

ECONOMIC MECHANISMS OF HUMAN CAPITAL FORMATION  
IN THE HIGHER EDUCATION SYSTEM

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**Annotatsiya:** Mazkur maqolada oliy ta'lim tizimida inson kapitalini shakllantirishga ta'sir etuvchi iqtisodiy mexanizmlar tahlil qilingan. Tadqiqotda viloyat xalq ta'limiga qilingan xarajatlari, bitiruvchilar soni va aholi jon boshiga real umumiy daromadlar asosiy ko'rsatkich sifatida tanlab olindi. Statistika ma'lumotlari asosida 2014–2024 yillar davri o'rganilib, ko'rsatkichlarning o'zaro bog'liqligi grafik va jadvaliy tahlil usullari yordamida tahlil qilindi. Natijalar ta'lim xarajatlari va bitiruvchilar soni o'rtasida bevosita bog'liqlik mavjudligini, aholi daromadlarining esa bu jarayonni qo'llab-quvvatlovchi tashqi omil sifatida doimiy o'sib borayotganini ko'rsatdi. Tadqiqotdan kelib chiqib, ta'lim xarajatlarini izchil va samarali oshirish, bitiruvchilarni mehnat bozoriga moslashtirish hamda aholi daromadlarini ta'lim imkoniyatlari bilan uyg'unlashtirish inson kapitalini rivojlantirishning muhim sharti sifatida belgilandi.

**Kalit so'zlar:** Inson kapitali, oliy ta'lim, iqtisodiy mexanizmlar, ta'lim xarajatlari, bitiruvchilar soni, aholi daromadlari, statistik tahlil, iqtisodiy rivojlanish.

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**Ключевые слова:** человеческий капитал, высшее образование, экономические механизмы, расходы на образование, количество выпускников, доходы населения, статистический анализ, экономическое развитие.

**Аннотация:** В данной статье проанализированы экономические механизмы, влияющие на формирование человеческого капитала в системе высшего образования. В качестве основных показателей в исследовании выбраны расходы областного бюджета на народное образование, количество выпускников и реальные совокупные доходы населения на душу. На основе статистических данных за 2014–2024 годы изучена взаимосвязь между показателями с применением графического и табличного анализа. Результаты показали наличие прямой зависимости между расходами на образование и количеством выпускников, а рост доходов населения выступает внешним фактором, устойчиво поддерживающим данный процесс. Исследование подтвердило, что последовательное и эффективное увеличение расходов на образование, адаптация выпускников к требованиям рынка труда и согласование доходов населения с возможностями получения образования являются важными условиями развития человеческого капитала.

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**Keywords:** human capital, higher education, economic mechanisms, education expenditures, number of graduates, household income, statistical analysis, economic development.

**Abstract:** This article analyzes the economic mechanisms influencing the formation of human capital in the higher education system. The study identifies regional education expenditures, the number of graduates, and per capita real income as the main indicators. Based on statistical data for the period 2014–2024,

the interrelation among these indicators was examined using graphical and tabular analysis methods. The results reveal a direct correlation between education expenditures and the number of graduates, while the steady growth of household income serves as an external factor supporting this process. The study concludes that consistent and efficient increases in education expenditures, the adaptation of graduates to labor market requirements, and the alignment of household income with educational opportunities are crucial conditions for the development of human capital.

### Introduction

In recent years, human capital has been recognized as the most important factor ensuring the sustainable economic development of countries. Global experience demonstrates that the main source of economic growth is not natural resources or means of production, but rather educated, highly skilled, and innovation-oriented personnel. Therefore, increasing investments in both higher and general education, enhancing the quantity and quality of graduates, and thoroughly studying the interrelation between household incomes and educational opportunities have become urgent tasks of the present time.

In the context of Uzbekistan, the volume of funds allocated to general and higher education has significantly increased in recent years. This situation necessitates an analysis of the efficiency of educational expenditures across regions, their role in shaping human capital, and their interrelation with household incomes. Specifically, expenditures on general education expand the quality and coverage of education, while the number of graduates reflects the quantitative indicator of new labor resources entering society. Per capita real household income, in turn, serves as the key socio-economic condition determining educational opportunities at the family level.

By identifying the interrelation among these factors, it becomes possible to gain a deeper understanding of the process of human capital formation, to evaluate



the underlying economic mechanisms, and to improve the effectiveness of policy decisions.

The purpose of the study is to analyze the economic relationship between regional education expenditures, the number of graduates, and per capita real income, to determine their role in the formation of human capital, and to develop scientifically grounded conclusions for their improvement.

The relevance of the study lies in the fact that the strategic programs adopted in Uzbekistan to enhance the quality of human capital (the New Uzbekistan Development Strategy for 2022–2026 and the Concept for the Development of Higher Education) are directly based on the effectiveness of investments directed toward education. Therefore, the three selected factors – education expenditures, the number of graduates, and household income – have been placed at the center of this research as real indicators of the process of human capital formation in the country.

