

ISSUE 8



Powered by **Arizona State University**®



ISSN

INTERNATIONAL
STANDARD
SERIAL
NUMBER
DENMARK



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 8. 374 pages.
Approved for publication in August 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

EMPIRICAL ASSESSMENT OF INTERNAL AND EXTERNAL FACTORS AFFECTING THE COMPETITIVENESS OF THE FOOD INDUSTRY IN UZBEKISTAN	10
Urolova Sevara Bekhzod qizi	
INTEGRAL MANAGEMENT MODELS FOR IMPROVING THE CIRCULAR ECONOMY SYSTEM IN AGRICULTURE	16
Nazirova Zulfina Salimovna	
IMPROVING THE FINANCING MECHANISM OF LOCALIZATION IN THE METRO INDUSTRY AND ITS SCENARIO-BASED ASSESSMENT	21
Mansurov Khamrokul Ilkhomovich	
THEORETICAL FOUNDATIONS OF TEACHING METHODS IN HIGHER EDUCATION INSTITUTIONS.....	28
Berdiyeva Nilufar Axatovna	
INTERNATIONAL EXPERIENCE IN ROAD SECTOR FINANCING AND ROAD ASSET MANAGEMENT: IMPLICATIONS FOR SUSTAINABLE INFRASTRUCTURE DEVELOPMENT IN UZBEKISTAN.....	34
Feruz Shokirov	
ECONOMIC OPPORTUNITIES FOR POVERTY REDUCTION THROUGH SERVICE SECTOR DEVELOPMENT.....	42
Saparov Murod Irgashovich	
DIGITAL-INTEGRATION MODEL OF GREEN LENDING: INSTITUTIONAL GROUNDING IN COMMERCIAL BANK PRACTICE	46
Melikuzieva Dilrabo Mukhitdinovna	
CURRENT STATE OF ECONOMIC COOPERATION IN THE NAMANGAN REGION: LESSONS FROM INTERNATIONAL EXPERIENCE.....	52
Sattarov Ravshan Alimovich	
MODERN LEVELS OF INNOVATIVE DIGITAL BANKING SERVICES IN COMMERCIAL BANKS.....	60
D. M. Kallibekov	
EFFECTIVENESS OF USING AUTOMATED MANAGEMENT SYSTEMS IN RESOURCE CAPACITY MANAGEMENT IN TEXTILE INDUSTRY ENTERPRISES.....	64
Makhammadieva Izhobat Abdiganieva	
IMPROVING THE FINANCING MECHANISM OF INVESTMENT PROJECTS AT ENTERPRISES: AN ECONOMETRIC APPROACH	71
Almanov Khurshid Ismoilovich	
TEXTILE INDUSTRY PRODUCTION CAPACITY GROWTH FORECAST	75
Joraqulov Javakhir Asomiddin's Son	
FORECASTING THE MECHANISM FOR ASSESSING INVESTMENTS ATTRACTED TO SMALL BUSINESS ENTITIES IN THE ANDIJAN REGION THROUGH 2030	80
Jo'rayeva Moxinur Axmadjon qizi	

FORECASTING THE MECHANISM FOR ASSESSING INVESTMENTS ATTRACTED TO SMALL BUSINESS ENTITIES IN THE ANDIJAN REGION THROUGH 2030

Jo'rayeva Moxinur Axmadjon qizi

Independent Researcher, Andijan Branch of Kokand University

ORCID: 0009-0007-6635-0360

E-mail: jorayevamoxinur4@gmail.com

Abstract. An econometric forecast through 2030 is developed for the volume of investments attracted to small business entities in the Andijan region and the export potential generated by these entities. Based on data for 2010–2025, autoregressive integrated moving average (ARIMA) and vector autoregression (VAR) models are employed. The stationarity of the time series is tested using the Dickey–Fuller test, while causal relationships between the variables are assessed using the Granger causality test. Forecast results under pessimistic, baseline, and optimistic scenarios indicate a mismatch between the quantitative growth of investment and the efficiency of its conversion into exports. The findings also demonstrate that the baseline scenario represents the most economically appropriate trajectory.

Keywords: investment, export, forecasting, econometric model, ARIMA, vector autoregression, unit root test, Dickey–Fuller test, Granger causality test, Theil coefficient, scenario analysis, transmission coefficient, small business, Andijan region.

