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Human development, satisfaction with human capital and security in the Siberian and Far Eastern border regions*

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Abstract. The development of human capital in Russia is rather controversial and is characterized by both significant achievements and serious challenges. Russian regions differ in terms of the accumulated human capital, and many Siberian and Far Eastern territories are the most vulnerable in this perspective. Based on the analysis of the statistical indicators (more than 40) and the results of sociological research, the authors present a model of the main dimensions of social security in their relationship with the development of human potential in the border regions of Russia, with a focus on the regions of the Siberian and Far Eastern Federal Districts. According to the statistical data, the human development index is closely related to security in the labor sphere and the characteristics of the social-economic development, which determine, among other things, the features of the functioning of the social security system. The authors identified the statistically significant but less strong links of the human development index with the level of the social infrastructure development and environmental security. The results of sociological studies in five border regions (Altai Region, Amur Region, Khabarovsk Region, Omsk Region, and Altai Republic: N = 2802) show a subjective assessment of the efficiency of human capital and its relationship with social-structural factors, institutional environment and quality of social relations. The authors conclude that human capital in the border regions depends not only on economic factors, but also on broader social conditions: the human capital estimates depend on the institutional and generalized trust, social representations, and perceived discrimination. The development of human capital varies by region, which reflects the specifics of its accumulation and functioning in different contexts and conditions.

Key words: human capital; human development; global indices; social security; institutional trust; border regions of Russia; Siberian Federal District; Far-Eastern Federal District

The logic of the post-industrial development predetermined the ‘humanistic turn’ of the global economy and declared the individual the main subject of consumption, the beneficiary of produced goods, and a driver of the economic growth. Transformations of labor markets and types of employment increased the significance of cognitive and social-behavioral skills in making complex decisions

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and working in groups, together with personal abilities to adapt, think logically and critically, be self-assured. Only countries with the developed economy of knowledge, healthy population and sophisticated educational systems producing highly qualified competitive specialists will have advantages in creating conditions for the sustainable growth, better standards and quality of living.

The OECD defines human capital broadly — as “the knowledge, skills, competencies and other attributes embodied in individuals or groups of individuals, acquired during their life and used to produce goods, services or ideas” [24]. There is a global consensus that the deficiency of human capital is the main reason why poor countries remain poor, and that efforts to develop human resources, to fight poverty and social exclusion are significant factors contributing to the economic-social prosperity of societies and innovative development [4; 16; 30]. Investment in human capital correlates with social cohesion and generalized trust, which can be explained by the effect that trust and social cohesion contribute to the economic growth [5; 11]. On the other hand, external and internal threats have destructive impacts on human capital and social relations. The cohesiveness of societies and their human capital depends on the quality of public institutions, especially those that provide social protection and contribute to the development of civil society and democracy [6; 16; 27; 28]. Despite some evidence, the study of human capital usually focuses on economic aspects, which determines the need to consider its other possible determinants and their interrelations in various contexts.

Human capital in the Eastern regions of Russia

For Russia, human capital is the main bargaining chip allowing to make the wished-for technological breakthrough and change the extensive, commodity-dependent economy into more intensive, corresponding to the new realities of the information society [17; 31]. The Global Competitiveness Index of the World Economic Forum, based on the indicators of the macro-economic environment, social infrastructure, health, education, labor market, financial and technological spheres, ranked Russia 43rd out of 140 countries [8]. However, in terms of health and education, Russia demonstrates a significant backlog: Russia is ranked only 97th by the population’s health, and 54th by the educational capital. According to the Global Innovation Index by the WIPO and INSEAD, Russia is the 47th with 35.6 points out of 131 countries and the 6th in the group of the upper middle-income economies (since 2017) [32]. The new project of the World Bank on the Index of Human Capital shows that in Russia, it is only 68% effective. It is growing (from 0.60 in 2010 to 0.68 in 2020) due to improvements in the adult survival, marking a rebound from the drop in life expectancies in the post-Soviet space, and is higher than the average for the upper-middle income countries but lower than the average for Europe and Central Asia [33].

Even a brief analysis of various indices shows that differences in their theoretical-methodological grounds, methods and data sources result

in contradictory conclusions. For instance, the authors from the HSE claim that Russia has a chance to switch to a social policy and social investments focused on human capital due to significant achievements in the economy and social sphere as contributing to the higher educational level, income and consumption aimed at self-development, health support and culture (about 40% of the population — a possible ‘growth driver’). They also note an increase in real incomes and health expenditure (74% in 2005–2015), reorganization of the health care system, a decrease in mortality and the reform of the compulsory health insurance, a decrease of inequalities in the territorial access to the pre-school education, the development of the supplementary, tertiary education [21]. Estimates of other scholars exploring the Russian human capital are rather pessimistic: the split of education into mass and elite, the destruction of institutional mechanisms of quality control, the ongoing revision of educational standards have eroded the traditional system of education and exacerbated social inequality [3; 18; 29]; the change of political-economic regime devaluated human capital as incompatible with the contemporary requirements for skills and knowledge [15; 23].

