



Article

Regional Tax Security Forecasting under Alternative Scenarios: Evidence from an ARIMA Model

Mamatraimov Uchqun Xushmamatovich*¹

1. Researcher, Tashkent Institute of Textile and Light Industry

*Correspondence: abduhamidtursunov80@gmail.com

Citation: Xushmamatovich M. U. Regional Tax Security Forecasting under Alternative Scenarios: Evidence from an ARIMA Model. American Journal of Economics and Business Management 2026, 9(5), 954-964.

Received: 19th Feb 2026

Revised: 20th Mar 2026

Accepted: 20th Apr 2026

Published: 30th May 2026



Copyright: © 2026 by the authors. Submitted for open access publication under the terms and conditions of the Creative Commons Attribution (CC BY) license

(<https://creativecommons.org/licenses/by/4.0/>)

Abstract: This study develops and interprets ARIMA-based forecast scenarios for strengthening tax security in Uzbekistan and for supporting the design of regionally differentiated fiscal policies. Tax security is treated as an institutional and economic condition in which the tax system is capable of generating stable, predictable, and sufficient public revenues while remaining resilient to internal and external risks, including tax-base erosion, the shadow economy, tax arrears, digital business models, and weaknesses in tax administration. The empirical analysis uses annual data for 2016–2025 on total state-budget tax revenues, direct taxes, and indirect taxes. A Box–Jenkins time-series framework is applied, combining stationarity assessment, model identification, information-criterion comparison, and residual diagnostics. The selected specifications are ARIMA(0,1,0) with drift for total tax revenues and direct taxes, and ARIMA(0,1,1) with drift for indirect taxes. Model adequacy is evaluated using the Akaike and Bayesian information criteria, the augmented Dickey–Fuller procedure, the Ljung–Box test, and the Jarque–Bera test. The results indicate no statistically evident residual autocorrelation or severe departure from normality in the selected models, although the limited number of annual observations requires cautious interpretation. Forecasts suggest that total tax revenues may increase from UZS 308,521.8 billion in 2025 to UZS 457,027.1 billion in 2030, representing cumulative nominal growth of approximately 48.1 percent. Direct taxes are projected to reach UZS 152,976.2 billion, while indirect taxes may reach UZS 153,910.3 billion by 2030. The study argues that higher revenue alone is not equivalent to stronger tax security. Sustainable improvement requires risk-based control, real-time monitoring, digital audit, artificial-intelligence-supported compliance analysis, systematic Tax Gap estimation, reduction of tax arrears, and more effective use of regional tax potential. The forecasts therefore provide a quantitative baseline for fiscal planning rather than a complete measure of tax security.

Keywords: Tax security, fiscal security, tax policy, tax administration, tax burden, budget sustainability, regional tax potential, ARIMA, time-series forecasting, Uzbekistan.

1. Introduction

The acceleration of globalization, the liberalization of international capital flows, the rapid expansion of the digital economy, and the growing complexity of multinational business operations have created new challenges for public revenue systems. Traditional tax rules were largely designed for economic activity based on physical presence, territorially identifiable transactions, and relatively transparent value chains. Contemporary business models, by contrast, increasingly rely on digital platforms, intangible assets, cross-border services, data-driven value creation, and complex corporate structures. These developments can weaken the correspondence between the location in

which economic value is generated and the jurisdiction in which taxable income is reported. As a result, tax authorities face growing pressure to protect the tax base while maintaining an investment-friendly and administratively efficient fiscal environment.[1]

International evidence indicates that profit shifting by multinational enterprises can generate substantial losses in corporate income-tax revenues (OECD, 2023). At the same time, the expansion of electronic commerce, crypto-assets, and cross-border digital services places additional demands on tax administration. These challenges are especially important for emerging economies, where institutional capacity, data integration, and analytical resources may be uneven across territories. Consequently, tax security has become a strategically important component of economic and financial security. It is no longer sufficient to evaluate a tax system only by the volume of collected revenue. The stability, predictability, quality, and administrative cost of revenue mobilization are equally important.[2]

Tax security may be defined as the capacity of the state to preserve a reliable and sustainable system of taxation that finances public obligations, supports macroeconomic stability, protects the national tax base, and balances the interests of the government, businesses, and households. This definition combines fiscal, institutional, administrative, and developmental dimensions. From a fiscal perspective, tax security concerns the adequacy and continuity of budget revenues. From an institutional perspective, it concerns the credibility, transparency, and enforceability of tax rules. From an administrative perspective, it concerns the ability of tax authorities to identify risks, prevent violations, collect liabilities, and reduce compliance costs. From a developmental perspective, it concerns whether taxation supports rather than undermines investment, entrepreneurship, employment, and regional economic activity.