Аннотация. Разработан эконометрический прогноз до 2030 года объёма инвестиций, привлечённых субъектами малого бизнеса Андижанской области, и формируемого ими экспортного потенциала. На основе данных за 2010–2025 годы применены модели авторегрессии и интегрированного скользящего среднего (ARIMA), а также векторной авторегрессии (VAR). Стационарность временных рядов проверена с помощью теста Дики–Фуллера, а причинно-следственные связи между переменными оценены на основе теста причинности Грейнджера. Результаты прогнозирования по пессимистическому, базовому и оптимистическому сценариям выявили несоответствие между количественным ростом инвестиций и эффективностью их трансформации в экспорт. Установлено также, что с точки зрения экономической эффективности базовый сценарий является наиболее целесообразной траекторией развития.

Ключевые слова: инвестиции, экспорт, прогнозирование, эконометрическая модель, ARIMA, векторная авторегрессия, тест на единичный корень, тест Дики–Фуллера, тест причинности Грейнджера, коэффициент Тейла, сценарный анализ, коэффициент трансмиссии, малый бизнес, Андижанская область.

INTRODUCTION

The practical value of the mechanism for assessing investments attracted to small business entities is determined by its ability to provide reliable forecasts for the future. The Presidential Decree identifies the export orientation of regional economies and the enhancement of investment efficiency as priority objectives [1]. Therefore, investment processes must not only be analyzed but also forecast using scientifically grounded econometric methods, which is of significant scientific and practical importance. A reliable forecast makes it possible to plan investment policy for the future, allocate resources in advance, and assess potential risks, thereby improving the effectiveness of regional economic programs.

The purpose of this article is to forecast, using modern econometric models, the dynamics through 2030 of investments attracted to small business entities in the Andijan region and the export potential generated

by them, as well as to assess the efficiency of converting investment into exports under different scenarios. Investment volume and exports are taken as the principal factors affecting the assessment mechanism because they represent the initial and final links of the transmission chain.

LITERATURE REVIEW

The methodology for forecasting economic indicators on the basis of time series has been extensively developed in the international econometric literature. G.E.P. Box and G.M. Jenkins established the theoretical foundations of autoregressive integrated moving average models and proposed a systematic approach to time-series modeling¹. C.A. Sims developed the vector autoregression methodology, making it possible to model economic variables as a unified system². C.W.J. Granger proposed a criterion for identifying causal relationships between indicators³, while R.F. Engle and C.W.J. Granger established the theory of cointegration for studying long-run equilibrium relationships⁴. Regarding the attraction of investment to small businesses, S. Ghatak and T. Mancini-Griffoli examined financing under information asymmetry⁵, while N. Nordin and M. Ismail investigated investment efficiency under uncertainty⁶.

Among scholars from the Commonwealth of Independent States, L.Ye. Basovskiy developed the econometric foundations for the economic evaluation and analysis of investment⁷, while A.V. Zemsov developed the theoretical and methodological foundations for assessing the efficiency of investment projects⁸. Among Uzbek scholars, M.S. Qosimov⁹ and B.T. Bayxonov and co-authors described modern methods for analyzing investment projects¹⁰, while D. G'ofurov studied the assessment of the effectiveness of tax incentives for small businesses¹¹. Existing studies provide a substantial theoretical and methodological foundation for further developing scenario-based econometric forecasting of investment attracted to small businesses and export potential at the regional level, as well as for assessing the transmission efficiency between them. This article contributes to the further development of research in this area.

In the methodology of econometric modeling, D. Rasulev, Sh. Nurullayeva, N. Ro'zmetova, and M. Muminova¹² divided the modeling process into the stages of specification, identification, and verification and described the correlation-regression analysis method. In his 2022 textbook, U.A. Otajonov¹³ presented pairwise and multivariate econometric analysis, time series, and the stages of constructing applied econometric models, while R.X. Alimov, A.A. Almuradov, and S.O. Xomidov¹⁴ systematically described the principal stages of econometric modeling—including model specification, parameter estimation, and methods for testing model adequacy—in their textbook. These sources constitute the methodological basis of the four-stage econometric analysis applied in this study.

