

EVALUATION OF INCOME, EXPENDITURE ACCOUNTING AND INTERNAL AUDIT IN HIGHER EDUCATION INSTITUTIONS BASED ON ECONOMETRIC MODELS

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In the current modern economic environment, ensuring the financial stability of higher education institutions, diversifying their sources of income, and effectively and purposefully managing expenditures have become matters of paramount importance. The accuracy of financial reporting, analysis of expenditures and revenues, and strengthening of internal audit activities in higher education institutions are key factors in improving the efficiency and accountability of these institutions. The use of econometric models in this context allows for the identification of relationships between financial indicators, analysis of the structure of expenditures, and the scientific assessment of how budgets are formed. Statistical and mathematical methods also play an important role in analyzing and evaluating the effectiveness of internal audit processes. In national higher education institutions, evaluating the interrelationship between income and expenditures is a key criterion for ensuring financial stability and effectively allocating resources, as well as for shaping future development strategies. These evaluation criteria help optimize growing expenditures in higher education, form resource allocation models, and support sound decision-making. The interdependence of factors affecting income and expenditures in higher education institutions highlights the need for comprehensive strategies in addressing financial challenges and in carrying out both institutional and individual financial operations.

Renowned international scholars have conducted theoretical scientific research and developed hypotheses based on econometric models to assess the interrelationship between income and expenditures in higher education institutions. These hypotheses have been empirically validated.

According to Robert K. Toutkoushian and Michael B. Paulsen, "Higher education institutions rely on a variety of income sources, including government funding, tuition fees, and private donations." The balance between these economic resources, as the authors emphasize, significantly affects the schematic system of expenditures and institutional priorities.

According to Kristinn Hermanns and others, "In regions such as Northern Ireland and Scotland, the dependence of the education system on public funding has a considerable impact on financial stability and regional economic expenditures." As a conclusion of their research, the authors determined the amount of external expenditure per student in higher education institutions. This, in turn, altered the impact of students on total expenditures, thereby playing

an important role in the economic contribution of higher education institutions. All variables used in the econometric model are presented in Table 1 below.

Table 1 Classification of Variables in the Econometric Model¹

№	Variable Name	Classification	Logarithmic Value
1	Net profit volume of higher education institutions	Dependent variable	<i>Lnnnet_profit_high_edu</i>
2	Volume of financial funds received from economic contracts in higher education	Independent variable	<i>lnfin_res_cont</i>
3	Volume of investments made in employees working in higher education	Independent variable	<i>lninvest_hig_edu_pers</i>
4	Inflation rate in the national economy	Independent variable	<i>lninfl_rate</i>
5	Volume of funds from student payment contracts	Independent variable	<i>lnstud_paym_agreem_fund</i>

In the development of the econometric study, the following hypotheses were formulated. The main (null) hypothesis (H_0) and the alternative hypothesis (H_1) were established. Structure of the hypothesis in the combined model: Null hypothesis (H_0): The volume of financial funds received from economic contracts in higher education, the volume of investments made in employees working in higher education, the level of inflation in the national economy, and the volume of funds from student payment contracts do not have a significant effect on the net profit of higher education institutions, and there is no significant relationship between these variables.

Alternative hypothesis (H_1): The volume of financial funds received from economic contracts in higher education, the volume of investments made in employees working in higher education, the level of inflation in the national economy, and the volume of funds from student payment contracts significantly affect the net profit of higher education institutions and have a strong interdependent effect.

¹ Independently developed by the author.

Table 2 Descriptive Statistical Indicators of the Net Profit Volume of Higher Education Institutions and Factors Affecting It ²

	<i>Lnnet_profit _high_edu</i>	<i>lnfin_res_cont</i>	<i>lninvest_hi g_ edu_pers</i>	<i>lninfl_rate</i>	<i>lnstud_paym _agreem_fund</i>
Mean	10.40746	9.163605	5.085908	2.730697	9.154552
Maximum	11.60956	11.60956	5.995853	3.516885	9.380108
Minimum	9.384353	7.760041	4.661115	2.189458	9.026958
Std. Dev	.7552823	.8575382	.3467883	.3825221	.1130016
Std. Err.	.1295298	.1470666	.0594737	.065602	.0193796
Skewness	.2803847	-.3476265	1.360026	.6638665	.908851
Kurtosis	1.563286	1.462854	3.984993	2.231501	2.243318
Observation	34	34	34	34	34

At the initial stage of the econometric study, descriptive statistical values were presented for the net profit volume of higher education institutions and the variables affecting it. According to Table 2, the descriptive statistical indicators of the net profit volume of higher education institutions and factors affecting it form a distribution based on the main economic values of the selected variables in the model. The table data show that all selected variables represent 34 observations according to the descriptive statistical values.

Standard deviation values indicate average variability, which suggests that although some higher education institutions perform better compared to others, the sector as a whole remains relatively stable. A kurtosis value of 1.56 indicates minimal extreme losses, suggesting that the financial profitability indicators of these higher education institutions are stable and positively distributed. Additionally, the average investment made in higher education staff amounts to 5.09, with a maximum value of 5.99, indicating institutions' commitment to investing in their scientific and administrative personnel. The volume of student payment contracts, according to the table, shows a high average of 9.15 with a low standard deviation of 0.11, meaning institutions consistently increase their financial capabilities through student payments, ensuring a stable income flow.

Assessing the significance of funds from student payment contracts in higher education, a 1% increase in payment volume leads to a 1.16% increase in net profit. This result suggests that this factor is an elastic variable in higher education institutions, highlighting the effectiveness of increasing income related to student enrollment and tuition fees. Accordingly, expanding access to educational institutions contributes to a significant improvement in their financial indicators, confirming the demand and trust in their educational services.

² Independently developed by the author.

In conclusion, higher education institutions can strengthen their income by focusing on strategic partnerships, investing in talent, and expanding educational opportunities. The study's results can serve to improve financial reporting, strengthen internal control systems, and enhance the quality of education in higher education institutions. Furthermore, the use of econometric models as a tool for economic analysis and evaluation provides a scientific basis for decision-making in this field. Econometric models have proven to be an important analytical tool in ensuring the effective use of financial resources and maintaining the balance between income and expenditures in higher education institutions.

The study findings indicate that the composition and dynamics of expenditures directly affect the overall financial stability of educational institutions. Institutions with a higher degree of income source diversification are considered more financially stable. Improving the internal audit system and enriching it with econometric analyses contribute to increasing accountability and transparency in higher education institutions. By evaluating internal audit results based on statistical and econometric indicators, it is possible to identify specific issues, eliminate shortcomings in budget planning, and improve the efficiency of financial management.

The application of econometric models in evaluating income, expenditure accounting, and internal audit processes in higher education institutions provides a robust framework for understanding the complex financial dynamics of these organizations. By analyzing the interrelationships between various financial indicators, such models enable institutions to identify key factors affecting their net profit, optimize resource allocation, and enhance financial stability. The study demonstrates that diversifying income sources, effectively managing expenditures, and strengthening internal audit systems are crucial for ensuring transparency, accountability, and sustainable growth in higher education institutions. Furthermore, econometric analysis facilitates evidence-based decision-making, allowing institutions to respond proactively to economic fluctuations such as inflation and changes in funding patterns. Ultimately, integrating econometric models into financial management practices empowers higher education institutions to improve their fiscal health, better serve their educational missions, and contribute more effectively to national economic development.