



STATISTICAL ASSESSMENT OF THE FORMATION AND DEVELOPMENT PATHS OF THE EDUCATIONAL SERVICES MARKET IN THE REGIONS

Astanayev Kulmakhammat Sanayevich,
Associate Professor, Department of Economics,
University of Economics and Pedagogy
as.kulmaxammat@mail.ru

Abstract

This study examines the formation and development trends of the educational services market in Uzbekistan for 2014–2024. Using statistical analysis of population, student enrollment, teaching staff, and wages, the research identifies key growth dynamics. Results show rapid expansion of student numbers, slower growth of teachers, and rising wages, which increased financial incentives but also intensified workload pressure. The worsening teacher–student ratio signals risks for education quality. The study concludes that sustainable market development requires expanding teaching capacity, digital solutions, and closer state–private cooperation.

Keywords: Educational services market, human capital, higher education, statistical analysis, time series, supply and demand, teacher–student ratio, economic efficiency, state policy, competitiveness.

Introduction

The changes taking place in the educational services market in the world over the past decade have become an important indicator of the socio-economic development of the country. The annual increase in the population, the high proportion of young people and their need for knowledge are sharply increasing the demand for educational services. At the same time, the offer of the education system is determined by the number of higher education institutions, the potential of professors and teachers, and the system of financial incentives.

The dynamics of the population, the number of students, the number of teachers, and the average salary in the education sector in the period 2014–2024 allow us to identify the main trends in market formation. In particular, the teacher-student ratio, financial



incentives for teachers, and the level of coverage of the education system play an important role in determining the quality of services.

The relevance of the study is that through a deep statistical analysis of the processes of formation of the educational services market, it is possible to determine its development rates, stability levels and promising directions. This will serve to assess the effectiveness of funds allocated to education in state policy, supply qualified personnel to the labor market and increase human capital in society.

The main objective of this study is to conduct a statistical analysis of indicators related to the educational services market for 2014–2024, identify their development trends and assess the overall economic and social significance of the education sector.

LITERATURE ANALYSIS

There are various scientific approaches in national and foreign literature to the study of the formation and development of the educational services market. Research conducted by Uzbek scientists has mainly covered the legal framework of the education system, its economic efficiency and its role in the formation of human capital. In particular, in the scientific works of A. Vahobov, Sh. Shermuhamedov and S. Abdurakhmonov, the education system is considered as a component of the economy, and its impact on social stability and the labor market is emphasized.

In the resolutions of the President of the Republic of Uzbekistan and state programs (for example, “Strategy of Actions for the Development of the Republic of Uzbekistan in 2017–2021”, “Concept for the Development of the Higher Education System until 2030”), the modernization of educational services, the development of the private sector and the strengthening of the competitive environment are identified as priority areas. This indicates the decisive importance of state policy in the formation of the educational market.

In foreign literature, the study of the educational services market is mainly associated with the theory of economic efficiency, competitiveness and human capital. For example, in G. Becker's "Human Capital Theory", investment in education is seen as the main driver of economic growth. Also, the economic views of J. Stiglitz and P. Samuelson emphasize that educational services are an important social investment in the long-term sustainable development of the state.



RESEARCH METHODOLOGY

This article is based on statistical data for 2014–2024 to study the formation and development trends of the educational services market. The research methodology is based on two main approaches. First, using dynamic series analysis, it is determined how indicators such as the number of population, the number of students, the number of teachers and the average salary in the education sector have changed over time. This allows us to assess their growth or decline rates, general development trends and the level of stability. Second, using the growth rate and index method, the annual change in each indicator is calculated in percentages. As a result, the dynamics of the development of the educational services market are quantitatively determined and the main directions of market formation are revealed (**Table 1**)

ANALYSIS AND RESULTS

Table 1 Key demographic and economic indicators of the educational services market¹

Years	Population (thousands of people)	Number of students (persons)	Number of teachers (persons)	Average monthly salary in the education sector (thousands of soums)
2018	3148.4	18391	1196	1183
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2020	3213.1	22452	1404	1573
2021	3280.4	27835	1455	1771
2022	3335.4	44222	1797	1994
2023	3408.3	57426	2031	2263
2024	3482.3	78397	2205	2554
2025	3560.6	82542	2240	2936

Four indicators collected for 2018–2025 — the number of population (thousand people), the number of students (persons), the number of teachers (persons) and the average monthly salary in the education sector (thousand soums) — clearly show the formation of the educational services market in quantitative terms. This data fully describes how rapidly the social demand for education is expanding, how much the system is provided with real capacity and resources, and how the level of material incentives for employees has changed. Therefore, they are of direct importance for political decisions, admission quotas, personnel policy and financial planning.