RESEARCH METHODOLOGY

The study was conducted using official statistical data on small business entities in the Andijan region for 2010–2025. The information base consisted of official statistics on investment inflows and export volumes of small business entities in the Andijan region during 2010–2025. Forecasting was performed in four stages. First, the stationarity of the series was tested using the augmented Dickey–Fuller (ADF) test. Second,

- 1 Box G.E.P., Jenkins G.M., Reinsel G.C., Ljung G.M. *Time Series Analysis: Forecasting and Control*. 5th ed. – Hoboken: John Wiley & Sons, 2015. – 712 p.
- 2 Sims C.A. *Macroeconomics and Reality* // *Econometrica*. – 1980. – Vol. 48, № 1. – P. 1–48.
- 3 Granger C.W.J. *Investigating Causal Relations by Econometric Models and Cross-spectral Methods* // *Econometrica*. – 1969. – Vol. 37, № 3. – P. 424–438.
- 4 Engle R.F., Granger C.W.J. *Co-integration and Error Correction: Representation, Estimation, and Testing* // *Econometrica*. – 1987. – Vol. 55, № 2. – P. 251–276.
- 5 Ghatak S., Mancini-Griffoli T. *Information Asymmetry, Credit Rationing, and the Financing of SME Investments* // *Journal of Corporate Finance*. – 2020. – Vol. 62. – P. 101–118.
- 6 Nordin N., Ismail M. *Investment efficiency and resource allocation in MSMEs under uncertainty* // *Advanced International Journal of Business, Entrepreneurship and SMEs*. – 2024. – Vol. 6(20). – P. 112–128.
- 7 Басовский Л.Е. *Экономический анализ (эконометрика, управление затратами, инвестиции): монография*. – М.: ИНФРА-М, 2019. – 315 с.
- 8 Земцов А.В. *Теоретико-методологические основы оценки эффективности инвестиционных проектов* // *Финансовая аналитика: проблемы и решения*. – 2016. – Т. 8, № 14. – С. 32–45.
- 9 Qosimov M.S. *Investitsiya loyihalari tahlili: darslik*. – Toshkent: Iqtisodiyot, 2021. – 194 b.
- 10 Bayxonov B.T., Bustonov M.M., Maxmudov M.F. *Investitsiya loyihalari tahlili: darslik*. – Toshkent: Turon xalqaro universiteti, 2021. – 560 b.
- 11 G'ofurov D. *Kichik biznes uchun soliq imtiyozlarining samaradorligini baholash* // *Ilg'or iqtisodiyot va pedagogik texnologiyalar*. – 2025. – № 2(5). – B. 191–200.
- 12 Rasulev D., Nurullayeva Sh., Ro'zmetova N., Muminova M. *Ekonometrika asoslari. O'quv qo'llanma*. — T.: "Iqtisodiyot", 2019. — 248 b.
- 13 Otajonov U.A. *Ekonometrika asoslari. Elektron darslik*. — T., 2022. — 260 b.
- 14 Alimov R.X., Almuradov A.A., Xomidov S.O. *Ekonometrik modellashtrish. O'quv qo'llanma*. — T.: IQTISODIYOT, 2019. — 76 b.

the Granger causality test was applied to identify bilateral short- and long-run relationships between the variables. Third, the optimal parameters of the ARIMA model for the dynamics of individual series were selected using the Akaike and Schwarz criteria. A vector autoregression (VAR) model was then constructed to assess systemic interactions. At the final stage, the forecasting quality of the models was verified using the Theil coefficient, and three alternative scenarios (pessimistic, baseline, and optimistic) were developed for 2026–2030.

ANALYSIS AND RESULTS

The conversion of investment attracted to small business entities into competitiveness takes the form of a three-link transmission chain in which investment is transformed first into production capacity, then into output, and finally into exports. At each link of this chain, the degree of value transformation may vary; therefore, the assessment mechanism should cover not only the volume of investment but also the degree to which it is converted into the final outcome—export potential. This approach requires the export indicator to be analyzed together with investment as a unified system when forecasting investment.