The Russian economy and labor market are characterized by significant discrepancies between human potential and workplaces [31]. Among the most vulnerable categories are the self-employed and seasonal workers, youth not in employment, education or training (NEET), and some other categories lacking possibilities to demand assurances and career perspectives [9]. These categories demonstrate disinterest in their future often manifested in social isolation and alienation, which can take aggressive and destructive forms [2]. Thus, institutional conditions and individual strategies and practices, despite some positive trends, indicate disbalances in the use of human capital in Russia. The rational approach to the measurement of human capital (future benefits can be calculated with indicators of the labor market based on productivity and wage ratios) is hardly applied to Russia [29].

There are considerable interregional inequalities by income and strong social heterogeneity in some dimensions of human capital — education, longevity and income. Moscow, Saint-Petersburg and regions with the resource-oriented economies (Tumen Region, Sakhalin Region, Republic of Sakha, Nenets Autonomous Region) have better positions, while most national republics (except Tatarstan, Sakha, Udmurtia, Bashkortostan), border Siberian and Far Eastern regions remain the most depressive and vulnerable [12]. The positive but slow dynamic of the human development in Siberian and Far Eastern regions is not sufficient for a qualitative leap in social sphere — to overcome the chronic underdevelopment and social inequality [7; 14].

The main factor determining the specifics of border territories of Russia is their geographic position and responsibility for national security: they perform contact and barrier functions that allow, on the one hand, to adopt positive practices of the economic development and best production technologies; on the other hand, there

are additional costs of the border control, i.e., additional pressure on the budget and social infrastructure [19]. Compared with the internal regions, border regions are more exposed to the social-economic security. The main threats are related to the low diversification of economy, dependence on imports, extensive exports of raw material and resources, weak innovational activity, inefficient regional and municipal management, and inequalities in spatial development, especially in Siberia [20; 26].

Many scholars insist on the necessity of a special social-economic policy for border regions, especially depressive [1]. Despite some attempts to create in Siberia and the Far East innovative economic zones, territories of the advanced development, ‘technological spaces’, ‘cultural-historical centers’ or ‘recreational zones’ (Tomsk, Novosibirsk, Kemerovo, Krasnoyarsk, Altai, Khabarovsk, Primorsky Regions), eastern border regions are far from achieving such ambitious goals. Our research focuses on the state and tendencies in the development of their human capital, its different dimensions, broader social contexts and outcomes.

The system approach to the analysis of human capital, social security and trust imply the measurement of their indicators. Our first step was to examine the official statistical data on the social-economic and demographic development and to identify the key dimensions of social security as the lack risks and threats in social sphere together with a complex of conditions ensuring the satisfaction of vital needs and social security at different levels — individual, group and societal [25]. We used the data for 48 border regions, which allowed to take into account the geographic diversity and to consider different zones of the Russian borderland. In selecting the statistical indicators, we relied on the discriminativity of indices, their ability to describe peculiarities of the regional situation; availability of data for all border regions; relative measures; the most actual data and similar period of time (an averaged data for 2014–2018). The dataset included 40 indicators divided into 9 groups: regional economy; demographic security; labor market and professional education; welfare, standards of living and pressure on the social security system; health care system and health of population; social infrastructure, education and sport; social order and public security; environment and ecological security; access to information technologies and information security. In each group, the factor analysis allowed to identify 11 integral indicators of social security, which were clustered into groups of border regions with similar characteristics of social security. In combining the security analysis with the data on the human development, we identified typical and specific for the Siberian and Far Eastern border regions interrelations between human capital and social security.

The second part of the research consisted of sociological surveys in five border regions of the Siberian and Far-Eastern districts (N = 2802, face-to-face and online interviews, respondents aged 18–70 years, quota sampling). The Far-Eastern borderland was represented by the Amur Region (HDI = 0.84) belonging to the cluster with the resource-based economy and the Khabarovsk Region (HDI = 0.857) — a mid-developed, industrial-agrarian region. In the Siberian

federal district, the survey was conducted in three regions — the Omsk Region (HDI = 0.879) — a well-developed region with strong processing industries, the Altai Region (HDI = 0.838) — a mid-developed industrial-agrarian region, and the Republic of Altai (HDI = 0.826) — a poorly developed agrarian region. Respondents evaluated the financial-social features of human capital measured with four indicators — satisfaction with the income and job, career development and upward social mobility (Likert-type scales).

We focused on interrelationships between human capital and social security assessed with the questions on personal security (“To what extent do you feel safe at the moment?”), social feelings (from optimism to apathy and hopelessness), perceived discrimination (human rights violations). Another group of hypotheses concerned interrelations between human capital and social trust. The generalized trust was assessed by the classic question “Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?”; the institutional trust — by the level of trust to the Russian President, government, regional and municipal authorities, state corporations, judiciary system, financial and bank system, police, federal security service. We conducted a regression analysis to test hypotheses about isolated effects of social security and trust on human capital estimates.

