Human capital investment strategy in Kyrgyzstan in the age of digitalization

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Abstract. In the transition to a digital economy, contributing to the further qualitative development of the country and its competitiveness, the determining and most important factor is human capital. The task of developing human capital should be formulated as the key state task of modernizing a number of modern sectors such as education, culture, health, and science, which should be viewed primarily as sectors of capitalization of the human potential of independent Kyrgyzstan. In the republic, based on the current legislation concerning education and the social sphere, it is difficult to conclude that there is a scientifically sound program for the development of human capital as a necessary element in the transition to the information society. Employment policy and migration policy, as factors determining the demand for human capital, do not take into account issues related to the dynamics of the level of human capital. There are no methods to determine the effectiveness of investment in the development of human capital in the country. As a result of the study, the mechanism of effective investment in human capital in the Kyrgyz Republic was developed, taking into account other sources of investment other than the state budget, which will allow to develop specific programs for the development of segments of the social sector in the Kyrgyz Republic on the basis of ongoing assessments. This, in turn, will solve the problem of uneven distribution of investment across them. Besides, the priority areas of investment in human capital, providing for the accelerated development of human capital in the country, highlighting the role of state, regional and municipal authorities in the effective management policy to attract and promote not only public but also private investment have been identified. Taking into account the necessary amount of investment per person to form an innovative personality in Kyrgyzstan, meeting the modern requirements of a competitive economy and proficient in new digital technologies, will further contribute to reducing the level of labor migration in the country.

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1 Introduction

Currently, it is possible to identify several areas of research that develop a system of views on the formation and use of productive capabilities of people in the process of creating an innovation economy, economic growth and increased competitiveness of enterprises. At the same time, despite the fact that the problem of human capital in the economic literature pays a lot of attention, some issues of theory and practice of economic efficiency of investment in human capital of the country, including indicators of effectiveness of investment in education, health, culture and recreation – are not studied enough. In the knowledge economy, people are considered income creators, not cost creators. Knowledge of human competence is a source of wealth creation. Human capital is valuable insofar as it contributes to a firm's competitive advantage by increasing efficiency and effectiveness, seizing opportunities, or neutralizing threats. These are the only assets that are valued when used. Human capital is the ability of employees to do the things that ultimately make the company work and succeed [1].

For Medard and others, human capital "is a set of competencies, knowledge, and personality, attributes embodied in the ability to perform labor to produce economic value". Human capital increases through education and experience. The use of the term in modern neoclassical economic literature dates back to an article by Mincer in 1958. Schultz then also contributed to the development of the subject. The most famous idea of "human capital" in economics is applied by Mincer and Becker of the Chicago School of Economics. From this point of view, human capital is analogous to "physical means of production", such as factories and machines: it is possible to invest in human capital (through education, training). Its results depend in part on the level of return on the human capital owned. Thus, human capital is a means of production, in which additional investment provides an additional output. Human capital is interchangeable, but not transferable, like land, labor, or fixed capital. Modern growth theory views human capital as an important factor in growth [2]. Thus, most authors agreed that human capital can be defined as "the value of knowledge and talent embodied in the people who make up an organization, representing its know-how, capabilities, knowledge, talent, competence, attitude, intellectual capacity, creativity, and others" [3].

The main factor in the existence and development of human capital is investment. Investments in human capital are any actions that increase a person's professional qualification and production abilities, and therefore the productivity and efficiency of his work. From an economic point of view, investments in human capital are expenditures in the social sphere to increase productivity in the future and contribute to the growth of future incomes of both individual bearers of capital and society as a whole [4].

According to Becker, investments in human capital reflect the qualitative parameters of a person, especially his labor resources (level of education, intellectual development, creativity, physical and mental health, system of motivation, values, etc.). The most important types of investments are: education, job training, migration, gaining knowledge, birth and upbringing of children [5].

Summarizing the study of investment in human capital, we believe that *investment in human capital* is a long-term investment of money, time and effort in the creative abilities of the individual, that is, the development of intellectual, physical and creative abilities and

capabilities of the individual. At the same time, they can be used in the future both for the benefit of the individual and for the industrial, economic and social development of the country.

2 Methods

It is important to note that human capital contributes to the well-being and sustainable development of any nation, so a thoughtful and progressive policy of human resource management and balanced investment in human capital is necessary. A precise methodology for assessing the effectiveness of investment in human capital is required [6].

Taking into account the need for evaluation methodology, after studying the problems of assessing the effectiveness of investments, we have developed and proposed the following new methodology for assessing the effectiveness of investments from the state budget in human capital in the country.

The proposed approach to research on the development of human capital will solve the question of the criterion of validity of the methodology for assessing the effectiveness of investment in human capital in the Kyrgyz Republic and the reliability of the results obtained with its help.

Our methodological analysis is based on the notion that human capital is the sum of education capital, health capital and cultural capital. [7].

Since the individual components of human capital have a non-linear mutual influence, only the integral efficiency of investment is evaluated. The total or other integral efficiency of investments in human capital is calculated as a weighted sum of certain factor indicators measured by the corresponding indicators. The numerical value of the efficiency of investment as a whole is taken as 100%. Further, to develop the methodology of calculation, a formula for a multivariate average, which determines the integral level of assessment of the effectiveness of investment in human capital, was compiled:

$$Z = \frac{\sum_{s=1}^{c} k_s \frac{x_s}{y_s}}{\sum_{s=1}^{c} k_s}, \quad (1)$$

where Z is the integral efficiency of investment in human capital of the country;

s = 1,..., c – summary indicators-components of human capital; c – number of summary indicators;

k_s – weighting coefficient (weighted score) of the s-th indicator;

x_s- numerical value of the s-th indicator (population coverage by facilities);

y_s – numerical value of the s-th indicator (state investments from the state budget);

$\frac{x_s}{y_s}$ – standardized (normalized) numerical value of the s-th parameter.

