

ECONOSCITECH INTEGRATION

ISSUE
7

INTERNATIONAL SCIENTIFIC
ELECTRONIC JOURNAL



**TASHKENT STATE
UNIVERSITY OF ECONOMICS**



**American University
of Technology**

Powered by Arizona State University®

ISSN: 3060-5075



Acceptance of articles

PUBLISHED EVERY MONTHLY



ARTICLE CONTRIBUTORS

**PROFESSORS-TEACHERS, SPECIALISTS
AND SCIENTIFIC RESEARCHERS.**



Google
scholar

OpenAIRE

ISSN

INTERNATIONAL
STANDARD
SERIAL
NUMBER
DENMARK

CONTACT:



+998 94 3540880



<https://econoscitech-integration-journal.uz>



2026

**EDITOR-IN-CHIEF:**

Zufarova Nozima Gulamiddinovna
DSc., Dean of Tourism Faculty, TSUE

DEPUTY EDITOR-IN-CHIEF:

Makhmudov Nosir Makhmudovich
DSc., Prof., Academician

DEPUTY EDITOR-IN-CHIEF:

Suyunov Dilmurod Xolmurodovich
Doctor of Economics (DSc), Professor,

DEPUTY EDITOR-IN-CHIEF:

Allayarov Shamsiddin Amanullayevich
doctor of economics (DSc), professor

RESPONSIBLE SECRETARY:

Otaboyev Axmed Maxsudbek o'g'li
TSUE independent researcher

THE SCIENTIFIC-POPULAR
ELECTRONIC JOURNAL
"ECONOSCITECH-INTEGRATION"
HAS BEEN REGISTERED UNDER
THE NUMBER C-5669651 BY THE
AGENCY FOR INFORMATION AND
MASS COMMUNICATIONS (AOKA)
OF THE REPUBLIC OF UZBEKISTAN,
EFFECTIVE FROM OCTOBER 9, 2024.

In accordance with Resolution No. 384/6 dated April 10, 2026, issued by the Presidium of the Supreme Attestation Commission under the Ministry of Higher Education, Science and Innovation of the Republic of Uzbekistan, this journal is included in the list of recommended international scientific publications for publishing the primary research findings of doctoral dissertations in the field of Economic Sciences.

Partners: Tashkent State University of Economics / American University of Technology in Tashkent (AUT)

Electronic publication. Issue 7. 374 pages.
Approved for publication in July 2026.

Editorial Board Members:

Sharipov Kongratbay Avezimbetovich,
Doctor of Technical Sciences (DSc), Professor



Teshabayev To'liqin Zakirovich,
Doctor of Economic Sciences (DSc), Professor



Said Irandoust,
Doctor of Chemical Engineering Sciences,
Professor



Abdurakhmanova Gulnora Kalandarovna,
Doctor of Economic Sciences (DSc), Professor



Khudoykulov Sadirdin Karimovich,
Doctor of Economics, (DSc), Professor



Tokunaga Masahiro,
professor, PhD of Economics of the Faculty of
Business and Commerce



Debasis Das,
professor Department of Computer Science



Nitin Goje,
professor and Program Lead - Computer Science



Nargizakhon Shamshieva
Doctor of Economic Sciences, Professor



Rakhmonov Norim Razzakovich,
Doctor of Economic Sciences (DSc), Professor

Bayxonov Bahodirjon Tursunbayevich
Doctor of Science (DSc), Professor



Shomurodov Ravshan Tursunkulovich,
PhD, Associate Professor



Boymuratov Abduraxmat Djumayevich
Doctor of Philosophy (PhD) in Economics



Sharopova Nafosat Radjabovna
DSc, Associate Professor



Sultanova Kamila Mukhtorali Kizi
Master of Science

CONTENTS

RECONCEPTUALIZING HIGHER EDUCATION MARKETING IN THE ALGORITHMIC ERA: INSTITUTIONAL GENERATIVE AI AND MULTIDIMENSIONAL UNIVERSITY BRAND EQUITY	10
Nozima Zufarova	
DEVELOPMENT OF WAREHOUSE AND INVENTORY MANAGEMENT IN MANUFACTURING ENTERPRISES	16
Maxmidov Shirinboy Botirovich	
IMPROVING THE MECHANISM FOR ENHANCING THE POTENTIAL OF OIL AND GAS INDUSTRY ENTERPRISES IN UZBEKISTAN	25
Bekmuhamedova Malika Iskandarbekovna	
IMPROVING THE METHODOLOGY OF ARTIFICIAL INTELLIGENCE-BASED MARKETING DECISION-MAKING IN CONSTRUCTION MATERIALS MANUFACTURING ENTERPRISES	30
Uzakova Umida Ruzievna	
ORGANIZATIONAL AND ECONOMIC ASPECTS OF IMPROVING THE QUALITY OF DIGITAL SERVICES IN THE HIGHER EDUCATION SYSTEM	37
Berdiev Sunnatullo Alikulovich	
GLOBAL JUSTICE CODE AND GLOBAL JUSTICE INDEX: A CONCEPTUAL FRAMEWORK FOR GLOBAL GOVERNANCE AND SUSTAINABLE DEVELOPMENT	43
Alimov Nasimjon Hoshimovich	
IMPROVING THE MECHANISMS FOR MANAGING THE PROCESS OF DIVERSIFYING HOTEL SERVICES BASED ON INTERNATIONAL STANDARDS (USING THE FERGANA VALLEY AS AN EXAMPLE)	50
Sevarakhon Dehqonova Fatxitdin qizi	
DOES INVESTMENT SOURCE DIVERSIFICATION IMPROVE FARM PERFORMANCE? EVIDENCE FROM HORTICULTURAL PRODUCERS IN UZBEKISTAN	56
Jalilov Shohruh Zafar o'g'li	
SPECIFIC ASPECTS OF PREPARING AN AUDIT OPINION AND REPORT BASED ON ESG AUDIT RESULTS.....	65
Sayfullayev Mekhroj Sayfullayevich	
THE ROLE AND IMPORTANCE OF THE MULTIFACTOR DEVELOPMENT MODEL IN THE ECONOMIC DEVELOPMENT OF THE INDUSTRIAL SECTOR.....	70
Ne'matov Shokhruxbek Ma'murjon o'g'li	
IMPROVEMENT OF ACCOUNTING AND AUDITING OF ENVIRONMENTAL ACTIVITIES IN BUILDING MATERIALS INDUSTRY ENTERPRISES	75
Mirzaev Komiljon Abdullajonovich	
THEORETICAL EVOLUTION OF COMPETITIVENESS AND ISSUES OF THE TERRITORIAL COMPETITIVENESS OF SMALL BUSINESSES.....	82
Mamatkulova Kh. N.	
СОВРЕМЕННОЕ СОСТОЯНИЕ И АНАЛИЗ ЭКОНОМИЧЕСКОГО ПОТЕНЦИАЛА АО «УЗБЕКНЕФТЕГАЗ»	87
Бекмухамедова Малика Искандарбековна	
ОЦЕНКА ВЛИЯНИЯ ИННОВАЦИОННОЙ АКТИВНОСТИ НА РАЗВИТИЕ СОЦИАЛЬНОГО СЕКТОРА ЭКОНОМИКИ: ЭКОНОМЕТРИЧЕСКИЙ АНАЛИЗ.....	95
Холмуратов Жахонгир Салимбек ўғли	

