

FACTORS OF HUMAN CAPITAL DEVELOPMENT IN THE ARCTIC

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Abstract: The relevance of the problem under study is conditioned upon the fact that at present, human capital constitutes the main factor in improving the socio-economic situation of the Arctic, ensuring the national security of the country, therefore it is very important to develop it. The problem of accumulation and use of human capital in the Arctic is caused by an insufficiently effective partnership of civil society entities, business and government, a low level of education of labour resources, competitiveness, and a low standard of living. The purpose of the paper is to develop recommendations for the development of human capital in the Arctic. The leading methods of researching the problematics of the paper include the analysis of theoretical sources, analysis of statistics, and

comparison. Analysis of statistical indicators plays a crucial role in the study, since data on the development of human capital in the Arctic can be directly obtained from statistical databases. The article considers the essence of human capital, the identification of its components, the factors of its development, development issues, analyses the development of human capital in the Arctic, identifies the problems of human capital development in the Arctic, and develops ways to solve them. The materials of the paper are of practical value for the development of human capital in the Arctic or other regions of the country.

Keywords: income, region, Arctic zone, employment, growth rate.

Introduction

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The theory of human capital explores how exactly the income of an employee, enterprise and the state at large depend on the knowledge, skills and natural abilities of people. After all, human capital is an accumulated investment in the education and training of people in the process of work. Incomes of people are a logical result of previously made managerial decisions on the positions of the theory of human capital, that is, the decision that a person makes directly affects the size of future incomes. Human capital is a benefit of long-term use, but with a limited service life (Kobzistaya, 2018). You can significantly increase future income by investing in education and training, health, culture, thereby increasing human capital.

The direction of the economic policy of Russia towards the gradual achievement of innovative features of the knowledge economy in modern conditions can be practically implemented due to the manifestation of the accumulation of human capital, that is constant in time and intensive in nature and the acceleration of which is possible through investment. The decisive place among investors in the process of investing in human capital belongs to the

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state, which, at the expense of the state budget, makes investments in the development of education, scientific activities and research, public health, legislatively encourages business entities to intensify investment and thus forms the basis and main tendencies in the accumulation of human capital in the country.

An analysis of the tendencies in state funding for areas of accumulation of human capital over the past years suggests not only its insufficiency, but also the unsatisfactory level of efficiency in the use of budget funds allocated for investment in human capital in the country. Thus, with the annual increasing level of funding for educational activities in the labour market, there is an imbalance between employees with professional education and specialists with higher education and the demand for each of these categories of employees. The insufficient level of state financing of scientific activity has led to a low innovative direction in the development of Russian industry.

Despite the growth in the volume of financing of healthcare for the population of the Russian Federation, its level does not meet international requirements, resulting in



underdevelopment of the quality of life in Russia as against many developed countries. Given the deficit and limited budget financing of human capital development, which has been observed in Russia over recent years, a natural process of redistributing the priority of human capital investment sources wherein the country's economy is taking place. As a result, the role of a leading investor goes directly to business entities. Their high-quality performance of the functions for professional development and healthcare of employees must be timely ensured by certain volumes of investment costs, the justification of the expediency and effectiveness of which should be based on both economic and social efficiency.

Moreover, the procedure for such an evaluation should be continuous and consist of a sequence of interrelated steps. In the absence of perfect and practically suitable methods, information support and effective tools for evaluating performance, the implementation of each stage of investing in human capital, this process completely becomes the prerogative of specialists in personnel management of enterprises, both in organizational and financial aspects. As a result, each

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enterprise, with varying degrees of success, attempts to create its own system of organizational, informational and methodological support for the processes of investing in human capital, which is rather laborious and makes it impossible to carry out a comprehensive evaluation of the intensity and effectiveness of these processes at the level of the region and the country as a whole.

Currently, the development of human capital in the Arctic is especially important, since the development of human capital affects the economic development of the territory. The value of human capital is important not only from the standpoint of the increment of the country's income from the development of natural resources in the Arctic, but rather from the perspective of the potential application of the experience of development of this region to other regions of the country. The presence of such a rich mineral resource base in the Arctic as a result of this is no longer seen as a factor in Russia's enrichment, but as a necessary trigger for the development of this region and, with its help, the development of the entire Russian Federation (Guba, 2017).



The theoretical significance of the paper lies in the study of the development factors of human capital in the Arctic. The practical significance of the paper is in proposing directions for the development of human capital in the Arctic. The theoretical basis of the paper is constituted by fundamental developments on the subject matter, which were presented in the works of domestic and foreign authors. Many authors paid attention to the development factors of human capital in the Arctic.

