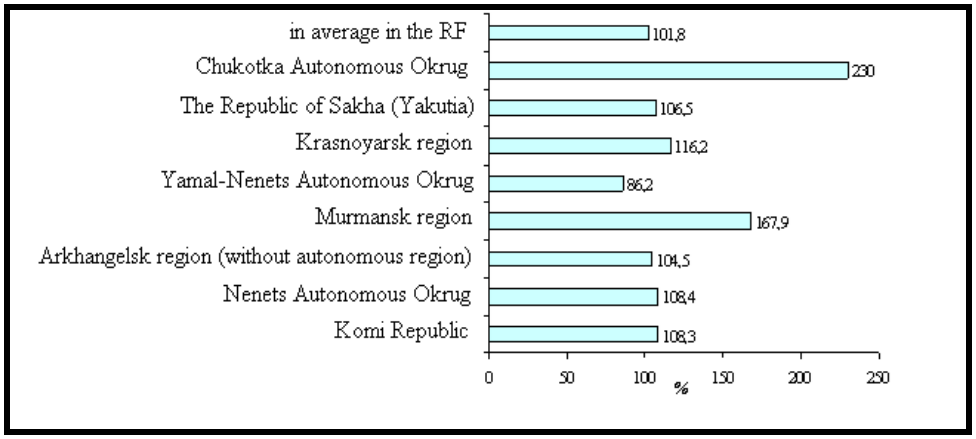

Figure 3. The growth rate of the volume of shipped goods, works and services for manufacturing in January-November 2019 in% over the same period in 2018 in the Arctic regions and on average in the Russian Federation, %.
Source: created by the author based on gks.ru data.

From the data presented in the figure, it can be seen that in all regions of the Arctic, with the exception of the Yamalo-Nenets Autonomous Okrug, the volume of goods shipped, work performed and services for manufacturing increased in 2019. In other Arctic regions, the growth rate exceeded the average for Russia. Figure 4 considers the growth rate of livestock production in agricultural organisations in January-November 2019 in% compared to the same period in 2018 in the Arctic regions and in average in the Russian Federation.

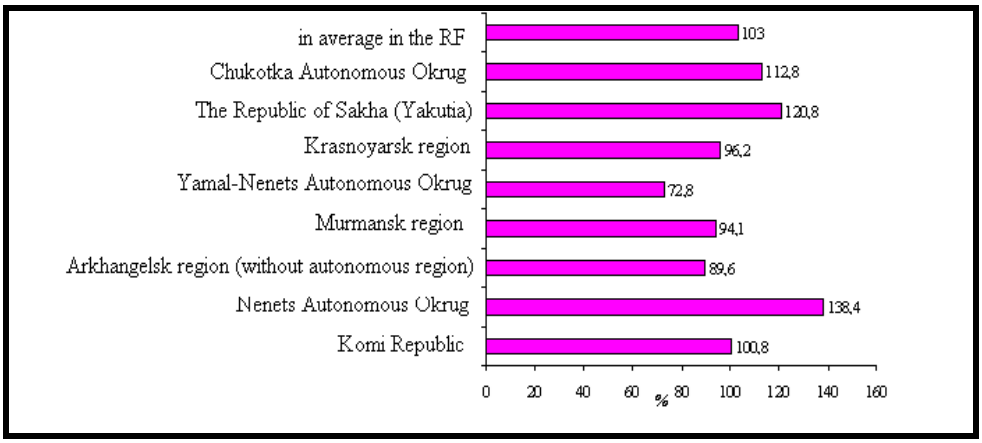

Figure 4. The growth rate of livestock production in agricultural organisations in January-November 2019 in % over the same period in 2018 in the regions of the Arctic and on average in the Russian Federation, %.
Source: created by the author based on gks.ru data.