FOREIGN EXPERIENCE IN SUPPORTING SMALL BUSINESS ENTITIES AND OPPORTUNITIES FOR ITS APPLICATION	104
Botir Baxtiyorovich Ganiyev	
STRATEGIES FOR THE DIVERSIFICATION OF INDUSTRIAL ENTERPRISES.....	108
Kalimullina Nargiza Vladimirovna	
CURRENT STATE AND CHALLENGES OF USING NATIONAL FASHION ELEMENTS IN UZBEKISTAN'S TOURISM MARKET	112
Yusupova Mokhinur Farkhod qizi	
IMPROVING THE ORGANIZATION, PLANNING, AND METHODOLOGICAL ASPECTS OF THE AUDIT OF BIOLOGICAL ASSETS	120
Akhmetova Salima Seytovna	
FACTORS DETERMINING THE DEVELOPMENT OF SMALL BUSINESS AND ENTREPRENEURSHIP	125
Imomnazarov Khurshid Ozodboevich	
SMART INCLUSIVE UNIVERSITY: A DIGITAL ECOSYSTEM MODEL FOR INCLUSIVE HIGHER EDUCATION.....	129
Kamola Makhkamova	
THEORETICAL FOUNDATIONS OF ORGANIZATIONAL AND ECONOMIC DEVELOPMENT OF THE FOOD INDUSTRY	137
Tleuov Nietulla Rakhmanovich	
SECTORAL ANALYSIS OF WATER RESOURCE USE EFFICIENCY UNDER CIRCULAR ECONOMY PRINCIPLES: EVIDENCE FROM UZBEKISTAN	143
Sotvoldiyeva Muslimaxon G'ayratjon qizi	
MECHANISMS FOR INCREASING THE IMPACT OF USING THE RESOURCES OF INTERNATIONAL FINANCIAL AND CREDIT INSTITUTIONS ON SUSTAINABLE ECONOMIC DEVELOPMENT	149
Qosimov Bobur Sobirovich	
IMPROVING ELECTRONIC SERVICES IN THE B2B AND B2G MARKET SEGMENTS OF THE REPUBLIC OF UZBEKISTAN	154
Otaboyev Nodirbek Oybek o'g'li	
MACROECONOMIC DETERMINANTS OF INDUSTRIAL DEVELOPMENT IN UZBEKISTAN: A TIME-SERIES ECONOMETRIC ANALYSIS AND SCENARIO FORECAST FOR 2026–2027	160
Khusniddin Nuriddin ugli Muydinov	
INSTITUTIONAL CHALLENGES AND DEVELOPMENT CONSTRAINTS IN SERVICE SECTOR MANAGEMENT	166
Dauletmuratov Adilbay Mirzabaevich	
ECONOMETRIC ANALYSIS OF THE FACTORS AFFECTING INTERBANK COMPETITION IN THE DIGITAL BANKING SERVICES MARKET	173
Karimov Odiljon Boqiyevich	
PRIORITY DIRECTIONS FOR ENHANCING FINANCIAL INCLUSION THROUGH INNOVATIVE BANKING SERVICES IN THE DIGITAL ECONOMY	185
Azlarova Aziza Axrorovna	
INTEGRATED INSTITUTIONAL MECHANISM OF FORMATION AND MANAGEMENT OF NATIONAL CRAFT CLUSTER.....	192
Yakhshilikov Sardor Rustam ugli	
IMPROVING THE METHODOLOGY OF PUBLIC AUDIT IN THE SYSTEM OF STATE FINANCIAL CONTROL.....	203
B. Sh. Mirzoyev	