Siberian and Far Eastern border regions: statistical data

If we examine the distribution of the the HDI indices by border regions grouped by federal districts, we will see non-significant mean values in 6 out of 8 federal districts — from 0.848 to 0.875 (Fig. 1). In each federal district, there are leaders and outsiders according to the regional economy and possible investment in human resources. In the Siberian Federal District, the leaders are the Krasnoyarsk Region, one of the most developed export-oriented industrial regions of Russia (0.892), the Novosibirsk Region — the administrative center of the federal district and the leading scientific center with the diversified economy and a strong industrial sector (0.883), and the Omsk Region — an industrial-agrarian region (0.879). The Republics of Buryatia and Altai and the Republic of Altai with the significant share of agrarian and tourist-recreational sectors and the low level of urbanization show a moderate human development (0.826–0.838), while the Republic of Tyva has the smallest HDI in Russia (0.801). In the Far Eastern Federal District, there are three border regions with the primary-products oriented economies and developed mineral industries, whose HDI is very high and comparable with some European or South-Eastern high-income countries: Republic of Sakha (0.903), Magadan (0.897) and Sakhalin (0.896) Regions. The least fortunate regions are the Jewish Autonomous Region (0.824) and the Transbaikal Territory (0.836) — rich in mineral reserves but peripheral and the most ‘abandoned’. Other border regions of this district have rather modest HDI — from 0.840 in the Amur Region to 0.867 in the Chukotka Autonomous Region.

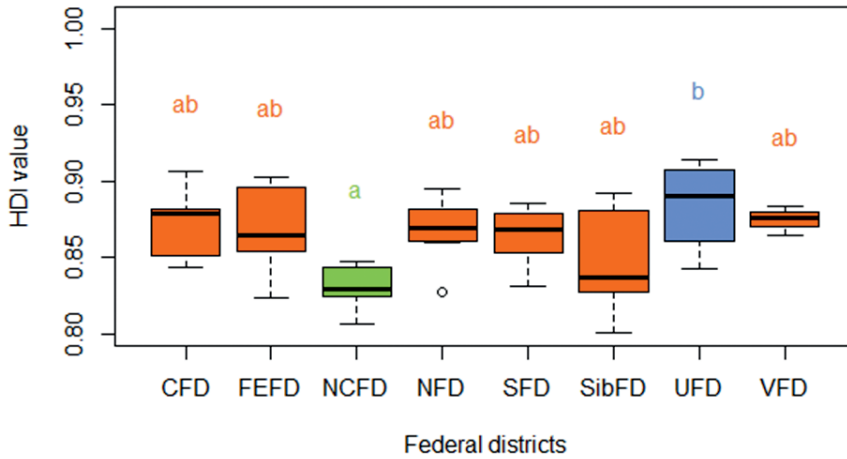


Fig. 1. Mean values of the the HDI in border regions (groups with non-significant differences are marked with the same color and letters)

Source: Analytical Center of the Government of the Russian Federation, 2019
 CFD — Central Federal District, FEFD — Far-Eastern, NFD — Northwestern, SFD — Southern, SibFD — Siberian, VFD — Volga, NCFD — North-Caucasian, UFD — Ural Federal District.

The cluster analysis with 11 integral indices of social security allowed to identify 5 main groups of border regions (Fig. 2). The first cluster consists of 3 regions — Chukotsky, Nenetsky and Yamalo-Nenetsky Autonomous Regions (AR) with the very high level of social security except for mental health and suicides. The second cluster consists of 8 the least-advantaged regions — Karachay-Cherkessia, Kabardino-Balkar, Ingush, Chechen, Kalmyk, Dagestan, Tyva and Altai Republics, in which 6 out of 11 factors indicate low standards of living, problems in the labor market, weakness of the health care system, high pressure on the social security system, and low access to information technologies. However, these regions show higher demographic security, physical and mental health, a relatively low level of crime and a favorable ecological situation. The third cluster includes regions with favorable conditions for 10 integral factors except for physical health: Arkhangelsk, Astrakhan, Magadan, Murmansk, Sakhalin, Khabarovsk, Kamchatka Regions, Republics of Karelia, Sakha, North-Ossetia. The fourth cluster was formed by the Republic of Buryatia, Kurgan, Amur, Transbaikal, Altai and Jewish Autonomous Regions, in which the main threats to social security are the problems of the social-economic development and employment, low standards of living, weaknesses in the health care system, mental health of the population, poor access to information technologies. At the same time, there is a relatively high level of physical health and a developed social infrastructure, and a better environment as a counterbalance to the social-economic difficulties. The fifth cluster consists of 21 regions in which social security is threatened by depopulation, undeveloped social infrastructure, problems with somatic health and ecological security. However, there are tendencies contributing to the positive development, such as a lower level of unemployment,

a higher level of mental health and public safety, a better access to IT technologies. These are: Leningrad, Tumen, Pskov, Novosibirsk, Omsk, Smolensk, Bryansk, Rostov, Volgograd, Saratov, Belgorod, Kaliningrad, Chelyabinsk, Voronezh, Orenburg, Krasnoyarsk Regions, and the Republic of Crimea.