The problem of the Arctic is a decrease in the population – primarily due to the migration outflow of young personnel and qualified specialists from among the old-age population; programs aimed at creating high-paying jobs, supporting small and medium-sized businesses and investing in research and related high-tech start-ups (Blynskaya et al., 2018) can serve as countermeasures to compensate for the outflow of these groups of people. According to S. Ignatieva (2015a), it is important to create conditions for the actualization of human capital and cultural traditions in the Arctic. For this, it is necessary to create a cultural space in the region for spiritual and intellectual growth, to

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preserve and increase the number of representatives of the national creative spiritual and intellectual elite; expand the social base of cultural life by motivating and supporting cultural industries and amateur activity of the population in the region; development of infrastructure for the conservation, exhibiting, broadcasting and reproduction of cultural property.

It is necessary to develop a continuous education system in the field of culture and art (human development throughout life, the education of a spiritually strong, competent, creative, responsible person); public-private partnership, philanthropy, change the mentality of the elite, who understand the meaning of investment in human capital (Ignatieva, 2015b). E.A. Korchak (2018) believes that the main condition for the development of human capital in the Arctic zone of the Russian Federation today is the provision of productive employment in the labour markets. However, in the literature there are no relevant studies of human capital development factors in the Arctic, which will be considered below.

Literature Review



Economic development tendencies of the new institutional environment require special attention to the possibilities of applying the experience of developed countries in the formation of human capital as a necessary condition for the competitiveness of the national economy. Under such conditions, the problem of resource support for the socio-economic development of the country becomes relevant. This is not only about financial and material and technical resources, but namely about those types of resource support that are associated with people. Human capital as a potential resource for the economic development of countries affects the quality and standard of living of the population and social and labour relations. In the structure of various types of capital, the accumulation of human capital, its rational use becomes a strategic resource of social development, a key factor in creating competitive advantages and increasing the welfare of society.

For an in-depth study of the essence and content of the concept of human capital, its importance in the development of the state economy, it appears expedient to carry out a

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scientific analysis of the interpretations of this term by different scientists. The concept of human capital was formed gradually. The idea of human capital goes generations back in the history of economic thought. One of the first to apply the cost approach to evaluating a person in the context of the value of national wealth was Petty, the author of the labour theory of value.

The scientific substantiation of the elements of the future theory of human capital, which reflects the socio-economic elements of the formation of a person's ability to work, was given by A. Smith, a representative of classical political economy. He considered human labour as a necessary prerequisite for ensuring the welfare of the nation, and also studied the differentiation of wages depending on the complexity, pollution or purity of the occupation. Thus, Smith used an approach that compares the costs of acquiring a profession with the expected benefits that it will bring. Therefore, the "homo economicus" of A. Smith, being guided mainly by economic motives when choosing a particular field of labour activity and making investments in training for higher wages, takes into account the non-monetary benefits of the specialty and obtaining a



certain qualification level (Parshina, 2013).

The theory of human capital acquired certain development in the works of K. Marx. According to K. Marx, the price of labour, which is expressed in the form of wage rates, should provide workers with a decent standard of living and serve as the basis for expanded reproduction of the workforce at large. However, the limitations of K. Marx's teachings were conditioned upon the class approach to the issue, including the underestimation of mental, creative, and entrepreneurial labour, and the focus of research on the simple physical labour of workers (Kurganskiy, 2013). G. Schmoler (1987) attributed to capital, apart from material wealth, both the natural and acquired abilities of people. He attached great importance to organizational and economic relations, the moral spirit of the nation.

The representative of the neoclassical direction of political economy A. Marshall (1890) attempted to synthesize ideas on the place of a person in the economy. He used the terms "general ability" and "specialized ability" to highlight human knowledge and abilities that are common to all

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higher forms of labour productivity, and such separate and specialized knowledge for specific industries. A. Marshall acknowledged that motives that prompt a person to accumulate human capital in the form of investments in education are similar to those that determine the accumulation of material capital (Arslanov, 2012). The follower of A. Marshall, A. Pigu, in observing the approach to considering a worker from the standpoint of evaluating their capabilities and abilities, uses the concept of human capital in the context of the rationale for investing in a person in the Economic Theory of Welfare. He creates the theoretical foundations for the study of the motives and characteristics of investing in human capital (Blaug, 1994).

Thus, in the process of its functioning, human capital creates a value greater than that which was invested in it. A special mention among Soviet studies deserves the achievement of S. Strumilin. Back in 1924, he substantiated the economic importance of the most important factors of labour qualification. Starting from 1918, S. Strumilin calculated the effectiveness of investment in education in 1918-1923 and the effectiveness of investment in



training depending on the level of education (Parshina, 2013).

