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FORECAST INDICATORS OF GROSS REVENUE IN THE PRIVATE HIGHER EDUCATION SECTOR FOR 2027–2030

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Abstract. This article presents the results of a long-term macroeconomic forecast for the development of the private higher education sector in the Kashkadarya region for the period 2027–2030. Based on retrospective quarterly statistical data for the period 2022–2025, econometric models of trend extrapolation are constructed, accounting for seasonal fluctuations and structural institutional shifts. A scientifically substantiated forecast for the dynamics of student enrollment and the gross revenue of educational institutions is developed. It is demonstrated that by 2030, the total student population will exceed 102,000, and annual aggregate revenue will exceed UZS 1.1 trillion. Strategic recommendations are formulated for regional government bodies on the development of a mesoeconomic market regulation mechanism to minimize the risks of structural imbalances.

Keywords: private universities, macroeconomic forecast, gross revenue, student population, econometric modeling, extrapolation.

Аннотация. В статье представлены результаты долгосрочного макроэкономического прогноза развития сектора частного высшего образования в Кашкадарьинской области на период 2027–2030 годов. На основе ретроспективных квартальных статистических данных за 2022–2025 годы построены эконометрические модели трендовой экстраполяции с учётом сезонных колебаний и структурных институциональных изменений. Разработан научно обоснованный прогноз динамики студенческого контингента и валового дохода образовательных организаций. Показано, что к 2030 году общая численность студентов превысит 102 000 человек, а совокупный годовой доход — 1,1 трлн сумов. Сформулированы стратегические рекомендации для региональных органов управления по развитию мезоэкономического механизма регулирования рынка с целью минимизации рисков структурных дисбалансов.

Ключевые слова: частные университеты, макроэкономический прогноз, валовой доход, студенческий контингент, эконометрическое моделирование, экстраполяция.

INTRODUCTION

Long-term strategic planning and forecasting are fundamental elements of effective macroeconomic regulation of the social sphere. With the accelerated institutionalization of the non-state higher education sector in the Republic of Uzbekistan, the management of regional educational services markets is shifting from rapid response to proactive, scientifically based forecasting. Knowledge of future market capacity, student numbers, financial flows, and gross revenue is essential both for regional authorities in planning territorial infrastructure development and for private investors in optimizing investment budgets.

The objective of this study is to develop a medium-term forecast of key operating parameters for private higher education in the Kashkadarya region for the period 2027–2030. The relevance of this study is further supported by the fact that the sector has moved beyond its initial phase of rapid and weakly structured growth and is gradually entering a more mature stage of development. This creates a need for econometric extrapolation tools that can help assess future capacity, financial flows, and potential liquidity constraints more accurately.

LITERATURE REVIEW

This article focuses on long-term strategic planning, the diversification of funding sources, macroeconomic subsidy models, and promising financial directions for the development of the private higher education sector. The study of medium- and long-term prospects for the financial support of private higher education is important for ensuring the sustainability of the entire national innovation system. The development of progressive macroeconomic models for supporting private universities and the assessment of opportunities for diversifying

their revenues — including the establishment of endowment funds, grant autonomy, and government co-financing mechanisms — are examined within the framework of public choice theory, the knowledge economy, and mesoeconomic forecasting.

In European and American economic thought, the financial and economic prospects of higher education are considered through the lens of strategic cooperation among government, business, and universities, commonly known as the “Triple Helix” model. H. Etzkowitz made a fundamental contribution to forecasting long-term trends in the development of education markets, assessing the potential of alternative investment funds, and developing venture capital support models for private academic institutions. Issues related to econometric modelling of future contractual revenues and the introduction of long-term financial instruments, such as endowment funds and public academic vouchers, are examined in detail in the monographs of D. Bruce. In turn, the conceptual foundations for integrating private universities into regional technology clusters and assessing their impact on GDP growth are comprehensively presented in the works of P. Altbach.