Thus, the Siberian and Far Eastern Federal Districts are not homogenous and differ in social security: in the latter, there is a great regional differentiation — 5 regions are in the third cluster, 3 regions — in the fourth, 1 — in the first cluster with the highest level of social security, and 1 — in the fifth cluster with social-demographic and ecological problems. In the Siberian Federal District, almost all regions are on the negative pole of the social security continuum and differ by risks and vulnerabilities: 3 border regions are in the fifth cluster, 2 regions — in the second, and 2 — in the fourth.



Fig. 2. Typology of border regions by factors of social security

- AL – Altai Region, AM – Amur, AR – Arkhangelsk, AS – Astrakhan, BL – Belgorod, BR – Bryansk Region, BU – of Buryatia, CN – Chechen Republic, CL – Chelyabinsk, CK – Chukotka, DA – Dagestan, GA – Altai, IN – Ingushetia, KB – Kabardino-Balkaria, KN – Kaliningrad, KL – Kalmykia, KQ – Kamchatka, KC – Karachay-Cherkessia, KI – Karelia, KH – Khabarovsk Region, KD – Krasnodar, KX – Krasnoyarsk, KU – Kurgan, KS – Kursk, LN – Leningrad, MG – Magadan, MM – Murmansk, NN – Nenets Autonomous Region, NO – North-Ossetia, NS – Novosibirsk, OM – Omsk, OB – Orenburg, PR – Primorsky, PS – Pskov, RO – Rostov, SK – Sakha (Yakutia), SL – Sakhalin, SA – Samara, SR – Saratov, SM – Smolensk, TU – Tyva, TY – Tyumen, VG – Volgograd, VR – Voronezh, YN – Yamalo-Nenetsky Autonomous, YV – Jewish Autonomous, ZB – Transbaikal Region, KR – Republic of Crimea

The comparison of the human development (HDI) with 11 factors of social security (Table 1) showed the most important and confident relationship between the labor market security and employment ($r = 0.677$, $p < 0.01$), which links human capital to the level of employment and a share of active population, and between the economic well-being and pressure on the social security system ($r = 0.672$, $p < 0.01$), which relates the human development to the low share of wages below the poverty line and a greater share of decent incomes. There are moderate but significant

correlations between the HDI and the social infrastructure development as ensuring sport and pre-school activities ($r = 0.480$, $p < 0.01$), access to the quick and safe Internet ($r = 0.459$, $p < 0.01$), ecological security ($r = 0.386$, $p < 0.01$), economic sustainability ($r = 0.378$, $p < 0.01$), and demographic security $r = 0.310$, $p < 0.01$).

Table 1

Correlation between the HDI and factors of social security in border regions

| Factors (dimensions) of social security | SibFD | FEFD | All regions |
|---|---------|---------|-------------|
| Economic sustainability of region | 0,667 | 0,822** | 0,378** |
| Demographic security | -0,828* | 0,332 | -0,31* |
| Security in the sphere of labor and occupation | 0,909** | 0,582 | 0,677** |
| Well-being and pressure on the social protection system | 0,787* | 0,312 | 0,672** |
| Health-care infrastructure | -0,335 | 0,639* | 0,33* |
| Public health (physical) (inversed) | 0,883** | -0,374 | 0,223 |
| Social infrastructure | 0,561 | 0,011 | 0,48** |
| Mental health | -0,321 | -0,548 | -0,106 |
| Public order (inversed) | -0,786* | -0,458 | -0,034 |
| Informational security and access to the Internet | 0,753 | 0,616 | 0,459** |
| Ecology and the quality of environment (inversed) | 0,836* | -0,044 | 0,386** |

* Correlation is significant at the 0.05 level (two-sided)

** Correlation is significant at the 0.01 level (two-sided)

In the Far-Eastern Federal District, the human development has a stronger correlation with the capability to develop economy and ensure necessary investments ($r = 0.822$, $p < 0.01$) and health-care infrastructure ($r = 0.639$, $p < 0.05$). In the Siberian Federal District, there is a strong negative correlation between the HDI and demographic security ($r = -0.828$, $p < 0.01$). The level of public health is a significant indicator of social security and an intrinsic component of human capital; it positively correlates with the HDI ($r = 0.883$, $p < 0.01$), but this positive relation, due to the inversion, represents an opposite tendency: in regions with the high HDI, the level of health measured with mortality from cardio-vascular and oncologic diseases is lower (Novossibirsk, Omsk, Krasnoyarsk and Altai Regions), while in regions with the relatively low HDI (republics Tyva or Altai), the level of health is higher.

An even more important social security factor relevant for the Siberian borderland—employment ($r = 0.909$, $p < 0.01$) measured with the level of unemployment and a share of working population. This relationship confirms that the human development in Siberia is impossible without institutional conditions ensuring the stability of the labor market. The relationship between the factor of well-being and

pressure on the social security system and the HDI ($r = 0.787$, $p < 0.05$) is more complex and non-linear despite a significant and strong correlation (Fig. 3): several regions have similar shares with the income below subsistence level but very different HDI (Novosibirsk, Krasnoyarsk and Altai Regions, Republic of Buryatia). The factor of public order shows a negative correlation with the HDI ($r = -0.786$, $p < 0.05$), i.e., the higher human capital is associated with the low level of crime including committed by the youth, under alcohol or drugs. The positive correlation of the HDI with the factor of ecological security, which is also inverse (high values with greater ecological risks and pollution ($r = 0.836$, $p < 0.05$, Fig. 4), mean that the border regions with stronger industrial sectors and higher human development (Krasnoyarsk and Novosibirsk Regions) have numerous sources of air pollution and greater volumes of pollutants, whereas in the agrarian, ecologically safe regions (Republics of Altai, Buryatia and Tyva), the human development is not high.