Two econometric methods were used jointly in the forecasting process: the autoregressive integrated moving average model generates a forecast based on each indicator's own historical dynamics, while the vector autoregression model accounts for the interaction between investment and exports. The indicators were expressed in natural logarithms. The stationarity of the time series was tested using the augmented Dickey–Fuller test¹⁵:

$$\Delta y_t = \alpha + \beta y_{t-1} + \sum \gamma_i \Delta y_{t-i} + \varepsilon_t \quad (1)$$

The null hypothesis indicating the presence of a unit root is tested. For a stationary series, the autoregressive integrated model takes the following form:

$$\Delta \ln Y_t = c + \varphi \Delta \ln Y_{t-1} + \varepsilon_t \quad (2)$$

A vector autoregression model was used to model the interaction between the two indicators as a unified system:

$$Y_t = c + A_1 Y_{t-1} + \varepsilon_t \quad (3)$$

In these formulas, Y denotes the indicator, c is the constant term, φ and A are coefficients, ε is the random error, and t denotes the time period. The predictive ability of the models was assessed using the Theil inequality coefficient¹⁶:

$$U = \frac{\sqrt{\frac{1}{n} \sum (P_t - A_t)^2}}{\sqrt{\frac{1}{n} \sum P_t^2} + \sqrt{\frac{1}{n} \sum A_t^2}} \quad (4)$$

Forecasting investment attracted to small business entities and their export potential requires a scientifically grounded assessment of the future dynamics of the investment process. During the period under analysis, investment increased from UZS 422.3 billion to UZS 25,417.7 billion, while exports rose from USD 40.4 million to USD 637.2 million. The initial condition for time-series modeling is to test stationarity because regression based on non-stationary series may indicate a spurious relationship. The results of the augmented Dickey–Fuller test are presented in Table 1. The table shows that neither indicator is stationary in levels, but both become stationary after taking the first-order difference. For the logarithm of investment, the level statistic of 0.880592 is greater than the critical value and does not reject the unit-root hypothesis; however, at the first difference, it decreases to -2.987856 and becomes stationary.

15 Dickey D.A., Fuller W.A. Distribution of the Estimators for Autoregressive Time Series with a Unit Root // Journal of the American Statistical Association. – 1979. – Vol. 74, № 366. – P. 427–431.

16 Theil H. Applied Economic Forecasting. – Amsterdam: North-Holland Publishing Company, 1966. – 474 p.

Table 1
Results of the Augmented Dickey–Fuller Unit Root Test¹⁷

No.	Indicator	Test statistic	Critical value (5%)	Conclusion
1	LNINV	0.880592	−3.098896	Non-stationary
2	D(LNINV)	−2.987856	−3.119910	Stationary
3	LNEXP	−1.088834	−3.098896	Non-stationary
4	D(LNEXP)	−3.681314	−3.119910	Stationary

The same pattern is observed for exports. Thus, both series are integrated of order one, which necessitates the use of differences in modeling. After stationarity was established, an autoregressive integrated model was constructed. The constant term of the investment model is 0.195643 and is statistically significant at the five-percent level, indicating that the logarithm of investment increases by an average of 21.6 percent per year. The constant term of the export model is 0.174571, indicating average annual growth of 19.1 percent. The standard error of the export model is 0.307687, more than twice the 0.140819 value of the investment model, confirming that export dynamics exhibit greater variability depending on external market conditions.

Residuals were analyzed to test the statistical reliability of the models. In the investment model, the Durbin–Watson statistic was 1.644897, confirming the absence of serious autocorrelation in the residuals. The model order was selected according to the pattern of the autocorrelation functions and the minimum values of the Akaike and Schwarz information criteria, ensuring that the model remained parsimonious, compact, and stable. These tests demonstrate that the models selected for forecasting are empirically justified.

