

# Human Capital In The Sustainable Development Of The Regional Economy



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**Abstract: Purpose:** Consideration of the key directions of social infrastructure development affecting the formation of human capital

**Design / Methodology / Approach:** This study uses the method of analogy and comparison, monographic and statistical methods  
**Findings.** The study indicates a strong correlation between the level of human capital formation and the healthcare system. The authors analyze and assess absolute and relative parameters of the main objects of social infrastructure suggesting several recommendations for their improvement  
**Practical implications:** The problems discussed in the article indicate an urgent need to improve the health system in rural areas  
**Originality / value:** The authors define the concept of social infrastructure, consider various approaches to its definition, and also indicate the main factors that adversely affect the reproduction of human capital

**Keywords:** healthcare, agriculture, human capital, health, life expectancy

## I. INTRODUCTION

In this study, the authors determine the role of the qualitative characteristics of the human capital of the rural population. They analyze the socio-economic situation of the rural population in the context of the constituent entities of the Russian Federation in the Siberian Federal District. The study reveals multidirectional tendencies in the regions for the reduction of the rural population, the level and quality of life. The authors conclude that the absence of public regulation of human capital formation in rural areas would jeopardize the achievement of many indicators of the region's socio-economic development strategy [1-12].

## II. LITERATURE REVIEW

The main consequence of the development of the rural area

is an increase in efficiency of the agricultural sector, which serves as the basis for ensuring food security of the state at the macro level [16]. At the micro level, the main consequence is the preservation of the cultural heritage of rural territories, along with the increases prosperity and reproduction of the rural population.

The main researchers studying the quality of life, reproduction and development of human capital of the rural population are [13-15; 17-21].

## III. METHODS

The object of study is the personnel potential of the rural population.

The subject of study is economic relations arising from the reproduction of human capital.

works of domestic economists, the material of international and all-Russian conferences, as well as statistics from the Federal State Statistics Service, served as the information base for the research.

The study used monographic, abstract-logical, computational-constructive, statistical, comparative and other methods of economic research.

## IV. RESULTS

Providing the agricultural industry with skilled workers should be based on a clear interaction of state authorities at all levels, by creating organizational, economic and legal norms.

Since the beginning of the 40s of the XX century, the term infrastructure is used to characterize objects providing a qualitative side of human life since.

It should be noted that a proper state's social policy should be based on the successful achievement of certain social standards and norms.

According to article 6 of the Budget Code, the minimum state social standard implies a list of public services provided to citizens on a non-paid and irrevocable basis through financing from the budgets of all levels of the budget system of the Russian Federation.

Social standards are directly related to the assessment of people's quality of life. The main components of the quality of life are:

- incomes of the population;
- people's access to own housing;
- quality of housing conditions;

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## Human Capital In The Sustainable Development Of The Regional Economy

- provision of the population with basic economic benefits;
- provision of the population with pre-school and school educational institutions;
- provision of the population with medical facilities;
- the state of the labor market. To analyze the availability of social infrastructure objects

to the population, it is necessary to compare the actual indicators with the standards established by state authorities.

In the period of the planned economy, an important role was assigned to social regulation based on physical and value indicators. These indicators were strictly regulated by the law and significantly differed from each other depending on the climate conditions in various subjects of the Soviet Union. All standards were available to the public on special regulatory sources [22- 35].

It is worth noting that in the pre-reform period, sanitary norms and rules displayed information on the provision of the population with basic infrastructure facilities, such as kindergartens, medical, secondary education, and other institutions characterizing the quality of human life.

Today there is no clear framework for determining the minimum state social standards in the Russian Federation. According to the public authorities, the size of social standards should be independently determined by the constituent entities of the Russian Federation based on their financial capabilities. In view of the foregoing, we can conclude that in modern conditions there is no single level of minimum social standards for the entire state.