The regional dimension is central to this discussion. National tax revenues are ultimately generated by firms, households, and transactions located in specific territories. Regions differ in industrial specialization, business density, informality, household income, investment activity, export orientation, and the concentration of large taxpayers. Therefore, identical national rules can produce different fiscal outcomes across regions. A national forecast can provide a macro-fiscal benchmark, but effective tax-security policy requires the benchmark to be translated into differentiated regional targets, risk profiles, and administrative interventions. In this sense, national forecasting and regional tax-security management are complementary rather than competing approaches.[3]

In Uzbekistan, modernization of tax administration and digitalization of reporting have expanded the information base available for fiscal analysis. At the same time, structural transformation, the growth of private enterprise, changes in the composition of direct and indirect taxation, and the persistence of informal economic activity create a need for forward-looking assessment. Forecasting tax revenues through 2030 is relevant for medium-term budget planning, evaluation of fiscal capacity, and the design of early-warning indicators. It also provides a quantitative basis for judging whether projected revenue growth is consistent with broader objectives of economic and financial security.

The purpose of this study is to develop ARIMA-based forecast scenarios for total tax revenues, direct taxes, and indirect taxes in Uzbekistan and to interpret the results from the perspective of tax security. The study addresses three research questions. First, which univariate ARIMA specifications most adequately represent the statistical properties of the observed annual series for 2016–2025? Second, what baseline revenue trajectories do these models imply for 2026–2030? Third, how should the forecasts be incorporated into a broader mechanism for strengthening tax security at national and regional levels[4]

The study contributes to the literature in three respects. It connects the technical task of revenue forecasting with the broader institutional concept of tax security; it reports model-selection and residual-diagnostic results rather than presenting forecasts without statistical validation; and it interprets national projections as a baseline for regional fiscal

planning. The analysis does not claim that ARIMA forecasts capture every determinant of future tax revenues. Rather, they are used as a transparent and reproducible benchmark that summarizes the internal dynamics of the observed time series. This distinction is important because tax revenues are affected by policy changes, inflation, economic growth, commodity prices, exchange rates, and administrative reforms, many of which are not explicitly included in a univariate model.

The academic literature increasingly treats tax security as a system-forming element of financial security rather than as a narrow issue of revenue collection. This broader approach reflects the fact that taxation simultaneously performs fiscal, regulatory, redistributive, and institutional functions. A tax system that generates high revenues in the short run may still be insecure if it relies on a narrow base, creates excessive distortions, encourages informality, accumulates arrears, or depends disproportionately on a small group of taxpayers. Accordingly, tax security should be assessed through a combination of revenue adequacy, revenue stability, tax-base quality, administrative effectiveness, compliance behavior, and resilience to shocks.

Dauchy, Navarro-Sanchez, and Seegert analyze the relationship between taxation and inequality through active and passive channels. Their contribution is relevant because it demonstrates that tax policy has consequences beyond budget formation. The design of taxes can influence income distribution, incentives, and social stability, all of which affect the legitimacy and sustainability of the fiscal system. From the perspective of tax security, a system perceived as unfair may weaken voluntary compliance and increase political resistance, whereas a system that combines fiscal adequacy with distributive legitimacy is more likely to remain stable.[5]

The relationship between tax monitoring and economic security is emphasized by Eriashvili, Sof'in, and Nazarychev. They interpret tax monitoring as a mechanism for increasing the transparency of business activity, detecting violations before they become systemic, and strengthening state economic security. This approach is particularly important in a digital environment. Continuous data exchange, electronic invoices, online cash registers, and integrated risk-scoring systems can shift tax control from retrospective inspection toward preventive and real-time supervision. Such a transition can reduce both enforcement costs and uncertainty for compliant taxpayers.

Korostelkina and Dedkova examine taxes as an instrument for ensuring the economic security of territories. Their territorial perspective highlights the importance of stable regional budget revenues, the sufficiency of the local tax base, and the efficiency with which fiscal potential is used. Regional tax security depends not only on the absolute amount of revenue but also on the match between expenditure responsibilities and own-source revenues, the volatility of key revenue sources, and the exposure of the regional economy to sector-specific shocks. This is particularly relevant for regions dominated by a small number of large enterprises or a single industrial specialization.