Modeling each indicator separately does not fully account for the relationship between them. However, investment creates the basis for export growth, while foreign-currency earnings from exports become a source of new investment. In the vector autoregression model constructed to represent this bilateral relationship, the previous year's investment positively affects investment growth with a coefficient of 0.274080, whereas the effect of exports is relatively small, with a coefficient of 0.026293. In the second equation, the previous year's investment affects exports with a coefficient of −0.327045; in other words, the conversion of investment into exports demonstrates a time-lagged effect in the short run and requires more than one year. A Granger causality test was conducted to determine the direction of the causal relationship between investment and exports. The results indicate that causal relationships in either direction become more evident over a longer period rather than in the short run: the statistic for the effect of exports on investment is 0.04854, while that for the effect of investment on exports is 0.25990, with p-values of 0.8297 and 0.6203, respectively. This indicates that the relationship emerges not at a one-year lag but over a longer period because funds invested in an industrial enterprise first pass through the construction and equipment stages before the product reaches foreign markets; this process usually takes two to three years. Based on the estimated models, forecasts were calculated under three scenarios for 2026–2030. The optimistic scenario assumes the continuation of the historical growth rate, the baseline scenario represents the natural normalization of growth, and the pessimistic scenario reflects changes in external conditions. The investment forecast results are presented in Table 2.

Table 2
Forecast of Investment Attracted to Small Business Entities in the Andijan Region through 2030, UZS Billion¹⁸

Year	Pessimistic	Baseline	Optimistic
2026	28,976.2	30,120.0	32,459.4
2027	32,453.3	35,240.4	42,123.6
2028	35,698.7	40,878.8	54,899.0
2029	38,911.5	47,010.7	71,630.4
2030	42,024.5	53,592.1	93,489.0

The forecast results reveal substantial differences among the scenarios. Under the optimistic scenario, investment reaches UZS 93,489.0 billion in 2030, representing a 3.68-fold increase compared with 2025; under

17 Calculated by the author based on data from stat.uz and siat.stat.uz.

18 Calculated by the author

the baseline scenario, it amounts to UZS 53,592.1 billion (a 2.11-fold increase), and under the pessimistic scenario, it reaches UZS 42,024.5 billion (a 1.65-fold increase). The projected dynamics under the three scenarios are shown in Figure 1.

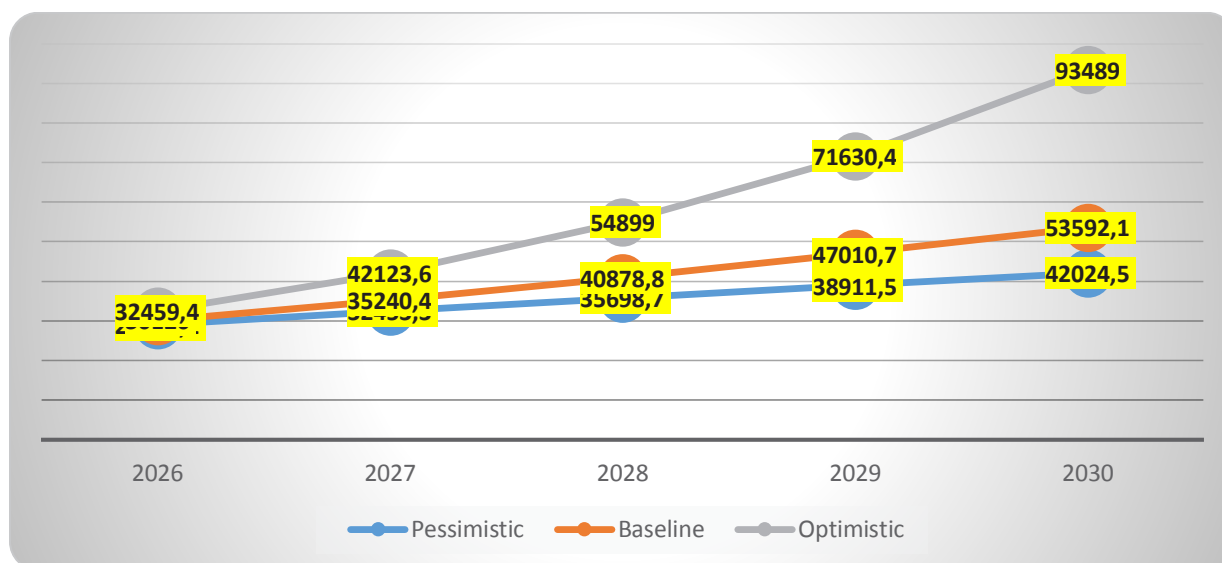


Figure 1. Investment Forecast through 2030 under Three Scenarios, UZS Billion¹⁹

The graphical analysis shows that the gap among the scenarios widens over time. In 2026, the difference between the optimistic and pessimistic scenarios is only UZS 3,483.2 billion; by 2030, it reaches UZS 51,464.5 billion, expanding by more than fifteen times. This dispersion reflects the increasing range of possible outcomes as the forecast horizon lengthens and supports the importance of periodically revising long-term plans.