### Literature Review

According to the theory of human capital, investments in education are considered a key driver of economic growth (Becker, 1964; Schultz, 1961). Subsequent studies have also emphasized the direct relationship between education expenditures and human capital formation. Hanushek and Woessmann (2015) highlight that not only the volume of resources but also their effective allocation is crucial. Pritchett (2001), however, argues that if the quality of education does not align with labor market requirements, investments may fail to deliver the expected outcomes.

Reports by OECD (2021) and UNESCO (2022) confirm the interrelation between education expenditures, the number of graduates, and household income. In the case of Uzbekistan, recent years have witnessed a notable increase in education spending, which has been closely linked to both the number of graduates and the growth of real household incomes.

## Research Methodology

To assess the process of human capital formation, three main indicators were selected: regional education expenditures (in billion soums), the number of graduates (in hundreds of individuals), and per capita real household income (in ten thousand soums). As the data source, official statistics of the State Committee of the Republic of Uzbekistan on Statistics for the period 2014–2024 were used.

The collected data were processed using Excel software, and the dynamics as well as the interrelations of the indicators were analyzed through column and line charts. Based on graphical analysis, the influence of education expenditures and household income on the number of graduates was visually illustrated. This approach makes it possible to identify the key trends in human capital formation and to draw scientifically grounded conclusions.

## Analysis and Results

**Table 1**

### Key indicators influencing human capital formation<sup>1</sup>

Years	Regional education expenditures (billion uzs)	Number of graduates (schools, colleges, and lyceums) (hundreds of persons)	Per capita real total income (ten thousand uzs)
2014	674.1	471.34	391.84
2015	746.1	481.45	438.74
2016	848.8	494.51	521.91
2017	984.9	494.06	619.65
2018	1331.9	504.93	691.27
2019	2131.2	845.99	833.11
2020	336.3	624.18	935.52
2021	724.6	491.25	113.72
2022	799.9	464.78	1354.18
2023	719.8	462.02	1490.73

<sup>1</sup> Author's elaboration

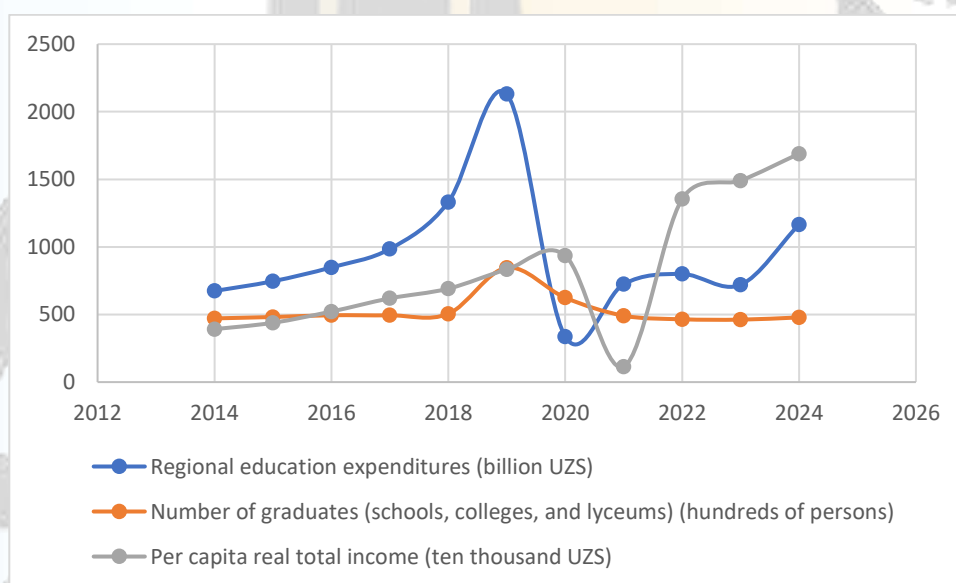
## PRINCIPAL ISSUES OF SCIENTIFIC RESEARCH AND MODERN EDUCATION

2024	1166.2	478.59	1689.39
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The data of the past decade demonstrate a significant interrelation among education expenditures, the number of graduates, and per capita real income. In the initial years, expenditures and the number of graduates displayed a relatively stable growth trend, while in 2019 a sharp increase in funding led to a notable rise in the number of graduates. This indicates the direct positive impact of investments in education on human capital formation.

In the following years, particularly during 2020–2023, the reduction of allocated funds resulted in a decline in the number of graduates. Nevertheless, per capita real income continued to grow steadily, maintaining a strong social demand for education.

In the most recent year, although education expenditures showed a renewed increase, the number of graduates remained below the peak level of 2019. At the same time, household incomes reached a record high, creating more favorable conditions for the development of human capital. Overall, there exists a proportional relationship between education expenditures and the number of graduates, while the consistent growth of household incomes emerges as a stable external factor supporting this process.