The same weighting coefficients of 1.0 are applied to all indicators, i.e., equal to the number of integrated indicators. In our case, there are three integrated indicators: the education system, the health system, and the cultural sector.

In order to bring private indicators for comparison, we used the procedure of standardization of their values, relating the numerical value of each indicator of coverage or access to facilities of education, health and culture to the values of indicators of investment from the state budget of the Kyrgyz Republic in these sectors.

3 Results and discussion

To assess the current and projected state of development of the social sector of the country, the efficiency of state budget expenditures on human capital development in Kyrgyzstan, it is necessary to determine the current integral levels of efficiency of investments in human capital in the Kyrgyz Republic as a whole and on its components separately.

The analysis showed:

1. The methodological approach to the study of investment in human capital in the country developed by us allows to solve the question of the criterion of validity of the methodology for assessing the effectiveness of investment in human capital in the Kyrgyz Republic and the reliability of the results obtained with its help. This method allows us to determine how effective the investments made from the budget of the country in the development of a particular component of human capital, taking into account the coverage of education, health and culture.

2. According to our developed methodology, the level of efficiency of investment in human capital in the Kyrgyz Republic averages 13.3% of 100% over 10 years. Based on the analysis of calculations to assess the effectiveness of investment in human capital for 2010-2019 in the Kyrgyz Republic, it is observed that the highest efficiency of investment in human capital was recorded in 2019 (17.0%). According to calculations, the lowest levels of efficiency of investments in human capital were observed in 2010 and 2011 (10.1%). Although the levels of efficiency of investments in human capital in the Kyrgyz Republic have generally increased over the past 10 years, the calculated integral levels are considered very low compared to the 100% value.

3. The very low level of effectiveness of investment in human capital in the Kyrgyz Republic is due to the following reasons: first, the low level of coverage by education and health services, the low percentage of visits of the population to cultural and recreational facilities, lack of educational, medical, cultural and recreational facilities in the regions, their absence or regional remoteness. Secondly, insufficient state budget funds for the development of educational, health, cultural and recreational institutions and the social sphere of the country as a whole. Thirdly, the lack of qualified teachers, doctors and medical personnel, as well as cultural workers due to low wages and the inability to work in remote areas and villages of the country. Fourthly, insufficient material and technical equipment of educational and health care institutions, lack of comfortable conditions for visiting cultural and recreational facilities. Fifthly, the low level of income of the population, which does not allow them to provide themselves with quality recreation, leisure and cultural enrichment.

4. Application of the above methodology of comprehensive assessment of both current and projected investment efficiency of human capital allows, in our opinion, to determine the priority components of human capital, in which it is necessary to invest. In addition, it can be used for both internal public and external private use.

5. To train an innovative person to meet today's requirements of the digital economy, you need to invest more than $40 000 in a person, not including study abroad. For parents to invest heavily in their children, the state must create favorable conditions for the population, i.e. provide social housing and discounted medical services, constantly improve the standard of living and quality of life, raise the salaries of civil servants to 25 000 soms per month. In addition, for the innovative development of the economy, the state needs to invest in science and education that meet the modern requirements of the digital economy. All this can help reduce the level of labor migration in the country.

6. Tax incentives are one of the main factors in the development of human capital. Of course, tax benefits cannot be regarded as the only or even the dominant factor in the development of human capital. For example, private investment in human capital plays an important role. Individual studies prove that such investments are more likely to be made by those who inherit large fortunes [8, 9]. There is also a situation called the "poverty trap", which negatively affects the formation and development of human capital. But this does not mean that poverty is inherited [10-12]. However, the level of parental income affects the amount of investment in education [13-15]. Thus, we can conclude that an individual country can fall into this "trap" and, in order to avoid falling into the "poverty trap" on a national scale, investment in education should be stimulated by tax methods and thus have a positive effect on the quality of human capital.

4 Conclusion

This article discusses how calculating the economic efficiency of investments in human capital will contribute to the development of human capital components in the Kyrgyz Republic.

To reduce the uneven development of the components of human capital, special programs for the development of education, health and culture in priority areas must be developed. In this regard, an important component of the effective mechanism of investment of the Kyrgyz Republic in human capital is also an assessment of investment efficiency of each component of human capital by regions of the Kyrgyz Republic.

At the present stage, we consider the following directions to increase investment in human capital:

- activation of investment in education capital by increasing investment in scientific projects and institutions of additional education. Since the development of knowledge-intensive industries in the country requires the highest professional and technical level of training of specialists;
- activation of investment in healthcare capital by attracting investment in the construction of public healthcare facilities in remote regions of the country, which will increase the population's access to healthcare services from a territorial perspective;
- Intensifying investment in cultural and recreational capital by attracting investment in cultural enrichment and recreational facilities;
- Improving the standard of living and quality of life, including the provision of affordable housing.

Ministries and agencies, regional, city and district state administrations should improve actions to attract and encourage non-state and foreign investment in human capital development in the country to achieve these goals.

In determining the tax burden on the workforce, it is necessary to consider the following factors that discredit the evaluation of human capital: the presence of differentiation in the level of wages and cash income, as well as the low mobility potential of workers. At the same time, tax incentives for educational institutions can have a positive impact on the development of human capital. In addition, the digital transformation and automation of many of the processes described above allow citizens to focus on high-level tasks related to creativity, scholarship, and self-development, and to handle routine and repetitive tasks most efficiently. Ultimately, our country must achieve a new trajectory of economic, cultural, technological, and social interaction in the production of goods and services. The result will be creative industries that include national heritage, visual and theatrical arts,

new audiovisual media, and functional design, as well as the expansion of other creative services.

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