

Statistical Analysis of Higher Education Services in Human Capital Investment

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Abstract: In this article, the interaction of participants of the market of educational services and educational institutions in the higher education system in increasing labor productivity and effective use of human capital, the role of highly educated personnel in the economy and investment in human capital the importance of increasing competitiveness and the formation of a competitive environment in the higher education system were studied.

Keywords: Educational services, educational services market, higher education system, competitiveness.

1. INTRODUCTION

Today, the development of human capital in the world is considered as an important factor in the formation of a new quality not only of the economy, but also of the entire society. According to the results of the research of the World Bank, 64% of growth depends on the quality of human capital in countries with transition economies, in the USA this figure is 76%, and in European countries it is 74.2%. At the same time, in this study, it was noted that every dollar spent on the development of human capital will benefit the country by 3-6 dollars in the future.

The positive changes taking place in the Republic of Uzbekistan and the socio-economic reforms being carried out make it necessary to create a higher education system that allows for the reconstruction of society and sustainable development in the future. Today, at all stages of socio-economic development, the main goal of human development is to increase the intellectual potential of society, the well-being of the population, and to create a socio-economic, cultural and ecological environment that provides the opportunity for sustainable development.

The market of educational services today consists of all the complex interconnected elements of the consumer market of the socio-economic system. It is the main generator of this system and, without a doubt, it is the need of the society for the training of qualified professional personnel, which will appear as a unique commodity in the labor market. Therefore, in the conditions of the transformation of the economy, it is of particular importance to research the importance and principles of increasing the competitiveness of higher education institutions in the market of educational services.

Adabiyotlar tahlili.

In the concept of human development, education is considered one of the main components, and it also plays a key role in solving important problems of society. High level development of education and science in human civilization is considered an important driving force of social, technical and economic development.

Until the 20th century, the service sector was not fully studied independently and was almost completely excluded from the scope of social reproduction. V. Petty and A. Smith were the founders of the classical school of political economy, moving away from the network approach characteristic of mercantilists and physiocrats and moving to consider the economy as a whole. Smith studied the field of material production and considered it only a source of wealth.

If at the beginning of the 20th century the main theories of economic growth were extensive models based on the principles laid down by J.M. Keynes, then in the next period they were represented by the models of Ye. Neo-Keynesian growth theories appeared, which aimed to ensure "stable dynamic equilibrium of the economy" on a long-term basis with full employment. Twentieth In the concept of human development, education is considered one of the main components, and it also plays a key role in solving important problems of society. High development of education and science in human civilization is an important driving force of social, technical and economic development.

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2. ANALYSIS AND RESULTS

52.7% of the total labor resources employed in the national economy of the Republic of Uzbekistan work in the service sector. The analysis of employment and labor productivity in the sectors of the national economy of the Republic of Uzbekistan shows that a difference can be observed between the growth of employment in the national economy and the growth of employment in its industrial, agricultural and service sectors. In 2010-2021, employment in industry increased by 120.2%, in agriculture by 110.8%, and in the service sector by 116.0%. If we compare the growth of labor productivity in the sectors of the economy, the highest growth in the sectors of the national economy is in the service sector by 320.0%, in the second place by industry by 209.8% and in the third place by agriculture by 155, It corresponds to 7%. The reason for the highest increase in labor productivity in the service sector is that the volume of services provided in the sector increased by 371.7% during the research period. This growth fully corresponds to the global trend of market economy development.

In the development of the service sector of the national economy, higher education services occupy one of the top ranks. Today, life itself demands a fundamental improvement of the services of the higher education system. The struggle for the "owners of intelligence" is intensifying between the states. In this sense, in an increasingly globalized world, the issue of quality personnel training is becoming the main factor determining the future of every country. Innovations and even the development of information and communication technologies at the scale of the national economy depend on the quality of higher education. Low-quality higher education does not develop the future, but makes it dependent on foreign innovations and technologies.

In the article, it is scientifically based that the higher education system is an important lever that increases the national wealth of the country and the competitiveness of the state. According to the experience of developed countries, 40-50% of the population contributes to sustainable economic growth, and in the knowledge economy, the contribution of highly educated people reaches 60%. Based on the authors' research, the development of the higher education system was divided into two periods. The first period is 2010-2016. During this period, the indicators of the development of higher education system services are decreasing (Fig. 1).

