Scientific analysis of human capital development as the factor of territory competitiveness increase

Análisis científico del desarrollo del capital humano como factor de aumento de la competitividad del territorio

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ABSTRACT

The relevance is in a specific problem - the contradiction between a particular territory competitiveness increase (for example, the gross regional product, budget financing) and the population interest in implementing their qualitative and quantitative characteristics (human capital) on it. The article proposes the author's approach of proving the position that the specificity of human capital development can be both a constraining and an activating factor for a territory competitiveness increase. It has been determined that the influence nature (positive or negative) is set by a combination of factors that are the main elements of mutual influence mechanisms of human capital qualitative and quantitative components and the rates of socio-economic development of a territory, which characterize its level of competitiveness. The results obtained can be used by researchers who deal with the problems of human capital theory, its development, and the relationship with the territory competitiveness indicators. The study's practical significance is the possibility of its result application: by state authorities and local self-government during the development and adjustment of documents for territory development strategic planning; the scientific community during the study of human capital and the level of territory competitiveness mutual influence.

Key words: Human Capital; Territory Competitiveness; Development; Interconnection; Mutual Influence.

RESUMEN

La relevancia está en un problema específico: la contradicción entre el aumento de la competitividad de un territorio particular (por ejemplo, el producto bruto regional, el financiamiento presupuestario) y el interés de la población en implementar sus características cualitativas y cuantitativas (capital humano) en él. El artículo propone el enfoque del autor de probar la posición de que la especificidad del desarrollo del capital humano puede ser tanto un factor limitante como un factor activador para el aumento de la competitividad del territorio. Se ha determinado que la naturaleza de la influencia (positiva o negativa) está determinada por una combinación de factores que son los elementos principales de los mecanismos de influencia mutua de los componentes cualitativos y cuantitativos del capital humano y las tasas de desarrollo socioeconómico de un territorio, que caracterizan su nivel de competitividad. Los resultados

obtenidos pueden ser utilizados por investigadores que aborden los problemas de la teoría del capital humano, su desarrollo y la relación con los indicadores de competitividad del territorio. El significado práctico del estudio es la posibilidad de aplicación de sus resultados: por parte de las autoridades estatales y de los gobiernos autónomos locales durante la elaboración y ajuste de documentos para la planificación estratégica del desarrollo del territorio; la comunidad científica durante el estudio del capital humano y el nivel de competitividad territorial influencia mutua.

Palabras clave: Capital Humano; Competitividad Territorial; Desarrollo; Interconexión; Influencia Mutua.

1. INTRODUCTION

As one of the forms of the unique investment value description, human capital, implemented to obtain additional benefits, has an ambiguous assessment system among researchers. Let's analyze the scientific works, the authors of which presented the methods for human capital evaluation. We can see that most of the researchers "tied" the evaluation of human capital to the indicators of an economic entity development (Mazelis et al., 2021).

Such researchers are represented, for example, by Semenov and Golovtsova (2016), Dobrovinsky and Demyanenko (2011). The methodology for human capital evaluation from the perspective of its consideration within the framework of an economic entity is determined by a number of the following indicators: age of employees, education level, diploma score, employee experience in a given organization, staff turnover, wages, employee's working time, sales volume by each employee, the volume of orders completed by an employee and others.

At that, if we consider the assessment of human capital in a wide range, taking into account regional and sectoral characteristics, then a number of authors can also be distinguished in this context, including Gafarova and Kantor (2018), and Koloskova (2016). These researchers propose to assess human capital through such indicators as the average number of education years among employed in the economy, population literacy, the number of permanent or employed population with different levels of education, the number and share of researchers among the population or among employees, coverage of the population with various levels of education; the share of expenditures on education, science, health care and socio-cultural activities in the GRP; infant mortality, life expectancy at birth. The listed indicators are referred to the representative (or indicative) method. The index method is also highlighted based on the human capital index and the human development index. In addition to the indicated methods, both the cost method (the method of costs or the method of past effort evaluation) and the income method (the method of assessing returns or the method of earnings capitalization) are declared, which are focused on the indicators for assessing public and private investments in human capital (most often investments in formal education and health care), as well as on discounted lifetime earnings (annual income during working life) minus lost earnings and education costs, respectively (Abu-Rumman, 2021). One can also single out the assessment indicators based on regional aspects exclusively: life expectancy, educational level, average wages, the subsistence minimum amount, the number of enterprises; unemployment rate.