From the data presented in the figure, it can be seen that in half of the Arctic regions (Krasnoyarsk Territory, Yamalo-Nenets Autonomous Okrug, Murmansk region, Arkhangelsk region) there was a decrease in the production of livestock products in agricultural organisations in January-November 2019 in a% to the same period in 2018. In the Komi Republic a slight increase in the indicator was noted. In the Chukotka Autonomous Okrug, the Nenets Autonomous Okrug and Yakutia, the growth rate exceeded the average for Russia. Figure 5 considers the growth rate of retail turnover in January-November 2019 in% to the same period in 2018 in the Arctic regions and on average in the Russian Federation.

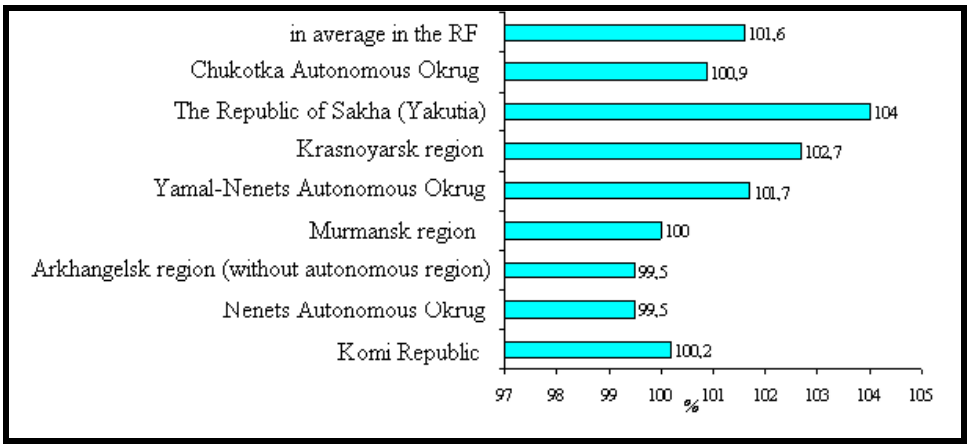

Figure 5. The growth rate of retail trade in January-November 2019 in% over the same period in 2018 in the regions of the Arctic and on average in the Russian Federation, %.
Source: created by the author based on gks.ru data.

From the data presented in the figure, it can be seen that in two Arctic regions (Nenets Autonomous Okrug, Arkhangelsk region) retail sales turnover decreased in January-November 2019 as a percentage of the same period in 2018. In three out of eight regions, the growth rate exceeded the average in Russia. Figure 6 considers the growth rate of construction in January-November 2019 in% to the same period in 2018 in the regions of the Arctic and on average in the Russian Federation.

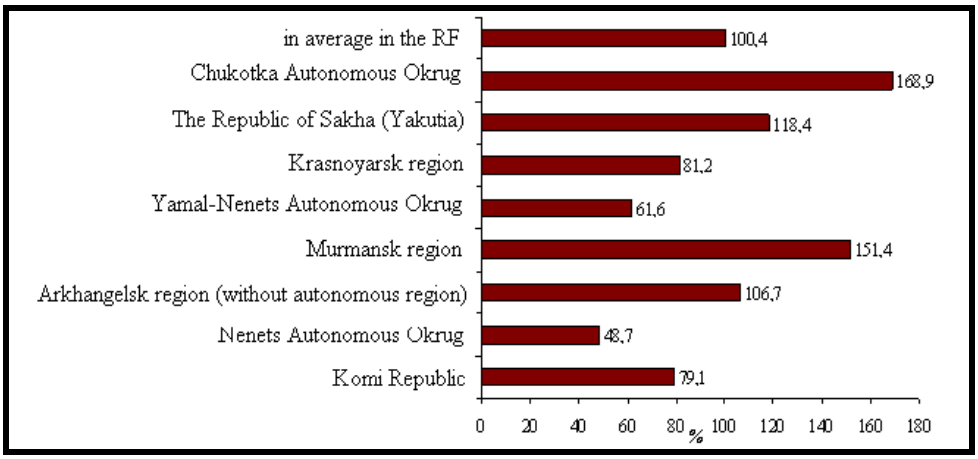

Figure 6. The growth rate of construction in January-November 2019 in% over the same period in 2018 in the regions of the Arctic and on average in the Russian Federation, %.
Source: compiled by the author based on gks.ru data.