The export forecast was calculated using the vector autoregression model. Under the baseline scenario, exports reach USD 1,348.3 million in 2030, representing a 2.12-fold increase; under the optimistic scenario, they amount to USD 1,493.8 million (a 2.34-fold increase), and under the pessimistic scenario, they reach USD 1,073.3 million. The export forecast results are presented in Table 3.

Table 3

Forecast of Exports by Small Business Entities in the Andijan Region through 2030, USD Million²⁰

Year	Pessimistic	Baseline	Optimistic
2026	720.0	731.1	777.4
2027	806.4	857.3	932.9
2028	895.1	996.8	1,105.4
2029	984.7	1,159.5	1,293.4
2030	1,073.3	1,348.3	1,493.8

The gap among the export scenarios is smaller than that for investment: in 2030, the difference between the optimistic and pessimistic scenarios is USD 420.5 million, or 31.2 percent of the baseline value, whereas the corresponding difference for investment is 96.0 percent. The relative stability of export dynamics is explained by their dependence on external market demand and their comparatively moderate variability relative to investment. Export dynamics under the scenarios are presented in Figure 2.

¹⁹ Author's work.

²⁰ Calculated by the author // stat.uz, siat.stat.uz, 2010–2025-y.

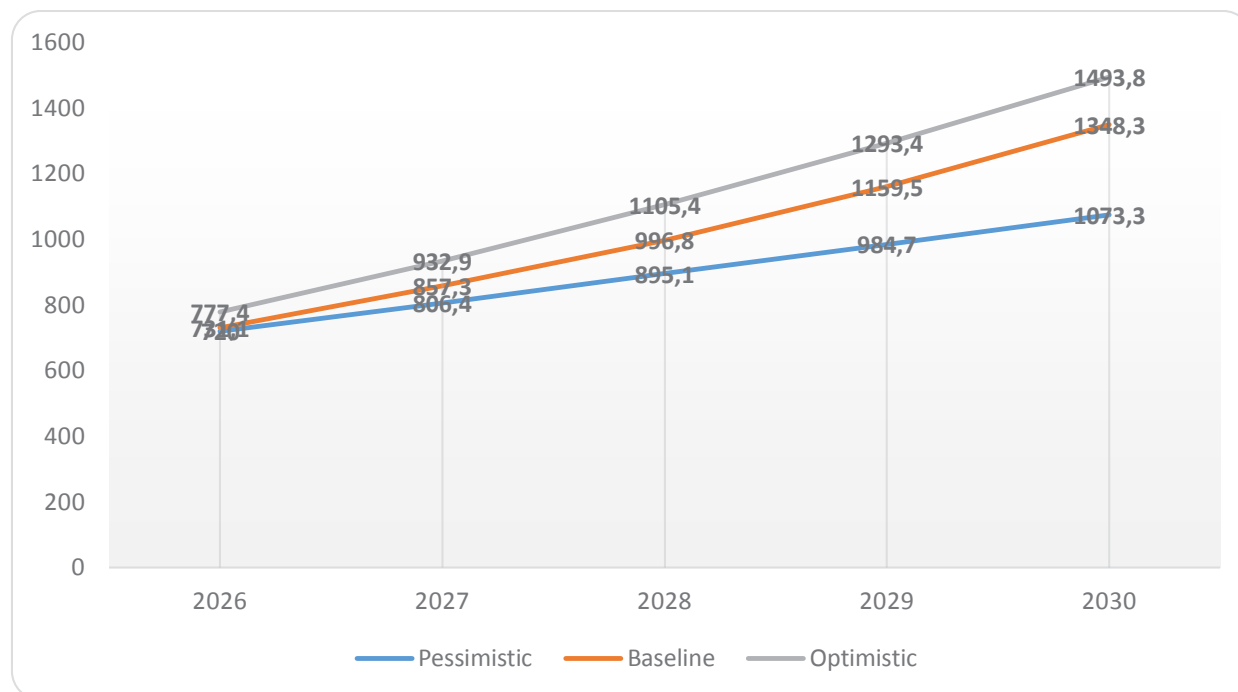


Figure 2. Export Forecast through 2030 under Three Scenarios, USD Million²¹

The asymmetry between investment and export growth rates is the central economic result of the forecast. Under the optimistic scenario, investment increases 3.68-fold, while exports rise 2.34-fold; thus, the rate of capital attraction is significantly faster than the rate at which capital is converted into products supplied to foreign markets. This gap indicates that part of the investment is directed toward the domestic market or remains at the long-term construction stage and also demonstrates that expanding export potential requires a comprehensive approach alongside increasing the volume of investment.

To assess forecast quality, the model was tested within the estimation sample. The Theil inequality coefficient was 0.076899, which is very close to zero and indicates a small forecast error. The mean relative error was 11.81 percent, an acceptable level for a model covering more than ten years. The covariance proportion of the error was 0.972446, while the bias proportion was only 0.003074, confirming that the forecast errors were random rather than systematic.

Variance decomposition within the vector autoregression model further reveals the asymmetric relationship between the two indicators. In the first period, 100 percent of investment variability, and in the fifth period, 99.71 percent, is explained by its own shocks; export shocks account for only 0.29 percent. Conversely, 4.67 percent of export variability in the fifth period is explained by investment shocks, and this share gradually increases over time. This result confirms the predominant direction of the transmission chain: investment contributes to export dynamics, while the reverse effect of exports on investment remains comparatively limited.