PROSPECTS FOR THE DIGITAL TRANSFORMATION OF LOCAL GOVERNMENT AUTHORITIES	208
Achilova Firuza Kurbanovna	
Nurmurodov Zafarjon Nurmurod ugli	
A STUDY OF HOUSING STOCK MANAGEMENT ISSUES IN THE CONTEXT OF URBANIZATION BASED ON SWOT ANALYSIS.....	212
Mamanazarov Oybek Shomurodovich	
DETERMINING THE FORECAST PARAMETERS OF INDICATORS REPRESENTING AGRO-SERVICES AND THE POSSIBILITIES FOR POVERTY REDUCTION.....	217
Pardaev Mamayunus Karshibaevich	
Abilov Feruz Nematullaevich	
EVOLUTION OF PRODUCTION MANAGEMENT MODELS IN TEXTILE ENTERPRISES AND DIGITAL DIRECTIONS FOR IMPROVING EFFICIENCY.....	223
Kodirova Xurshida Ismoilovna	
DIRECTIONS FOR REDUCING POVERTY THROUGH THE USE OF DIGITAL TECHNOLOGIES IN THE SERVICE SECTOR	228
Saparov Murod Irgashovich	
FOREIGN EXPERIENCE IN HANDICRAFT MANAGEMENT AND OPPORTUNITIES FOR ITS APPLICATION IN UZBEKISTAN.....	233
Yakhshilikov Sardor Rustam Ugli	
REGIONAL INTERDEPENDENCIES AND CROSS-BORDER DYNAMICS: ASSESSING THE INFLUENCE OF NEIGHBOURING COUNTRIES ON THE DEVELOPMENT OF UZBEKISTAN'S TOURISM SECTOR	238
Khusniddin Egamnazarov	
THEORETICAL ISSUES OF DETERMINING THE QUALITY AND EFFICIENCY INDICATORS OF AGRO-SERVICES.....	246
Abilov Feruz Nematullaevich	
THE THREE-STEP INTERNAL QUALITY CONTROL MODEL FOR THE PREPARATION OF FINANCIAL STATEMENTS IN JOINT-STOCK COMPANIES IN ACCORDANCE WITH IFRS AND ITS IMPLEMENTATION MECHANISMS.....	251
Lutfullaev Sardorbek Utkur o'g'li	
CONCEPTUAL MODEL OF AN INTEGRATED ORGANIZATIONAL AND ECONOMIC MECHANISM FOR THE DEVELOPMENT OF RAILWAY INDUSTRIAL ENTERPRISES.....	260
Baymatov Atxam Axmadaliyevich	
INNOVATIVE MECHANISMS FOR THE STATISTICAL ASSESSMENT OF POPULATION QUALITY OF LIFE AND LIVING STANDARDS IN THE REPUBLIC OF UZBEKISTAN AND DIRECTIONS FOR THEIR IMPROVEMENT UNDER CONDITIONS OF SUSTAINABLE ECONOMIC GROWTH	266
Ostonaqulov Dilshod Ismatilla o'g'li	
THE IMPORTANCE OF CORPORATE CULTURE IN IMPROVING THE MANAGEMENT OF JOINT-STOCK COMPANIES	272
Nazokat Israilovna Akramova	
THE CURRENT STATE AND DEVELOPMENT PROSPECTS OF SPECIAL ECONOMIC ZONES IN UZBEKISTAN	280
Toshtemirova Malika Turg'un qizi	
IMPROVEMENT OF MECHANISMS FOR INCREASING THE EFFICIENCY OF FINANCIAL MANAGEMENT IN JOINT-STOCK COMPANIES.....	287
Abdubodiyev Muxammad Sharofitdinovich	
ANALYSIS OF THE CURRENT STATE AND ASSESSMENT MECHANISMS FOR THE DEVELOPMENT OF INTELLECTUAL AND TECHNOLOGICAL POTENTIAL IN THE KASHKADARYA REGION	294
Uralov Elshod Sirojiddin o'g'li	

IMPROVING MECHANISMS FOR CONTENT PLACEMENT AND MANAGEMENT BASED ON ARTIFICIAL INTELLIGENCE.....	303
Khujamatova Shakhlo Abdusalom qizi	
STATISTICAL MODEL FOR DETERMINING SAMPLE SIZE IN THE AUDIT OF BUDGETARY ORGANIZATIONS BASED ON AUDIT RISK, MATERIALITY, AND EXPECTED MISSTATEMENT	309
Jasur Bosimovich Muqumov	
ЭКСПЕРГОЭКОНОМИЧЕСКАЯ И ЭКСПЕРГОЭКОЛОГИЧЕСКАЯ ОЦЕНКА СОЛНЕЧНО-АККУМУЛЯТОРНОГО ХОЛОДОСНАБЖЕНИЯ ПРИ ДЛИТЕЛЬНОМ ХРАНЕНИИ ЯБЛОК	318
Мирзабаев Акрам Махкамovich	
Матчанов Нураддин Азадович	
Кулматов Хайрулло Хабибуллаевич	
Шодиев Бобур Тоир угли	
THE ESSENCE, SIGNIFICANCE, AND IMPORTANCE OF THE INTERCONNECTIVITY BETWEEN CENTRAL AND SOUTH ASIA, AND UZBEKISTAN'S ROLE IN DEEPENING REGIONAL COOPERATION WITH SOUTH ASIA	330
Yuldashev Anvar Ergashevich	
INTERNATIONAL EXPERIENCE IN STATE SUPPORT FOR FOOD INDUSTRY ENTERPRISES AND ITS ADAPTATION TO THE CONDITIONS OF UZBEKISTAN.....	341
Mamatojjeva Sarvinoz Dilshodjon qizi	
ОСОБЕННОСТИ ЭКОЛОГИЧЕСКОГО ТУРИЗМА ТАШКЕНТСКОЙ ОБЛАСТИ КАК ОСНОВЫ ЕЁ УСТОЙЧИВОГО ЭКОНОМИЧЕСКОГО РАЗВИТИЯ	346
Ахмедходжаев Равшан Темурович	
THE ROLE OF FOREIGN TRADE IN SHAPING SUSTAINABLE REGIONAL DEVELOPMENT: EVIDENCE FROM THE REGIONS OF UZBEKISTAN	352
Dilnoza Ochilova Ismoil qizi	
METHODOLOGICAL ASPECTS OF ACCOUNTING FOR CONSTRUCTION AND RENOVATION EXPENDITURES IN BUDGET ORGANIZATIONS: INTERNATIONAL PUBLIC SECTOR EXPERIENCE.....	364
Azizova Zilola Lochinovna	
ENDOGENOUS GROWTH FACTORS IN THE SUSTAINABLE ECONOMIC DEVELOPMENT OF THE REGIONS OF UZBEKISTAN: A CONCEPTUAL MODEL AND EMPIRICAL ASSESSMENT	369
Yuldashov Abdullo Abdugapparovich	
PROSPECTS FOR IMPLEMENTING STRATEGIC MANAGEMENT IN ENTERPRISES.....	377
Abdullaev Farkhod Ozodovich	
METHODOLOGICAL IMPROVEMENT OF LABOR MARKET STATISTICS IN UZBEKISTAN BASED ON INTERNATIONAL STATISTICAL STANDARDS	381
Abrayev Sherzod Xurromovich	
A COMPREHENSIVE METHODOLOGY FOR ASSESSING THE EFFICIENCY OF FINANCIAL INVESTMENTS AND CONDUCTING FORWARD-LOOKING ANALYSIS	391
Jumamurodov Tolibai Eldashbaevich	
CURRENT STATE OF INTERNAL AUDIT IN COMMERCIAL BANKS OF UZBEKISTAN: AN EMPIRICAL ANALYSIS OF SYSTEMIC CHALLENGES	396
Narziev Khayotjon Azamatovich	
VISUALIZATION OF RISKS IN PUBLIC FINANCIAL CONTROL: RISK MAP, RISK REGISTER AND ANALYSIS OF INTERZONAL MIGRATION	403
Gayimov Abdumalik Norbekovich	

