



## FORMATION AND USE OF HUMAN CAPITAL IN THE NAMANGAN REGION

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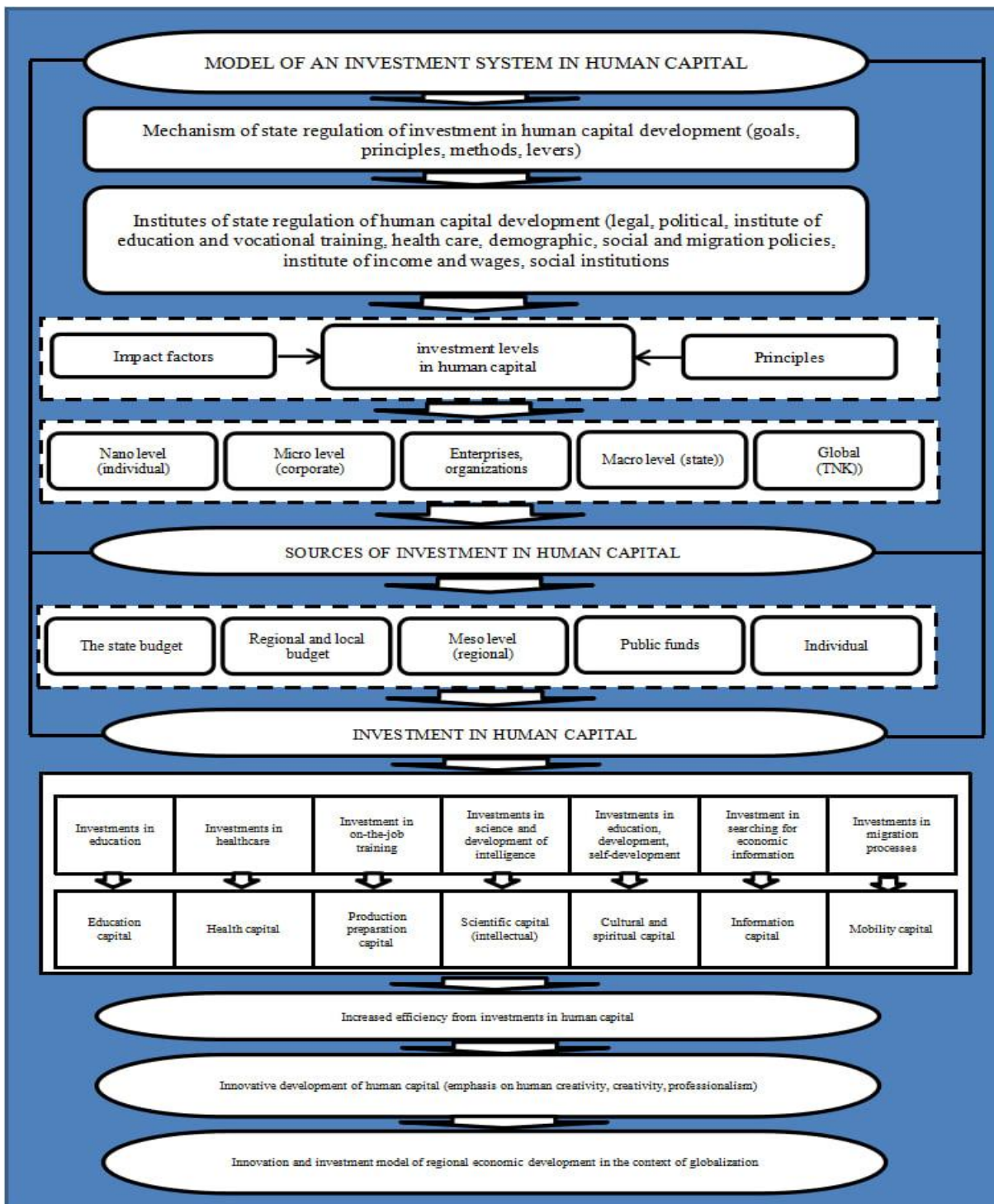
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**Annotation.** Evolutionary approaches of scientists to the study of the category “human capital” allow us to state that the formation of the theory of human capital is a process of accumulation of scientific views and theoretical and methodological concepts of the role and place of man in the economy based on the combination and synthesis of various scientific schools, trends, accumulation of ideas of scientists from different times . The formation of the theory occurred gradually under the influence of scientific and technological progress and changes in socio-economic social relations over time.