Russian researchers focus on modelling promising public-private partnership instruments and assessing fiscal incentives capable of ensuring the financial stability of the private sector in the medium term. Professor S. A. Belyakov developed systematic approaches to strategic planning of financial flows and the assessment of multi-channel financing in educational ecosystems. The methodology of long-term budgeting, the elimination of cash flow gaps, and the macroeconomic risks associated with insufficient capitalization in the non-state academic sector are studied in detail in the works of Ya. I. Kuzminov. Practical aspects of optimizing investment budgets and tax incentives for reinvesting university net profits into digital infrastructure are discussed in the monographs of I. V. Vsevolodova.

The Uzbek school of economics is developing scientific and methodological foundations for long-term planning, the digitalization of financial flows, and the spatial transformation of the educational services market in line with the Development Strategy of New Uzbekistan. Academician K. Kh. Abdurakhmanov made a significant contribution to the macroeconomic analysis of human capital reproduction, forecasting the potential of regional labor markets, and shaping the long-term investment attractiveness of private higher education. The conceptual outlines of modernizing the economic support mechanism, introducing public-private partnerships under the auspices of khokimiyats, or local government bodies, and diversifying the obligations of entrepreneurial ecosystems in labor-abundant regions, including Kashkadarya region, are comprehensively examined in the studies of Professor Sh. Kh. Toshmatov. The mathematical verification of cash flow trends, modelling the extensive growth of student numbers, and capitalizing net assets in the service sector are reflected in the works of A. V. Vakhobov and B. T. Salimov.

RESEARCH METHODOLOGY

The dataset of the study is based on empirical quarterly data on the dynamics of gross revenue and student enrollment for the period from the fourth quarter of 2022 to the fourth quarter of 2025. The forecasting methodology relies on the compound annual growth rate (CAGR) forecasting model and polynomial extrapolation adjusted for the seasonality index of tuition contract payments. The mathematical model for calculating future values is expressed through the following functional relationships:

$$\text{Students}_{t+k} = \text{Students}_t \times (1 + g_s)^k \quad (1)$$

$$\text{Revenue}_{t+k} = \text{Revenue}_t \times (1 + g_r)^k \quad (2)$$

— the projected average annual growth rate of student enrollment is assumed to be **12%**, reflecting the gradual slowdown of the initial phase of large-scale expansion;

— the projected growth rate of cash inflows is assumed to be **15%**, taking into account inflation expectations and the indexation of tuition contract fees.

ANALYSIS AND RESULTS

The historical data presented in the table, together with the projected values of market development parameters for 2027–2030, are summarized and presented in Table 1.

Table 1

Actual (2022–2025) and projected (2027–2030) development indicators of private universities in Kashkadarya region¹

Period / Year	Gross revenue, thousand UZS	Number of students, persons	Data status
Q4 2022	40,173,103	5276	Actual baseline
Q1 2023	40,180,000	5277	Actual baseline
Q2 2023	40,190,000	6200	Actual baseline
Q3 2023	40,200,000	12500	Actual baseline
Q4 2023	57,032,062	18700	Actual baseline
Q1 2024	57,818,840	26100	Actual baseline
Q2 2024	13,393,926	26100	Actual baseline
Q3 2024	27,380,000	26100	Actual baseline
Q4 2024	287,543,356	26100	Actual baseline
Q1 2025	32,000,000	58186	Actual baseline
Q2 2025	35,000,000	58186	Actual baseline
Q3 2025	40,000,000	58186	Actual baseline
Q4 2025	44,3035,283	58186	Actual baseline
2027	72,7421,661	72988	Forecast
2028	836,534,911	81747	Forecast
2029	96,201,5147	91556	Forecast
2030	1106317419	102543	Forecast

This database is used to construct forecast macroeconomic models up to 2030. Based on the data presented in the table, the key indicators are analyzed from econometric and statistical perspectives, allowing us to trace deep structural and dynamic changes in the non-state higher education sector of Kashkadarya region from the end of 2022 to the end of 2025.