ORGANISATIONAL AND METHODOLOGICAL MECHANISM FOR IMPLEMENTING CONTINUOUS AUDIT TOOLS IN THE INTERNAL AUDIT OF COMMERCIAL BANKS.....	408
Ismailov Azizbek Madaminovich	
IMPROVING THE RISK-BASED METHODOLOGY FOR PREPARING ANNUAL INTERNAL AUDIT PLANS IN THE PUBLIC SECTOR	415
Ismatillayev Baypolat Khushvaktovich	
ASSESSING THE MULTIDIMENSIONAL ECONOMIC POTENTIAL OF A TEXTILE ENTERPRISE: EVIDENCE FROM “YUSTEX” LLC (2021–2025)	424
Yuldashev Golibjon Turgunovich	
A DATA-DRIVEN APPROACH TO THE DIGITALIZATION OF PUBLIC PROCUREMENT AUDITING	431
Rajabov Shukhrat Ismayilovich	
CLASSIFICATION OF LIGHT INDUSTRY CHARACTERISTICS AND SECTOR-SPECIFIC RISKS FOR INTERNAL AUDIT PURPOSES	437
Tojjeva Shahlo Mahmatmurodovna	
THEORETICAL ASPECTS OF APPLYING ANALYTICAL PROCEDURES IN FINANCIAL STATEMENT AUDITS	445
Botirov Lazizbek Botirovich	
СИСТЕМА КЛЮЧЕВЫХ ПОКАЗАТЕЛЕЙ ЭФФЕКТИВНОСТИ ИННОВАЦИОННОГО РАЗВИТИЯ ЖЕЛЕЗНОДОРОЖНОГО ТРАНСПОРТА	451
Мурадов Бахром Акрамжанович	
DEVELOPING A MULTI-CRITERIA DECISIONMAKING MODEL FOR INVESTMENT PROJECT SELECTION IN TEXTILE ENTERPRISES	457
Jasurbek Pozilovich Qurbonov	
THE RELEVANCE OF INTRODUCING CENTRAL BANK DIGITAL CURRENCY.....	463
Yuldoshev Obbos Amonovich	
ASSESSING THE IMPACT OF MACROECONOMIC FACTORS ON LIQUIDITY RISK IN UZBEKISTAN'S COMMERCIAL BANKS: AN EMPIRICAL ANALYSIS USING THE SVAR MODEL	467
Rahmatilla Rahmonovich Tojiyev	
Nasiba Ganijon qizi Sattorova	
MECHANISMS FOR MANAGING ENTREPRENEURIAL ACTIVITIES IN THE PHYSICAL EDUCATION AND SPORTS SECTOR	477
Sherzod Dilshodovich Ismoilov	
ECONOMIC MECHANISMS FOR THE EFFICIENT UTILIZATION OF ALTERNATIVE ENERGY RESOURCES IN UZBEKISTAN'S ENERGY INDUSTRY AND THEIR IMPROVEMENT DIRECTIONS.....	485
Shukurov Khurshid Shakhobidinovich	
ECONOMETRIC ASSESSMENT OF RESOURCE USE EFFICIENCY IN THE AGRICULTURE OF THE REPUBLIC OF KARAKALPAKSTAN.....	493
Shixiyev Raxim Muhammedovich	
ЭКОНОМЕТРИЧЕСКОЕ МОДЕЛИРОВАНИЕ ЭФФЕКТИВНОСТИ АГРОПРОДОВОЛЬСТВЕННОЙ ЦЕПОЧКИ ПОСТАВОК РЕСПУБЛИКИ УЗБЕКИСТАН	500
Бекжанов Дилмурад Юлдашович	
ASSESSMENT OF INTERNAL AUDIT EFFICIENCY IN TEXTILE INDUSTRY ENTERPRISES AND DIGITAL TRANSFORMATION OF AUDIT	509
Babakulova Matluba Kurbannazarovna	
GLOBAL TRENDS IN THE DEVELOPMENT OF THE FINANCIAL PERFORMANCE OF E-COMMERCE PLATFORMS.....	514
Amankulova Mukhlisa Narsafar qizi	

TOURISM AS A BRIDGE: HOW TRAVEL FOSTERS INTERCULTURAL PEACE AND SOCIAL COHESION.....	521
Sirojiddinova Shahrizoda Davronovna	
DEVELOPING AN INTEGRATED INDICATOR SYSTEM FOR ASSESSING ARTIFICIAL INTELLIGENCE-BASED MANAGEMENT EFFICIENCY IN ENTERPRISES.....	527
Anvarova Lobarxon Sherzod qizi	
IMPROVING MANAGEMENT STRATEGIES FOR THE DEVELOPMENT OF CONSTRUCTION MATERIALS INDUSTRY ENTERPRISES.....	534
Ubaydullayev Mukhammadjon Abdusamad o'g'li	
A SYSTEM DYNAMICS MODEL FOR MANAGING THE STRATEGIC PERFORMANCE OF CONSTRUCTION ENTERPRISES IN A GREEN ECONOMY.....	541
Shakhlo Bakhtiyor kizi G'ulomova	
ЗНАЧЕНИЕ ГОСУДАРСТВЕННО-ЧАСТНОГО ПАРТНЕРСТВА В СОЦИАЛЬНО- ЭКОНОМИЧЕСКОМ РАЗВИТИИ ТЕРРИТОРИИ	548
Рахимов Джурабек Рахимович	
ANALYSIS OF THE SOCIO-ECONOMIC DEVELOPMENT INDICATORS AND POPULATION WELFARE STATUS OF SURKHANDARYA REGION	554
Turdikulova Moxira Maxmasharifovna	
LOW-DEBIT HYDROCARBON FIELDS AS A LOCAL POWER SOURCE FOR BITCOIN MINING IN KARAKALPAKSTAN.....	559
Kazbek Radjovich Jaksimuratov	
ASSESSMENT AND IMPROVEMENT OF DIGITAL BANKING SERVICE EFFICIENCY THROUGH THE INTEGRATION OF ARTIFICIAL INTELLIGENCE AND FINTECH TECHNOLOGIES IN COMMERCIAL BANKS OF UZBEKISTAN	567
Parpiyeva Ranokhon	
ANALYSIS OF CUSTOMS FEES AND THEIR DETERMINANTS USING ECONOMETRIC METHODS	573
Jurayev Jonibek Javlijevich	