From the data presented in the figure, it can be seen that in half of the Arctic regions (Nenets Autonomous Okrug, Krasnoyarsk Territory, Yamalo-Nenets Autonomous Okrug, Komi Republic) construction decreased in January-November 2019 as a percentage of the same period in 2018. In other Arctic regions, the growth rate exceeded average value in Russia. Figure 7 considers the growth rates of profit of organisations in January-October 2019 in% over the same period in 2018 in the regions of the Arctic and on average in the Russian Federation.

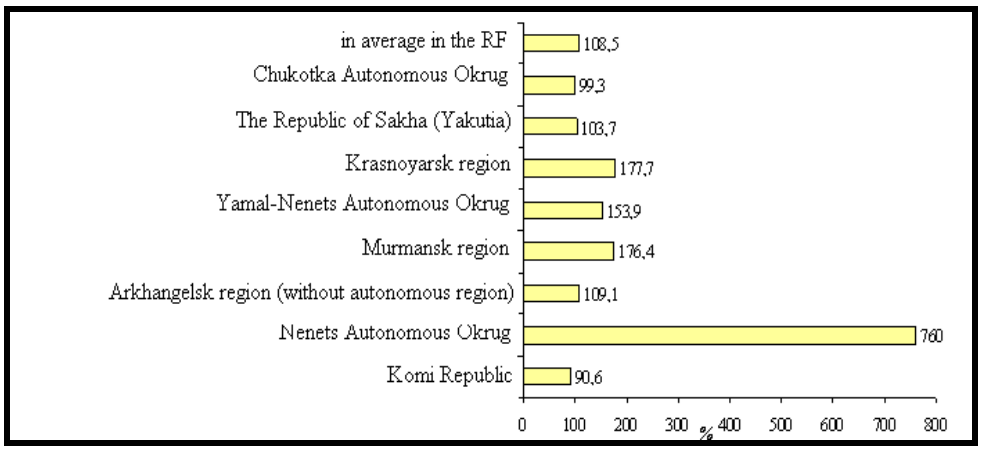

Figure 7. The profit growth rate of organizations in January-October 2019 in% over the same period in 2018 in the regions of the Arctic and on average in the Russian Federation, %.
Source: created by the author based on gks.ru data.

From the data presented in the figure it can be seen that in two Arctic regions (Chukotka Autonomous Okrug and the Komi Republic) there was a decrease in the profit of organisations in January-October 2019 in% compared to the same period in 2018. In six out of eight Arctic regions, the growth rate exceeded the average in Russia. A particularly large increase in the indicator occurred in the Nenets Autonomous Okrug – by 7.6 times. Next, the indicators of human capital development in the Arctic will be considered. Figure 8 considers the size of the subsistence minimum in the third quarter of 2019 for the regions of the Arctic and on average for the Russian Federation.

