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Approaches to the Study of Human Capital within a Set of Socio-Economic and Socio-Cultural Factors on the Example of Yenisei Siberia

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The preliminary results of interdisciplinary research on the basic socio-economic and socio-cultural factors necessary for accurate and comprehensive assessment of human capital at the level of certain territories of Yenisei Siberia are presented. The parameters of socio-economic and socio-cultural development for these territories are considered through the methods of indices and statistics. The estimates of the significance of social diversity effects in the context of inter-regional comparisons and dynamic changes are made. The results obtained at different levels of the hierarchy are also benchmarked and discussed. The considered socio-economic indicators and socio-cultural factors are analyzed regarding their influence on the level, dynamics and quality of human capital.

Keywords: human capital assessment, Yenisei Siberia macro region, socio-economic indices.

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Introduction

This article represents the preliminary results of quantitative research on certain aspects of formation and maintenance of the level and quality of human capital through a new treatment of the set of socio-economic and socio-cultural factors at regional and subregional levels. The focus of the work lies on the need for endogenous determination of the parameters for the models under consideration when applied to specific research objects. It is not only about the parameters adjustment in the framework of previously chosen quantitative model, but also about variability of the ways to include such parameters into the model. In particular, we are discussing the application of such approach to the macro-region of Yenisei Siberia consisted of Krasnoyarskiy Krai, the Republic of Khakassia, the Republic of Tyva, and Angara-Yenisei economic region, which additionally includes Irkutskaya Oblast'. We also use the method of construction and analysis of quantitative indicators reflecting the peculiarities of socio-economic and socio-cultural development of the territories concerned, which allows, in particular, focusing on the degree of heterogeneity and dynamics of such development.

Theoretical framework

The definition, description and key characteristics of human capital have many interpretations in academic and applied researches (see, for example, Angrist et al., 2019; Becker, 1964; Index razvitiia..., 2018; Kraay, 2018; Mincer, 1958; Schultz, 1981; The Human Capital Project, 2018), and there are some solid grounds for this. A international approach to the cross-country research on human capital (Angrist et al., 2019; Kraay, 2018) relies on a rather narrow set of primary factors, which include such components as child and infant mortality, life expectancy, length and quality of education, as well as overall level of health. This list is largely related to the possibility of obtaining statistics that are simultaneously comparable in most countries. Moreover, in these methodologies, the focus is not on actual "stock" of human capital in this territory, but on capability of it, that does not directly refer to other – short-term and medium-term socio-economic parameters.

Quite the opposite, in the case of comparative analysis of data for a small subgroup of countries or regions of a particular country, the relevance of such a "narrow" definition of human capital may be questioned due to little variability of these indicators, which is insufficient for significant differences. In this situation, there is a need to expand the list of factors under the analysis. Starting from the level and quality of education, qualification of the labor force and corresponding labor

potential, the concept of human capital is gradually extended to a fairly wide range of socio-economic parameters, covering both the characteristics of production and business environment of the territory, and, in some cases, certain elements of quality of life. A striking example of this, to some extent excessively generalizing, practice-oriented approach is the assessment technique of human capital proposed by the Agency for Human Capital Development in the Russian Far East (Index razvitiia..., 2018).

On the other hand, among the well-known techniques of human capital assessment, in our opinion, an important complex of sociocultural factors is being missed – the one, which determines the methods, features and, ultimately, effectiveness of social interaction among different population groups in the territory under consideration, and therefore indirectly outlines the character of existing human capital. Moreover, possible changes in the proportions and size of groups caused by observed migration processes affect both the dynamics of social diversity and structure as well as quantitative and qualitative aspects of human capital.