Kurepina and Zerkal focus on mechanisms of economic security in budgetary and tax relations. Their analysis underscores the interdependence among fiscal policy, budget sustainability, payment discipline, and institutional coordination. Tax security is therefore not produced by the tax authority alone. It requires coordination among fiscal agencies, customs authorities, financial institutions, statistical bodies, local governments, and digital-platform regulators. Fragmented data and inconsistent administrative procedures can create gaps that increase both tax evasion and compliance costs.[6]

Lutsyshyn, Katrych, and Yuzhanina examine fiscal security in the context of global economic transformation. They identify global instability, external financial risks, and structural imbalances within tax systems as major threats. This perspective is relevant to Uzbekistan because an open economy is exposed to external demand, exchange-rate movements, global commodity cycles, and cross-border capital flows. These factors can affect corporate profits, imports, consumption, and therefore both direct and indirect tax

bases. A secure tax system must be capable of absorbing such shocks without causing abrupt deterioration in public services or debt sustainability.

Moldowan conceptualizes fiscal security as an emerging direction in public-finance research and links it to financial independence, stable budget revenues, and institutional reliability. Varaksa, Korostelkina, Dedkova, and Konstantinov similarly view tax security as a system-forming element of financial security and emphasize the interaction among tax risks, tax discipline, fiscal sustainability, and institutional control. These studies support the argument that tax security should be evaluated through a multidimensional framework rather than by one fiscal indicator.[7]

Vykliuk et al. propose a conceptual model of state tax security in which stable tax revenues, the level of tax debt, the breadth of the tax base, the effectiveness of tax control, and the protection of state fiscal interests are interrelated. Their approach is particularly useful for interpreting forecasts. A projected increase in revenue is favorable, but it becomes a genuine security outcome only when accompanied by improvements in collection quality, reduced arrears, lower Tax Gap, broader formalization, and predictable administration. Forecasting should therefore be embedded in a monitoring framework that compares realized outcomes with baseline trajectories and identifies the causes of deviations.

The time-series forecasting literature provides the methodological basis for the empirical component of this study. The Box–Jenkins approach models a variable through its own lagged behavior and past forecast errors. ARIMA models are widely used when the primary objective is to capture trend and autocorrelation in a single series, particularly when the number of observations is insufficient for stable estimation of large multivariate systems. Hyndman and Athanasopoulos emphasize systematic model identification, information-criterion comparison, and residual diagnostics as essential elements of responsible forecasting. In public finance, such models are useful as baseline projections because they are transparent, replicable, and readily updated as new observations become available.[8]

The literature also reveals a gap. Many studies discuss tax security conceptually, while revenue-forecasting studies often remain technically separated from institutional interpretation. This paper bridges the two perspectives. It uses ARIMA models to estimate baseline revenue paths and then evaluates what those paths imply—and do not imply—for tax security. The approach recognizes that quantitative forecasting is necessary for fiscal planning but insufficient for a comprehensive assessment of institutional resilience.

2. Methodology

The study applies a systematic and integrated research design. The theoretical component uses analysis and synthesis, comparative interpretation, logical generalization, and content analysis of contemporary studies on tax security, fiscal sustainability, tax monitoring, and territorial economic security. The empirical component uses univariate time-series modeling to forecast three annual indicators: total state-budget tax revenues, direct taxes, and indirect taxes.

The observed period covers 2016–2025, providing ten annual observations for each series. The data are reported in billion Uzbek soums and are derived from information of the Tax Committee of the Republic of Uzbekistan. The limited sample is an important methodological constraint. It favors parsimonious models with few parameters and makes complex multivariate specifications statistically fragile. Accordingly, the analysis is designed as a short- to medium-term baseline forecast rather than as a structural causal model.[9]

The three series capture different dimensions of fiscal capacity. Total tax revenue reflects the aggregate resource base available to the state budget. Direct taxes are more

closely related to income, profits, property, and formal economic activity. Indirect taxes are connected to consumption, transactions, imports, and value added. Comparing their projected trajectories provides information on the composition and potential balance of future revenue mobilization.