The author of the concept of “comprehensive capital”, I. Fisher (1906), under capital understood everything that was capable of generating income for the first time. In his opinion, capital is any stock of goods that can accumulate, be productively used repeatedly and for a fairly long time, and make a profit. Thus, I. Fisher’s theory of capital became the basis for the emergence and development of wider concepts of human development, and economic thought in the process of evolution came to the introduction of the concept of “human capital” into scientific circulation and its substantiation.

Modern authors also have their own views on the concept of human capital. Human capital is the expertise, abilities, and skills that a person has and which allow him to earn income (Guide on Measuring..., 2016). Human capital is the knowledge, qualifications, skills and other qualities that an individual possesses and which are important for economic activity (The Well-being of Nations..., 2020). Thus, human capital, as part of the total capital of society, constitutes the cumulative cost of

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general education, special training, health care, and the movement of labour.

Quantitative indicators of human capital are affected by demographic conditions; working conditions; economic conditions (dynamics of real incomes of the population, poverty level); health system conditions (number of doctors per 10 thousand people); conditions of the education system (enrolment of children in preschool institutions, the number of students in higher educational institutions per 10 thousand people); housing conditions (living space per inhabitant); personal security (the number of recorded crimes per 1 thousand people) (Rudenko, 2015).

The modern development of the Russian economy forces the transition to the innovative and investment path of development. Only constant investment in human capital will lead to the economic and social effect of the use of human capital (Vypritskaya et al., 2017). Investing in human capital is the most promising direction, it is directly related to the development of human capital, that is, the main characteristics that define it as the main resource of the region, because this is precisely what allows to get the largest in size and long-



term socio-economic effect. All expenses that can be estimated in cash or in another form and contribute to the future growth of employee productivity and wages are investments in human capital. It is necessary to invest in health care, education, infrastructure, social security, promote employment, provide decent wages and benefits to residents of the Arctic, thereby contributing to the development of human capital in the region. Investments in education facilitate the formation of highly skilled workers and, thanks to their use, ensure higher rates of economic development of enterprises and regions. The growth of the educational level of workers through investments will provide them with the opportunity to work in the conditions of the development of science, technology, modern technologies in market conditions.

On the one hand, investments improve the work of an employee, on the other hand, obtaining a qualified employee allows to organize activities, rationally using time, reducing material costs. In any activity, the investment policy will be implemented only in the event of profitability, when there will be a return between the amount of invested and received funds. Therefore, it is

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important to search for various ways of gaining knowledge (retraining of personnel, qualification courses, various trainings and seminars). Apart from education, the effective use of human labour is affected by the preservation of human health. Therefore, the second significant investment in people is considered investment in health care. For objective reasons, the Russian Arctic is a region of the country's special geopolitical interests and the long-term socio-economic interests of society. Among the main reasons for interest in the Arctic, one can single out its significant reserves of fossil resources, geographical location and economic potential (Guliev and Litvinyuk, 2015).

In the Russian Arctic, from the Kola Peninsula to Kamchatka, there are also such objective difficulties for the formation of human capital as the harsh climate of the region and the distance from supply bases (Moskalenko and Kropaneva, 2013). According to O.V. Etylina et al. (2017) obstacles to the development of human capital in the Arctic are: transport inaccessibility of villages, staff shortages, high cost of mainland goods, limited possibility of using the Internet. According to O.Yu. Krasulina (2016), it is necessary to solve



social issues in the Arctic, to improve the quality of life of the population, create new jobs, create conditions for self-actualization of the population.

For the development of human capital in the Arctic, it is necessary to use modern methods of managing human potential; monitor the state of human potential in the region; develop sectoral programs to promote employment, retrain retired personnel and their employment; increase the security of the region, transport accessibility, create comfortable conditions for the population to study, work and rest.

Materials and 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 Statistics Service Department 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 the indicators describing the development of human

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capital in the Arctic, the author selected the following:

- the growth rate of the number of doctors in the Arctic by region;

- the growth rate of the number of hospital beds per 10 thousand people in the Arctic by region;

- the growth rate of registered diseases in the population with a first-ever established diagnosis per 1000 people in the Arctic by region;

- the growth rate of preschool educational institutions in the Arctic by region;

- the growth rate of general educational organizations in the Arctic by region;

- the growth rate of the number of students in general educational organizations in the Arctic by region;

- the growth rate of the number of organizations providing training in secondary professional education programs in the Arctic by region;

- dynamics of the number of higher education organizations in the Arctic by region;



- the growth rate of the construction of residential buildings in the Arctic by region;

- the growth rate of the resident population in the Arctic by region;

- the growth rate of the average number of employees of organizations in the Arctic by region;

- the growth rate of the average monthly nominal accrued wages of employees of organizations in the Arctic by region;

- unemployment rate in the Arctic in 2018;

- price level in the Arctic region in 2018;

- level of salaries in 2018.