The issues of "a current state" of the human capital existing "here and now" in the territory should also be separated from the topic of perspectives for the human capital development and formation. In this case, as it often happens, the *observation problem* over the system state is mixed with the *forecasting problem* and targeted choice of governance, particularly, by the means of key performance indicators formation. The list of factors included into the human capital assessment of the territory may be different for these two problems. In particular, the analysis of migration aspects relates primarily to the second problem, but does not affect the first one. On the other hand, for the medium term in the context of implicit ("weak") migration dynamics, the structure of heterogeneity of the society will remain "almost unchanged", which raises the question of whether it is necessary to involve migration indicators in the description of human capital dynamics for the second problem.

Similar questions emerge to integral indicator "quality of life" or to its certain components as well. In the terms of static problem of current situation assessment, that is, given the existing stocks and quality of the human capital, the quality of life per se does not have any essence for the human capital assessment. However, in the context of forecasting dynamic changes and human capital development, the comfort of living in particular territory may turn out to be one of the key conditions. Despite this, such application of quality of life indicators when identifying the size and dynamics of human capital can potentially result in the appearance of endogeneity of these variables

in terms of their co-use in empirical assessments, which should be avoided as far as possible.

Thus, such variety in approaches and interpretations of the concept of human capital, to our mind, requires more delicate and theoretically reasonable definition. At the same time, we are stick to the point that the list and degree of certain factors involvement in the description of such synthetic concept as human capital, as well as determination of comparable significance (weight) of corresponding factors can, to some extent, be carried out endogenously, depending on the size, structure and quality of the considered set of socio-economic and other indicators. Moreover, the factors' integration within the human capital assessment as well as relative importance of these factors may also depend on the initial level of data aggregation. In this context, following (Gershman, Rivera, 2018, 2018a) and (Desmet, Ortuno-Ortin, Wacziarg, 2012, 2017), we believe that there is some optimal level of aggregation that allows providing sufficient statistical validity of findings and recommendations without excess costs on collecting and processing primary data.

In that way, distinctive features of the proposed and used methods, as well as some preliminary results presented below, are as follows.

First, in addition to a "standard" set of socio-economic indicators, we propose including in the analysis a set of socio-cultural diversity factors, i.e. the language, ethnic and religious heterogeneity, alongside with other co-factors that integrally reflect socio-cultural nature of the population. Some more information on socio-cultural characteristics, in addition to publicly available statistics, may also be further collected using population surveys that are representative at the regional and / or subregional levels.

Secondly, we follow the "top-down" analysis strategy when identifying the level of data aggregation: starting with the analysis of regional statistics, we highlight the conditions and the list of factors sufficient to form meaningful estimates, and then, if necessary, continue with the analysis of subregional (up to municipal) data level for those blocks and components that require further clarification.

Thirdly, we expect considering the obtained pool of socio-economic and socio-cultural data, yet endogenously determining both the subset of the most significant factors per se and the distribution of relative importance of the selected factors, that is, their weighting coefficients in their final inclusion into the quantification of human capital. In this case, one of the ways to identify the significance of factors for their entering the resulting human capital index lies in assessing the degree of their heterogeneity.

The heterogeneity index calculated for particular regions or selected macro-regions, in this case cut both ways. First, the high index of indicator's heterogeneity in a region demonstrates its role in relation to its potential inclusion in the list of factors for assessing human capital. Secondly, in the context of the analysis of macro-regions (Yenisei Siberia, Angara-Yenisei Siberia), we also intend to compare the degrees of indicators heterogeneity identified for different groups of regions with to endogenously determine the group of regions forming the macro-region.

Approaches to quantitative (index) measurements

In many applied approaches to the description and quantification of human capital and other similar "integral indicators" (Angrist et al., 2019; Dhongde, Haveman, 2015; Indeks kreativnogo…, 2016; Index razvitiia..., 2018; Kraay, 2018) we can see the principle of linear aggregation of quantitative measurements of various factors at the level of certain subsets of factors, or even generally for the entire set of factors included in the index, is being actively used. This method of quantification is usually applied in relation to normalized values, scaled into relative regulated dimensionless units. This aggregation automatically poses two questions: first, on the need to find relative importance of the elements, that can potentially be managed by the choice of weighting coefficients, but requires additional, often absent, exogenous information to make such choice. Secondly, significant increase in the number of components included in the index leads to a remarkable loss of significance in each particular factor. Moreover, by the virtue of statistical features of observations, there is a high possibility of the averaging effect on the strength of all the factors under consideration that embarrasses the use of index in accordance with the initial goal of identifying heterogeneity in the development of focused territories.