The economic analysis of the time series shows that large-scale enrollment growth is clearly reflected in the increase in student numbers. This indicates a strong upward trend in market demand. For example, in the fourth quarter of 2022, the number of students stood at 5,276. By the fourth quarter of 2023, the student population had more than tripled, reaching 18,700. In 2024, this figure stabilized at 26,100, while in 2025 a significant institutional increase occurred, with the number of students reaching 58,186 and remaining at that level throughout the year.

The capacity of regional non-state higher education institutions increased 11.02 times within three years. This empirically confirms the existence of substantial unmet demand for higher education at the meso level, which exceeded the existing capacity of public universities.

The dynamics of gross revenue reveal one of the key financial challenges for private universities: the uneven distribution of financial inflows across quarters. Revenue reaches its peak at the end of each year.

¹ Source: Developed by the author based on UzStat data.

In the fourth quarter of 2023, it amounted to UZS 57.03 billion; in the fourth quarter of 2024, it reached UZS 287.54 billion; and in the fourth quarter of 2025, it reached the highest level in the observed period, amounting to UZS 443.03 billion. At the same time, considerable declines were observed in the second and third quarters. For instance, in the second quarter of 2024, despite the number of students remaining unchanged at 26,100, revenue sharply decreased to UZS 13.39 billion, almost four times lower than in the previous quarter.

This represents a classic pattern of tuition contract payment scheduling. Students usually make tuition payments in large volumes at the beginning of the academic year and before the spring semester. In the second and third quarters, during the summer vacation and examination periods, cash inflows decline significantly, while the university's operating expenses — including faculty salaries, rent, and utility payments — remain largely fixed.

Econometric calculations indicate a stable and consistent expansion of market capacity. By 2030, the number of students in the non-state higher education sector of Kashkadarya region is projected to increase 1.76 times compared with 2025 and exceed the important benchmark of 102,543 students. At the same time, large-scale growth is expected in overall financial flows. Gross annual revenue is projected to exceed UZS 1.1 trillion, creating substantial tax potential for the local budget of the macro-region.

The discussion of the obtained results reveals deep structural changes emerging in the market. The projected increase in the number of students to more than 102,000 by 2030 is likely to place additional pressure on educational infrastructure. The current physical and technical capacity of private higher education institutions in Karshi may require expansion to serve such a large student body effectively. Therefore, investors should allocate in advance at least 40% of net profit to the capital construction of new campuses and dormitories.

From a macroeconomic perspective, reaching UZS 1.1 trillion in revenue may strengthen the role of private education as an independent and financially significant sector of the regional economy. Moreover, it will be capable of generating a multiplier effect for related industries, including services, catering, retail trade, and digital technologies.

CONCLUSION AND SUGGESTIONS

The macroeconomic forecast developed for 2027–2030 indicates the high likelihood of further large-scale expansion of private higher education in Kashkadarya region. To ensure balanced development, it is recommended that the forecast indicators obtained in this study be incorporated into the infrastructure development plan of Karshi city. In particular, this plan should provide for the allocation of land plots for new campuses of private higher education institutions.

The private education sector in Kashkadarya is becoming more financially significant from year to year; however, within the annual operating cycle, it remains relatively unstable. The high concentration of cash inflows in the fourth quarter suggests the need for university management to introduce financial engineering instruments. In particular, liquidity stabilization funds should be established to reduce cash flow gaps in the second and third quarters.

It is recommended that these proposals be implemented in the activities of non-state higher education institutions.

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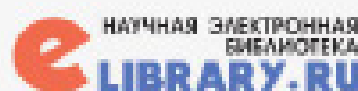
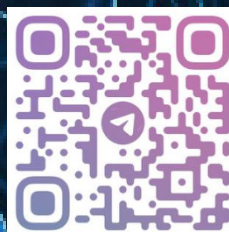
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