For the purposes of further research and proof of the position that the specificity of human capital development can be both a constraining and an activating factor for a territory competitiveness increase, it is the indicators applicable to regional characteristics that will become the basis for human capital evaluation.

The next stage of the study is to determine the indicators necessary to assess the territory competitiveness. There are also many interpretations, models, and sets of indicators in this regard.

A number of authors define competitiveness in terms of its relationship to a particular industry. For example, Krygina et al. (2021) developed a methodological approach through her thesis to assess and regulate the competitiveness of regional construction organizations based on a system of indicators that take into account the regional specifics of their functioning; characterizing the financial and marketing activities of organizations, their personnel and production potential. This methodological approach makes it possible to assess competitiveness at the meso and micro levels. Also, they developed a rating assessment of regional construction organization competitiveness, which makes it possible to implement a scientifically grounded approach to the regulation of their activities based on the ranking of basic indicators of competitiveness, which include the amount of income received, the average wage volume, the number of employees, etc.

Leonova N.A. offers a rank method to determine competitiveness, which consists of a studied territory place determination in a certain system of compared territories (Leonova, 2006). Also, the designated method is called the potential determination method: resource potential (geographic location, availability of natural resources), quality of life potential (social protection level, population safety degree, opportunities for housing service obtaining, quality of housing, cultural environment quality, etc.), financial potential (budgetary strength, the level of banking, financial, insurance infrastructure, investment climate development, etc.), environmental potential (quality of water, air, the environment state, beauty of landscapes, etc.), and organizational potential (political stability, efficiency of management structures, etc.).

To apply the rank method, it is not necessary to cover the entire range of available indicators characterizing the development trends of a territory; one can restrict oneself to choose a group of several indicators that most clearly characterize competitiveness. Spatial criteria for comparing territories can be changed depending on the task of the study, it is possible to identify the dynamics of rank changes according to the types of indicators under study for a certain period of time, which is a relative measurement of a higher order of trends in territory competitiveness change.

The rating assessment of competitiveness is considered by Botina E.N. and Kharlamov A.O. in their work (Botina & Kharlamova, 2018; Tsareva *et al.*, 2019). The system of indicators for such an assessment is based on statistical data, as well as on the indicators calculated on the basis of these data. The rating evaluation uses the method of multivariate correlation-regression analysis using a linear model.

There is also an integral assessment system, which is based on three systems of indicators: a system of indicators of a region economic potential, a system of indicators of regional efficiency, and a system of indicators of competitive advantages. This method of a region competitiveness evaluation involves calculation of the integral coefficient of a region competitiveness using the geometric mean formula.

Du *et al.* (2021) suggests using the rank method and the method of the territory potential measurement. Within the framework of the first one, a rank assessment is carried out according to the group that characterizes the geographical position and socio-economic development of regions, which makes it possible to assess the overall socio-economic competitiveness of a region in the space of the country. This methodology distinguishes three groups of parameters: socio-economic assessment of competitiveness, the level of the region specialization, assessment of the region profile by the share of certain types of industrial product production in all-Russian production. The second approach is based on measuring the territorial potential: resource, financial, environmental and organizational.

A.V. Sycheva refers to the example of those authors who conducted the study of a city territory competitiveness (Sycheva, 2013). The key indicators of socio-economic development are presented in the form of a radar chart. For comparative analysis, the indicators of socio-economic development are selected averaged for Russia and the cities that are close in terms of population. Using the proposed

diagram, you can compare the competitiveness of the analyzed territories with the average values for Russia. Making such an assessment for several previous periods, it is possible to determine promising programs to increase the city competitiveness, taking the existing advantages as a momentum and forming or promoting existing brands.

Thus, the analysis of works on a territory (a region, a city, a business entity) competitiveness level evaluation by researchers demonstrates an ambiguous interpretation and a different set of indicators that measure competitiveness. At the same time, most of the researchers agree that the basic indicators for assessing the competitiveness of a territory can be the following ones: the volume of income (the value of the gross regional product), the number of employed people in the economy, the number of enterprises, the level of unemployment, the amount of funding for socially significant projects, etc.
The purpose of further research will be to prove the position that the development of human capital and the territory competitiveness are interconnected. Moreover, the development of human capital can be a factor in a territory competitiveness increase.