As we see it, in identifying the comparative importance of certain socio-economic and socio-cultural factors at regional and subregional levels, special attention should be paid to their heterogeneity, which, as we suggest it, should be found using two types of non-linear index measurements.

On the one hand, we rely mainly on Greenberg's A-index – also Gini-Simpson index (Gini, 1912; Simpson, 1949) – so commonly and actively used in many interdisciplinary areas (Greenberg, 1956). It allows catching variability of data scattering for different regions:

$$A(s_1, s_2, ..., s_n) = 1 - \sum_{i=1}^{n} s_i^2, \quad (1)$$

where n – number of different groups (of people, features, territories, indicators, etc), s_i – "weight" (relative size) of a group i.

This index has a simple and illustrative probabilistic interpretation, for example, within the context of linguistic heterogeneity of society (see, in particular, (Akchurina et al., 2015). Let society consist of several groups, each of which knows only one (native) language. The result of calculations using formula (1) determines what is the probability that two randomly selected representatives of the society do not speak the same language.

On the other hand, in addition to A-index (1), we consider a one-parameter set of power indices (Davydov, Weber, 2016)

$$D_\alpha(s_1,s_2,...,s_n) = 1 - \sum_{i=1}^{n} s_i^\alpha, \tag{2}$$

which includes Greenberg's A-index as a local implementation with $\alpha = 2$, but allow, in contrast to (1), capturing more subtle effects of heterogeneity by endogenous variation of the degree of data heterogeneity. The latter is achieved by calibrating the parameter appearing in the index α using corresponding supporting data sets.

Among the advantages of these two non-linear methods of index aggregation, it is necessary to note the existence of a strict axiomatic justification, existence of natural and visual interpretation of the index's values, consistency condition for the index structure and the structure of statistical data used, as well as statistical significance and stability of quantitative values for most socio-economic and socio-cultural indicators.

Let us settle more on the conditions of axiomatic justification and the idea of endogenous variation and calibration of data for the one-parameter set of power indices (2). This class of indices is completely and unambiguously determined by a set of three axioms, such as continuity, symmetry, and the consistency condition

$$D(s_1,s_2,...,s_{n-1},r,q) = D(s_1,s_2,...,s_{n-1},s_n) + f(s_n)D(r/s_n, q/s_n) \tag{3}$$

for changing number of groups, given that one of the groups, s_n, is divided into two groups of relative sizes r and q, $r + q = s_n$ (Davydov, Weber, 2016). In this case, $f(s_n)$ is a scalar homogeneous function with a homogeneity order not equal to 1.

The presence of α parameter in the discussed index is both an advantage and a partial restriction of its universal applicability. The analysis of theoretical properties

of the index (2) as well as some previous empirical findings based on it show that any uniform variation of α parameter same for all considered groups of indicators, in many cases, does not provide new information compared to Greenberg's A-index. However, endogenous definition of α parameter, which allows varying its value by calibrating it on additional data series, enables obtaining more relevant and stable assessment results. An example of such endogenous parameter definition is the use of interregional migration indicators as ancillary data for calibrating the society heterogeneity index by ethnicity, language skills or religion.

It is also worth noting that in the empirical part of this work, we generally rely on publicly available statistical data sets (Regiony Rossii, 2018; Itogi…, 2010), identifying possible additional factors and characteristics, which would improve the quality of human capital assessment in the future.