**Keywords.** Population, labor force, human capital, education, employment, ecology, productive capital, regional economy.

**Introduction.** The study established that modern concepts of human capital development place emphasis on man as the main resource and value of society's development. The main attention is paid to improving the quality of human capital, where the foundation is the introduction of lifelong learning and personal development, taking into account abilities and capabilities.

Classification of types of investments in human capital, which, unlike the existing ones, is supplemented with classification criteria taking into account the influence of globalization on human development, where the globalization level (human capital of transnational corporations) is highlighted. Below is a conceptual model of a system for investing in human development (fig. 1).



**Figure 1. Conceptual model of a system for investing in human capital development<sup>1</sup>.**

In the model discussed below, a new factor is added to the classic idea of the “Solow residual” - “human capital”, and as this factor is the ratio of expenditures allocated from the state budget to the social sector and the social sphere. protection of the population is taken into account in GDP. This method also allows us to assess which factor should be given more attention to ensure stable economic growth in the national economy and which factor has the greatest potential for efficiency.

So, we use the Solow balance to estimate the gross efficiency of economic growth factors. This method shows how physical capital, human capital and labor force affect overall economic growth.

Using human capital, the classical form of the Solow remainder takes the following form:

<sup>1</sup> developed by the author

$$TFP(t) = \frac{\dot{Y}}{Y} - \alpha_k(t) \frac{\Delta K(t)}{K(t)} - \beta_l(t) \frac{\Delta L(t)}{L(t)} - \gamma_h(t) \frac{\Delta H(t)}{H(t)}, \quad (1)$$

$$\alpha_k(t) + \beta_l(t) + \gamma_h(t) = 1$$

Here:  $TFP(t)$  - the residual term of the model or “Solow residual” ( $TFP(t)$  - total factor productivity  $\frac{\dot{Y}}{Y}$  - gross factor productivity),  $\frac{\dot{Y}}{Y}$  - annual growth rates of GDP,  $\frac{\Delta K(t)}{K(t)}$  - annual growth rates of capital,  $\frac{\Delta L(t)}{L(t)}$  - annual growth rates of labor,  $\frac{\Delta H(t)}{H(t)}$  - annual growth rates. human capital,  $\alpha_k(t)$  - the coefficient of physical capital in GDP,  $\beta_l(t)$  - the share of labor in GDP,  $\gamma_h(t)$  - the share of human capital in GDP.

The procedure for calculating the share of coefficients:

- write the equation as follows:

[(ratio of investment in fixed capital in period t to GDP) + (ratio of the labor factor in the economy in period t) + (ratio of expenditure on human capital in period t (ratio of the state budget to the social sector and spending on social protection in GDP) in GDP)] = 1 (Table 1).

**Table 1**  
**Results of accounting for the share of factors in Uzbekistan<sup>2</sup>**

years	GDP volume (billion soums)	Volume of investments in fixed assets (billion soums)	Ratio of investment in fixed capital to GDP (coefficient)	Ratio of expenditures on human capital (share of expenditures on the social sphere and social protection from the state budget to GDP) in GDP (coefficient)		Share of the labor factor in the economy's GDP (coefficient)
				%	coefficient	
1	2	3	4	5	6	7
			[(3 - column) / (2 - column)]		[(5 - column) / 100]	[1 - (4th column + 6th column)]
2017	317 476,4	72 155,2	0,238501	13,7	0,137	0,89
2018	426 641,0	124 231,3	0,304851	13,7	0,137	0,89
2019	532 712,5	195 927,3	0,370099	13,8	0,138	0,76
2020	605 514,9	210 195,1	0,348841	13,8	0,138	0,76
2021	738 425,20	239552,6	0,3244101	12,4	0,124	0,55
2022	896 617,90	266240	0,2969381	13,13	0,1313	0,57

The procedure for calculating the growth rate of expenses on “human capital”:

[growth rate of spending on human capital in period t = ratio of spending on human capital (share of the

<sup>2</sup> Author's calculations based on data from the State Statistics Committee of the Republic of Uzbekistan.

state budget for the social sector and spending on social protection in GDP) in GDP x annual growth rate of GDP] (table 2).