With that, to calculate the indicators, it is necessary to study data for 2 periods, some of the indicators for the last year, and compare separate indicators with the values average for Russia. The economic indicators for the Arctic and selected average Russian indicators for 2018 were selected as the empirical base of the study.

It is important to describe the Arctic. The Arctic zone of the Russian Federation significantly differs from other regions of the Russian Federation in terms of natural and economic,

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demographic, and other conditions, and has the following features: extreme climatic conditions due to constant ice cover or drifting ice in the Arctic seas; focal nature of industrial and economic development of territories and low population density; remoteness from major industrial centres, high resource consumption and dependence of economic activity and livelihoods of the population on the supply of fuel, food, and essential goods from other regions of Russia; vulnerability of nature from industrial emergencies and manufacturing activities.

The Arctic zone includes: Murmansk region; seven municipalities of the Arkhangelsk region; Nenets Autonomous Okrug; Vorkuta Urban District of the Komi Republic; Yamalo-Nenets Autonomous Okrug; several urban districts of the Krasnoyarsk Krai; several regions of the Republic of Sakha (Yakutia); Chukotka Autonomous Region; individual lands and islands located in the Arctic Ocean.

The study of the problem was carried out in three stages:

- at the first stage, a theoretical analysis of existing methodological approaches to the analysis of factors of human capital

development in the Arctic was carried out, statistical indicators were selected for analysis;

– at the second stage, the study of the selected indicators for 2016-2018 was carried out, a comparison of individual indicators with the national average for 2018 was carried out;

– at the third stage, generalizing conclusions were made regarding the development factors of human capital in the Arctic, proposals

were made to change the situation for the better.

Results

For the development of human capital, it is first and foremost important to create comfortable living and working conditions for the population. We shall further consider the development of health care in the Arctic. The dynamics of the number of doctors in the Arctic zone is displayed in Figure 1.

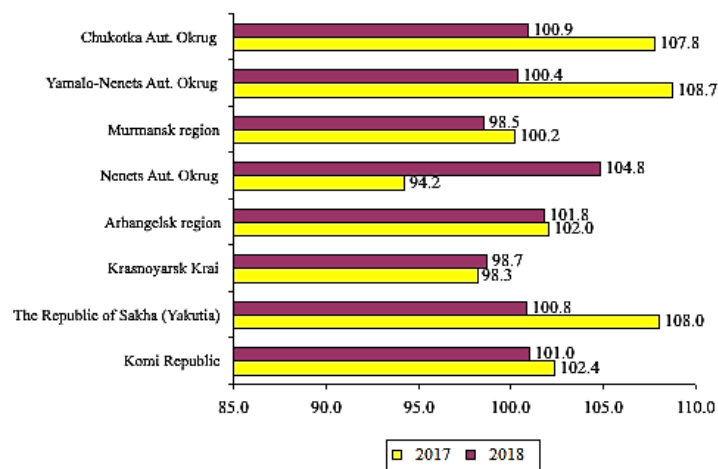


Figure 1. The growth rate of the number of doctors in the Arctic in 2017-2018

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

In 2017, the number of doctors increased in all Arctic regions, with the exception of the Krasnoyarsk Krai and the Nenets Autonomous Okrug (growth rate of 100.2-108.7%). In 2018, the

number of doctors increased in all Arctic regions, with the exception of the Krasnoyarsk Krai. We shall present dynamics of the number of hospital beds per 10 thousand people in Figure 2.

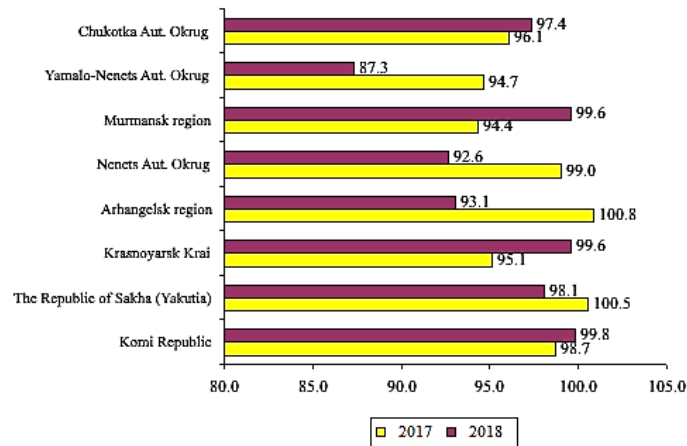


Figure 2. The growth rate of the number of hospital beds per 10 thousand people in the Arctic in 2017-2018, %

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

In 2017, there was a decrease in the number of hospital beds in the Arctic in all regions except Yakutia and the Arkhangelsk region. In 2018, the number

of hospital beds in all regions of the Arctic decreased. The incidence of the population is presented in Figure 3.