Previous findings

Alongside with the above mentioned theoretical foundations of the human capital study through the approaches to assessing heterogeneity of socio-economic and socio-cultural factors at regional and subregional levels, we also rely on previously tested applied methods for assessing the diversity of the Russian regions, including the ones conducted by NES Center for the Study of Diversity and Social Interactions (Otchet…, 2014; Sotsiokul'turnie faktory, 2017). At the same time, we focus and clarify general conclusions made earlier in relation to the regions within Yenisei Siberia and Angara-Yenisei Siberia macro-regions, and also generate new data on the diversity of the regions and consider the results of their aggregation for selected macro-regions in various combinations.

In particular, different aspects of the social diversity due to the assessment of the budget policy in the federal center and certain Russian regions are given by Alexey Khazanov (Khazanov, 2016). This classification being considered for the set of all Russian regions, allows, in our case, along with the use of baseline information on linguistic, ethnic and religious heterogeneity in the four regions under consideration (Krasnoyarskiy Krai, the Republic of Khakassia, the Republic of Tyva, Irkutskaya Oblast') outline additional integral factor of heterogeneity in these regions. Moreover, combining the classification of regions proposed in (Khazanov, 2016) with the data on historical regional diversity (Dower, Markevich, 2014), as well as information on the population's preferences, assessed, among other things, through electoral statistics, have made it possible to present a generalized regional classification, which is reflected

in the work (Sotsiokul'turnie faktory, 2017), where, among other things, features and conditions of the significance of socio-cultural heterogeneity in the socio-economic development of regions are presented.

Separately, it is worth noting new empirical results (Nikishina, 2018) on the study of relationship between socio-cultural diversity and socio-economic development at the regional level, obtained for some Asian countries. The main approaches and empirical strategies used in this work are also reflected in our results regarding the Russian regions under consideration.

The above results are used in obtaining new quantitative estimation of the heterogeneity of socio-economic and socio-cultural factors for the regions under consideration. At the same time, we set another task to assess possibilities of "a common socio-economic space" functioning in these three or four regions, being united, respectively, in the macro-regions of Yenisei Siberia or Angara-Yenisei Siberia, in the context of the main task on preserving, accumulating and developing human capital in these areas.

Problem statement

We consider it necessary to answer the following fundamental questions. First, what is the structure and what are the features of available empirical data for these four regions. In particular, how heterogeneous the data that reveal the socio-economic and socio-cultural factors at the regional and subregional levels are, both if to be considered between the regions and in dynamics. Moreover, in case of the high level of heterogeneity on a wide group of factors it requires more accuracy and detailed approach, preferably in the format of case studies analysis.

Secondly, how the heterogeneity indices change on specific factors in the case of large macro-regions formation, such as Yenisei Siberia or Angara-Yenisei Siberia. In order to get more complete description of the level of heterogeneity for these factors, we also consider possible "paired unions" of the regions; the information on them has a support nature.

Thirdly, what is an "optimal" data structure for analyzing and obtaining quantitative assessments of human capital at the level of regions or their territories; what changes and clarifications are needed for more comprehensive analysis of the factors determining the level and quality of human capital. Therefore, a balance is needed between the desire to cover all aspects of their manifestation in the aggregated index of human capital and possible correlation (multicollinearity) of the set of factors included in this

index. In addition, deliberate stretching of the list of factors exceeding the critical values can result in two undesirable effects: first, averaging the influence of specific factors within their generalized aggregation; secondly, the growing correlation between such integral characteristics of socio-economic development as "human capital index" and "quality of life " index. The problem of forming an optimal "hierarchical structure" of indicators that build the human capital index is also implicitly present here: several groups of factors can be distinguished, aggregation within which and between which flows by stages, using different principles.

Thus, in general, we set the task of identifying the structure and possible hierarchy of socio-economic and socio-cultural factors necessary for assessing human capital at the level of certain territories of Yenisei Siberia and Yenisei-Angara Siberia. In this article we focus on the analysis of the first and second questions concerning the degree and dynamics of heterogeneity of indicators and methods for their evaluation.

