

# The Impact of Globalization Processes on the Reproduction of Human Capital

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**Abstract**—The rapid development of globalization in the world economy has a significant impact on the transformation of the socio-economic structures. The main vector of this impact is aimed at the reproduction and development of human capital, which is an intensive productive and social factor contributing to the transformation of the economy into a knowledge-based and intellectual one. In this regard, a large number of scientific works done by modern scholars are devoted to the study of the reproduction of human capital and its measurement. The existing methods are based on generally available indicators and allow for cross-country comparisons. However they do not always help to objectively assess the real value of human capital, since they do not directly characterize it. So far, there is the ongoing debate about the impact of globalization on the reproduction of human capital concerning the developing of a new methodology for its evaluation. Therefore, the development of theoretical and methodological principles of the reproduction of human capital and the consideration of various methods of its analysis in the modern paradigm of the development of the world economy is of utmost importance. This study allows us to consider the relationship of the world globalization processes and reproduction of the human capital and to determine Russia's place in the global ranking of countries on the development of human capital. The study revealed the shortcomings of existing approaches to the assessment of human capital. The need for adjusting the methods for analyzing its reproduction has been substantiated.

**Keywords**—the reproduction of the human capital, globalization, cross-country comparisons, the measurement of human capital.

## I. INTRODUCTION

In modern conditions the increasing role of human capital with its internal capacity for creativity and the innovation development is becoming the most significant advantage of the globalization of the world economy, which has entered a period of radical transformation of civilization.

The competition is gaining global proportions for the possession of creative human resources, highly skilled labor, methods of its reproduction and mobile use. The human capital should become the main tool for achieving high-

quality and stable economic growth of any country within the conditions of the increasing global competition and the transition to a new human-oriented economy.

Along with other countries, Russia is actively seeking its place in the globalization process, taking into account its comparative advantages. Therefore, new ways to reproduce human capital and its structural components as well as the qualitative and quantitative characteristics that determine its competitiveness should be worked out in order to accelerate the growth of the Russian economy in the modern context of globalization.

## II. RESEARCH METHODOLOGY

The developing process of globalization of the world economy has a significant impact on both the transformation of economic systems and the formation of human capital, as a factor in the intellectualization of world economic relations. In the context of globalization, the human capital is viewed to be a unique resource of society. Thus its reproduction is considered to be a multifactorial, multilevel, multidirectional and contradictory developing socio-economic process, covering all spheres of human economic activity.

Therefore, the study seeks to conceptualize the genesis of the world and domestic economic thought about human capital and its social reproduction, to develop theoretical and methodological principles, to substantiate various methods for analyzing its reproduction in the modern context of globalization.

It is necessary to switch to a different perception of the reproduction of human capital in the era of global transformation processes in order to achieve the goal concerning the extreme complexity and the diversity of the object of study. Therefore the research methodology needs to be studied seriously.

The scientific study of the reproduction of human capital is based on the use of the following approaches:

- the human capital is reproduced as both the labor force and the capital;

- the process of reproduction of human capital is studied as continuous and goes through the stages of formation, distribution, exchange and consumption;
- the main condition for the reproduction of human capital is the transformation of individual parts of the goods produced into the investments aimed at the reconstruction of the elements of human capital.

The basis of the methodology of the research is the development of concepts and provisions of the reproduction of the human capital in the paradigm of global economic development, improving the theoretical, methodological and methodical instruments allowing to evaluate the changes in the nature of human capital in modern conditions, and based on a synthesis of evolutionary and institutional, reproduction, investment, activity-based, cyclical, system-based and other methodological approaches.