2. METHODS

The research methods were the analysis and synthesis of the theoretical base. The theoretical and methodological basis of the study is made up of the territory competitiveness theory, the theory of human capital, and the theory of development. When assessing the relationship between the competitiveness of the territory and human capital, they used the content analysis of websites of state and local authorities, and statistics bodies.

3. RESULTS

Having considered the methods for human capital and the territory competitiveness evaluation, we can conclude that certain groups of indicators are closely interconnected. Moreover, it can be hypothesized that territories are not developing, among other things, due to the fact that there is no necessary "portfolio" of human capital qualitative and quantitative characteristics.

In order to confirm or deny the indicated methodology, they performed the correlation (dependence) analysis between the indicators characterizing the level of human capital development and the territory competitiveness. Considering that each territory is unique, has its own specific features of development, the analysis will be carried out on the basis of statistical data from the Far East of Russia, as one of the most extensive in terms of the area in the country (Volynchuk et al., 2018; Koren *et al.,* 2020). We will choose the research period equal to 10 years (from 2009 to 2019). The data for 2020 are currently in the processing stage for the most part according to the statistical authorities, so their use is not possible for analysis. As for the choice of a set of evaluation indicators, we can conclude that, from the point of view of the analyzed authors, there is no single interpretation of the assessment, therefore, it is possible to select indicators for analysis that represent part of the indicated assessment methods (the full set of indicators will be redundant, because even on the basis of the correlation dependence of human capital individual indicators and the territory competitiveness, we can already talk about the confirmation of the previously indicated hypothesis.

Table 1. Data for determining the correlation between the indicators characterizing the level of human capital development and the territory competitiveness (based on statistical data from the Russian Far East)

Indicator		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Population, men		6460094	6440129	6 275 388	6266833	6252496	6226640	6211021	6194969	6182679	6165284	8188623
Gen der	F	3 355 000	3 349 000	3 262 433	3 257	3 247	3 235	3 226	3 220	3 215	3 205	4 261

												000	000	000	000	000	000	528	520
	M	3 105 000	3 092 000	3 012 955	3 009 000	3 005 000	2 992 000	2 985 000	2 975 000	2 968 000	2 959 756	3 927 103
Age	Able-bodied	4 202 000	4 139 000	3 955 862	3 928 000	3 869 000	3 797 000	3 733 000	3 666 000	3 612 000	3 565 136	4 659 211
	Not able to work	1 140 000	1 175 000	1 218 370	1 232 000	1 258 000	1 284 000	1 311 000	1 338 000	1 360 000	1 379 968	1 821 985
Marital status	Marriage	57 685	58 773	61 732	58 682	57 776	56 688	53 123	46 972	48 786	54 416	-
	Divorce	37 470	34 256	36 219	34 417	35 965	36 435	31 708	31 102	30 673	37 656	-
GRP, mil. rub.		2000295	2410989	2890065	3090999	3239564	3634851	4033863	4183642	4363593	5204117	-
Unemployment rate, %		10	9,1	7,9	7,3	7,1	7,1	7,1	6,8	6,7	6,3	6
Average salary, rub.		23157,8	25814,2	29319,7	33584	37578,8	40875,7	43163,5	45786,4	48952,4	51667	54635
Life expectancy, years		65,9	65,8	66,4	67	67,8	66,5	67,2	67,3	66	66,8	67,1

The statistics on marital status and GRP have not yet been presented by statistics bodies currently. Based on the data in Table 1, we will analyze the relationship, and calculate the correlation coefficient (the data in Table 2). The coefficient is calculated based on the dynamics of indicators for an equal period (that is, if there is a comparison with the indicators for marital status and GRP, we take the period up to 2018 inclusive).