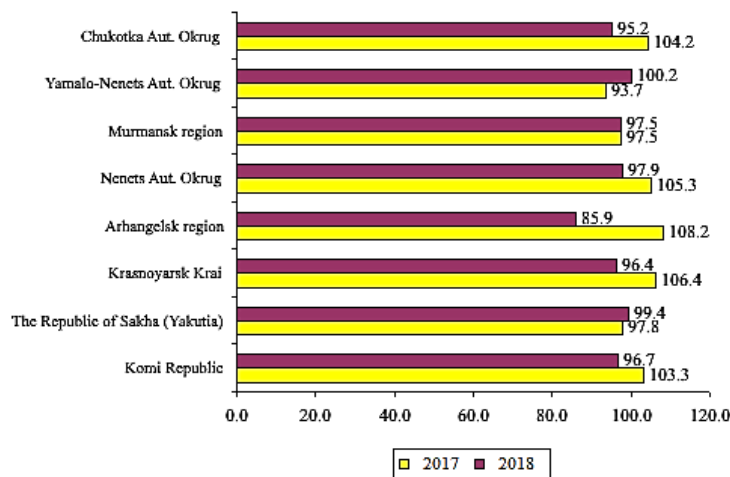


Figure 3. The growth rate of registered diseases in the population with a first-ever established diagnosis per 1000 people in the Arctic in 2017-2018, %

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

In 2017, there was a decrease in the incidence rate among the population in the Republic of Sakha, the Murmansk Region and the Yamalo-Nenets Autonomous Okrug; in 2018, the decrease occurred in all regions except the Yamalo-Nenets Autonomous Okrug. Over the past 3 years, an increase in the incidence rate has been noted in the

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Krasnoyarsk Krai and the Nenets Autonomous District amid a decrease in the number of doctors and the number of hospital beds in these regions. We shall analyse the development of education in the Arctic. The dynamics of preschool educational institutions is presented in Figure 4.

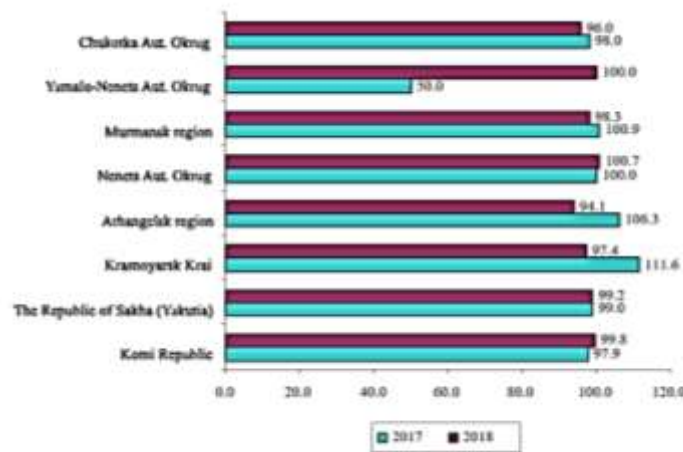


Figure 4. The growth rate of preschool educational institutions in the Arctic in 2017-2018, %

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

In 2017, the number of preschool educational institutions in the Republic of Komi, the Republic of Sakha, Yamalo-Nenets Autonomous Okrug, and the Chukotka Autonomous Region decreased. In 2018, a decrease

occurred in all studied regions, except for the Nenets Autonomous Okrug and the Yamalo-Nenets Autonomous Okrug. The dynamics of educational institutions is presented in Figure 5.

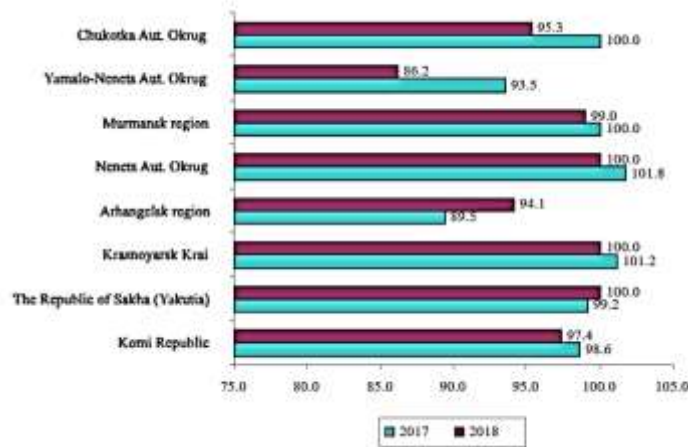


Figure 5. The growth rate of educational institutions in the Arctic in 2017-2018, %

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

In 2017, an increase in the number of educational institutions occurred in the Murmansk region, Krasnoyarsk Krai, Nenets Autonomous Okrug, Chukotka Autonomous Okrug.