The results of calculations of three international organizations (the United Nations, the World Bank and the World Economic Forum) have been used in cooperation with the educational organizations and consulting companies as the "methodological framework" of the study,

The United Nations Report contains a calculation of the Human Development Index (HDI) for 189 countries, based on three main dimensions: ability to lead a long life, ability to acquire knowledge and ability to achieve a decent standard of living. The World Bank has presented the Project, within the framework of which the human capital index (HDI) was calculated for 157 countries, showing the quantitative assessment of the health and education contribution to both the labor productivity and the income level of the next generation of citizens. The World Economic Forum has presented the calculation of the human capital index (HDI) for 130 countries, concerning the indicators such as the level of education of young and older generations, the level of education of the "next generation labor force" and advanced training of workers, the application and the accumulation of adult skills, the breadth and the depth of use of specialized skills at work.

### III. RESULTS

One of the most appreciated trends in modern life is the process of globalization, i.e. an increase in the scale of international exchange of factors of production and its results within the open integrated economy. This is due to the ongoing transformations in the order of the structure of individual states and the entire world community.

As a result of the transition of globalization processes to a qualitatively new stage in the world economy, the following socio-economic transformations occur:

- economic systems that function steadily are being formed, based on the effective use of the latest achievements of scientific and technical progress; the stabilization of social processes, as well as the reduction of unemployment in high-tech industries are observed; the level of economic development of the states has become increasingly dependent on the level of development of science and education;
- the countries interact through international economic organizations to implement complex joint anti-crisis measures and to ensure mutual support;

- there is an increasing intellectualization of economic activity. Thus the human capital is recognized as the main factor in production and the most important indicator of the level of development of countries and regions.

It should be noted that human capital is the basis of the modern relationship-based innovative economic system, it is considered to be an intense and productive social factor as well as a form of manifestation of the productive forces of man [1-5].

The status and the effectiveness of the implementation of the human capital in the economic system of the country appears as a two-way process: on the one hand, it depends on the subject of labor as the owner of the relevant human resources, and on the other hand, it depends on the level, the direction and the nature of the efforts of market participants. First of all, this happens in the sphere of creating conditions for the reproduction and the use of human capital in productive labour [6-9].

Within the globalization, there is not only the process of recreation and development of the elements of human capital that is accelerated, but its structure is complicated, as well as the process of reproduction of the person himself as the owner of unique knowledge and the carrier of significant qualities, abilities, formed through investment. Thus its competitive properties and features are determined: mobility, adaptability, increasing the speed of obtaining information, innovativeness, narrowing of space and time, interactivity.

Cross-country labor migration is a significant trend in the modern transformation of the world economic system, directly related to the development of human capital and the formation of the global labour market. It influences the redistribution of human resources in the global economic economy greatly [10-13]. It is characterized by the following main features:

1) The drift of the low-cost unqualified labour force (in the United States, Canada and Western Europe from Africa, the Middle East, the CIS, Eastern Europe, etc.). This is due to the reorientation of residents of developed countries to prestigious professions.

2) The movement of intellectually developed human resources (mainly highly qualified specialists and scientists who are able to effectively solve the urgent tasks of creating, implementing and using innovative technologies) to the most developed countries in the world (primarily in the USA). At the present, within the knowledge-based economy that is actively developing, the designated process is global in scope. Thus a large number of state programs are being implemented to stimulate the immigration of intellectually developed specialists in the developed countries.

In this regard, one of the most important factors of a state's competitiveness is its ability to attract and secure skilled labour on its territory by the means of investing in building up human capital, creating new production capacities, and ensuring and maintaining a high level of economic capitalization. The changes that have taken place entailed a significant modification of the role of human capital at the state level, which made it possible to perceive it as part of national wealth, a strategic resource, and an important factor in economic growth [14-17].

It should be noted that the impact of globalization on the world economy has a multidimensional character. The central focus of this impact is the state and the development of human capital concerning the conditions for its reproduction. Consequently the economy is transformed into human-oriented, knowledge-intensive and intellectual. At the same time, the level of development of the human capital of states varies significantly, due to the groundwork for its formation created in the country and other factors.