**Table 2**

**Results of accounting for growth rates of expenditure on human capital in Uzbekistan<sup>3</sup>**

years	Annual GDP growth rate (in percentages)	Ratio of expenditures on human capital (share of expenditures on the social sphere and social protection from the state budget to GDP) in GDP (coefficient)		Annual growth rate (in percent) of expenditure on human capital (ratio of state budget to expenditure on the social sector and social protection in GDP)
		%	коэф.	
1	2	3	4 [(3 - column) / 100]	5 [(2-column) • (4-column)]
2017	4,4	13,7	0,137	0,59
2018	5,4	13,7	0,137	0,74
2019	5,7	13,8	0,138	0,79
2020	5,5	13,8	0,138	0,76
2021	7,4	12,4	0,124	0,92
2022	5,7	13,13	0,1313	0,75

The procedure for calculating the gross efficiency of factors:

[gross factor efficiency in period t = GDP growth rate in period t - (ratio of physical capital to GDP in period t - growth rate of physical capital in period t) - (in period t - ratio of economy factor labor to GDP x labor factor growth rate in economics) - (the ratio of expenditures on human capital in period t (the ratio of expenditures on the social sector and social protection from the state budget to GDP) in GDP x the growth rate of expenditures on human capital in period t)] (table 3).

**Table 3**

**Results of accounting for gross factor efficiency in Uzbekistan<sup>4</sup>**

years	GDP growth rate (percentage)	Ratio of investment in fixed capital to GDP (coefficient)	Growth rate of investment in fixed capital (in percentages)	Share of the labor factor in the economy's GDP (coefficient)	Labor factor growth rate in the economy (percentage)	Ratio of human capital expenditures to GDP (coefficient)	Growth rate of human capital expenditure (percentage)	Gross factor productivity TFP (in percentages)
1	2	3	4	5	6	7	8	9 [2-(3·4)-(5·6) - (7·8)]
2017	4,5	0,24	29,9	0,89	4,01	0,137	0,59	-6,32
2018	5,4	0,30	38,1	0,89	4,81	0,137	0,74	-10,41
2019	5,7	0,37	38,1	0,76	4,33	0,138	0,79	-11,79

<sup>3</sup> Author's calculations based on data from the State Statistics Committee of the Republic of Uzbekistan.

<sup>4</sup> Author's calculations based on data from the State Statistics Committee of the Republic of Uzbekistan.