The forecast results reveal an important regularity from the perspective of the assessment mechanism. Calculation of the efficiency with which investment is converted into exports—that is, the transmission coefficient—shows that it differs across scenarios. The values of this coefficient under the scenarios are presented in Table 4.

Table 4

Forecast of Investment-to-Export Conversion Efficiency (Transmission Coefficient), 2030²²

No.	Scenario	Investment / Export Growth	Transmission Coefficient
1	Pessimistic	1.65 / 1.68 times	25.54
2	Baseline	2.11 / 2.12 times	25.16
3	Optimistic	3.68 / 2.34 times	15.98

²¹ Author's work.

²² Calculated by the author

The table leads to an important economic conclusion. Under the pessimistic and baseline scenarios, investment and exports grow at nearly the same rate, so the transmission coefficient remains stable. Under the optimistic scenario, however, investment growth is almost one and a half times faster than export growth, causing the coefficient to decrease to 15.98, or by 36.3 percent. This indicates that rapidly increasing investment volume can generate a proportionate increase in competitiveness when the funds are effectively converted into production capacity and exportable products. Therefore, the assessment mechanism should focus on the quality and effectiveness of investment alongside its volume, and the baseline scenario represents not only the most probable but also the most economically appropriate path.

The change in the transmission coefficient under the optimistic scenario provides an important consideration for investment policy. When a large inflow of investment is effectively supported by export potential, resources can generate greater economic returns; therefore, the real contribution of investment projects to export potential should be adopted as one of the principal criteria in project selection. This approach redirects the assessment mechanism from predominantly quantitative indicators toward qualitative outcomes and makes it possible to obtain the maximum economic return from each unit of investment.

When the forecast results are compared with the indicators of the regional development program, they are found to be mutually consistent. The program target for investment in 2030 is set at UZS 53,592.1 billion, exactly matching the baseline scenario. The program target for exports is USD 1,493.8 million, corresponding to the optimistic scenario. This indicates that achieving the export target requires more intensive efforts than achieving the investment target. To ensure consistency between these targets, it will be important to strengthen measures that provide targeted incentives for export-oriented projects and align product quality with international requirements.

CONCLUSION AND SUGGESTIONS

The econometric analysis conducted using the autoregressive integrated model and the vector autoregression model showed that investment attracted to small business entities may reach between UZS 42,024.5 billion and UZS 93,489.0 billion by 2030, with UZS 53,592.1 billion as the most probable value. During the same period, exports are projected to range from USD 1,073.3 million to USD 1,493.8 million. The value of the Theil coefficient, which is close to zero, confirms the model's strong predictive ability.