Empirical observation and quantitative estimates of heterogeneity

Hereinafter, the results of primary analysis of statistical data for the four regions – Krasnoyarskiy Krai, the Republic of Khakassia, the Republic of Tyva, and Irkutskaya Oblast' – at the regional (Regiony Rossii, 2018) level are presented. All the results of the index measurements demonstrated below are normalized to [0, 1] segment and obtained on the basis of Greenberg's *A*-index (1) or using data calibration for the one-parameter set of power indices (2).

Territorial heterogeneity. One of the ways to quantitatively describe the features of territorial structure of the regions is to assess the degree of heterogeneity of their administrative and territorial division (Davydov, Lavrenenko, 2016). In relation to the considered regions and potentially macro-regions formed of them, the following can be noted (see Table 1). First, the index of the diversity level in Yenisei Siberia on the types of administrative-territorial division is fairly stable and is assessed at 0.27–0.30 for particular regions and a total of 0.28 for the entire macro-region. Irkutskaya Oblast' demonstrates identifiable structural differences (0.38), which, however, are partially smoothed out for Angara-Yenisei Siberia macro-region (0.32). The most significant factors of heterogeneity of territorial division are the number of municipal districts in the Republic of Tyva and the number of small urban settlements in Irkutskaya Oblast'.

Population and migration. One of the most important indicators in assessing the medium-term potential of human capital is the size and dynamics of the population

(Regiony Rossii, 2018). The regions within Yenisei Siberia show a generally little positive trend (increase of about 1.8 % in 2010–2017). The most dynamic development is observed in the Republic of Tyva (+4.5 % over the same period), largely determined by high birth rates. Irkutskaya Oblast', on the contrary, shows a weak negative trend (–1 %). Taking into account the aggregate socio-economic indicators of the regions, it can be assumed that a key driver of dynamic changes in the size and structure of the population is intraregional, interregional and international migration flows. General data on migration, reflected in the migration growth rate, demonstrate significant heterogeneity in the regions under consideration. If Krasnoyarskiy Krai is characterized by little positive migration increase, starting in 2011, in the Republic of Khakassia its values are unstable in sign, but on average they are slightly different from zero. At the same time, Irkutskaya Oblast' shows sustainable, generally significant negative values of the migration growth (almost 0.3 % per year), and in the Republic of Tyva we observe a steady decrease in the migration outflow from more than 1.25 % per year in 2010–2011 up to 0.4 % or less in 2016–2017. The indicators of incomers and outcomers distribution within each of the regions remain stable in relative values with the exception of the Republic of Tyva, where since 2010 there has been a significant steady increase in the relative number of arrivals from other regions of Russia (from 12.4 % to 39.7 % of the total amount) and a corresponding reduction in the relative migration flow within the region. It should be emphasized about considerable increase in the corresponding indicators on international migration flows in Krasnoyarskiy Krai and the Republic of Khakassia, which, as a result, can shape a change in the structure and socio-cultural characteristics of the population.

Socio-cultural factors. The population census data (Itogi …, 2010), as well as supporting sources of information, such as, for example, diversity estimates based on the description of variation on the target user requests in Yandex search system (Otchet…, 2014), provide quantitative assessments of the heterogeneity degree for the society on aggregated main socio-cultural factors, including linguistic, ethnic and religious characteristics in the context of certain regions or their alliances (see Table 2). The obtained estimates make it possible to characterize the diversity in terms of the combination of three characteristics for the regions and macro-regions considered as moderately homogeneous.

Main socio-economic indicators. Basing on the structure of statistical data at the regional level as one of the reasons for identifying the subset of indicators used to form the human capital development index, we propose assessing the degree of heterogeneity

of the regions according to the corresponding socio-economic indicators in two main "dimensions": first, from the "spatial" point of view in the considered set of regions for each fixed period of time; secondly, by tracking the dynamics of such heterogeneity for each of the selected criteria and indicators corresponding to such criteria.