ANALYSIS OF CUSTOMS FEES AND THEIR DETERMINANTS USING ECONOMETRIC METHODS

Jurayev Jonibek Javliyevich
Independent Researcher, Customs
Institute of the Customs Committee,
Tashkent, Uzbekistan
E-mail: jurayevjonibek1987@gmail.com

Abstract. An econometric analysis was conducted to examine customs fees collected by customs authorities and the factors affecting their formation. Based on the research findings, the key determinants of customs fees were identified, and scientific conclusions, practical recommendations, and policy proposals aimed at improving the mechanism for determining customs fees were developed.

Keywords: customs fees, customs privileges, foreign trade turnover, import volume, trend model, econometric models, dependent variable, independent variables.

Аннотация. Проведен эконометрический анализ таможенных сборов, взимаемых таможенными органами, а также факторов, оказывающих влияние на их формирование. По результатам исследования определены основные факторы, влияющие на величину таможенных сборов, и разработаны научные выводы, практические рекомендации и предложения, направленные на совершенствование механизма их формирования.

Ключевые слова: таможенные сборы, таможенные льготы, внешнеторговый оборот, объем импорта, трендовая модель, эконометрические модели, зависимая переменная, независимые переменные.

INTRODUCTION

Customs fees are considered one of the important economic instruments for increasing state budget revenues. Their essence is primarily determined by their role in regulating foreign economic activity, protecting the national market, and generating budget revenues. Through customs fees, an appropriate system of regulation and control is established in the implementation of foreign trade operations, thereby contributing to the protection of the country's economic interests.

According to the Decree of the President of the Republic of Uzbekistan No. **DP-21**, dated **16-02-2026**, **“On Additional Measures to Consistently Continue Reforms and Bring Them to a New Stage within the Framework of the Priority Directions of the Country's Development until 2030,”** a new stage of reforms was approved. Section II of this Decree, entitled **“Ensuring Public Welfare through Sustainable Economic Growth,”** identifies Goal 46, **“Ensuring Fiscal Stability and Effective Management of State Obligations,”** as one of the key priorities. In particular, the task of **ensuring that the share of customs revenues in gross domestic product remains at no less than 4.4 percent through the improvement of customs administration** was established [1].

In this context, analyzing the factors affecting the efficiency of customs fee revenues is highly relevant not only for optimizing economic policy but also for enhancing customs administration and ensuring its effective integration with modern international trade processes.

LITERATURE REVIEW

It should be noted that among the scholars of Uzbekistan, **B.Yu. Khodiev, T.Sh. Shodiev, and B.B. Berkinov** conducted significant research on the econometric modeling of economic development [3–4]. In addition, **Yu. Mukhamedov** investigated the factors and econometric models of sustainable socio-economic growth [5].

According to the young economist **O. Sarmanov**, “In Uzbekistan, the efficiency of customs revenue collection is mainly influenced by factors such as import volume, customs tariffs, and exchange rates.” In his opinion, the growth of import volume is one of the key factors contributing to the increase in customs revenue

collections. At the same time, the relationship between tariff rates and macroeconomic indicators is also of considerable importance. The author substantiates the necessity of applying scientific approaches based on econometric analysis to further improve the efficiency of the customs system [6].

In a study conducted by **O. Sarmanov** together with co-authors, the economic essence of customs privileges and preferences, their impact on foreign economic activity, and issues related to improving their effectiveness were analyzed. According to the authors, **customs privileges represent an important instrument for stimulating foreign trade, improving the investment climate, and supporting entrepreneurship. Furthermore, enhancing the targeted and efficient application of such privileges contributes to strengthening state budget revenues while promoting sustainable economic development** [7].

In research conducted by the local economist scholars **T. Pardaev** and **O. Sarmanov**, the processes of calculating and collecting customs fees were comprehensively analyzed, and the necessity of optimizing these processes in accordance with international standards was substantiated. According to the authors, **customs fees should be determined in proportion to the cost of the services provided, while the introduction of digital technologies contributes to improving transparency, efficiency, and the overall quality of customs administration** [8].

RESEARCH METHODOLOGY

The study employed scientific observation, tabular and graphical analysis, correlation analysis, regression analysis, statistical grouping, and comparative analysis to examine the determinants of customs fee revenues.

ANALYSIS AND RESULTS

The application of econometric methods to the study of customs fees collected for the state budget contributes to improving the quality of financial and economic analysis and to developing scientifically grounded recommendations for enhancing customs policy. Particular attention is devoted to the construction and analysis of an econometric model reflecting the dependence of customs fee revenues on key macroeconomic and foreign trade indicators.

An econometric analysis of the customs activity indicators of the Republic of Uzbekistan for the **2010–2025 years** was conducted. Based on the methodology of econometric modeling, the following factors were selected for the multi-factor econometric analysis. The dependent variable is the amount of customs fees collected, measured in million soums (**Y**). The independent variables include customs fee exemptions, measured in million soums (**X1**), foreign trade turnover, measured in million USD (**X2**), the number of cargo customs declarations (CCD), measured in units (**X3**), the number of foreign economic activity (FEA) participants, measured in units (**X4**), and the average exchange rate of foreign currencies (USD/UZS) (**X5**).