Let us analyze the conditions and results of the reproduction of human capital by the example of several large countries in 2000, 2010, and 2015 (Table 1).

While focusing on the selected indicators for the analysis, we note that the GDP indirectly characterizes the conditions for the reproduction of the human capital in the country.

Since human capital needs appropriate investments for its reproduction on a modern, high-quality basis, the indicators of the size of direct foreign investments made in the state economy during the year have been used for the analysis. The main areas of investment in human capital: education, healthcare, scientific research and development (indicators are calculated as a percentage of GDP to ensure their cross-country comparability) have been taken into account.

TABLE I. CROSS-COUNTRY COMPARISON OF CONDITIONS AND RESULTS OF HUMAN CAPITAL DEVELOPMENT

Indicators	Years	Countries		
		Russia	USA	China
GDP, billion dollars	2000	278.1	10,252.4	1,214.9
	2010	1632.8	14,992.1	6,066.4
	2015	1363.7	18,219.3	11,226.2
Worldwide investments, billion dollars	2000	11.4	142.1	40.7
	2010	114.1	264.3	105.0
	2015	176.3	384.2	347.1
The ratio of government spending on education to GDP, %	2000	2.9	5.2	1.9
	2010	3.8	5.4	3.4
	2015	3.8	5.0	4.3
The ratio of total health spending to GDP, %	2000	5.0	12.5	4.5
	2010	4.8	16.4	4.2
	2015	5.0	16.8	4.9
The ratio of research and development costs to GDP, %	2000	1.0	2.6	0.9
	2010	1.1	2.7	1.7
	2015	1.1	2.7	2.1
HDI	2000	0.73	0.95	0.72
	2010	0.81	0.91	0.76
	2015	0.82	0.92	0.76

As a result, an indicator such as the human development index is presented (HDI).

Turning to the cross-country comparisons, firstly, some aspects of human capital development in Russia should be considered.

Since Russia was a part of the USSR, due to its collapse by 2000, the country experienced a significant recession in the economy, which led to significant negative changes. As the economic situation leveled off, GDP grew, and the amount of global investment in the country's economy increased [18-19]. Thus GDP (per capita by 2015) being calculated at purchasing power parity has grown 2.4 times - from 11.1 thousand dollars to 26.2 thousand US dollars compared with 2000. At the same time, the aggregate size of GDP increased 4.9 times, and global investments in the Russian economy grew 16 times. State GDP in 2015 was lower than 2010 by 16% [20].

Throughout 2000-2015 From 2.9 to 3.8% of GDP was allocated for education in Russia, about 4.8-5.0% of GDP was allocated for health care, and 1.0-1.1% of GDP was assigned for scientific research.

In accordance with the UN-developed methodology, Russia belongs to the category of states with a high development of national human capital, and its value increased from 0.73 in 2000 to 0.82 in 2015.

Next, we analyze the conditions and results of the development of human capital of one of the world leaders - the United States. This state stands out markedly in terms of GDP and for a long period has been one of the five world leaders. Compared with 2000, in 2015 the aggregate GDP in the United States grew by 1.8 times, and per capita - by 1.5 times and amounted to 55.8 thousand dollars (which is 2.1 times more than in Russia). In 2015, the share of US GDP as a percentage of the global value was 15.8%. It should be noted that in 2018, in terms of GDP, the United States occupied the first place in the world with a share of 25% of the world level. With the development of globalization and the innovative economy, the amount of foreign investments in the United States also increased significantly - 2.7 times by 2015 (compared to 2000) [20].

In the USA, there is an increase in the ratio of expenditures that contribute to the reproduction of human capital to GDP: for healthcare - from 12.5% to 16.8%. for science - from 2.6% to 2.7%. The value of education spending as a percentage of GDP, on the contrary, decreased - from 5.2 to 5.0%.