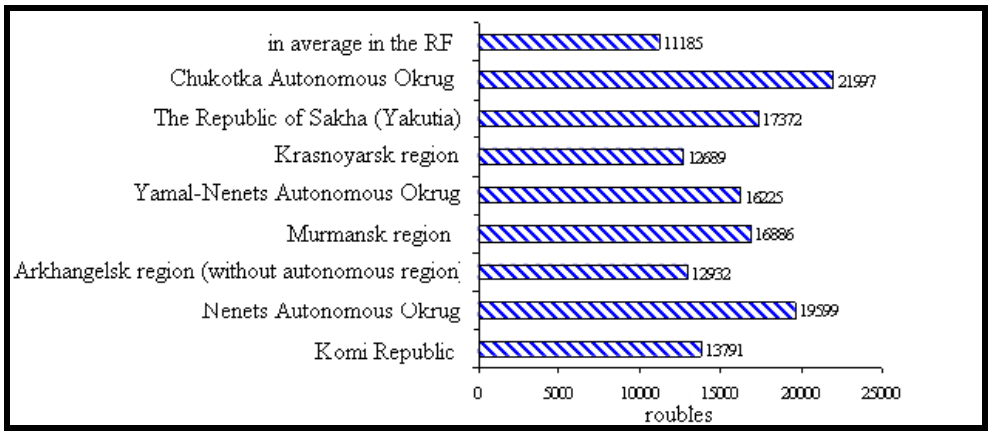

Figure 8. The subsistence level in the third quarter of 2019 for the regions of the Arctic and on average for the Russian Federation, rub.
Source: compiled by the author based on gks.ru data.

In all regions of the Arctic, the subsistence minimum in the third quarter of 2019 was higher than the average for Russia, due to the peculiarities of the territorial and climatic location. The greatest value is noted in the Chukotka Autonomous Okrug and the Nenets Autonomous Okrug. Figure 9 considers the growth rate of the average monthly accrued wages in January-October 2019 as % of the same period in 2018 in the Arctic regions and on average in the Russian Federation.

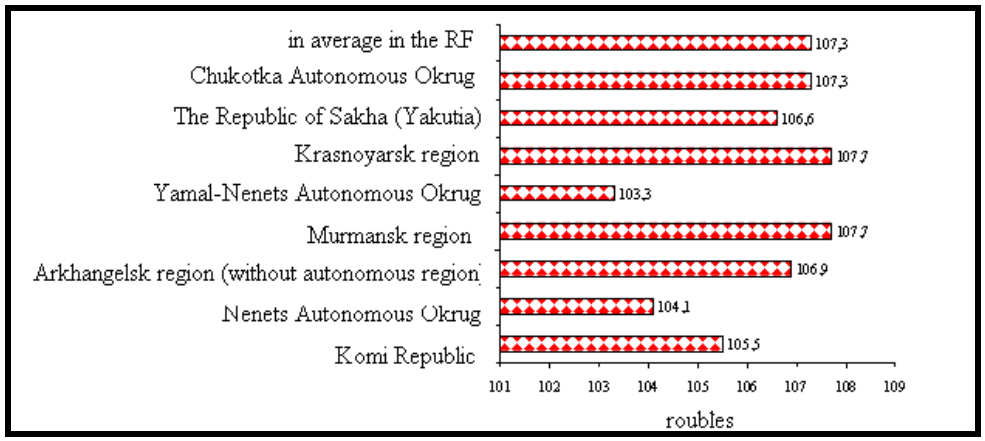

Figure 9. The growth rate of the average monthly accrued wages in January-October 2019 in% over the same period of 2018 in the regions of the Arctic and on average in the Russian Federation, %.
Source: created by the author based on gks.ru data.

From the data presented in the figure, it can be seen that in all Arctic regions there was an increase in the average monthly accrued wage in 2019. However, only in two out of eight regions (Krasnoyarsk Territory, Murmansk Region) this indicator was higher than the average for Russia – 107.7%. Figure 10 presents the average unemployment rate in September-November 2019 in the Arctic regions and on average in the Russian Federation.