In 2018 – only in the Krasnoyarsk Krai, the Nenets Autonomous Okrug, and the Republic of Sakha. The dynamics of the number of students in these institutions is presented in Figure 6.

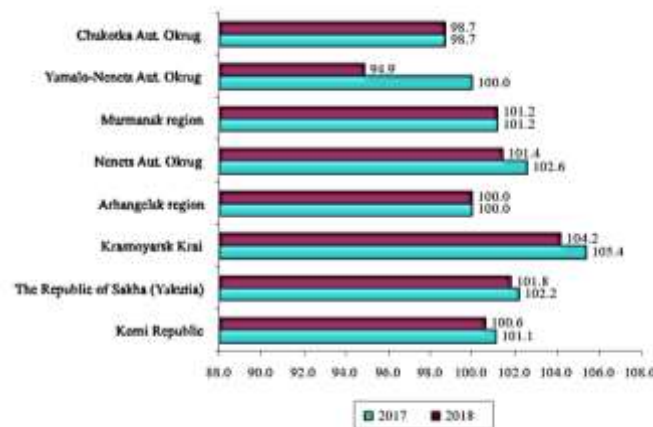


Figure 6. The growth rate of the number of students in general educational institutions in the Arctic in 2017-2018, %

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

In 2017, a decrease in the number of students in general educational institutions of the Arctic region occurred in the Chukotka Territory, and in 2018 – in the Chukotka Territory and the Yamalo-Nenets

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Autonomous Okrug. The dynamics of the number of organizations providing training in secondary professional education programs is presented in Figure 7.

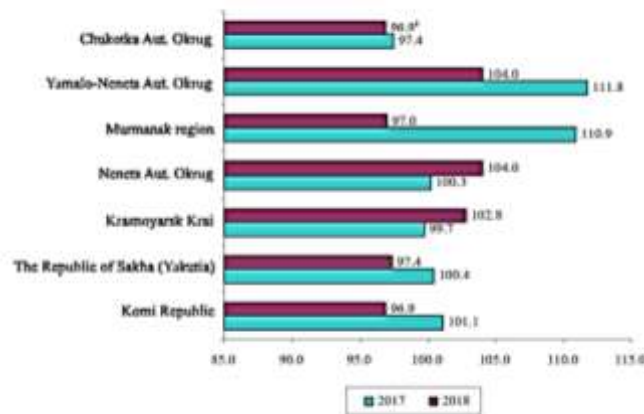


Figure 7. The growth rate of the number of organizations providing training in secondary professional education programs in the Arctic in 2017-2018, %

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

In 2017, a decrease in the number of institutions providing training in secondary professional education programs occurred in the Chukotka Territory and the Krasnoyarsk Krai, and in 2018 – in the Chukotka Territory, the Republic of Sakha, the Murmansk Region, and the Republic of Komi. In

2017, the number of higher education institutions decreased in all regions except the Krasnoyarsk Krai. In 2018 – in all regions except the Krasnoyarsk Krai and the Republic of Sakha. We shall analyse the dynamics of the construction of residential buildings in Figure 8.

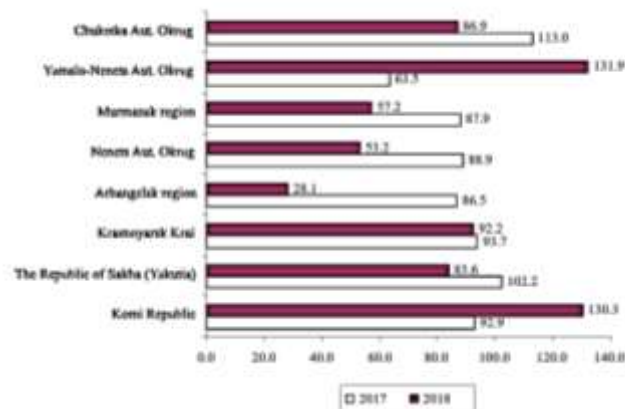


Figure 8. The growth rate of the construction of residential buildings in the Arctic in 2017-2018, %
Source: compiled by the author based on gks.ru data

In 2017, the increase in the construction of residential buildings occurred only in the Republic of Sakha and the Chukotka Autonomous Region; in 2018 – only in the Republic of Komi

and the Yamalo-Nenets Autonomous Okrug. The indicators of human capital development in the Arctic are presented in Table 1.