The **Ordinary Least Squares (OLS)** method was employed to construct econometric models based on the factors affecting customs fees (**Y**) collected in the Republic of Uzbekistan. To conduct the econometric analysis using this method, descriptive statistics were first calculated for the selected variables.

At the initial stage of the analysis, descriptive statistics were calculated for all variables included in the multi-factor econometric model. **Table 1** presents the descriptive statistical results for the variables incorporated into the model.

Table 1
Descriptive statistics results by factors¹

	Y	X1	X2	X3	X4	X5
Mean	703354.0	8213.175	29049.99	618979.5	24004.50	6239.750
Median	417182.4	2976.238	24102.56	536364.5	20361.00	4173.000
Maximum	2193273.0	27052.86	55411.51	1153536.0	41834.00	12940.00
Minimum	84317.73	433.7915	17242.66	279522.0	10557.00	1511.000
Std. Dev.	668324.7	9415.357	12007.83	298633.8	12467.58	4550.826
Skewness	1.037377	0.918770	0.970067	0.412417	0.282994	0.313550
Kurtosis	2.776646	2.493919	2.656219	1.715865	1.391927	1.344230
Jarque-Bera	2.902992	2.421780	2.588206	1.552901	1.937494	2.089884
Probability	0.234220	0.297932	0.274144	0.460036	0.379558	0.351712
Sum	11253663	131410.8	464799.8	9903672.0	384072.0	99836.00
Sum Sq. Dev.	6.70E+12	1.33E+09	2.16E+09	1.34E+12	2.33E+09	3.11E+08
Observations	16	16	16	16	16	16

¹ Author's development

The data presented in the table provide information on the mean, median, maximum, and minimum values of each variable included in the sample. For example, the mean value of the dependent variable, customs fees collected (**Y**), is **703,354.0**, the median is **417,182.4**, the maximum value is **2,193,273.0**, and the minimum value is **84,317.73**.

Before determining whether these factors should be included in the multi-factor econometric model, it is necessary to calculate the correlations among them. Correlation coefficients are used to identify and assess the relationships between the selected variables.

The correlation values between the selected factors are presented below. The correlation coefficient matrix obtained from the correlation analysis is provided in **Table 2**.

Table 2

Calculated correlation matrix between factors²

Covariance Analysis: Ordinary

Date: 04/27/26 Time: 10:36

Sample: 2010 2025

Included observations: 16

Correlation

t-Statistic

Probability	Y	X1	X ₂	X ₃	X ₄	X ₅
Y	1.000000					
X1	0.760193	1.000000				
	4.378008	-----				
	0.0006	-----				
X ₂	0.916836	0.680636	1.000000			
	9.26109	4.02445	-----			
	0.0000	0.0074	-----			
X ₃	0.906379	0.657976	0.552951	1.000000		
	9.24949	4.00946	2.83793	-----		
	0.0000	0.0081	0.0117	-----		
X ₄	0.872300	0.615703	0.608468	0.581099	1.000000	
	8.029242	3.315075	3.253003	3.029365	-----	
	0.0000	0.0039	0.0044	0.0072	-----	
X ₅	0.724616	0.582748	0.551033	0.664745	0.524327	1.000000
	6.463937	3.04402	2.98417	6.55199	2.612431	-----
	0.0021	0.0069	0.0084	0.0095	0.0176	-----

As shown in **Table 2**, the correlation matrix presents the strength of the relationships among the factors included in the multi-factor econometric model. The matrix contains the calculated values of two types of correlation coefficients:

Partial correlation coefficients, which reflect the relationships between the dependent variable (**Y**) and the independent variables (**X_i**).

Paired correlation coefficients, which reflect the relationships among the independent variables (**X_i**, **X_j**).

The correlation coefficient between collected customs fees (**Y**) and customs fee privileges (**X1**) is **0.7602**, indicating a strong positive relationship between these variables. The correlation coefficient between collected customs fees (**Y**) and foreign trade turnover (**X2**) is **0.9168**, demonstrating a very strong positive relationship. Similarly, the correlation coefficient between collected customs fees (**Y**) and the number of cargo customs declarations (**X3**) is **0.9064**, which also indicates a very strong positive relationship. The correlation coefficient between collected customs fees (**Y**) and the number of foreign economic activity (**FEA**) participants (**X4**) is **0.8723**, confirming a strong positive relationship. Furthermore, the correlation coefficient between collected

² Author's development

customs fees (**Y**) and the average exchange rate of foreign currencies (**X5**) is **0.7246**, indicating a strong positive relationship between these variables.

Table 2 also presents the paired correlation coefficients among the independent variables. These coefficients are used to identify the presence of multicollinearity among the explanatory variables. If the calculated paired correlation coefficient between independent variables (**X_i**, **X_j**) exceeds **0.7**, multicollinearity is considered to exist between those variables. As shown in **Table 2**, the calculated paired correlation coefficients among the factors affecting collected customs fees (**Y**) do not exceed **0.7**. Therefore, all selected variables satisfy the required condition for inclusion in the multi-factor econometric model.

In addition, **Table 2** includes the calculated **Student's t-statistics** and **probability (Prob.) values**, which are used to evaluate the statistical significance and reliability of the calculated correlation coefficients. These values are presented directly beneath each correlation coefficient. According to the adopted criterion, the calculated probability value should not exceed **0.05**. For example, the partial correlation coefficient between collected customs fees (**Y**) and foreign trade turnover (**X2**) is accompanied by its corresponding **t-statistic** and **Prob.** value. These results confirm a strong positive relationship between the two variables and demonstrate the statistical reliability of the calculated correlation coefficient at the **95% confidence level**.