According to the resulting indicator (HDI) in the United States, there is a slight decrease (from 0.95 in 2000 to 0.92 in 2015). Based on this, we conclude that a direct relationship between the growth of financial indicators of the state and the strengthening of human capital of citizens is not always observed. However, it is indisputable that the more financial resources states invest in the development of human capital the higher quality of human capital is received.

Next the situation and the trends specific to China are to be considered. China's GDP amounted to 16% of the total world in 2018. It should be said that since 2010, China has consistently ranked the second place in the world in terms of this indicator. For a short period from 2000 to 2015, China's GDP grew 9.2 times, which is a record result. Per capita GDP grew by 8.6 times and amounted to \$ 8.2 thousand by 2015 (this is 6.8 times less than in the United States).

In addition, China has become one of the leaders in terms of global investments, whose growth by 2015 was 8.5 times compared with 2000. Over the study period, the country increased the cost of education, health and research - in relation to these costs changes in GDP amounted from 1.9% to 4.3%, from 4.5% to 4.9%, from 0.9% to 2.1%, respectively [20]. At the same time, the value of the HDI in China remains relatively low, but compared with 2000, an increase in this index was noted.

Considering the example of these three countries, it should be concluded that the degree of differentiation of the investment environment to ensure human capital growth is very significant. While the economy of the most developed country (USA) is characterized by a very significant share of investments in education, healthcare, research and development (a total of 23.1% of GDP in 2015), the sectoral structure of investments in capital has a clearly different

priority in Russia and China (similar indicators are, respectively, 9.9% and 11.3% of GDP). However, the HDI in the USA has decreased, on the basis of which we conclude that significant government investments in education, healthcare and scientific research contribute to the growth of national human capital. However it is not a guarantee of the growth in the short term.

The HDI was considered as a resulting indicator of the development of human capital. However, human capital is measured by three different international organizations that have developed their own indices - two of them are currently called human capital indices, and the third is called the HDI.

Since the World Bank, the United Nations and the World Economic Forum use different methods to determine indices reflecting the achieved level of development of human capital, the place of countries in the ranking varies significantly.

A more detailed data analysis should be done considering the place of the Russian Federation in the world in the development of human capital. The objectivity of the application of the above methods for measuring it has to be assessed.

According to the results of all calculations, Russia is included in the group of countries with a high level of human capital, ranking according to various estimates from 16 to 43 places in the world. In the context of globalization, considering human capital as one of the main tools for achieving high-quality and stable economic growth of the country, a high rating of the development of human capital according to international estimates is important.

However, in our opinion, Russia's rating of human capital (development) indices does not reflect the real situation in the country due to the peculiarities of the assessment methods used and the fact that it is impossible to conduct an adequate assessment of human capital based on the indicators selected for calculations.

In particular, the methodology of the World Bank has the advantage of taking into account indicators in two areas - education and healthcare. However the calculation is based on the use of forecast data, as well as on the analysis of indicators that poorly reflect the real level of human capital development in countries. It is worth noting that this methodology uses a significant indicator for assessing human capital, that is the test results for international and regional programs for assessing educational achievements of students. According to this indicator Russia is among the top ten. But at the same time, its high value is called into question. Taking into account the results of other international comparative studies (PISA), it turned out that about 20% of high school graduates in Russia show results below the threshold level of functional literacy.

According to the UN methodology, the generally available indicators are used to calculate the human development index, namely: the life expectancy at birth; the average number of years spent on education; the expected duration of study; GNI per capita at purchasing power parity in US dollars. These indicators do not directly assess the human capital of countries as well. Russia's high positions in the ranking of countries might be explained by the availability and long-term process of education. Although even the higher education has become a social norm in the country it does not reflect the level of knowledge and skills of graduates. Moreover a fairly high

GNI per capita does not characterize the ability of the population to achieve a high standard of living [21].