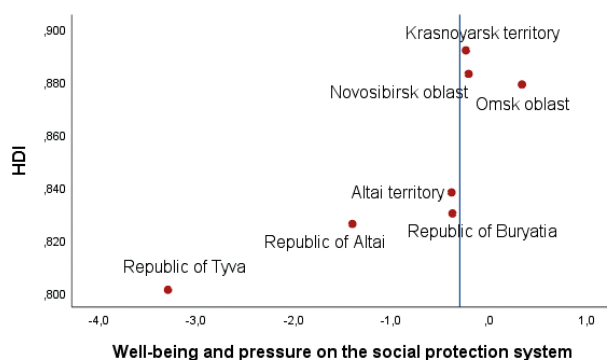


Fig. 3. Relationship between the HDI and the factor of well-being and pressure on the social protection system in the border regions of the Siberian Federal District

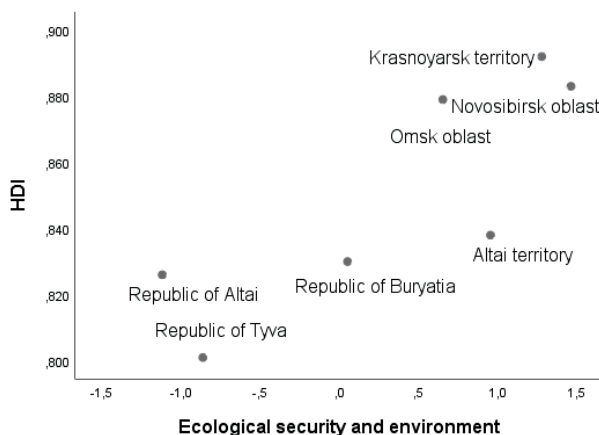


Fig. 4. Relationship between the HDI and the factor of ecological security and environment in the border regions of the Siberian Federal District

Subjective estimates of human capital and their relation with social security

The sociological analysis focused on the subjective characteristics of human capital and their determinants including institutional environment and social relations. The respondents' evaluations of their income and job, career development and upward social mobility were combined in an integral index of personal human capital satisfaction which showed significant regional differences. The highest level of satisfaction — in the Khabarovsk Region ($m = 0.26$), compared with the mean value in the Omsk Region ($m = 0.05$), while the least satisfied people lived in the Altai Region ($m = -0.21$) and the Republic of Altai ($m = -0.14$). The Amur Region has mean values close to the Omsk and Khabarovsk Regions ($m = 0.15$). Thus, the results reflect general differences in the human development of border regions as described in the previous section, which confirms the validity of our scale and its non-intangible dimensions (the subjective perception of personal achievements and perspectives).

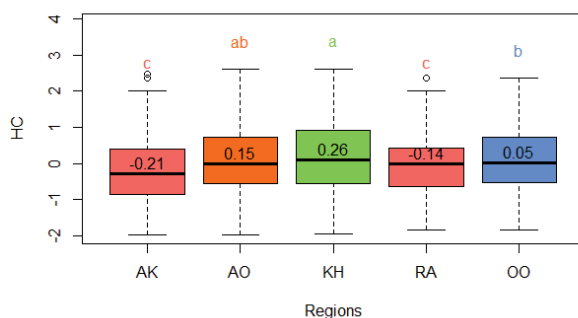


Fig. 5. Mean values of the human capital evaluations in five regions (significant differences at the 5% level at least are marked with the same color and letter)

AK — Altai Region, AO — Amur, KH — Khabarovsk Region, RA — Republic of Altai, OO — Omsk Region

In addition to the regional specifics explained by institutional features of the regional economy and management, there are other social-structural factors reflecting a significant gap in social conditions and opportunities. Thus, the difference between urban and rural areas is significant in all border regions except for the Republic of Altai with the low density of population and low urbanization (only 29.3% lived in the city — the administrative center of the Republic — Gorno-Altaysk) combined with the poor standards of living and traditional (agrarian) activities, which results in people's dissatisfaction with their human capital regardless their location ($m = -0.11$ in the city, $m = -0.16$ in the village, $p = 0.57$). The urban-rural difference is more evident in the Altai Region — its rural inhabitants are unhappy ($m = -0.37$) compared with inhabitants of cities ($m = 0.02$, $p < 0.0005$). In the Amur Region, rural residents are also frustrated with their social-economic

position ($m = -0.21$), while the urban population is in a more favorable situation than in the Altai Region ($m = 0.19$).