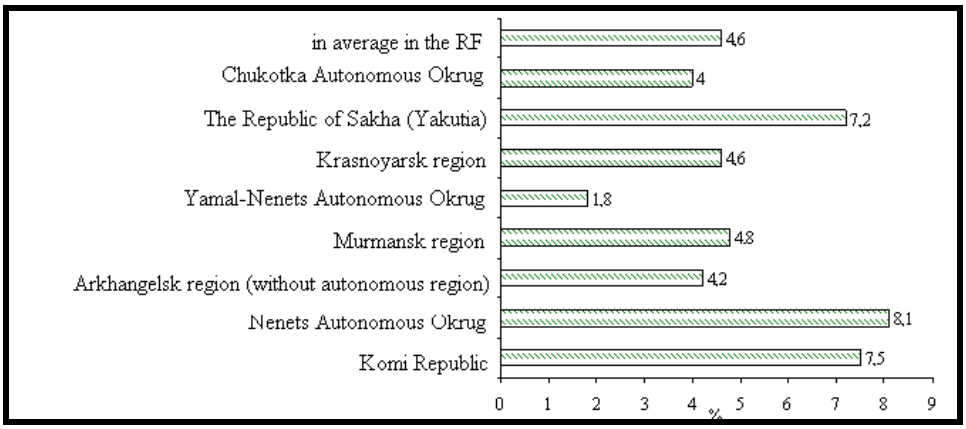

Figure 10. The average unemployment rate in September–November 2019 in the regions of the Arctic and on average in the Russian Federation, %.
Source: created by the author based on gks.ru data.

The lowest unemployment rate of the considered regions in the Yamal-Nenets Autonomous Region is 1.8%. The highest is in the Republic of Sakha and the Nenets Autonomous District – 7.2% and 8.1%, respectively. In half of the Arctic regions, the unemployment rate is lower or the same as the average Russian level, in four regions the level is higher. Figure 11 considers the average level of employment in September-November 2019 in the regions of the Arctic and on average in the Russian Federation.

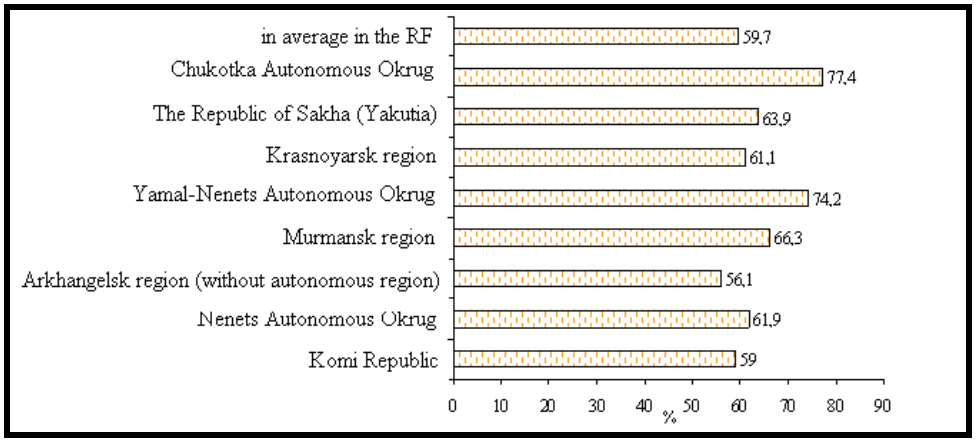

Figure 11. Employment rate on average in September-November 2019 in the Arctic regions and on average in the Russian Federation, %.
Source: created by the author based on gks.ru data.

The lowest level of employment of the considered regions in the Arkhangelsk region is 56.1% and in the Komi Republic is 59%, lower than the national average. The highest is in the Chukotka Autonomous Okrug and the Yamal-Nenets Autonomous Okrug – 77.4% and 74.2, respectively. Figure 12 presents the dynamics of the needs of employers in employees, declared in the employment services in November 2019 compared to November 2018 in the Arctic regions and in the whole of the Russian Federation.