The methodology of the World Economic Forum uses a large amount of data which has been selected from publicly available sources as well as the information from international organizations and the experts' opinions considering the development management have been taken into account. Considering this method the high rating of Russia might be explained, first of all, by the significant level of education of people and low unemployment rates and underemployment. However, as Russian reality shows, this data is far from reality.

Therefore, we conclude that the results of calculations of international organizations do not show the objective state of affairs with national human capital in Russia.

The more objective assessment of the Russian national capital is possible if its level is considered for each region separately, given that socio-economic and demographic situation, the way of life in the regions of the country are completely different. Therefore, the level of human capital development differs from the one region to another.

Excluding the regions with the highest or the lowest levels of human capital (for example, regions with high incomes from the sale of raw materials or regions where long-livers live) and taking into account that the level of education in all regions is approximately the same, we can obtain data that more objectively describe the conditions for the development of human capital in the country [23-24].

A study of the available statistical data made it possible to calculate and group human development indices for each subject of the Russian Federation (Table 2). According to the methodology presented in the Report on Human Development in the Russian Federation [22], all subjects were divided into five groups depending on the level of the HDI in a particular subject.

TABLE II. GROUP OF SUBJECTS OF THE RUSSIAN FEDERATION FOR HUMAN DEVELOPMENT INDEX

Group	The range of HDI	Entities of the Russian Federation
Very high	0,900 and above	2 Federal cities, 1 Autonomous District, 1 Region, 1 Republic (5,8%)
High	0,867–0,900	2 Autonomous Districts, 16 Regions, 3 Republics, 2 Territories (27,1%)
Average	0,833–0,867	1 Autonomous District, 26 Regions, 10 Republics, 5 Territories (49,4%)
Below the average	0,800–0,833	1 Autonomous District, 3 Regions, 7 Republics, 2 Territories, 1 Federal city (16,5%)
Low	Less than 0,800	1 Republic (1,2%)

The data presented in table 2 show that only 5.8% of the constituent entities of the Russian Federation have the very high human development index. A sufficiently large number of subjects of the Russian Federation have a high level of development (27.1% of the total number of subjects). Most regions of the Russian Federation have an average level of development (49.4% of the total). The human development index is below average (in the range of 0.800-0.833) have 16.5% of the constituent entities of the Russian Federation.

Relatively high levels of human development in the Russian regions is achieved, as mentioned above, by the

availability of education, the presence of the regions with high life expectancy and the regions with higher revenues from the sale of fuel and energy resources.

It is noteworthy that there is no analysis of the relative costs of developing health care and education and job creation (for example, expenses and investments in relation to GDP) in the methods used. This fact deprives these methods of an adequate approach to assessing the conditions for the reproduction of human capital.

Thus, the study has revealed a number of shortcomings of the existing international methods that hinder the objective assessment of both the development of human capital and the conditions for its reproduction in Russia.

#### IV. CONCLUSION

The influence of globalization on the reproduction of human capital is examined. The main socio-economic transformational changes occurring as a result of the transition of globalization processes to a qualitatively new stage are identified: the formation of stable functioning economic systems based on the achievements of scientific and technical progress; development of interaction between countries through international organizations; intellectualization of economic activity; recognition of human capital as the main factor of production and the most important indicator of the level of development of countries.

Cross-country comparisons of the conditions and results of the reproduction of human capital are presented on the example of the USA, China and Russia. It is concluded that the more the states invest in social development the higher quality of human capital is received.

The place that Russia occupies in the world in the development of human capital has been determined based on the methods of international organizations. As the study shows Russia has a high rating. However, this does not reflect the real level of development of human capital in the country due to the features of the valuation methods used. They do not always take into account the conditions of reproduction of the human capital. Some of the features are forward-looking, while others are calculated only by experts. Moreover statistics are not always transparent and reliable.

The regions of the Russian Federation were grouped by the human development index and it was noted that high rates are ensured by the compulsory education and the duration of education, the steadily increasing life expectancy in a number of regions, as well as the significant income level in the primary sector of the economy.

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