Table 1. Heterogeneity of administrative-territorial division of the regions

Regions and their "alliances"	Classification (in proportions)				Index
	Municipal districts	Urban okrug	Urban settlements	Rural settlements	
The Republic of Tyva	0,119	0,014	0,028	0,839	0,28
The Republic of Khakassia	0,080	0,050	0,040	0,830	0,30
Krasnoyarskiy Krai	0,077	0,030	0,047	0,847	0,27
Irkutskaya Oblast'	0,069	0,022	0,136	0,774	0,38
The Republic of Tyva + The Republic of Khakassia	0,103	0,029	0,033	0,835	0,29
The Republic of Tyva + Krasnoyarskiy Krai	0,085	0,026	0,043	0,845	0,28
The Republic of Khakassia + Krasnoyarskiy Krai	0,077	0,033	0,046	0,844	0,28
Yenisei Siberia	0,084	0,029	0,043	0,844	0,28
Angara-Yenisei Siberia	0,079	0,027	0,076	0,818	0,32

Source: authors' calculations based on (Regiony Rossii, 2018).

Table 2. Heterogeneity of the population

Regions and their "alliances"	Diversity indices on the factors		
	Ethnic	linguistic	religios
The Republic of Tyva	0,31	0,32	[0,5–0,6]
The Republic of Khakassia	0,32	0,22	[0,4–0,5]
Krasnoyarskiy Krai	0,17	0,13	[0,3–0,4]
Irkutskaya Oblast'	0,16	0,14	[0,3–0,4]
The Republic of Tyva + The Republic of Khakassia	0,57	0,52	[0,4–0,6]
The Republic of Tyva + Krasnoyarskiy Krai	0,29	0,26	[0,3–0,5]
The Republic of Khakassia + Krasnoyarskiy Krai	0,19	0,15	[0,3–0,5]
Yenisei Siberia	0,30	0,25	[0,3–0,5]
Angara-Yenisei Siberia	0,25	0,21	[0,3–0,5]

Source: ethnic composition and native language: calculations made by the authors basing on the census data of Russia (Itogi …, 2010), religion in the regions – interval index estimates (Otchet …, 2014), based on the proxy data on the structure of target user requests on Yandex; religion in macro-regions – estimates made by the authors basing on (Otchet …, 2014).

Table 3 includes the examples of the corresponding calculations of heterogeneity indices for particular socio-economic indicators, regarding the dynamics. The indices

are calculated for the two macro-regions under discussion (Yenisei Siberia, Angara-Yenisei Siberia).

Most of the calculated values in (Table 3) show a weak variation in the time coordinate, however, we can observe significant changes in the structure of indices when shifting from Yenisei Siberia to Angara-Yenisei Siberia, the first of which reflects significantly lower level of heterogeneity among all the considered parameters, which means relative stability of this macro-region.

We also point out that in analyzing the regional data for the Republic of Tyva we found some significant disparities in the socio-economic development indicators. This includes, in particular, GRP per capita, average per capita incomes of the population, and the level of prices on secondary housing. The latter indicates the need for more thorough analysis of the calculated data in the future when assessing the human capital index for this region.

Table 3. Heterogeneity of the regions on certain socio-economic indicators and it dynamics

