Conditions for human capital formation in rural areas of Russian North Asia

Y B Zhamyanova and D A Darbalaeva
Baikal Institute of Nature Management, SB RAS, Ulan-Ude, 670047 Russia

E-mail: maksyulia@inbox.ru

Abstract. In modern conditions, human capital is of great importance in the production of the value of goods and services. At present, the social and living conditions of people in rural areas lag far behind urban ones. Russia has identified a socially oriented model of society development among the development priorities for the coming years, which involves the support of social spheres of the economy that determine the conditions for human capital development. The article discusses the main conditions for the formation of human capital in rural areas of North Asia, which covers the territories of the least populated federal districts – Siberian, Ural and Far Eastern. The selected entities are different in terms of economic development and infrastructural potential. The article highlights the main factors in the formation of human capital and the conditions for its development in this region. The importance of the role of the state in ensuring the availability and improving the quality of social services, reducing the differences between rural and urban living conditions is shown.

1. Introduction
In modern conditions, the social reproduction process largely depends on investment in human capital. To solve the problems of the economy, it is not enough to involve material factors of production, human resources have a significant place in it. Human resources are one of the important factors in the competitiveness of the economy of any region. Socio-economic conditions play a significant role in the formation of human capital in rural areas: the situation on the labour market, housing and infrastructure.

2. Models and Methods
The object of the study is the rural population of North Asia, the territory of which covers the Omsk oblast, Tyumen oblast, the Republic of Tyva, the Altai region, Zabaikalsky krai, the Republic of Buryatia and Amur oblast. The area of the study area is 3.087 thousand km², where 11.1 million people live.

The research materials include scientific works of domestic and foreign scientists on this issue. The breadth of the methods and approaches used to define the concept of “human capital” is limited by the branch of application of this concept. In a broad sense, it can be said that the human capital of the agricultural sector is a combination of a person’s health reserves, innate abilities and acquired knowledge, skills and competencies used in the process of labour activity in this area and allowing to develop and improve production [1]. The formation of human capital in the agrarian sphere is largely determined by natural-geographical and social conditions.
This paper analyses housing conditions, the state of social infrastructure in rural areas in the constituent entities of Russian North Asia. The empirical base was statistical collections and data from territorial statistical offices of the studied constituent entities for 2000-2020 [2, 3]. In this work, we used logical-structural analysis and synthesis, comparative analysis and method of systematization.

3. Results and Discussion

At the end of 2019, the total rural population in North Asia was 3.3 million people. North Asia covers the territories of the least populated federal districts – Siberian, Ural and Far Eastern. Within the region, there are relatively different shares of the rural population in the total population, with an average of 34.2% in 2019. A significant decrease in the rural population over the past 50 years in the overall structure is observed in Tyumen oblast. Since the beginning of the 21st century, the number of rural residents in the region has decreased by almost half a million people. Also, in Omsk oblast, the share of the rural population decreased faster than the average for Russia. In the rest of the regions studied, the rate of reduction was lower than the Russian average (Table 1).

| Table 1. Share of rural population in the structure of total population for 1970-2020, in %. |
|-------------|--------|--------|--------|--------|--------|--------|--------|
|             | 1970   | 1980   | 1990   | 2000   | 2010   | 2020   | Increase by 2020 |
| Russian Federation | 37.9   | 30.4   | 26.3   | 26.8   | 26.2   | 25.3   | 66.7          |
| Omsk oblast   | 44.8   | 37.1   | 32.3   | 31.7   | 28.5   | 27.1   | 60.4          |
| Tyumen oblast | 51.1   | 39.2   | 23.7   | 22.9   | 21.8   | 18.9   | 36.9          |
| Zabaikalsky krai | 42.7   | 37.1   | 34.9   | 36.4   | 34.0   | 31.8   | 74.4          |
| Republic of Buryatia | 55.5   | 43.2   | 38.3   | 40.2   | 41.5   | 40.7   | 73.3          |
| Republic of Tyva | 62.3   | 58.1   | 53.2   | 49.6   | 46.9   | 45.7   | 73.4          |
| Altai krai     | 52.8   | 46.2   | 42.1   | 47.2   | 45.2   | 43.1   | 81.6          |
| Amur oblast    | 38.3   | 35.1   | 32.0   | 33.4   | 33.1   | 32.3   | 84.3          |

The main demographic problem in most constituent entities is the negative balance of migration (Figure 1). It should be noted that positive values in the growth rates are noted for the Russian Federation and Tyumen oblast. The cause of migration decrease is high unemployment, since the bulk of migrants are the working-age population. In recent years there has been a noticeable increase in commuting migration, with rural inhabitants going not only to large settlements but also to other regions to work on a rotational basis.