During this period, it can be observed that the number of students admitted to the higher education system on the basis of the budget and contract decreased and, accordingly, the share of higher education system services in gross services decreased from 4.5% in 2010 to 4.0% in 2016. The second period 2017-2021 is the period of growth of higher education system services. During this period, the number of higher education institutions in our republic increased sharply from 70 to 154.

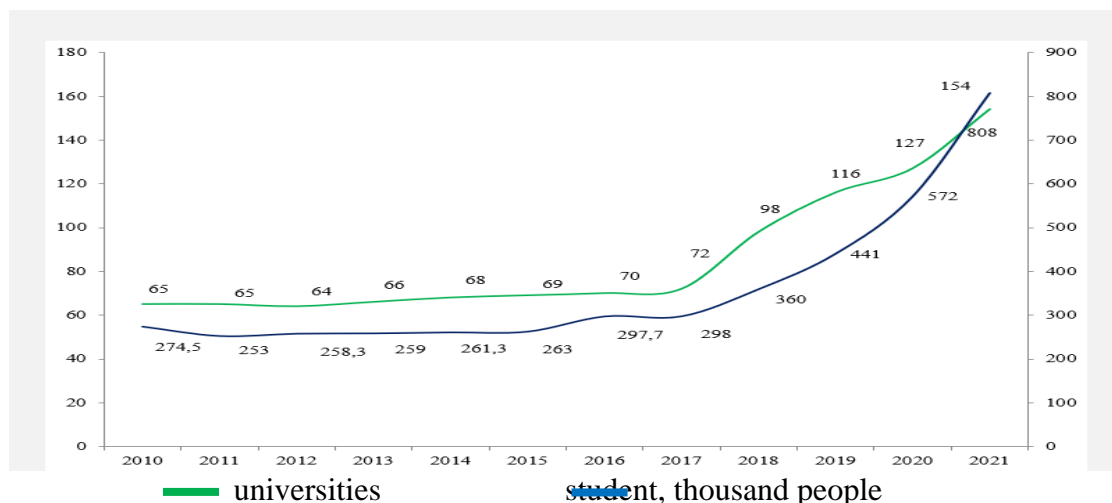


Figure 1. Dynamics of the number of higher education institutions in the Republic of Uzbekistan (2010-2021).

The number of students studying on the basis of the state budget increased from 110,900 to 119,600, and the number of students studying on the basis of payment contracts increased from 186,800 to 688,400. The share of higher education services in the share of gross services increased from 4.0% in 2016 to 6.1% by 2021. This means that the share of services of the higher education system, which is the main driver of the growth of the service sector in Uzbekistan, is steadily growing.

We used the exponential smoothing method to determine the share of higher education services in the future in the service sector and in the volume of the Republic's gross domestic product. It is necessary to note that, based on 22 years of statistical data, in determining the forecast of the volume of higher education services, the amount allocated from the state budget for higher education, the income from payment-contracts and the republic-wide, foreign grants and economic contracts We analyzed the effect of the amount of funds appropriated on the total higher education services in the form of a rank function. In this case, the general regression equation took the following form: Regressiya tenglamasi parametrlarining qiymatlari.

	коэффициент	ст. ошибка	t-статистика	p-значение	
const	58,9236	23,2269	2,537	0,0349	**
davlat_byud_his	0,971384	0,0138228	70,27	1,87e-012	***
tulov_shart_his	1,01015	0,00737192	137,0	9,00e-015	***
grantlar	0,952758	0,107368	8,874	2,06e-05	***

$$Y_{TX} = 58,92 + 0,97X_{davlat_byud_his} + 1,01X_{tulov_shart_his} + 0,95X_{grantlar}$$

It can be seen that, according to the data of the regression equation, if other factors remain unchanged, increasing the amount allocated from the state budget by one percent will increase the volume of gross higher education services by an average of 0.97 billion soums, payment- A one percent increase in the revenue from the contract will increase the volume of gross higher education services to an average of 1.01 billion soums, and a one percent increase in the amount of funds appropriated for foreign grants and economic contracts at the republic level will increase the total volume of higher education services by one percent. will lead to an average increase in the volume of services by 0.95 billion soums.

It can be seen that the amount allocated from the state budget to the volume of gross higher education services and the income from the payment contract have a greater impact on the increase in the volume of services in the gross education sector.