Today, the principal normative documents regulating the quality of life include:

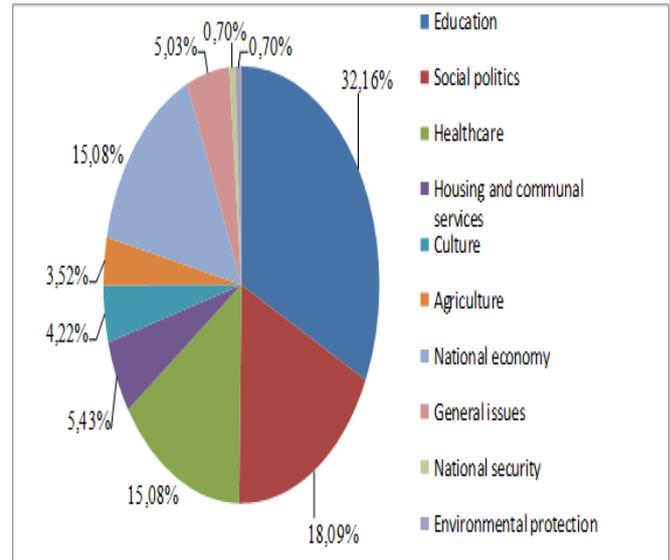
- The federal law "On the minimum wage";
- The Federal Law "On the cost of living in the Russian Federation";
- Order of the Government of the Russian Federation "On social norms and standards".

It must be borne in mind that the development of the rural social infrastructure contributes to an increase in the quantitative characteristics of human capital and results in such socio-economic consequences as the increased efficiency of agricultural production, an increase in rural employment, a decrease in social tension and the creation of a modern social living environment.

Healthcare system is the most important indicator of social infrastructure, which plays a crucial role in the formation of human capital. According to the Charter of the World Health Organization, health is understood as "a state of complete physical, mental and social well-being, and not just the absence of diseases and physical defects [36-42]. The enjoyment of the highest attainable standard of health is one of the fundamental rights of every person without distinction of race, religion, political opinion, economic and social status". Healthcare is a very complex definition that accompanies a person from birth to retirement age. Investments in these objects increase the quality and duration of production activities of the carrier of human capital.

When developing a mechanism capable of establishing reproduction of the rural population, it should be understood that not only psychological well-being but also life expectancy depend on the socio-economic conditions for the formation of human potential. Thus, cancer prevention, which

aims to preserve the rural population's health, should become one of the most important directions when developing programs to increase the sustainable development of rural territories [43-51]. It is worth noting that the share of government spending on healthcare for 2011-2017 has decreased by 2% and accounted for 15.3% of all the consolidated budget expenses of the Novosibirsk region.



**Figure 1. Consolidated budget expenses of the Novosibirsk region, 2017 (The numbers on the chart are decimal fractions)**

Medicine funding on a surplus capacity basis during the period of economic reforms resulted in extremely poor health of the population, which is the carrier of human capital. Today, the network of medical institutions providing primary healthcare to the rural population in the Novosibirsk Region is represented by 29 central district hospitals, 2 district hospitals, 38 general practice offices based on structural units of central regional hospitals, 53 district hospitals, 106 medical outpatient clinics, 911 feldsher-obstetric centers, 160 households in areas with 100 inhabitants or more.

The problem of providing healthcare services in rural areas of the region is quite acute, since the transition from inpatient to outpatient forms of medical care has led to a reduction in district hospitals and feldsher-obstetric centers. In rural areas of the Novosibirsk Region, there are 45 hospital beds per 10,000 people, compared to 108 beds in the urban areas. The study shows that in 2000-2017 the number of feldsher-obstetric centers in rural areas has decreased by more than 4%. The reduction in medical facilities particularly affected the Zdvinskii, Iskitimskii, Novosibirsk and Toguchinskii districts (Table 1).