Table 1. Analysis of the development of human capital in the Arctic in 2016-2018, %

<i>Regions</i>	<i>Resident population growth rate</i>		<i>The growth rate of the average number of employees of organizations</i>		<i>The growth rate of the average monthly nominal accrued wages of employees of organizations</i>	
	<i>2017</i>	<i>2018</i>	<i>2017</i>	<i>2018</i>	<i>2017</i>	<i>2018</i>
<i>Komi Republic</i>	-1.1	-1.3	-5.2	-1.8	4.9	10.2
<i>The Republic of Sakha</i>	0.2	0.3	-0.4	5.3	5.3	9.1
<i>Krasnoyarsk Krai</i>	-0.4	0.0	-2.5	0.4	6.3	5.1
<i>Arhangelsk region</i>	-0.9	-0.9	-2.6	-1.0	5.9	11.7
<i>Nenets Autonomous Okrug</i>	0.2	-0.5	-4.2	-1.4	3.4	12.1
<i>Murmansk region</i>	-0.5	-0.7	-3.3	-1.2	6.8	11.2
<i>Yamalo-Nenets Autonomous Okrug</i>	0.5	0.6	-2.6	-1.0	8.4	8.4
<i>Chukotka Autonomous Okrug</i>	-0.8	0,6	1.1	1.9	7.8	7.0



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

The table demonstrates that the resident population for 2016-2018 decreased in all Arctic regions, with the exception of the Republic of Sakha and Yamalo-Nenets Autonomous Okrug, the average number of employees of organizations decreased in all Arctic regions, with the exception of the Republic of Sakha and the Chukotka Autonomous Okrug. The average monthly nominal accrued wages of employees of organizations grew annually in all Arctic regions. In 2018, the unemployment rate in the Arctic was 5.8%, which is higher than the national average 4.8%. The price level in the Arctic region is higher than the national average (the cost of the minimum set of food products is 115-267% of the average indicators for Russia), but the level of social benefits and wages are also higher (in the Arctic zone, the average monthly salary in 2018 is 78,668 roubles, while the average for Russia is 49,895 roubles).

The future of the Arctic zone of Russia depends on the effective implementation of key objectives of national policy in this region. At present, the Development Strategy of the Russian

Arctic Zone until 2035 is being developed by the Ministry of the Russian Federation for the Development of the Far East and the Arctic; in 2020, the Agency for the Development of Human Capital will commence operations. The regulatory framework of Russian policy in the Arctic zone includes the State Program of the Russian Federation “Socio-economic development of the Arctic zone of the Russian Federation for the period until 2020” (extended to 2025), the Fundamentals of national policy of the Russian Federation in the Arctic for the period until 2020 and further prospects (approved in 2008), the Federal Target Program “Development of the transport system of Russia (2010-2020)”, the Strategy for the development of railway transport until 2030, the Energy Strategy of Russia for the period until 2030, the Strategy for socio-economic development of the Arctic region and the documents governing the legal status of individual projects in the Arctic zone. Based on these documents, projects are being implemented in the Arctic for the development of the Arctic territories, for the development of human capital, in particular: for the



development of transport infrastructure, for the implementation of investment projects, for the development of marine and shelf fields, for the development of tourism, communications, education, employment.

Discussion

Having analysed the development factors of human capital in the Arctic, a number of conclusions can be drawn:

- In 2017, in most regions of the Arctic, and in 2018, in all regions, the availability of hospital beds decreases.

- For 2016-2018, the incidence of the population in the Krasnoyarsk Krai and the Nenets Autonomous District is growing amid a decrease in the number of doctors and the number of hospital beds in these regions.

- In 2018, there was a decrease in the number of preschool educational institutions in all regions of the Arctic, except for the Nenets Autonomous Okrug and Yamalo-Nenets Autonomous Okrug.

- In most of the regions of the Arctic, the number of general

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educational institutions in 2018 decreased.

- There was a decrease in the number of students in general educational institutions of the Arctic region in 2018 in the Chukotka Territory and the Yamalo-Nenets Autonomous Okrug.

- In 2018, in half of the researched regions, a decrease in the number of institutions providing training under secondary professional education programs was noted.

- In most regions of the Arctic, the number of higher education organizations decreased in 2017-2018.

- The unemployment rate in the Arctic in 2018 was higher than the national average.

- For 2016-2018, a decrease in the resident population was noted in all Arctic regions.

- For 2016-2018, a decrease in the average number of employees of organizations was noted in most regions.