Table 1. Forecast indicators of the volume of higher education services

Years	Higher education services, billion soums	Amount allocated from the state budget for higher education, billion soums	Income from the payment contract, billion soums	Amount of funds appropriated for foreign grants and economic contracts at the republic level, billion soums
2024	22045,5	5733,6	15452,2	861,4
2025	26146,2	6276,1	18696,7	1174,5
2026	30795,1	6843,3	22353,3	1601,3
2027	36055,6	7435,2	26446,0	2183,3
2028	42005,6	8051,8	30998,5	2976,7
2029	48742,0	8693,0	36034,9	4058,6
2030	56388,7	9358,8	41579,1	5533,5

We determined the forecast values for the volume of higher education services until 2030 according to the developed model.

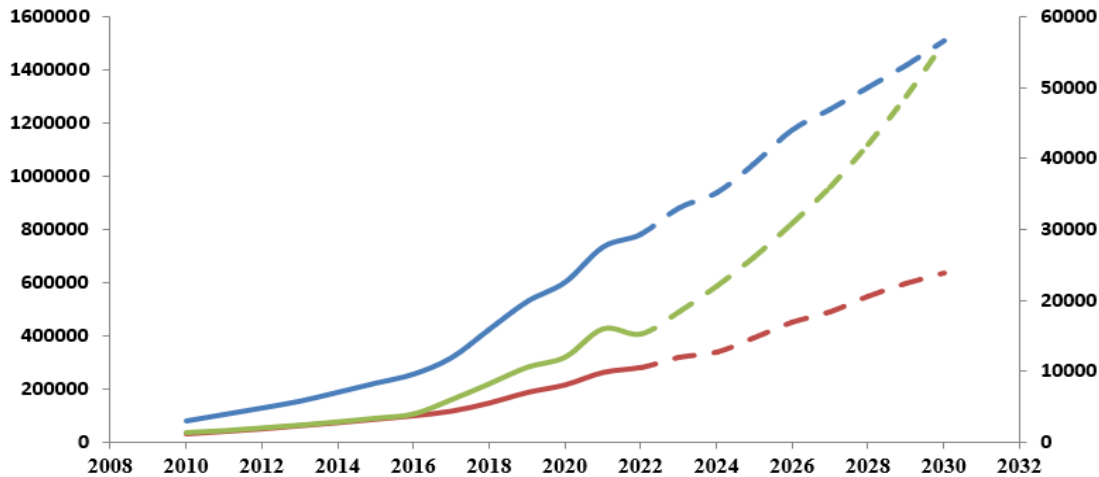


Figure 2. The volume of the country's GDP, total services and higher education services in 2024-2030

From the graph in Figure 2, it can be seen that the growth of higher education services is faster than the country's GDP. This, in turn, can be explained by the fact that the price and quality of higher education services are in line with the wishes of consumers in the increase in the demand for educational services.

In our article, basic, inertial and mobilization forecasts of the volume of higher education services until 2024-2030 were developed.

Table 2. Forecast indicators of higher education services, billion soums

Yillar	Bazic	Inersion	Mobilizashion
2024	21169,1	22058,2	22947,3
2025	25084,6	26160,9	27237,2
2026	29503,9	30812,2	32120,6
2027	34477,3	36075,9	37674,6
2028	40064,6	42029,5	43994,5
2029	46339,0	48770,7	51202,4
2030	53391,5	56423,1	59454,8

The indicators of the future period were forecast using the method of exponential leveling of the volume of higher education services in the republic. The forecast value of the inertial option showed that 2030 will increase by 342.2% compared to 2023. Based on the dynamics of changes in the basic forecast indicators of higher education services, the volume of services in higher education will increase by 323.2% in 2030 compared to 2023. According to the forecast indicator of the mobilization option, the volume of higher education services will reach 361.1% in 2030 compared to 2023.

3. SUMMARY.

In general, the society considers the higher education system as a means of professional self-awareness, as well as social, cultural and communicative development of the individual and the whole society. interprets it as an important social institution that provides a number of opportunities for its development.

Studies have shown that:

1. The development of state and private HEIs in the higher education system allows for the formation of a number of features of competitiveness in the market of educational services.
2. The characteristics of the provided services imply the formation of competitiveness depending on their quality, both for objective economic reasons and for the high social importance of the higher education sector.

3. The customers of educational services set requirements to the OTM regarding the quality, volume and content of the training of specific specialists in the form of various mutual relations by means of appropriate instruments, and determine their behavior and determine the choice of a competitive strategy.
4. The formation of the competitiveness of higher education institutions in the market of educational services is expressed in the introduction of certain methodological approaches to assess the competitiveness, and this implies the specific characteristics of this field.

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