Figure 1. Migration rate per 10 thousand people in North Asia for 2000-2020, in ppm.
A further increase in the migration of the working-age population threatens to reduce the number of specialists with fundamental and comprehensive training for all categories of workers. Currently, a large proportion of the population in rural areas are working pensioners or persons close to them in age. Thus, young people and the most mature part of the working-age population often switch from the agrarian sector to other sectors.

The level of socio-economic development of the region, its natural and geographical conditions, which are reflected in the specialization and state of the agrarian industry, are important in the formation of human capital of a rural population. Due to the fact that North Asia includes zones of extreme farming, agriculture is not the leading sector of the economy of the considered entities [4]. As can be seen from Table 2, the importance of the agricultural industry in the economy of the entire region is low and is gradually decreasing in all regions. Basically, in the regions studied the share of agriculture has decreased by half over the past 18 years, and in the Republic of Tyva it has almost tripled. The share of agriculture in gross regional product is relatively high in Altai krai, the granary of Siberia and Russia as a whole.

**Table 2.** Share of agriculture in the structure of the gross regional product, in %.

|                | 2002 | 2010 | 2020 |
|----------------|------|------|------|
| Russian Federation | 5.3  | 4.7  | 4.0  |
| Tyumen oblast     | 0.9  | 1.5  | 0.9  |
| Republic of Tyva  | 15.5 | 7.1  | 5.4  |
| Altai krai        | 21.1 | 18.1 | 13.4 |
| Omsk oblast       | 14.1 | 10.6 | 8.9  |
| Republic of Buryatia | 10.2 | 7.0  | 4.6  |
| Zabaikalsky krai  | 9.4  | 6.0  | 5.2  |
| Amur oblast       | 12.0 | 7.8  | 5.7  |

According to statistics, the level of wages in the agro-industrial sector is low. In Russia, the average nominal wage in agriculture reaches 28.6 thousand roubles, higher in Amur oblast – 30.8 thousand roubles, the lowest in the Republic of Tyva – 14.5 thousand roubles (Figure 2).

![Figure 2](image_url). Average wages in agriculture in 2018, in roubles.
Social conditions of life in rural areas have a significant impact on the formation of human capital in the agricultural sector. The main investment of the state in the human capital of the rural population is the provision of living conditions in which the population will be provided with housing and a developed infrastructure of health care, education, and culture.

The most important factor in the normal reproduction process of the rural population is the satisfaction of the need for housing. At the end of 2019, there were 26.9 m² of housing per Russian rural resident. For example, in 2019, the housing stock of Buryatia, which amounted to 21.5 million m² of total area, included 12.6 million square metres in urban areas and 8.9 million square metres in rural areas (Table 3). The problem of comfortable housing conditions is widespread in rural areas, as the housing stock in towns and urban settlements is on average twice as good as that in rural areas in terms of water supply and drainage (sewerage).

Table 3. Average total housing area per person in the North Asian regions (rural / total), m².

|                | 2000  | 2005  | 2010  | 2015  | 2019  |
|----------------|-------|-------|-------|-------|-------|
| Russian Federation | 19.5/19.2 | 21.5/20.8 | 24/22.6 | 25.6/24.4 | 26.9/26.3 |
| Tyumen oblast      | 16.2/17.7 | 18.5/18.9 | 19.8/20.8 | 25.6/22.9 | 24.2/24.2 |
| Republic of Tyva    | 11.5/12.4 | 13.7/12.7 | 12.6/13.0 | 12.4/13.5 | 12.5/14.2 |
| Altai krai          | 19.2/18.4 | 20.8/20.1 | 23.1/21.8 | 24.9/23.1 | 26.0/24.7 |
| Omsk oblast        | 18.5/18.7 | 21.7/20.4 | 23.1/22.5 | 24.1/23.6 | 25.4/25.4 |
| Republic of Buryatia| 15.8/17.0 | 16.6/17.9 | 18.7/19.2 | 22.3/21.4 | 21.9/21.8 |
| Zabaikalsky krai    | 16.3/17.4 | 17.4/18.6 | 18.3/19.5 | 18.8/20.4 | 20.1/21.5 |
| Amur oblast        | 17.3/18.6 | 20.7/20.6 | 20.6/22.2 | 22.8/24.3 | 23.6/25.6 |

Among the main problems in rural areas are the following: low population density, poor road transport links, poor health care. In recent years, the state has been making significant efforts to find ways to reduce mortality and increase life expectancy, where the activities of health-care services play a leading role. The capacity of polyclinics is supplemented each year by measures from the state’s territorial development programmes (Table 4).