Most importantly, the analysis demonstrated that, alongside increasing the volume of investment, it is necessary to maintain the efficiency of its conversion into exports, as maintaining this indicator contributes to the effective transformation of invested funds into enhanced competitiveness. Therefore, the mechanism for assessing investment should focus not only on quantitative growth but also on investment quality and the efficiency of its conversion into exports. The forecast results provide a quantitative basis for long-term planning and highlight the importance of periodic revision.

From a practical perspective, the study results make it possible to formulate several recommendations. First, the baseline scenario should be adopted as the principal benchmark when developing regional investment programs, while the optimistic scenario should be set as a target when supported by additional export-oriented incentive measures. Second, an indicator measuring the efficiency of conversion into exports should be regularly incorporated into the investment assessment mechanism. Third, given the variability associated with the forecast horizon, long-term plans should be updated periodically.

REFERENCES

1. Abdullayev Yo., Karimov F. Kichik biznes va tadbirkorlik asoslari. – Toshkent: Mehnat, 2010. – 349 b.
2. Alimov R.X., Almuradov A.A., Xomidov S.O. Ekonometrik modellash: o'quv qo'llanma. – Toshkent: Iqtisodiyot, 2019. – 76 b.
3. Bayxonov B.T., Bustonov M.M., Maxmudov M.F. Investitsiya loyihalari tahlili: darslik. – Toshkent: Turon xalqaro universiteti, 2021. – 560 b.
4. Box G.E.P., Jenkins G.M., Reinsel G.C., Ljung G.M. Time Series Analysis: Forecasting and Control. – 5th ed. – Hoboken: John Wiley & Sons, 2015. – 712 p.
5. Dickey D.A., Fuller W.A. Distribution of the Estimators for Autoregressive Time Series with a Unit Root // Journal of the American Statistical Association. – 1979. – Vol. 74, No. 366. – P. 427–431.
6. Engle R.F., Granger C.W.J. Co-integration and Error Correction: Representation, Estimation, and Testing // Econometrica. – 1987. – Vol. 55, No. 2. – P. 251–276.
7. G'ofurov D. Kichik biznes uchun soliq imtiyozlarining samaradorligini baholash // Ilg'or iqtisodiyot va pedagogik texnologiyalar. – 2025. – № 2(5). – B. 191–200.

8. Ghatak S., Mancini-Griffoli T. Information Asymmetry, Credit Rationing, and the Financing of SME Investments // *Journal of Corporate Finance*. – 2020. – Vol. 62. – P. 101–118.
9. Granger C.W.J. Investigating Causal Relations by Econometric Models and Cross-spectral Methods // *Econometrica*. – 1969. – Vol. 37, No. 3. – P. 424–438.
10. Nordin N., Ismail M. Investment Efficiency and Resource Allocation in MSMEs under Uncertainty // *Advanced International Journal of Business, Entrepreneurship and SMEs*. – 2024. – Vol. 6, No. 20. – P. 112–128.
11. Otajonov U.A. *Ekonometrika asoslari: elektron darslik*. – Toshkent, 2022. – 260 b.
12. Qosimov M.S. *Investitsiya loyihalari tahlili: darslik*. – Toshkent: Iqtisodiyot, 2021. – 194 b.
13. Sims C.A. *Macroeconomics and Reality* // *Econometrica*. – 1980. – Vol. 48, No. 1. – P. 1–48.
14. Theil H. *Applied Economic Forecasting*. – Amsterdam: North-Holland Publishing Company, 1966. – 474 p.
15. Басовский Л.Е. *Экономический анализ (эконометрика, управление затратами, инвестиции): монография*. – Москва: ИНФРА-М, 2019. – 315 с.
16. Земцов А.В. Теоретико-методологические основы оценки эффективности инвестиционных проектов // *Финансовая аналитика: проблемы и решения*. – 2016. – Т. 8, № 14. – С. 32–45.
17. Milliy statistika qo'mitasi hududiy statistika portali [Elektron resurs]. – siat.stat.uz.
18. O'zbekiston Respublikasi Milliy statistika qo'mitasi rasmiy sayti [Elektron resurs]. – stat.uz.
19. Qonunchilik ma'lumotlari milliy bazasi [Elektron resurs]. – lex.uz.

Proofreader: Xondamir Ismoilov
Layout and Designer: Hasan Maqsudov

2026. № 8

© 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.