**Figure 1. Graphical representation of the key indicators influencing human capital formation<sup>2</sup>**

The line chart clearly illustrates how the three indicators have changed over time. In particular, the sharp fluctuations in the expenditure curve indicate instability in education financing. The sharp decline following the peak in 2019 demonstrates insufficient financial resilience of the system.

The number of graduates appears relatively stable as a line, but the distinct surge in 2019 shows that additional funding provided short-term effectiveness. However, in subsequent years, this indicator remained almost flat, which suggests that internal resources of the system were not fully utilized.

The income indicator is displayed as a steadily increasing line. The chart shows that the material well-being of the population exhibits a more consistent and stable growth trend compared to educational indicators. This implies that social demand for education is likely to remain high in the future.

Overall, the visual analysis reveals that while income has continued its stable upward trend, education expenditures and the number of graduates are more prone to fluctuations. This highlights the need for financing policies in education to be based on a consistent and long-term strategy in order to strengthen human capital formation.

## Conclusion and Recommendations

The conducted research demonstrates that there is a direct interrelation among regional education expenditures, the number of graduates, and per capita real income. An increase in funds allocated to education has led to a rise in the number of graduates even in the short term, while the steady growth of household incomes has created a socio-economic foundation for the development of human capital. At the same time, sharp fluctuations in financing have negatively affected the stability of educational outcomes, confirming the necessity of a consistent, long-term, and effective financial strategy.

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<sup>2</sup> Author's elaboration

The growth in the number of graduates depends not only on financial support but also on the quality of education, the competence of teachers, and the alignment of curricula with labor market requirements. Household income serves as an external factor stimulating the demand for education, and its sustainable growth supports the development of human capital.

### **It is recommended to:**

- Consistently increase education expenditures and introduce mechanisms for their efficient allocation;
- Focus not only on the volume of expenditures but also on their effectiveness, particularly by investing in infrastructure, digital technologies, and teacher training;
- Ensure the stable growth of graduate numbers by aligning educational programs with labor market demands;
- Expand opportunities for education through the development of educational loans, grants, and scholarship programs in line with income growth;
- Strengthen the participation of the private sector alongside the state in human capital formation by expanding public–private partnership mechanisms.

In general, the consistent and effective management of education expenditures, along with consideration of the interrelation between the number of graduates and household incomes, shows that the development of human capital can serve as a key driver of Uzbekistan's economic progress.

### **References**

1. Becker, G. S. (1964). Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education. University of Chicago Press.
2. Schultz, T. W. (1961). Investment in human capital. The American Economic Review, 51(1), 1–17.
3. Hanushek, E. A., & Woessmann, L. (2015). The Knowledge Capital of Nations: Education and the Economics of Growth. MIT Press.



4. Pritchett, L. (2001). Where has all the education gone? *The World Bank Economic Review*, 15(3), 367–391.
5. OECD. (2021). *Education at a Glance 2021: OECD Indicators*. OECD Publishing.
6. UNESCO. (2022). *Global Education Monitoring Report 2022: Inclusion and education*. UNESCO Publishing.
7. Barro, R. J. (2013). Education and economic growth. *Annals of Economics and Finance*, 14(2), 277–304.
8. Psacharopoulos, G., & Patrinos, H. A. (2018). Returns to investment in education: A decennial review of the global literature. *Education Economics*, 26(5), 445–458.
9. Romer, P. M. (1990). Endogenous technological change. *Journal of Political Economy*, 98(5), S71–S102.
10. Lucas, R. E. (1988). On the mechanics of economic development. *Journal of Monetary Economics*, 22(1), 3–42.
11. World Bank. (2020). *World Development Report 2020: Trading for Development in the Age of Global Value Chains*. Washington, DC: World Bank.
12. Asian Development Bank (ADB). (2021). *Key Indicators for Asia and the Pacific 2021*. ADB Publishing.
13. Becker, G. S. (1993). *Human Capital: A Theoretical and Empirical Analysis* (3rd ed.). University of Chicago Press.
14. UzStat (2024). The State Committee of the Republic of Uzbekistan on Statistics. (2014–2024). Official data. Tashkent.
15. Ministry of Higher Education, Science and Innovation of the Republic of Uzbekistan. (2023). *Concept of Higher Education Development 2030*. Tashkent.
16. G. A. J. F., & Suyunovich, M. X. (2025). The impact of the abolition of part-time education on the financial stability of private higher education

institutions (the case of Kashkadarya region). Digital Economy (Цифровая экономика), (11), 1195–1208.

17. Gafforov, J. (2025). The causes of unemployment in Kashkadarya region, its impact on society, solutions and forecast indicators of the level of unemployment in the region. Economic Development and Analysis, 2(5), 89–96.

18. Suyunovich, M. K. (2025). Using tables and graphs to display statistical data. Innovation in the Modern Education System, 5(48), 151–156.