**Table 1 – The number of feldsher-midwife points in rural areas of the Novosibirsk region**

Name of districts	Years								
	2010	2011	2012	2013	2014	2015	2016	2017	
Baganskii	30	30	30	30	30	30	30	30	
Barabinskii	40	40	40	40	40	40	40	40	
Bolotinskii	26	26	25	25	25	25	25	25	
Vengerovskii	37	37	37	37	37	37	37	37	
Dovolenskii	21	21	21	21	21	21	21	21	
Zdvinskii	31	31	29	28	28	28	28	28	
Iskitimskii	56	56	56	54	12	6	6	6	
Karasuskii	33	34	35	35	36	35	35	35	
Kargatskii	31	31	31	31	31	31	31	31	
Kolvenskii	24	21	22	20	20	20	20	20	
Kochenevskii	31	31	31	31	31	31	31	31	
Kochkovskii	13	13	13	13	13	13	13	13	
Krasnozerskii	38	38	38	38	38	38	38	38	
Kuybyshevskii	40	39	39	39	39	39	39	39	
Kupinskii	41	41	41	41	41	39	37	37	
Kyshtovskii	31	31	31	31	31	31	31	31	
Maslyaninskii	20	20	23	23	23	23	23	23	
Moszkovskii	31	31	31	31	31	31	31	31	
Novosibirsk region	26	26	26	17	17	16	14	14	
Ordynskii	24	23	23	22	20	20	21	20	
Severnii	18	18	18	18	18	18	18	18	
Suzunskii	24	24	24	24	24	24	24	24	
Tatarskii	49	49	49	49	49	49	49	49	
Toguchinskii	48	47	48	40	40	40	40	40	
Ubinskii	34	34	33	33	32	31	29	29	
Ust-Tarskii	34	34	34	33	33	32	32	31	
Chanovskii	45	45	44	43	43	41	40	39	
Cherepanovskii	33	32	31	31	31	33	34	35	
Chistoozernyi	31	31	25	26	27	25	22	21	
Chulymskii	16	16	15	16	15	14	15	16	
Total	946	940	936	923	922	915	911	911	

The decrease in the number of feldsher-midwife stations, poor material and technical equipment and low availability of medical care have led to an increase in the incidence of the rural population, a decrease in the quality of life and premature mortality.

A review of outpatient organizations shows that the capacity of polyclinics per shift per 10,000 people in urban areas increases by 10-12% annually, while in rural areas this indicator shows a negative trend (Table 2).

**Table 2 – Outpatient organizations of the Novosibirsk region**

Indicators	Years		
	2016	2017	2017 /2016
Urban and rural settlements			
Number of outpatient organizations	214	298	142
The capacity of outpatient organizations, visits per shift:			
Total	6387	7061	111
Per 10,000 people	229.8	253.2	110.2
The number of feldsher-midwife points	912	912	100.0
Urban settlements			
Number of outpatient organizations	202	289	143.1
Total	5567	6254	112.3
Per 10,000 people	253.8	283.8	111.8
The number of feldsher-midwife points	54	54	100.0
Rural settlements			
Number of outpatient organizations	10	10	100.0
The capacity of outpatient organizations, visits per shift:			
Total	8186	8062	98.5
Per 10,000 people	139.7	137.9	98.7
The number of feldsher-midwife points	911	911	100.0

In Russia, public authorities play a leading role in ensuring social infrastructure. In the period of the command economy,

Russia was among the leading countries in terms of healthcare development. However, the reforms that his Government had undertaken in the past decade have had an extremely negative impact on the material and technical equipment of medical facilities.

It should be borne in mind that for most rural residents, feldsher-midwife centers are the only medical institutions providing medical care. Thus, the main task of healthcare in the Novosibirsk Region is the preservation and development of feldsher-midwife centers (FMC).

The study shows that the average percentage of depreciation of healthcare facilities in the region is 60%, while most of the feldsher-midwife points do not conform to the standards of medical care (Table 3).

**Table 3 – The material and technical base of healthcare organizations in the Novosibirsk region**

Indicators	2016	2017
Urban and rural settlements		
Number of beds in hospital organizations		
Total	6877	26489
Per 10,000 people	96.6	96.1
Number of central district hospitals	29	29
Number of beds in district hospitals	6078	6060
Average capacity of one hospital, beds	211	210
Urban settlements		
Number of hospital organizations	94	91
Number of beds in hospital organizations		
Total	24173	23910
Per 10,000 people	111.2	109.0
Rural settlements		
Number of hospital organizations	10	10
Number of beds in hospital organizations		
Number of beds in hospital organizations	2715	2639
Per 10,000 people	47.0	46.2

Whatever financial difficulties the government might face in the conditions of a social crisis, it should be clearly understood that the preservation of health is an integral part of human capital. Thus, the underfunded healthcare system will certainly affect future generations of the state. The future of the nation depends on the generation to be born [52-61].

Numerous studies show that today the main causes of most diseases are not bad habits caused by alcohol and smoking but causes associated with an unstable mental state caused by general dissatisfaction with living conditions and quality of life.

In 2017, the mortality rate in rural areas was higher than in urban settlements (15.2% compared to 12.3%). In 2017, 18.5 thousand people died from diseases of the circulatory system, which is 2% higher than in 2016. Neoplasms are the second major cause of deaths, which accounted for 6 thousand people. However, over the past 5 years, there were only 44 beds for cancer patients. The third place in the structure of mortality is occupied by external causes – 8.3% (Table 4).