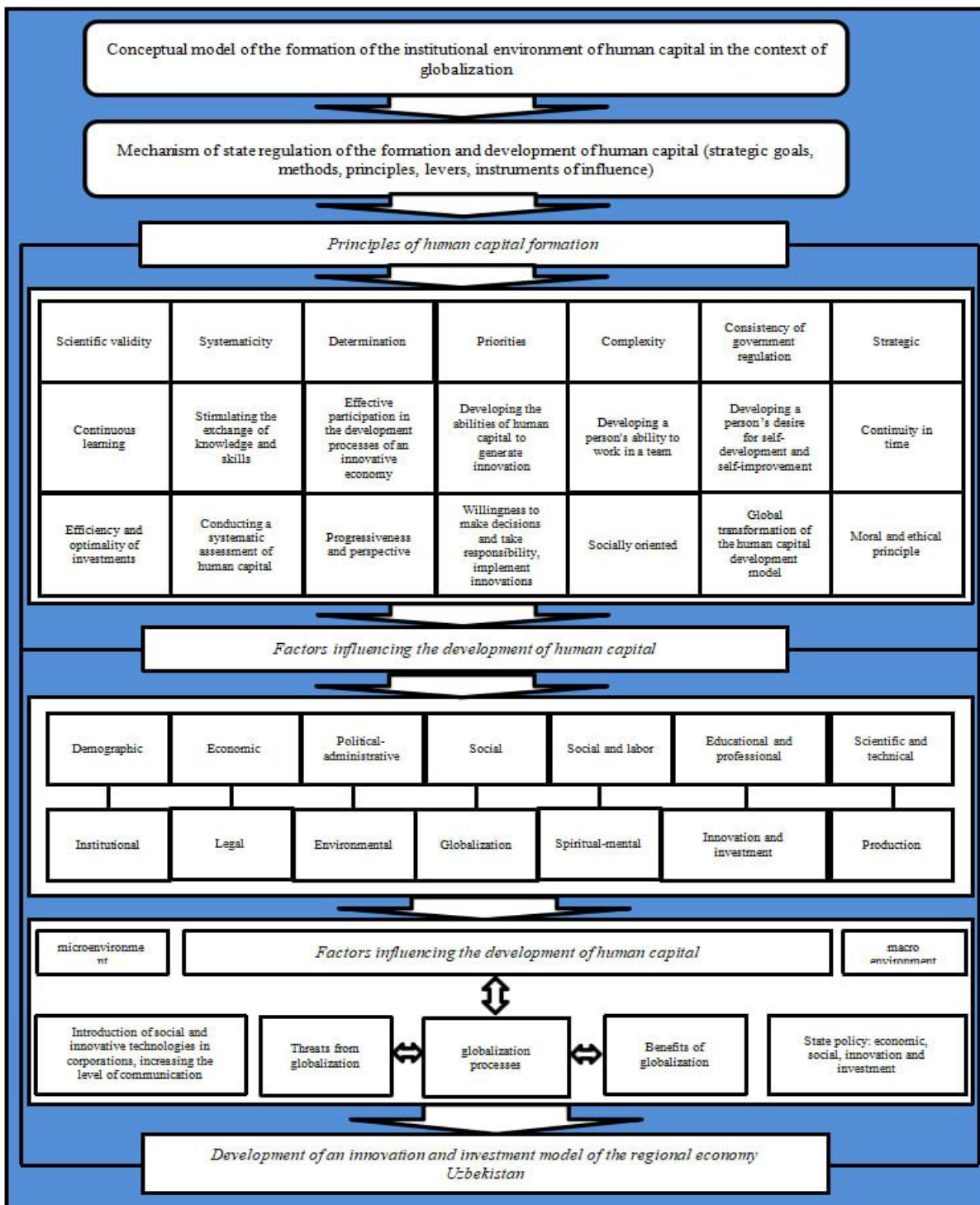
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2020	5,5	0,34	4,4	0,76	4,18	0,138	0,76	0,72
2021	7,4	0,32	5,2	0,55	4,07	0,124	0,92	3,38
2022	5,7	0,30	9,0	0,57	3,25	0,1313	0,75	1,05

Modern theories of economic growth show that investment in human capital is important for ensuring long-term economic growth. Among them, increasing the level of education and literacy in the country, as well as high-level investments in human capital will lead to rapid GDP growth. In addition, the higher the share of human capital in production, the faster the economy will grow.

According to statistical data, in recent years, our national economy has paid much attention to endogenous factors of economic growth. In particular, in the structure of expenditures of the state budget of Uzbekistan, the largest share is made up of expenditures on the social sphere and social support of the population.

According to the analysis, the average GDP growth rate in our national economy from 2000 to 2023 was 6.6%, of which physical capital accounted for 2.8%, total factor efficiency - 2.1%, labor factor - 1.6% and 0.089% correspond to the contribution of human capital. Thus, it can be seen that physical capital contributes more to economic growth than labor factor and human capital.

However, we cannot consider the contribution of human capital in the amount of 0.089% high for the sustainable growth of our national economy, in a situation where it has been proven that the influence of human capital and innovation on economic growth is high in world practice.



**Figure 2. Conceptual model of the formation of the institutional environment of human capital in the context of globalization<sup>5</sup>**

In particular, today in Uzbekistan there are great opportunities to ensure long-term economic growth, further increase investment potential and accelerate innovation processes; for this, it is desirable to further strengthen funding for the R&D sector and create free innovation zones like technology parks in Uzbekistan. higher education institutions with high potential.

Thus, we propose a conceptual model for the formation of the institutional environment of human capital in Uzbekistan, taking into account the regional influence of principles and factors (Fig. 2).