Table 2. Correlation dependence between the indicators characterizing the level of human capital development and the territory competitiveness (fragment, the indicators characterizing the greatest dependence)

	Compared indicators	Correlation ratio
1	Number and GRP	-0,921359574
2	Disabled population amount and GRP	-0,847139657
3	Number of people in marriage and GRP	0,857605852
4	Unemployment rate and GRP	-0,894812445
5	Average salary and GRP	0,980668938
6	Average salary and unemployment rate	-0,921850517
7	Life expectancy and unemployment rate	-0,618832284
8	Disabled population amount and average salary	-0,862165734

The data of the Table 2 clearly demonstrate that there is a close relationship between the indicators characterizing the level of a territory competitiveness and quantitative indicators of human capital development. The hypothesis presented earlier has been proven. That is, the process of a territory competitiveness increase can be controlled, thereby increasing the rate of the country economy

development. This control can be provided through a variety of tools, also through the development of human capital, its qualitative characteristics, knowledge, skills, and abilities.

Let's consider another option to determine the relationship, now using the example of a specific region of the Russian Far East - Primorsky Krai (Andreev *et al.,* 2019; Tsareva *et al.*, 2017; Tsareva & Omelyanenko, 2020). Quite often, according to the narrow-minded view, there is an opinion that remote regions are poorly funded, therefore they are not developed, and thus the population migrates.
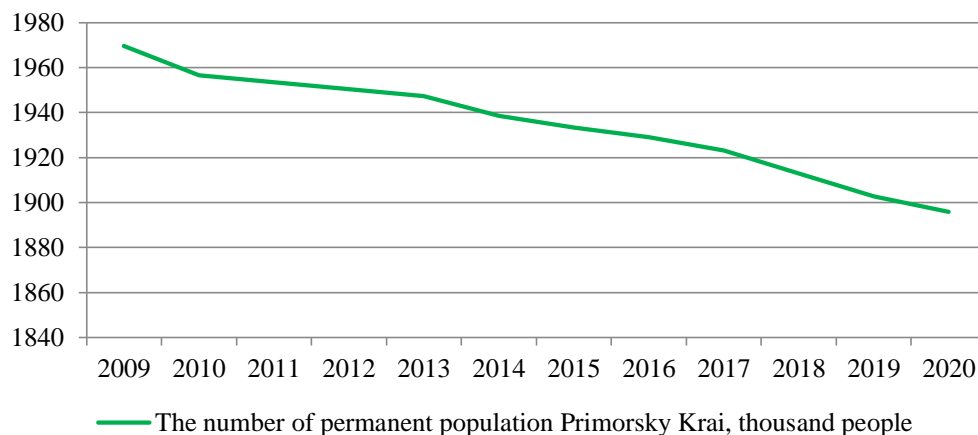

Figure 1. Dynamics of Primorsky Krai population, thousand people

But this is not always the main reason. The data of the Figure 1 demonstrate that the population of Primorsky Krai is declining rapidly. At the same time, the value of the gross regional product has an outlined positive trend (Figure 2 data, excluding the data from 2020 that have not been processed yet).
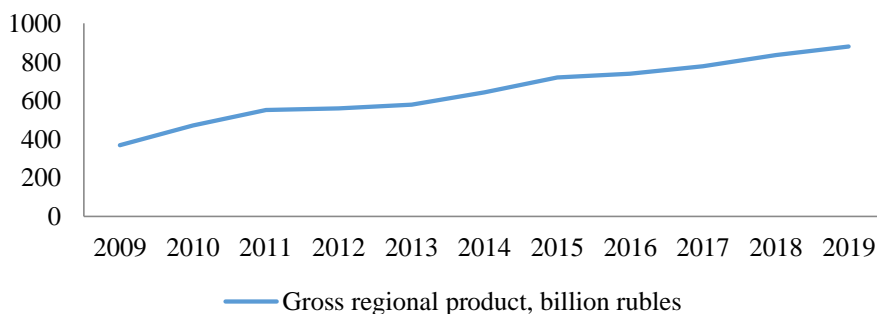