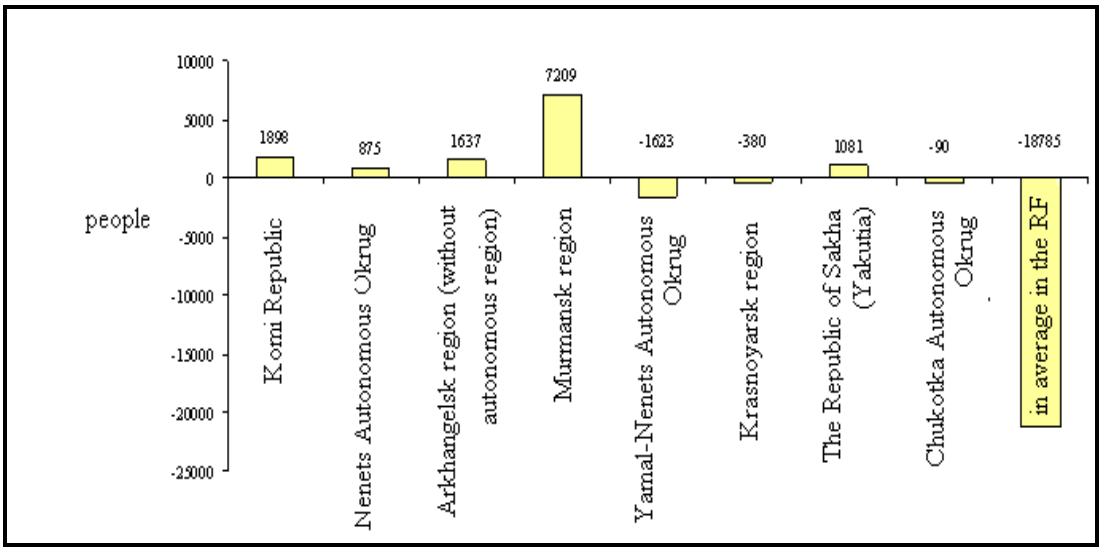

Figure 12. The dynamics of the needs of employers in employees, declared in the employment services in November 2019 compared with November 2018 in regions of the Arctic and in the whole of the Russian Federation, people.
Source: created by the author based on gks.ru data.

The greatest increase in the need for employees is observed among employers in the Murmansk region. A decrease in demand was recorded in the Yamalo-Nenets Autonomous Okrug, Krasnoyarsk Territory, Chukotka Autonomous Okrug and in Russia as a whole. Demographic indicators for January-October 2018-2019 in the regions of the Arctic and for the whole of the Russian Federation are presented in Table 1.

Table 1. Demographic indicators for January-October 2018-2019 in the regions of the Arctic and in the whole of the Russian Federation, people.

Regions	**Migration growth**			**Natural increase**		
	2019	**2018**	**Change**	**2019**	**2018**	**Change**
Komi Republic	-6379	-7226	847	-1658	-1025	-633
Nenets Autonomous Okrug	68	-329	397	199	177	22
Arkhangelsk region (without autonomous region)	-2313	-4874	2561	-4061	-3428	-633
Murmansk region	-3653	-3346	-307	-1483	-928	-555
Yamal-Nenets Autonomous Okrug	-1548	-415	-1133	3619	3941	-322
Krasnoyarsk region	-2465	-1559	-906	-3941	4699	-8640
The Republic of Sakha (Yakutia)	-2927	-1480	-1447	4347	4699	-352
Chukotka Autonomous Okrug	540	-27	567	37	55	-18

Source: created by the author based on gks.ru data.

In all regions of the Arctic, in 2018, a migration decline in the Arctic population was noted, in 2019 – in all regions, with the exception of the Nenets Autonomous Okrug and the Chukotka Autonomous Okrug. Over 2018, the decline in the Republic of Komi, the Arkhangelsk region, decreased in the Murmansk region and increased in Yamalo-Nenets Autonomous Okrug, Krasnoyarsk Territory, and the Republic of Sakha. In 2018, the natural population decline was in the Komi Republic, the Arkhangelsk region, the Murmansk region, in 2019 – in the Komi Republic, the Arkhangelsk region, the Murmansk region, the Krasnoyarsk Territory. Natural growth for 2019 decreased in the Chukotka Autonomous Okrug, Yakutia, Yamalo-Nenets Autonomous Okrug, increased in the Nenets Autonomous Okrug. Natural population decline has increased in the Komi Republic, in the Arkhangelsk region, in the Murmansk region. State and regional