Next, we will make calculations of human capital in the Namangan region for five years, for 2019-2023 (Table 4)

<sup>5</sup> Developed by the author

**Table 4****Results of accounting for the share of factors in the Namangan region<sup>6</sup>**

years	GRP volume (billion soums)	Volume of investments in fixed assets (billion soums)	Ratio of investment in fixed assets to GRP (coefficient)	Ratio of expenditures on human capital (share of expenditures on the social sphere and social protection from the state budget to GRP) in GRP (coefficient)		Share of the labor factor in the GRP of the economy (coefficient)
				%	коэф.	
1	2	3	4	5	6	7
			$[(3 - \text{column}) / (2 - \text{column})]$		$[(5 - \text{column}) / 100]$	$[1 - (\text{4th column} + \text{6th column})]$
2018	13 129,0	8158,1	0,62	12,4*	0,124	0,256
2019	16 855,0	12084,9	0,72	10,5*	0,105	0,175
2020	19 420,9	12007,2	0,62	7,65*	0,076	0,3035
2021	23 867,4	12982,0	0,54	12,65*	0,126	0,3335
2022	29 045,6	14775,1	0,51	10,35 <sup>7</sup>	0,103	0,3865

Note: \* - author's calculations

The procedure for calculating the growth rate of expenses on “human capital”:

[growth rate of spending on human capital in period t = ratio of spending on human capital (share of the state budget for the social sector and spending on social protection in GRP) in GRP x annual growth rate of GDP] (Table 5).

**Table 5****Results of accounting for the growth rate of spending on human capital in the Namangan region<sup>8</sup>**

years	Annual GRP growth rate (in percentages)	Ratio of expenditures on human capital (share of expenditures on the social sphere and social protection from the state budget to GRP) in GRP (coefficient)		Annual growth rate (in percent) of expenditures on human capital (ratio of the state budget to expenditures on the social sector and social protection in GRP)
		%	coefficient	
1	2	3	4	5
			$[(3 - \text{column}) / 100]$	$[(2 - \text{column}) \cdot (4 - \text{column})]$
2018	5,0	12,4	0,12	0,6
2019	6,9	10,5	0,10	0,69
2020	4,5	7,65	0,08	0,36
2021	9,5	12,65	0,13	1,235
2022	7,2	10,35	0,10	0,72

<sup>6</sup> Author's calculations based on data from the State Statistics Committee of the Republic of Uzbekistan.

<sup>7</sup> Data budget for citizens 2022 Namangan region

<sup>8</sup> Author's calculations based on data from the State Statistics Committee of the Republic of Uzbekistan.

The procedure for calculating the gross efficiency of factors:

[gross efficiency of factors in period t = growth rate of GRP in period t - (ratio of physical capital to GRP in period t - growth rate of physical capital in period t) - (in period t - ratio of labor factor of the economy to GRP x growth rate of labor factor in the economy) - (ratio of expenditures on human capital in period t (ratio of expenditures on the social sector and social protection from the state budget to GRP) in GRP x growth rate of expenditures on human capital in period t)] (Table 6).

**Table 6**  
**Results of accounting for gross factor efficiency in Namangan region<sup>9</sup>**

years	GRP growth rate (in percent)	Ratio of investment in fixed assets to GRP (coefficient)	Growth rate of investment in fixed capital (in percentages)	Share of the labor factor in the GRP of the economy (coefficient)	Labor factor growth rate in the economy (percentage)	Ratio of expenses on human capital to GRP (coefficient)	Growth rate of human capital expenditure (percentage)	Gross factor productivity TFP (in percentages)
1	2	3	4	5	6	7	8	9 [2-(3·4)- (5·6) - (7·8)]
2018	5,0	0,62	3,7	0,26	1,3	0,12	0,6	2,296
2019	6,9	0,72	48	0,18	1,242	0,11	0,69	-27,95946
2020	4,5	0,62	-0,7	0,30	1,35	0,08	0,36	4,5002
2021	9,5	0,54	8,1	0,33	3,135	0,13	1,235	3,9309
2022	7,2	0,51	13,8	0,39	2,808	0,103	0,72	-1,00728

We believe that a number of problems of innovative development are of regional importance. Each region should have its own regional innovation program that stimulates the mass creation and development of innovations, as well as the development of regional bodies for coordinating and developing innovation activities in the regions.

**Conclusions.** The study showed that the calculation of the value of the integral indicator of the state's influence on the development of human capital in the context of globalization and the integral indicator of the innovative development of human capital, taking into account globalization trends, are within the values of indicators above the average level of human development. This indicates a more accelerated pace of use of human potential and the need to increase the role of the state in the efficient use of human capital and

<sup>9</sup> Author's calculations based on data from the State Statistics Committee of the Republic of Uzbekistan.

its further development, which will contribute to the growth of the competitiveness of the national economy.

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