1. ARIMA Model Specification

The autoregressive integrated moving-average model is denoted ARIMA(p,d,q), where p is the autoregressive order, d is the degree of differencing required to achieve stationarity, and q is the moving-average order. In lag-operator notation, the general model can be written as:

$$\varphi(B)(1-B)^d y_t = c + \theta(B)\varepsilon_t$$

where y_t denotes tax revenue in period t; B is the lag operator; $\varphi(B)$ is the autoregressive polynomial; $\theta(B)$ is the moving-average polynomial; c is a constant or drift term; and ε_t is a white-noise disturbance. Differencing removes stochastic trend and allows the remaining process to be modeled as stationary.

For an ARIMA(0,1,0) model with drift, the first difference of the series is represented by a constant plus a random error: $\Delta y_t = c + \varepsilon_t$. The resulting point forecast follows a linear path whose annual increment is determined by the estimated drift. For an ARIMA(0,1,1) model with drift, the first difference also includes a moving-average term: $\Delta y_t = c + \varepsilon_t + \theta_1 \varepsilon_{t-1}$. This specification allows recent forecast errors to influence short-run changes while preserving a long-run drift component.

The ARIMA framework is appropriate in the present study for four reasons. First, the available information is organized as annual time series. Second, the sample is too small to support a heavily parameterized model without serious risk of overfitting. Third, tax revenues exhibit inertia because current collections reflect the accumulated effects of previous economic activity, fiscal policy, and administrative reforms. Fourth, ARIMA models provide a clear diagnostic framework in which residual autocorrelation and distributional properties can be evaluated.[10]

2. Model Selection and Diagnostic Procedures

Model selection is based on a combination of economic parsimony and statistical diagnostics. The augmented Dickey–Fuller procedure is used to assess whether the level series contain a unit root and whether first differencing is required. Candidate specifications are compared using the Akaike information criterion and the Bayesian information criterion. Lower information-criterion values indicate a preferable balance between goodness of fit and model complexity, although these criteria should be interpreted jointly with residual behavior and theoretical plausibility.

Residual adequacy is evaluated using the Ljung–Box test and the Jarque–Bera test. The Ljung–Box test examines whether residual autocorrelations are jointly different from zero. A p-value above 0.05 indicates that the null hypothesis of no residual autocorrelation cannot be rejected. The Jarque–Bera test evaluates skewness and kurtosis relative to a normal distribution. In small samples, normality tests have limited power, so the result is used as a diagnostic rather than as definitive proof of distributional normality.[11]

Table 1. Forecasts are generated for 2026–2030. The resulting values should be interpreted as a baseline scenario conditional on the continuation of historical dynamics. They do not explicitly incorporate future tax-rate changes, major legal reforms, inflation shocks, recessions, structural breaks, or exceptional administrative measures. In policy use, the baseline should therefore be complemented by optimistic and adverse scenarios based on macroeconomic and institutional assumptions.

Table 1. ARIMA Model Selection and Diagnostic Results.

Indicator		Selected model	AIC	BIC	ADF conclusion	Ljung–Box p-value	Jarque–Bera p-value
Total revenues	tax	ARIMA(0,1,0) with drift	194.19	194.59	First differencing required	0.443	0.372
Direct taxes		ARIMA(0,1,0) with drift	183.42	183.81	Trending growth; differenced model used	0.529	0.575
Indirect taxes		ARIMA(0,1,1) with drift	190.22	190.81	Stationary after first differencing	0.828	0.674

Source: Author's calculations based on data from the Tax Committee of the Republic of Uzbekistan.

3. Results and Discussion

1. Model Identification and Diagnostic Interpretation

The diagnostic results support parsimonious integrated models for all three tax-revenue series. Total tax revenues are represented by an ARIMA(0,1,0) model with drift. This indicates that the level series is non-stationary, while its annual change can be approximated by a relatively stable average increment plus random variation. The direct-tax series is described by the same specification, suggesting a persistent trend without a statistically necessary autoregressive or moving-average term in the differenced series. Indirect taxes are modeled by ARIMA(0,1,1) with drift, which allows the most recent innovation to affect the next annual change.

The selected models have relatively low parameter counts, which is appropriate given the ten-observation sample. The Ljung–Box p-values range from 0.443 to 0.828 and therefore exceed the conventional 0.05 threshold. The available evidence does not indicate statistically significant residual autocorrelation. This suggests that the models have captured the principal serial dependence present in the annual data. The Jarque–Bera p-values, ranging from 0.372 to 0.674, likewise do not indicate a severe departure from normality. Nevertheless, the small sample requires caution: failure to reject a diagnostic null hypothesis is not equivalent to proving that the model is fully correct.[12]

The Table 2. model structure also has an economic interpretation. Tax revenues in a reforming economy may follow a strong trend because of nominal GDP growth, inflation, formalization of business activity, improvements in administration, and changes in the tax base. When such effects accumulate gradually, a random-walk-with-drift specification can summarize the observed path efficiently. The moving-average component in the indirect-tax model may reflect short-run adjustments associated with changes in consumption, imports, inventories, or administrative timing. However, the model does not separately identify these causal channels.