Figure 2. Gross regional product of Primorsky Krai, billion rubles

Also, the amount of budget expenditures for various purposes has a positive trend (Figure 3 data, excluding the unprocessed data of 2020).
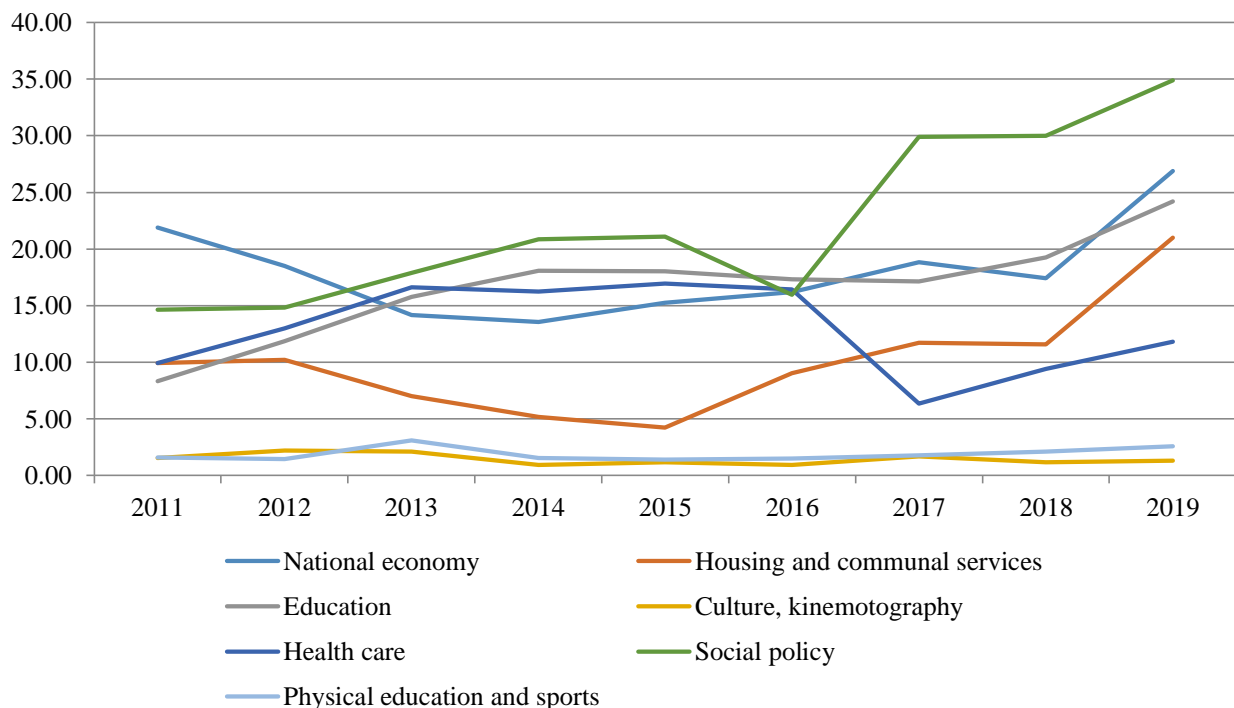
Figure 3. Actual expenditures of the Primorsky Territory budget by areas, billion rubles.

4. DISCUSSION

Returning to the data of Figure 1, we note that despite a set of preferences of state and local authorities in the form of tax benefits, regional development programs, subsidies, grants, property support projects, etc. the values of the population loss of the region are considerably high (internal migration is still increasing, people move from remote regions and the regions with low competitiveness to the central FD).

In this regard, the solution to the problem must be sought not in additional funding (the data of Figure 2 and 3 show that this is not enough), but in high-quality, constant work with the population for human capital development (so that people stay, gain a foothold in the territory, knowing that they have a future and prospects). After all, it is work with people, with their interests, the development of human capital qualitative properties, that can become a catalyst for population entrepreneurial activity increase, the cause of unemployment reduction, raising the level of population social well-being, increasing tax revenues to the budget of the country and its subjects, and lowering the consumer price index. These factors indicated in their totality will lead to the territory competitiveness increase, and then to the country competitiveness increase in the future.

5. CONCLUSION

In the article, the authors determined that there are many interpretations and assessment methods according to the current state of research in the field of human capital development and the territory competitiveness. Some of them are aimed at integral indicator determination, others at rating estimate determination, and some are based on the rank method and the method of potential measuring. Moreover, most of the authors agree on the use of the same indicators. These indicators formed the basis for the authors of the article proof of the position that the specificity of human capital development can be both a deterrent and an activating factor for a territory competitiveness increase.

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