authorities are taking measures to increase the level and quality of life of the population, ensure sustainable economic growth and scientific and technological development of the Arctic, increase the competitiveness of the region's economy on the basis of a balanced and sustainable socio-economic development of subjects and municipalities, as well as maximise the involvement of the population in solving regional and local problems. In particular, with the aim of developing the Arctic region, a state program was developed "Socio-economic development of the Arctic zone of the Russian Federation for the period until 2025". The Arctic program formulates four tasks: improvement of the quality of life and security of the population in the Arctic zone of the Russian Federation, creation of conditions for the development of the Northern Sea Route as a national transport route of the Russian Federation in the Arctic and development of a system of hydrometeorological support for navigation in its water area; development of science, technology and increasing the efficiency of using the resource base of the Arctic zone of the Russian Federation and the continental shelf, increasing the efficiency of state management of the socio-economic development of the Arctic zone of the Russian Federation.

Discussion

After analysing the development of the Arctic and human capital in this region, a number of conclusions can be drawn:

– in half of the Arctic regions, there was a decrease in the production of livestock products in agricultural organisations in 2019;

– in 2019, in the Nenets Autonomous District and the Arkhangelsk Region, a decrease in retail trade turnover occurred;

– in half of the Arctic regions (Nenets Autonomous Okrug, Krasnoyarsk Territory, Yamalo-Nenets Autonomous Okrug, and the Komi Republic), construction decreased in 2019;

– in the Chukotka Autonomous Region and the Republic of Komi, there was a decrease in the profit of organisations in 2019;

– in half of the Arctic regions, the unemployment rate is higher than the national average. The highest is in the Republic of Sakha and the Nenets Autonomous District – 7.2% and 8.1%, respectively;

– in most Arctic regions, the need of employers in workers has increased;

– in all regions of the Arctic, in 2018, a migration decline in the Arctic population was noted, in 2019 in all regions, with the exception of the Nenets Autonomous Okrug and the Chukotka Autonomous Okrug;

– in 2018, the natural population decline was in the Republic of Komi, Arkhangelsk region, Murmansk region, in 2019 – in the Republic of Komi, Arkhangelsk region, Murmansk region, Krasnoyarsk Territory. Natural growth for 2019 decreased in the Chukotka Autonomous Okrug, Yakutia, Yamalo-Nenets Autonomous Okrug, and increased only in the Nenets Autonomous Okrug. Natural population decline has increased in the Komi Republic, in the Arkhangelsk region, in the Murmansk region.

The following positive trends can be identified:

1. In 2019, industrial production and the volume of goods shipped, work performed and mining services (except for the Nenets Autonomous District) increased in most regions of the Arctic, and in most Arctic regions, growth exceeded the national average.

2. In 2019, the volume of shipped goods, works and services for manufacturing in all regions of the Arctic, with the exception of the Nenets Autonomous Okrug, increased. In seven of the eight Arctic regions, the growth rate exceeded the average for Russia.