Gender differences have marginal significance ($m = 0.084$ for men and $m = -0.0016$ for women, $p = 0,053$), and in regional samples, are statistically significant only in the Amur Region ($m_{\text{men}} = 0.43$, $m_{\text{women}} = 0.15$, $p < 0,05$): women are generally less satisfied with their job, career and finances. The gender comparison of subjective evaluations in this region show that women more often report a moderate/middle level of income (74.2 %) and rarely admit belonging to the wealthy class (19.6 %); while the corresponding shares of men are different — 59.8 % and (29.5 %, $p < 0.05$).

Age is not an important factor for the general satisfaction with human capital, but in some regions differences are statistically significant. Thus, in the Amur Region, people under 30 show higher levels of satisfaction ($m = 0.422$) than people over 50 ($m = 0.13$). In the contrary, in the Omsk Region, younger people are less satisfied with their human capital ($m = -0.19$) compared with the middle-aged ($m = 0.17$) and old-aged ($m = 0.17$, $p < 0.05$). The factor of ethnicity is insignificant for all regions except for the Omsk Region, in which the Russian majority is more satisfied ($m = 0.12$) than other ethnic groups ($m = -0.05$, $p < 0.01$).

Despite pessimistic statements about the non-effective and low-quality education [10; 22], our research shows that the more educated people are more satisfied with their human capital, at least at the all-regional level ($p < 0.0005$). This tendency is true for 3 regions — the Altai, Amur and Omsk Regions ($p < 0.05$) (Fig. 6). In the Khabarovsk Region, both groups (with and without higher education) are equally satisfied ($m = 0.26$ and 0.27 correspondingly), which indicates comparable opportunities for people of working and highly-qualified professions. In the Republic of Altai, the situation is opposite: both groups are dissatisfied with their financial and professional situation and perspectives ($m = -0.07$ and $m = -0.19$).

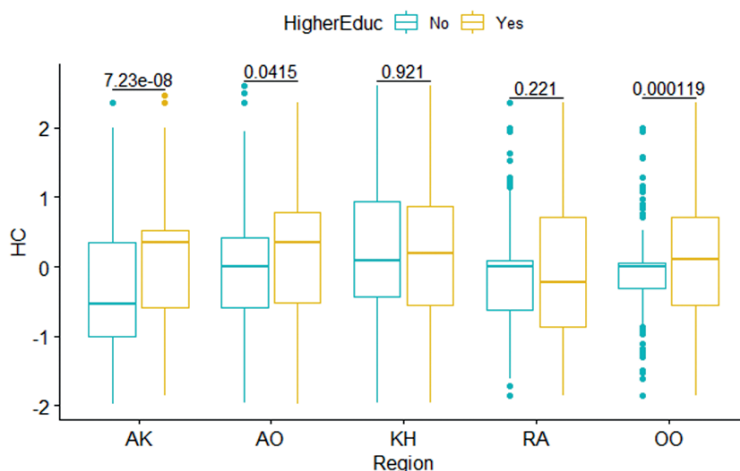


Fig. 6. Differences in the level of satisfaction with human capital by education

There are differences between three social categories: managers and entrepreneurs with the highest values of satisfaction ($m = 0.52$), specialists with higher education ($m = 0.06$) and the most dissatisfied categories — low-qualified workers, specialists with vocational training and unemployed (mean values vary from -0.14 to -0.36 with non-significant differences). More prosperous regions show less significant differences between social-professional groups compared with the regions with social-economic problems. For instance, in the Altai Region, specialists with higher education and managers ($m = 0.13$ and $m = 0.07$) have smaller but at least positive scores compared to other groups (differences significant — from -0.27 to -0.46 , $p < 0.05$). In the Republic of Altai, there is a huge gap between the highly satisfied (managers, entrepreneurs, $m = 0.54$) and all other groups. Specialists with higher and vocational education have similar scores ($m = -0.39$ and $m = -0.29$), which indicates a low demand for qualified skills. Moreover, unskilled workers show insignificantly higher levels of satisfaction (-0.03), while the unemployed are the most frustrated ($m = -0.74$).

In the Omsk Region, the main differences are observed between the unemployed and specialists with intermediate professional education ($m = -0.55$ and $m = -0.40$), on the one side, and managers and businessmen ($m = 0.71$), on the other ($p < 0.05$). In the Khabarovsk and Amur Regions, differences are insignificant due to their similar and rather high scores compared with other regions — correspondingly, 0.65 and 0.43 in the group of managers and businessmen, 0.50 and 0.03 — in the group of unskilled workers, 0.24 and 0.22 — in the group with vocational training, 0.16 and 0.20 — in the group with higher education, -0.06 and 0.11 in the unemployed group. Despite the statistical insignificance, educated people are in a less favorable position than groups of the lower educational status, which indicates that the human development in these regions do not follow an innovative path of knowledge-based technologies that need a high specialization of workers, but rather an extensive and conservative path.