At the beginning of the ten-year period, the population was 2,895.3 thousand people, but by 2024 it reached 3,560.6 thousand people, that is, the demographic base

¹ muallif tomonidan ishlab chiqilgan



expanded by 665.3 thousand people. This expansion in the population structure means a natural increase in the need for education.

The most striking change in demand is observed in the number of students: from 12,667 in 2014 to 82,542 in 2024. The growth rate is 69,875, and especially in the period after 2018, there have been sharp jumps in successive years (18,391 in 2018, 44,222 in 2021, 78,397 in 2023). This reflects the expansion of admission opportunities, the emergence of new programs and HEIs, the increase in the share of the private sector, and the rise of higher education as an economic asset.

The supply side — the number of teachers — has also grown: from 984 in 2014 to 2,240 in 2024, or 1,256. However, this growth has been much slower than the huge increase in the number of students. As a result, the teacher-student ratio in the system has increased: in 2014, there were an average of 12.8 students per teacher, while in 2024 there were 36.8 students. This figure indicates increased pressure on quality control, an individual approach, fair assessment, and the allocation of time for scientific and methodological work; therefore, it is urgent to attract additional teaching staff, standardize the teaching load, and introduce digital aids.

There is also a positive trend on the financing side: the average monthly salary in education increased from 725 thousand soums in 2014 to 2,936 thousand soums in 2024, an increase of 2,211 thousand soums. The consistent increase observed after 2018 indicates an increase in state policy and measures to support the sector. This increase will serve to retain qualified personnel and attract new ones, but against the background of the above workload indicators, it is necessary to increase the number of staff units along with the increase in salaries.

2-jadval Ta'lim sohasidagi asosiy ko'rsatkichlarning o'sish sur'atlari (foiz hisobida)²

Years	Population (thousands of people)	Number of students (persons)	Number of teachers (persons)	Average monthly salary in the education sector (thousands of soums)
2018	102.09	111.05	106.26	107.61
2019	101.93	115.79	103.64	114.63
2020	102.06	122.08	117.39	132.97
2021	102.09	123.98	103.63	112.59
2022	101.68	158.87	123.51	112.59
2023	102.19	129.86	113.02	113.49
2024	102.17	136.52	108.57	112.86
2025	102.25	105.29	101.59	114.96

² Tadqiqotlar natijasida muallif tomonidan ishlab chiqilgan



The indicators of the formation of the educational services market in the period 2018–2025 show stable and significant trends in percentage terms. The population has grown by an average of about 102% annually, ensuring a continuous expansion of the demographic base. This indicates a natural increase in demand for educational services.

The growth rate in the number of students is much higher, and in 2014–2017 it was in the range of 105–111%, but since 2018 it has accelerated sharply, reaching 122% in 2019, 124% in 2020 and a record level of 158.9% in 2021. Although the pace has slowed down slightly in subsequent years, the high growth rate in the number of students continued in 2024. These results indicate that the country has expanded admission quotas, opened new higher education institutions, and increased the population's desire for higher education.

The number of teachers has also increased, but the pace has been much lower than the growth in the number of students. The growth was mainly high in 2019, with 117.4% and 123.5% in 2021, but in other years it has remained in the range of 103–108%. This indicates that the teacher-student ratio has deteriorated.

The average salary in the education sector has increased significantly. In 2014–2019, the growth rate was high, reaching 132.9% in 2019. In subsequent years, salary growth has stabilized somewhat, remaining in the range of 112–115%. This means that measures to financially encourage education workers have been consistently implemented.

CONCLUSIONS AND SUGGESTIONS

The statistical analysis conducted for 2018–2025 shows that the population is steadily growing, increasing the natural demand for educational services. The sharp increase in the number of students indicates the expansion of access to higher education and the increased need for knowledge among young people. At the same time, the number of teachers has also increased, but it has been slow compared to the growth in the number of students. As a result, it was observed that the teacher-student ratio has deteriorated, which may pose a threat to the quality of education. The average salary in the education sector has consistently increased, and significant positive changes have occurred in terms of material incentives for teachers. However, these changes also indicate that they are insufficient against the background of the increasing workload.



1. On this basis, the following proposals are put forward:
2. - it is advisable to widely implement digital technologies to improve the quality of education and reduce the workload of teachers;
3. - it is necessary to strengthen the social protection of teachers and improve their working conditions, along with increasing their material incentives;
4. - it is urgent to expand cooperation between the public and private sectors for the sustainable development of the educational services market.
5. In general, the demographic, economic and organizational processes observed in the educational services market require effective management of the system, rational use of resources and sustainable provision of quality indicators in the future.

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