Basic indicators	Yenisei Siberia (index)				Angara-Yenisei (index)			
	2005	2010	2015	2017	2005	2010	2015	2017
Population (ths.people)	0,37	0,38	0,38	0,38	0,61	0,62	0,62	0,62
Unemployment rate*	0,60	0,57	0,55	0,53	0,70	0,69	0,68	0,67
GRP per capita (ths.rub)	0,57	0,57	0,59	0,58	0,70	0,70	0,71	0,71
Average per capita incomes (per month; rub.)	0,64	0,65	0,65	0,64	0,74	0,74	0,74	0,74
Average process on secondary housing (rub./sq.m.)	0,65	0,67	0,67	0,66	0,74	0,75	0,75	0,75
Number of higher educational institutions (in total)	0,28	0,24	0,29	0,34	0,58	0,56	0,57	0,59
Number of faculty (in total, people)	0,23	0,20	0,22	0,22	0,56	0,55	0,56	0,56
Number of students (ths. people)	0,27	0,28	0,24	0,26	0,58	0,58	0,57	0,57
R&D internal costs (mln. rub.)	0,05	0,06	0,04	0,04	0,44	0,46	0,35	0,35
Number of visits in museums (per 1000 people)	0,66	0,59	0,59	0,60	0,74	0,71	0,70	0,71

Source: calculations made by the authors basing on the regional data of Russia (Regiony Rossii, 2018).

Conclusions

By the overall analysis of heterogeneity of the regions under consideration, basing on the results given in Tables 1–3, the following can be concluded:

1. The heterogeneity of administrative-territorial division and of socio-economic indicators (Tables 1, 3) proves higher structural stability of Yenisei Siberia compared

to Angara-Yenisei Siberia, which probably should be regarded when formulating socio-economic policies for the analyzed macro-regions.

2. Socio-cultural heterogeneity of the population on the main factors of diversity (Table 2) is generally quite moderate at the regional and macro-regional levels. The latter, in particular, indicates the need to expand the list of factors of socio-cultural heterogeneity at the subregional level, which can be done further, for example, in the form of sample surveys of the population. It is also worth noting that the supporting result on the population heterogeneity calculations obtained for "The Republic of Khakassia + the Republic of Tyva" shows relatively high heterogeneity indicators characteristic of a possible latent polarization. The latter means that under the conditions of the socio-economic policy formation relating to the macro-regions, including the human capital development, these regions are preferable to be considered as part of a larger group of regions, for example, the Yenisei Siberia macro-region.

3. The dynamics of heterogeneity of regional socio-economic indicators in the medium term of 5–10 years (Table 3) is relatively slow, which potentially allows us to consider the tasks of estimating the human capital index in static and dynamic contexts together and, therefore, to form a common list of basic factors for calculations. At the same time, the migration parameters demonstrate a high heterogeneity both in the inter-regional context and in the dynamics, which requires special attention to this set of indicators when they are included into the assessment of human capital.

Thus, a preliminary comparative analysis of regional data allows us to draw conclusions about the structure and characteristics of the emerging socio-economic and socio-cultural heterogeneity on the territories at various levels of economic and management activities aggregation, which gives grounds to form new ideas about the influence of social diversity on social and economic development, as well as, further, to monitor trends in the level and quality of human capital. All these provide an opportunity to formulate preliminary recommendations on the method of analyzing socio-economic and socio-cultural measurements at the regional and subregional level for the formation of relatively homogeneous development clusters (including geographic, socio-economic and socio-cultural parameters).

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Подходы к исследованию человеческого капитала в контексте совокупности социально-экономических и социокультурных факторов на примере региона Енисейская Сибирь

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Представлены предварительные результаты междисциплинарного исследования базовых социально-экономических и социокультурных факторов, необходимых для корректной и всеобъемлющей оценки человеческого капитала на уровне отдельных территорий макрорегиона Енисейская Сибирь. Параметры социально-экономического и социокультурного развития по отдельным территориям макрорегиона Енисейская Сибирь проанализированы с использованием методов индексной и статистической оценки. Проведены оценки значимости эффектов разнообразия общества в контекстах межрегиональных сравнений и динамических изменений. Проведено сравнение

полученных результатов на разных уровнях иерархии. Рассмотренные социально-экономические показатели и социокультурные факторы проанализированы с позиции их влияния на уровень, динамику и качество человеческого капитала.

Ключевые слова: оценка человеческого капитала, макрорегион Енисейская Сибирь, социально-экономические индексы.

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