**Table 4 – The number of hospital beds in medical institutions of the Novosibirsk region**

Indicators	2012	2013	2014	2015	2016	2017
The number of hospital beds, including	1332.3	1301.9	1266.8	1222.0	1197.2	1123.5
therapy	302.8	294.3	280.3	266.2	258.9	252.3
surgery	256.4	251.3	241.8	231.7	227.0	225.2
oncology	42.8	43.4	44.3	44.4	44.5	44.4
Per 10,000 people						
The number of hospital beds, including	92.9	90.6	86.6	83.4	81.6	81.2
therapy	21.2	20.5	19.2	18.2	7.6	17.2
surgery	17.9	17.5	16.5	15.8	15.5	15.3
oncology	3.0	3.0	3.0	3.0	3.0	3.0

The number of surgeons in the region has significantly decreased from 1858 people in 2012 to 1596 in 2017, therapists – from 2652 to 359. It is worth noting that the insufficient supply of people with doctors leads to an increase in the workload of the healthcare system, which negatively affects the quality of service.

**Table 5 – Distribution of the number of doctors in the Novosibirsk region**

Indicators	2012	2013	2014	2015	2016	2017
Urban and rural settlements						
The number of doctors, including	15943	15687	15287	15000	15025	14814
Therapists	2642	2779	2923	3200	3378	3391
Surgeons	1951	1828	1823	1786	1672	1701
Urban settlements						
The number of doctors, including	12122	12642	12900	13110	13358	14199
Therapists	2632	2771	2962	3131	3363	3512
Surgeons	965	1154	1356	1528	1542	1573
Rural settlements						
The number of doctors, including	700	684	600	599	536	615
Therapists	8	9	13	13	14	30
Surgeons	9	11	9	10	10	11

When considering the availability of mid-level health professionals, it can be noted that their number has slightly increased over the period under consideration. However, the main problem is the high proportion of mid-level health professionals of retirement age. The ratio of mid-level health professionals to the number of doctors is much lower than in most Western countries. Thus, for Canada, this ratio is 4/7; Norway – 4/4; Ireland – 5/7; Denmark – 5/6. This results in a significant imbalance in the quality of medical services.

The quality of the medical services provided has a significant impact on the life expectancy of the population. Subsequently, the average life expectancy of the population living in urban areas exceeds the same indicator of the rural population by 4 years (Table 6).

Looking back at the history, one can notice that over the past century, life expectancy in Russia has changed significantly. Thus, in 1900, the average life expectancy for women was 31 years, for men – 29.5 years. Since the beginning of the last century, this indicator has changed significantly. It is worth

noting that significant gender differentiation of life expectancy has emerged in the middle of the twentieth century. Over the past few decades, women have lived on average 12 years longer than men.

**Table 6 – Life expectancy of the Novosibirsk region population, years**

Year	Urban population			Rural population		
	both sexes	M	F	both sexes	M	F
2011	70.1	63.8	75.9	67.6	62.4	73.3
2012	70.3	64.3	76.2	67.7	62.5	73.5
2013	70.9	64.9	76.7	67.8	62.3	74.1
2014	70.9	64.9	76.6	68.1	62.6	74.4
2015	71.6	65.7	77.2	68.1	62.8	74.2
2016	71.9	66.5	77.8	68.1	62.8	74.3
2017	72.1	66.6	77.9	68.2	62.8	74.3

To solve the most important agricultural problem related to the consolidation of workers in rural areas, the government needs to adopt a series of measures to improve the quality and standard of living of the rural population with the immediate and direct State participation.

## V. CONCLUSION

One of the main health problems in rural areas is insufficient staff resources. It is possible to attract qualified specialists to the countryside by providing certain social guarantees from the state. For several years, the "Zemskii Doctor" personnel program for medical workers has been operating in the region, showing certain positive results. However, these measures are not enough, because over the past few years the number of doctors and paramedical personnel has significantly decreased in the region. The creation of a Strategy for the development of staffing in the agricultural sector should be based on the current economic situation. To achieve sustainable rural development, it is necessary to address the problem of revival and development of agricultural production to ensure the increase the national food security.

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