- For 2016-2018, construction of residential buildings decreased in most regions.

The current situation in healthcare, education, housing, work in the Arctic does not contribute to the

development of human capital. The study showed that the population of the Arctic is declining, a high level of unemployment has been identified, and the incidence rate is growing in some regions. Of the positive tendencies in the development of human capital in the Arctic, only the following can be distinguished: the average monthly nominal accrued wages of employees of organizations grew annually in all Arctic regions, in most regions the number of doctors grows annually.

With regard to the increase in the development of human capital in the Arctic, opinions different authors express vary. According to A.E. Shaparov (2019), N.I. Chuvashova (2019), for the development of human capital in the Arctic zone, the state and business should use the potential of internal migration, including by thoroughly factoring in the specifics of the region in wages, costs of reproduction of labour force, modernization of guarantee and compensation systems. The responsibility of employers for providing northern guarantees and compensations should be solidified, regardless of the form of ownership of enterprises and organizations. A.V.

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Mikhailova and L.N. Popova (2016) express the opinion that the management of human potential and human capital in the Arctic zone should be aimed at targeted social support of the population, development of the social services market, increased involvement in the entrepreneurial process of the population, support for the civil initiative of the population.

According to foreign practices, the use of partnerships between federal and local authorities with business structures and educational organizations, provided that the potential of the local community is activated, is indeed an incentive for the self-development of socio-economic territorial systems, including such complex ones as the Arctic (Toropushina and Bashmakova, 2018). The author is of the opinion that, in the Arctic, it is necessary to create effective incentives for the formation and retention of human capital. Moreover, as the practices of developed countries show, within the framework of a system for stimulating the development of human capital, it is necessary to apply both conventional measures to popularize territories (development of health systems, education, infrastructure support, fiscal policy), as well as unique



preferences specific to the northern territories (creating the concept of winter cities, involving indigenous minorities in the economy), which, if introduced in Russia, can contribute to the accelerated socio-economic development of the Arctic microregion.

Thus, in the Arctic there are resources and opportunities for the development of human capital in the short term, subject to the active participation of municipal, regional, federal authorities in the development and implementation of effective mechanisms for the development of human capital. To date, the state has taken certain measures to develop the Arctic, to retain labour resources, however, these measures are insufficient, since at present the outflow of the population, high unemployment, and underdeveloped infrastructure are noted in this region.

Conclusions

Summarizing the results, we can draw certain conclusions. Human capital has acquired a multifaceted nature as the main productive and social factor in the development of modern society and as an economic category.

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Human capital is a person's innate abilities and talent, including their education and acquired qualifications. The accumulation of human capital requires large material and other costs from the subject of investment. Investments in human capital are beneficial not only for a person, but also for society at large, because they provide a significant, lasting and stable effect of economic growth of the entire country. The Arctic zone of Russia is described by complex climatic conditions, remoteness from the main industrial centers, underdeveloped transport system, and low population density. For the development of human capital in this region, it is necessary to improve the quality of life of the population, develop business, improve the transport system, introduce innovations.

State and regional authorities have developed the necessary regulatory documents on the development of the Arctic region, human capital (development strategies, state programs, projects) for the development of transport infrastructure, for the implementation of investment projects, for the development of marine and shelf fields, for the development of tourism, communications, educational



development, employment. However, these measures cannot be considered sufficiently effective. The main problems identified during the analysis of the development of human capital in the Arctic over the past 2 years are as follows: reduction in the number of resident population; reduction in the availability of hospital beds; an increase in the incidence of the population in certain regions; decrease in the number of doctors; reduction in the number of preschool educational institutions; a decrease in the number of students in educational institutions; reduction in the number of institutions providing training in secondary professional education programs, higher education institutions; decline in residential construction.

Considering the identified problems of the development of human capital in the Arctic, recommendations were developed to increase its level. The author's position on the development of human capital in the Arctic is as follows. The factors of human capital development in the Arctic are: the integrated implementation of innovations, improving the quality of life, the development of regional entrepreneurship, small and medium enterprises, increasing the

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competitiveness of the Arctic transport systems through the formation of a multimodal transport and logistics infrastructure, ensuring a balance in the development of society and nature, implementing related targeted high tech projects. At the same time, further studies of increasing the level of human capital in the Arctic are required. While some researchers are currently studying the definition of the concept of "human capital", factors that affect its level, a system of indicators for evaluating the level of human capital, the creation of a mechanism for increasing in the level of human capital in a particular Arctic region remains understudied. The most promising direction for further research on the subject matter is to study the experience of advanced Russian regions and the experience of developed countries, which will help in selecting mechanisms to be applied in the Arctic for the development of human capital.

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