Table 4. Increase in the capacities of outpatient clinics and polyclinics in rural areas by entities, visits per shift.

|                | 2005  | 2010  | 2013  | 2014  | 2015  | 2016  | 2017  | 2018  |
|----------------|-------|-------|-------|-------|-------|-------|-------|-------|
| Russian Federation | 2,588 | 2,587 | 5,121 | 8,429 | 9,556 | 8,156 | 7119  | 10,204|
| Tyumen oblast      | –     | 142   | –     | –     | –     | 100   | –     | 25    |
| Republic of Tyva    | –     | 20    | 20    | 19    | –     | –     | 30    | 100   |
| Altai krai          | –     | –     | 319   | 225   | 89    | 150   | 142   | 60    |
| Omsk oblast        | 40    | –     | –     | –     | –     | 15    | 20    |
| Republic of Buryatia| –     | –     | 110   | 14    | –     | 30    | 200   | 265   |
| Zabaikalsky krai    | –     | 22    | –     | 25    | 20    | 20    | –     |
| Amur oblast        | 10    | 170   | –     | –     | –     | –     | 10    |

The problems of staff shortages in the educational sphere, poor material provision of small schools, and educational migration are acute not only in the regions under consideration, but also in the country as a whole. As a result of the implementation of programme measures, the quality of education in rural schools also improves, which is achieved by creating attractive working conditions for rural teachers by increasing the salaries of teachers, providing them with comfortable housing and other social benefits, and increasing the prestige of the teaching profession [5] (Table 5). A positive aspect is the construction of preschool educational institutions with an annual increase in the number of new places.
Inaccessibility of schools for children in remote areas and bad roads remain a big problem for ensuring a full educational process throughout the territory. One of the factors for creating a decent quality of life for the rural population is the availability of medical services. Health problems not only in rural areas, but also in urban areas are the subject of state attention and ongoing discussions to resolve them. There is a widespread shortage of medical personnel, especially in hard-to-reach areas, and insufficient equipment of medical institutions. According to the data of the Accounts Chamber of the Russian Federation, out of 130 thousand rural settlements, only 45 thousand have some kind of medical care [6].

In recent years, in order to provide the agrarian sector with personnel, considerable attention has been paid to the creation of favourable social conditions for living in rural areas. In recent years, the program “Sustainable Development of Rural Areas for 2014-2017 and for the period up to 2020” has been implemented in Russia, which was aimed at improving the demographic situation, diversifying the rural economy and stimulating small business the development. By selecting a few of the target characteristic indicators, it can be concluded that the implementation of the objectives set out in the programmes has brought positive results in the lives of rural residents. Over the years under review, social and transport accessibility indicators have improved in most regions.

Table 5. Dynamics of indicators characterising quality of life in rural areas in North Asia regions.

|                  | Preschool Education Coverage of Children, % | Life expectancy in rural areas, years | Local paved roads, % of all roads |
|------------------|--------------------------------------------|--------------------------------------|----------------------------------|
|                  | 2015 | 2019 | 2015 | 2019 | 2015 | 2019 |
| Russian Federation | 59.9 | 61.8 | 69.9 | 72.2 | 49.8 | 51.7 |
| Tyumen oblast    | 78.5 | 85   | 70.5 | 72.7 | 51.8 | 52.2 |
| Republic of Tyva | 46.6 | 58.6 | 58.5 | 63.9 | 21.5 | 23.7 |
| Altai krai       | 61.9 | 62.6 | 69.3 | 70.5 | 58.4 | 57.3 |
| Omsk oblast      | 53.6 | 67.5 | 67.95| 70.2 | 42.6 | 42.2 |
| Republic of Buryatia | 51.4 | 54.1 | 67.2 | 68.9 | 48.1 | 55.1 |
| Zabaikalsky krai | 57.4 | 61.1 | 67.3 | 68.8 | 67.0 | 67.9 |
| Amur oblast      | 60.8 | 75   | 65.6 | 67.4 | 38.8 | 42.4 |

Today, the main state measures to support the development of rural areas in the regions are the state programmes “Comprehensive Development of Rural Areas”, and “Spatial Development Strategy of Russia” designed for 2020-2025 [7]. In the Comprehensive Program, strategic emphasis is placed not only on the development of agriculture, but in general on the diversity of the economy: the presence of small and medium-sized businesses along with educational and health care institutions.

Conclusion
Thus, the socio-economic living conditions of the rural population in the studied constituent entities of the Russian Federation have significant differences. At present, the level of development of the agrarian sector, and the state of social infrastructure in rural areas demonstrate both positive and negative factors in the formation of human capital. The implementation of state programmes in rural areas makes a certain contribution to the improvement of human capital. However, solving the main problem of rural areas – the migration outflow of human resources – requires a whole set of measures, and therefore incurs significant financial costs, administrative resources and lot of time.

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