The estimated multi-factor econometric model (2) indicates that, on average, an increase of **one million soums** in customs fee exemptions (**X1**) is associated with an average increase of **1.609 million soums** in collected customs fees (**Y**). Likewise, an average increase of **one million USD** in foreign trade turnover (**X2**) is associated with an average increase of **36.564 million soums** in collected customs fees (**Y**). An average increase of **one unit** in the number of cargo customs declarations (**X3**) corresponds to an average increase of **2.361 million soums** in collected customs fees (**Y**). Similarly, an average increase of **one unit** in the number of foreign economic activity (**FEA**) participants (**X4**) results in an average increase of **42.137 million soums** in collected customs fees (**Y**). Finally, an average increase of **one soum** in the average exchange rate of foreign currencies (**X5**) corresponds to an average increase of **6.157 million soums** in collected customs fees (**Y**).

The quality of the estimated multi-factor econometric model (2) was evaluated using the **coefficient of determination (R^2)**. This coefficient indicates the proportion of the variation in the dependent variable (**Y**) explained by the independent variables (**X_i**) included in the model. The calculated coefficient of determination (R^2 , presented in **Table 5**) is **0.9879**, indicating that **98.79%** of the variation in collected customs fees (**Y**) is explained by the variables included in the econometric model. The remaining **1.21% ($100.00 - 98.79$)** is attributable to factors not included in the model. These results demonstrate the high explanatory power and overall quality of the estimated multi-factor econometric model (2).

The statistical significance of the estimated parameters of the multi-factor econometric model (2) was evaluated using **Student's t-test**. The critical (tabular) value of the **t-test** is determined based on the selected significance level (α) and the corresponding degrees of freedom (**df**). In this analysis, **n** denotes the number of observations, while **m** represents the number of explanatory variables. At the selected significance level (α) and the corresponding degrees of freedom (**df**), the critical **t-value** is determined accordingly.

As shown in the data presented in **Table 5**, the calculated **Student's t-test** values for all variables included in the multi-factor econometric model are greater than the corresponding tabular values at the specified significance level. This confirms that all explanatory variables are statistically significant and reliable, thereby justifying their inclusion in the multi-factor econometric model.

The **Durbin-Watson (DW)** criterion was applied to examine the presence of autocorrelation in the residuals of the dependent variable (**Y**) for the estimated multi-factor econometric model (2) constructed for collected customs fees.

The calculated **DW** statistic was compared with the corresponding lower (**DWL**) and upper (**DWU**) critical values. If **DWcalc < DWL**, autocorrelation is considered to exist in the residuals. Conversely, if **DWcalc > DWU**, the residuals are considered free from autocorrelation. In this study, the lower critical value is **DWL = 0.62**, while the upper critical value is **DWU = 2.15**. Since the calculated statistic is **DWcalc = 2.2257**, the condition **DWcalc > DWU** is satisfied. Therefore, no autocorrelation is detected in the residuals of the dependent variable, namely collected customs fees (**Y**).

To forecast the dependent variable for future periods using the estimated multi-factor econometric model (2), the **Mean Absolute Percentage Error (MAPE)** coefficient was calculated. If the calculated **MAPE** value is less than **15.0%**, the model is considered suitable for forecasting the dependent variable. Otherwise, it is regarded as unsuitable for forecasting purposes. For the collected customs fees (**Y**) examined in this study, the calculated **MAPE** value is **2.1498% (Figure 1)**.

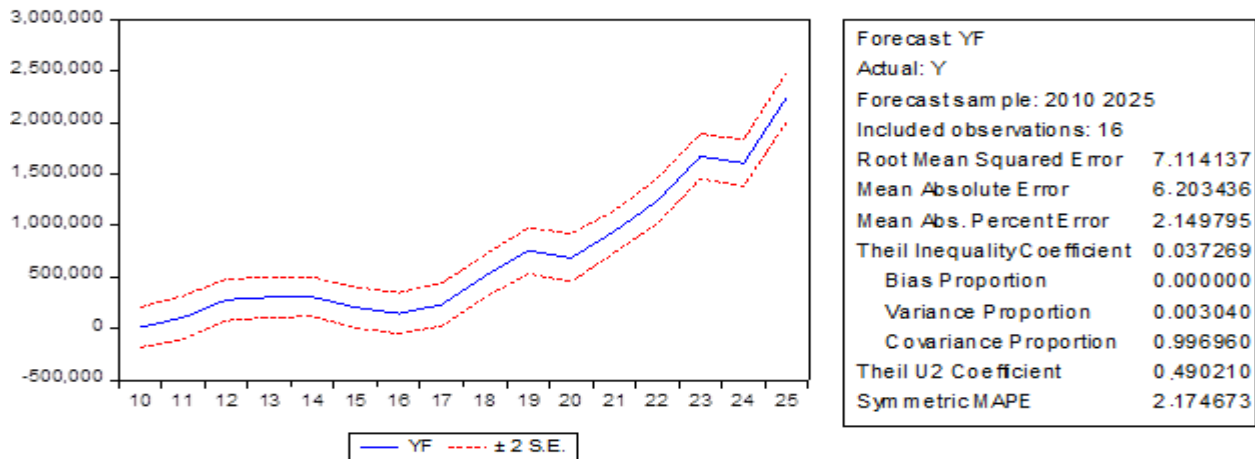


Figure 1. Indicators for using the calculated model in forecasting³

The calculated **MAPE** value (**2.1498%**) is substantially lower than the accepted threshold of **15.0%**. Therefore, the estimated multi-factor econometric model (2) demonstrates a high level of forecasting accuracy and can be effectively applied to forecast collected customs fees (**Y**).

Furthermore, the absence of autocorrelation in the residuals of the dependent variable confirms that the estimated multi-factor econometric model (2) is appropriate for forecasting purposes.

The relatively small values of the standard errors associated with the explanatory variables also indicate the high statistical reliability and robustness of the estimated multi-factor econometric model.

Based on the estimated multi-factor econometric model, forecast values of collected customs fees for future periods were obtained (**Figure 2**).