2. Forecast Results for 2026–2030

Table 2. ARIMA-Based Forecasts of Tax Revenues in Uzbekistan through 2030.

Year	Total tax revenues, billion UZS	Direct taxes, billion UZS	Indirect taxes, billion UZS
2026	338,222.8	112,393.2	114,171.3
2027	367,923.9	122,538.9	124,106.1
2028	397,625.0	132,684.7	134,040.8
2029	427,326.0	142,830.5	143,975.5
2030	457,027.1	152,976.2	153,910.3

Source: Author's calculations based on data from the Tax Committee of the Republic of Uzbekistan.

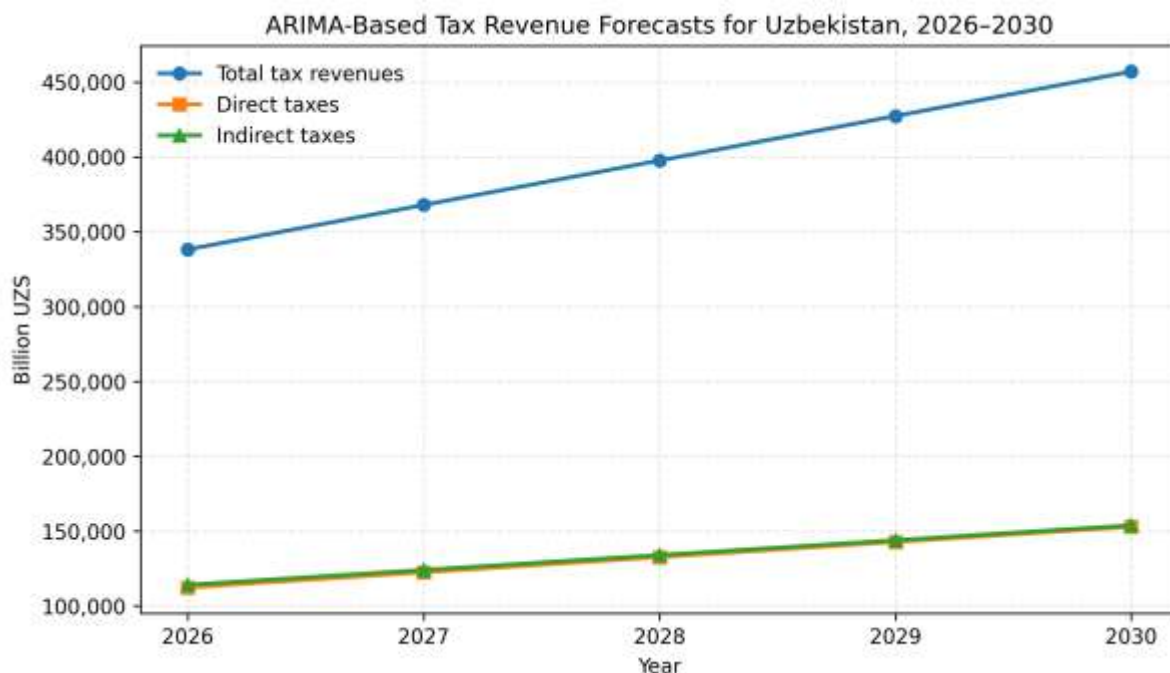
The baseline forecasts indicate a sustained increase in all three revenue indicators. Total state-budget tax revenues are projected to rise from UZS 308,521.8 billion in 2025 to UZS 338,222.8 billion in 2026 and UZS 457,027.1 billion in 2030. The cumulative nominal increase over the five-year horizon is UZS 148,505.3 billion, or approximately 48.1 percent. This corresponds to an implied compound annual growth rate of about 8.2 percent. Because the selected model is ARIMA(0,1,0) with drift, the point forecast increases by approximately UZS 29.7 trillion each year.[13]

Direct taxes are projected to reach UZS 112,393.2 billion in 2026 and UZS 152,976.2 billion by 2030. The annual point-forecast increment is approximately UZS 10.1 trillion. This trajectory is consistent with a continued expansion of formal income and profit tax bases under the assumption that recent trends persist. For tax security, sustained direct-tax growth is important because it may indicate a stronger connection between fiscal capacity and productive economic activity. However, the quality of the outcome depends on whether growth is broadly distributed across sectors and regions or concentrated among a limited number of large taxpayers.