Finally, we tested hypotheses whether human capital was an important factor affecting the character of social relations with other people and institutions and the level of social security. According to the statistical data, security dimensions have different relationships with the human development in different border regions. We conducted a regression analysis of the sociological data to prove our conclusions. The results showed significant and reliable relationships between the human capital evaluations and all other dependent variables: the former are associated with the institutional trust ($\beta = 0.37$ — all regions, $\beta = 0.45$ — АК, $\beta = 0.32$ — АО, $\beta = 0.27$ — КН, $\beta = 0.42$ — РА, $\beta = 0.42$ — ОО, $p < 0.001$), which confirms that more educated and experienced people have a more respectful attitude towards the state and its institutions, and that the institutional regime favors and relies on people with higher education, experience, income and social status, while vulnerable categories (low access to education and ‘social lifts’) are usually socially excluded and do not find enough institutional support. Human capital is associated with trust in other people

in general ($\beta = 0.28$ — all regions, $\beta = 0.37$ — AK, $\beta = 0.24$ — AO, $\beta = 0.15$ — KH, $\beta = 0.28$ — RA, $\beta = 0.3$ — OO, $p < 0.001$); and the economic wealth is rather mediated by the human capital it contributes to create.

Human capital allows to live in a safer environment and defend personal interests, it is an important indicator of social anxiety and fear which are more expressed by people with the low human capital outcomes. Corresponded coefficients are as follows: perceived discrimination: $\beta = 0.21$ — all regions, $\beta = 0.19$ — AK, $\beta = 0.22$ — AO, $\beta = 0.16$ — KH, $\beta = 0.36$ — RA, $\beta = 0.23$ — OO ($p < 0.001$); social feelings ($\beta = -0.41$ — all regions, $\beta = -0.42$ — AK, $\beta = -0.45$ — AO, $\beta = -0.31$ — KH, $\beta = -0.45$ — RA, $\beta = -0.48$ — OO ($p < 0.001$); personal security: $\beta = -0.34$ — all regions, $\beta = -0.24$ — AK, $\beta = -0.39$ — AO, $\beta = -0.28$ — KH, $\beta = -0.37$ — RA, $\beta = -0.38$ — OO ($p < 0.001$). At the same time, the ‘weight’ of human capital differs by region, i.e., its accumulation and functioning depend on various contexts and conditions, especially concerning the social security indicators.

The proposed research methodology is complex and versatile, it allows to consider human capital in different perspectives — social-statistical and subjective. When focusing on human capital in the border regions of Russia, one should be aware that there is a lack of official data on many important characteristics of human capital; that international comparisons based on global indices usually use the national-level data representing the whole country but not its regional differentiation; that differences in approaches and conceptual grounds make human capital a very blurred concept with unclear operationalization patterns. Due to the non-experimental design of our research, we cannot make conclusions about causal relationships; therefore, we chose the path of hypotheses — considering human capital a determinant of trust and social security, which is logically and theoretically grounded. However, there is rather an interdependence. i.e., more cohesive-trustful relations and safer social conditions lead to the human capital development and improvement.

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References

1. Atanov N.I., Munkodugarova A.B. Position of border regions in the transboundary economic space: Principal risks and threats (on the example of the Transbaikal territory. *National Security: Regional Aspects of the Borderland*. Chita; 2014. (In Russ.).
2. Beshpalova Yu.M., Kondakov V.F. Precariat in contemporary Russia: A danger of resentment. *Proceedings of Higher Educational Institutions. Sociology. Economy. Politics*. 2016; 2. (In Russ.).
3. Boldov O.N., Ivanov V.N., Suvorov A.V., Shirokova T.K. Dynamics and structure of the Russian education in the 1990s. *Issues of Forecasting*. 2002; 4. (In Russ.).
4. Commins S. *World Development Report 2018: Learning to Realize Education’s Promise — Fragility, Conflict, and Violence*. World Bank; 2017.