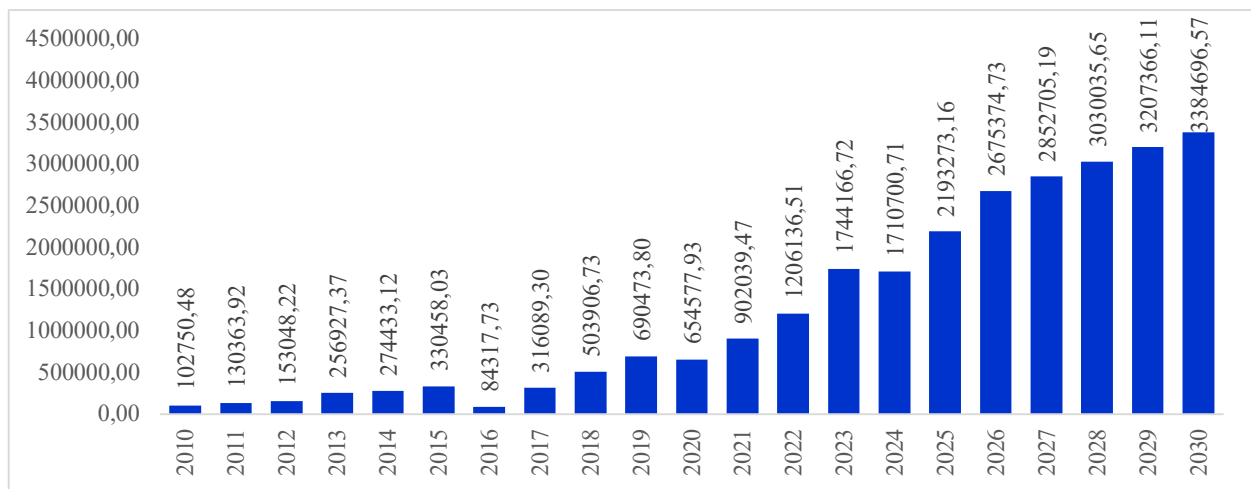


Figure 2. Dynamics of collected customs fees for 2010–2025 and forecast values for 2026–2030, in million soums⁴

The forecast results indicate that, by **2030**, collected customs fees are expected to increase by approximately **1.5 times**, or by about **1.2 trillion soums**, compared with the **2025** level.

CONCLUSION AND RECOMMENDATIONS

Based on the research findings, it was determined that customs fees are influenced by a number of important factors.

The results of the econometric analysis and the developed multi-factor econometric model indicate the following:

³ Author's development

⁴ Author's development

- if customs fee exemptions (**X1**) increase by an average of **one million soums**, collected customs fees (**Y**) are expected to increase by an average of **1.609 million soums**;
- if foreign trade turnover (**X2**) increases by an average of **one million USD**, collected customs fees (**Y**) are expected to increase by an average of **36.564 million soums**;
- an average increase of **one unit** in the number of cargo customs declarations (**CCD**) (**X3**) is associated with an average increase of **2.361 million soums** in collected customs fees (**Y**);
- an average increase of **one unit** in the number of foreign economic activity (**FEA**) participants (**X4**) is associated with an average increase of **42.137 million soums** in collected customs fees (**Y**).

In conclusion, the rational and efficient management of the factors influencing customs fees plays an important role in strengthening the country's economic security and ensuring the state's financial stability.

REFERENCES

1. Decree of the President of the Republic of Uzbekistan No. DP-21, dated 16-02-2026, *On Additional Measures to Consistently Continue Reforms and Bring Them to a New Stage within the Framework of the Priority Directions of the Country's Development until 2030*. Available at: <https://lex.uz/uz/docs/8052981> (accessed: 31-07-2026).
2. Guisan M.-C. An Econometric Model of Industry, Foreign Trade, and Economic Development in the Philippines, 1990–2006 // *Journal of International Trade Studies*. – 2008.
3. Xodiyev B.Yu., Shodiyev T.Sh., Berkinov B.B. *Ekonometrika: o'quv qo'llanma*. – Toshkent: TDIU, 2017. – 144 b.
4. Berkinov B.B. *Ekonometrika: o'quv qo'llanma*. – Toshkent: Fan va texnologiya, 2015. – 184 b.
5. Muxamedov Yu. Barqaror ijtimoiy-iqtisodiy o'sishning omillari va ekonometrik modellari (O'zbekiston Respublikasi misolida): iqtisod fanlari doktori (DSc) dissertatsiyasi. – Toshkent: TDIU, 2006.
6. Sarmanov O.A. O'zbekistonda bojxona to'lovlari tushumining samaradorligiga ta'sir etuvchi omillar tahlili // *Scientific Journal of Actuarial Finance and Accounting*. – 2025. – Vol. 5, No. 3. – P. 249–256.
7. Pardaev T.N., Abdixakimov A.S., Sarmanov O.A. Prospects for Increasing the Effectiveness of the Application of Privileges and Preferences from Customs Duties // *ACADEMICIA: An International Multidisciplinary Research Journal*. – 2021. – Vol. 11, No. 7. – P. 69–76.
8. Sarmanov O.A., Farxodov F.F., Pardaev T.N. Bojxona yig'imlarini hisoblash va undirishni takomillashtirish.
9. Sarmanov O.A. Customs Payments Received to the State Budget and Econometric Analysis of Factors Affecting It // *Asian Journal of Technology & Management Research (AJTMR)*. – 2024. – Vol. 14, Issue 1. – P. 163–168. – ISSN 2249-0892.

Proofreader: Xondamir Ismoilov
Layout and Designer: Hasan Maqsudov

2026. № 7

© When materials are reproduced, the ECONOSCITECH-INTEGRATION journal must be cited as the source. Authors are responsible for the accuracy of the information in materials and advertisements published in the journal. Editorial opinions may not always align with those of the authors. Submitted materials will not be returned to the editorial office.

To publish articles in this journal, you may submit articles, advertisements, stories, and other creative materials through the following links. Materials and advertisements are published on a paid basis.

You may subscribe to the journal at any time using the following details. Once subscribed, please send a screenshot or photo of your payment confirmation to our Telegram page @iqtisodiyot_77. Based on this, we will send the latest issue of the journal to your address each month.

Our address: Tashkent city, Yunusobod district, 19th block, House 17.