3. In all Arctic regions, the average monthly accrued salary increased in 2019.

Thus, part of the development indicators of the territory improved, some deteriorated. Positive trends can be explained by the measures taken by state and regional authorities in the Arctic regions to ensure the development of the territory through the use of human capital, attracting workers with higher wages compared to other regions, developing production. Regarding the development of the Arctic, different authors express several points of view. In 2017, the International Arctic Forum "Arctic: Territory of Dialogue" was held in Arkhangelsk, at which it was proposed to develop and implement measures to retain and attract young specialists, stimulate entrepreneurial activity in the Arctic zone of the Russian Federation, and develop transport infrastructure in the macro-region, including the construction of a railway "Belkomur" and the Vorkuta – Ust-Kara railway, as well as measures to develop educational institutions of higher and secondary vocational education of the macro-region (Katorin, 2017). I.I. Ivanter et al. (2014) believe that for the development of the Arctic it is necessary to stimulate the interaction of large and small businesses in areas such as the development and use of local sources of raw materials and waste processing; small energy, tourism, livestock. A.N. Petrov et al. (2018) believe that development based on the knowledge economy is an integral part of a broader strategy for sustainable development, especially for large and medium-sized Arctic cities. It is important to attract and maintain knowledge and industries that require large human capital resources, reduce the Arctic's dependence on external economic and political forces, and increase the well-being of local residents. According to the author, in the Arctic, it is necessary:

– to develop a system of continuing education with the aim of redistributing people into more efficient and relevant sectors of the economy;

– to attract highly qualified specialists through the development of special immigration programs, a simplified procedure for obtaining a work visa;

– to develop the health care system by expanding the list of services to the population under the health insurance program;

– to increase the comfort of the workflow, for example, by reducing the length of the working day;

– to provide targeted social support – provide assistance to families in crisis situations, develop guardianship programs, expand the list of benefits to support people of retirement age, large families.

Thus, in the Arctic there are resources and opportunities for the socio-economic development of the territory in the near future, due to the development of human capital. This requires the active participation of state, regional and municipal authorities in the development and implementation of effective mechanisms to attract quality

personnel, their development and retention, to create high-paying jobs, to create a comfortable living environment. At present, part of government measures can be considered effective, since in the region there is an increase in certain indicators of the development of production and trade, however, these measures are not enough, since in the Arctic there is a reduction in the number of labour resources and an increase in the need for workers in organisations.

Conclusions

Summarising the results, certain conclusions can be drawn. Human capital is a combination of human skills, knowledge and abilities. The main investment in human capital is the cost of education and training. Human capital is recognised as the most valuable resource. Human capital is a factor of increasing the country's competitiveness and economic growth. Investing in human capital, even in small amounts, allows to get much greater economic returns in the long term than significant investments in the technical development of the enterprise. Russia is the largest Arctic state in the world. From an economic point of view, the Arctic zone is of interest because of a rich mineral resource base; the Northern Sea Route. The authorities take measures to increase the level and quality of life of the population, ensure sustainable economic growth and scientific and technological development of the Arctic, increase the competitiveness of the region's economy on the basis of balanced and sustainable socio-economic development of subjects and municipalities, as well as maximise the involvement of the population in solving regional and local tasks. In particular, with the aim of developing the Arctic region, a state program "Socio-economic development of the Arctic zone of the Russian Federation for the period until 2025" was developed.

The main problems identified during the analysis of the impact of human capital on the development of the Arctic in 2018-2019 are the following: natural population decline, migration outflow, lack of workers, unemployment, due to this some indicators of development of certain regions decreased: livestock products in agricultural organisations, retail turnover, in construction, in the profit of organisations. Based on the identified problems of the impact of human capital on the development of the Arctic, recommendations were developed to improve the situation in the region. The authors' position regarding the development of the Arctic is as follows. It is necessary to develop a Strategy for the development of human capital in the regions of the Russian Arctic, which will be focused on the partnership of civil society, business and government bodies. It is important to take measures to increase the level of education of labour resources, their competitiveness and ensuring decent living conditions for the population. At the same time, further research is needed on the development of the Arctic through the efficient use of human capital. Currently, individual scientists are studying the essence and characteristics of the formation and development of human capital, the nature and indicators of regional development, however, the factors of the development of the Arctic region due to human capital remain little studied. The most promising area of further research on the topic of the article is to study the development experience of advanced Russian regions and the experience of developed countries, which will help to decide what mechanisms should be applied in the Arctic for the development of human capital and socio-economic development.

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