5. Dearmon J., Grier R. Trust and the accumulation of physical and human capital. *European Journal of Political Economy*. 2011; 27 (3).
6. Easterly W., Ritzen J., Woolcock M. *Social Cohesion, Institutions, and Growth*. Center for Global Development. Working Paper No. 94; 2006.
7. Glazyrina I.P., Faleichik L.M. Russian Eastern border regions: Issues of human capital. *ECO*. 2014; 44 (11). (In Russ.).
8. Global Competitiveness Report 2019. URL: http://www3.weforum.org/docs/WEF_TheGlobalCompetitivenessReport2019.pdf.
9. Golenkova Z.T., Goliusova Yu.V. Russian precariat: Issues of the human capital accumulation. *Bulletin of the Institute of Sociology*. 2016; 3. (In Russ.).
10. Gorbunov A.P., Gorlova E.B., Maslennikova N.V. *Theory and Practice of Education Quality Management*. Moscow; 2017. (In Russ.).
11. Gradstein M., Justman M. Education, social cohesion, and economic growth. *American Economic Review*. 2002; 92 (4).
12. Grigoriev L.M. Features of the human capital development in the subjects of the Russian Federation. URL: <https://ac.gov.ru/files/content/22461/3-grigorev-pdf>. (In Russ.).
13. Kaasa A. Social capital, institutional quality and productivity: Evidence from European regions. *Economics & Sociology*. 2016; 9 (4).
14. Kalugina Z.I. Siberia in the focus of social development. *Region: Economics and Sociology*. 2018; 2. (In Russ.).
15. Kapeluchnikov R.I. *Essay on the Russian Human Capital*. Preprint WP3/2008/01. Moscow; 2008. (In Russ.).
16. Kapelushnikov R.I. *What is the Cost of Human Capital in Russia?* Moscow; 2012. (In Russ.).
17. Khromov N.I. Human capital as a factor of the economic development. *Bulletin of the Donetsk National University. Series B: Economics and Law*. 2016; 1. (In Russ.).
18. Konstantinovskiy D.L. Inequality in the sphere of education: The Russian situation. *Monitoring of Public Opinion: Economic and Social Changes*. 2010; 5. (In Russ.).
19. Kotilko V.V., Nemirova G.I., Pashennikh F.S. Competitiveness and economic security in the border regions: Realities and perspectives. *National Interests: Priorities and Security*. 2013; 46. (In Russ.).
20. Kudinov V.V., Mukhina E.G. Major threats to the national security in the border subjects of the Russian Federation. *Scientific-Innovative Technologies as a Factor of the Sustainable Development of the Agrarian-Industrial Complex*. Kurgan: 2020. (In Russ.).
21. Kuzminov Ya.I., Ovcharova L.N., Yakobson L.I. (Eds.). *Human Capital as a Factor of the Social-Economic Development*. Moscow; 2016. (In Russ.).
22. Lukichev P.M. Economy of the Russian higher education: State regulation or deregulation? *Perspectives of Science and Education*. 2017; 4. (In Russ.).
23. Nesterova D., Sabyryanova K. *Investments in Human Capital in the Transition Period in Russia*. Scientific Report No. 99/04. Moscow; 1998. (In Russ.).
24. OECD: *Human Capital: How What You Know Shapes Your Life*. OECD; 2007.
25. Omelchenko D.A., Maximova S.G., Noyanzina O.E. Perception of social security in regions of the Russian-Asian borderland (on the example of the Altai Region). *Society and Security Insights*. 2020; 3 (1). (In Russ.).
26. Polozkov M., Epifanova N. (2015). Modern threats to the economic security of border regions. *State Service*. 2015; 1 (93). (In Russ.).
27. Ritzen J. *Social Cohesion, Public Policy, and Economic Growth: Implications for OECD Countries*. Quebec; 2000.
28. Rothstein B., Stolle D. *How Political Institutions Create and Destroy Social Capital: An Institutional Theory of Generalized Trust*. Boston; 2002.
29. Soboleva I. Paradoxes of the human capital measurement. *Economy Issues*. 2009; 9. (In Russ.).
30. Stark O., Wang Y. Inducing human capital formation: Migration as a substitute for subsidies. *Journal of Public Economics*. 2002; 86 (1).

31. Tikhonova N.E., Karavay A.V. Dynamics of some indicators of the general human capital of Russians in 2010–2015. *Sociological Studies*. 2018; 5.
32. *Who Will Finance Innovation?* Cornell University; 2020.
33. World Bank: *The Human Capital Index 2020 Update: Human Capital in the Time of Covid-19*. Washington; 2020.

Человеческое развитие, удовлетворенность человеческим капиталом и безопасность в сибирском и дальневосточном приграничье*

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Аннотация. Развитие человеческого капитала в России довольно противоречиво и характеризуется как значительными достижениями, так и серьезными проблемами. Российские регионы различаются по критерию аккумулированного человеческого капитала, и многие сибирские и дальневосточные территории с этой точки зрения наиболее уязвимы. На основе анализа статистических индикаторов (более 40) и результатов социологических исследований в статье предпринята попытка моделирования основных измерений социальной безопасности в их взаимосвязи с развитием человеческого потенциала в приграничных регионах России, с фокусом на регионах Сибирского и Дальневосточного федеральных округов. Согласно статистическим данным, индекс человеческого развития тесно связан с безопасностью в трудовой сфере и характеристиками социально-экономического развития, определяющими, в том числе, особенности функционирования системы социальной защиты. Статистически значимые, но менее сильные связи выявлены с уровнем развития социальной инфраструктуры и экологической безопасностью. Результаты социологических исследований в пяти приграничных регионах (Алтайский край, Амурская область, Хабаровский край, Омская область, Республика Алтай: N = 2802) продемонстрировали субъективную оценку эффективности человеческого капитала и ее взаимосвязь с социоструктурными факторами, институциональной средой и качеством социальных отношений. Авторы делают вывод, что человеческий капитал в приграничных регионах зависит не только от экономических факторов, но и от более широких социальных условий: оценки человеческого капитала связаны с институциональным и обобщенным доверием, социальными настроениями и воспринимаемой дискриминацией. Развитие человеческого капитала различается по регионам, что отражает специфику его накопления и функционирования в разных контекстах и условиях.

Ключевые слова: человеческий капитал; человеческое развитие; глобальные индексы; социальная безопасность; институциональное доверие; приграничные регионы России; Сибирский федеральный округ, Дальневосточный федеральный округ

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