Indirect taxes are forecast to increase from UZS 114,171.3 billion in 2026 to UZS 153,910.3 billion in 2030. The forecast path is slightly above that of direct taxes throughout the horizon. Indirect taxes can provide relatively stable revenue because they are collected through transactions and consumption. At the same time, excessive dependence on indirect taxation may have distributional implications and can be sensitive to changes in household demand, imports, and inflation. A secure revenue structure therefore requires balance rather than exclusive reliance on any single tax category.

The Figure 1. near convergence of direct and indirect tax revenues by 2030 may be interpreted as a sign of compositional balance in the baseline scenario. Yet composition should be examined more deeply. Direct taxes depend on income reporting, profitability, and formal employment, whereas indirect taxes depend on the documentation of value chains and final consumption. The administrative risks are therefore different. Direct-tax security requires effective transfer-pricing control, profit verification, and income reporting. Indirect-tax security requires reliable electronic invoicing, VAT-chain monitoring, customs coordination, and detection of fictitious transactions.[14]

Figure 1. Forecast Trajectories of Total, Direct, and Indirect Tax Revenues, 2026–2030.



Source: Prepared by the author from the forecasts reported in Table 2.

3. Implications for Tax Security

The forecasts provide evidence of a favorable nominal revenue trajectory, but revenue growth alone should not be equated with tax security. A secure tax system must generate revenues that are stable, predictable, administratively efficient, and compatible with sustainable economic development. If revenue growth is driven mainly by inflation, temporary commodity-price movements, one-off payments, or greater pressure on a narrow group of taxpayers, the apparent improvement may be fragile. Therefore, the forecast should be assessed alongside indicators of real revenue growth, tax buoyancy, revenue volatility, tax debt, overpayments, audit yield, compliance costs, and the Tax Gap.

First, projected revenues can serve as a benchmark for an early-warning system. Actual monthly and quarterly collections can be compared with the annual forecast path. Persistent underperformance may signal weakening economic activity, deterioration in compliance, sector-specific stress, or administrative problems. Overperformance should also be analyzed, because it may result from temporary factors that should not automatically be incorporated into permanent expenditure commitments. A forecast-based monitoring system improves the timeliness of fiscal response.

Second, the national baseline can be disaggregated into regional targets. Regions should not be assigned uniform growth expectations. Instead, targets should reflect regional gross product, sectoral composition, investment projects, business registrations, employment, household consumption, export activity, and historical tax compliance. A region with a diversified private sector requires a different risk model from a region dominated by one major enterprise. Regional tax-security dashboards should therefore combine revenue forecasts with concentration ratios, arrears, inactive firms, sectoral risk scores, and formalization indicators.

Third, digital tax administration should be deepened. Integrated data from electronic invoices, online cash registers, customs declarations, bank transactions, property registers, employment records, and digital platforms can improve identification of inconsistencies. Artificial-intelligence tools can prioritize cases for review, but they should operate within

transparent governance rules. Risk scoring should support proportional enforcement, reduce unnecessary inspections of compliant taxpayers, and provide mechanisms for correcting data errors and appealing automated decisions.

Fourth, systematic Tax Gap estimation should become an institutional component of tax-security policy. The Tax Gap measures the difference between the amount of tax theoretically due under current law and the amount actually collected. Monitoring the gap by tax type, sector, taxpayer group, and region would allow the government to distinguish between revenue growth caused by economic expansion and revenue growth caused by improved compliance. It would also help evaluate the effectiveness of administrative reforms.

Fifth, tax arrears and overpayments require balanced management. High arrears can indicate weak enforcement, financial distress, or unrealistic assessments. Large overpayments may create hidden fiscal liabilities and reduce business liquidity. Tax security therefore requires not only gross collection but also accurate assessment, timely settlement, transparent reconciliation, and prompt refund procedures. These factors influence taxpayer trust and voluntary compliance.

Sixth, policy should preserve the balance between fiscal objectives and the economic interests of taxpayers. Excessive administrative pressure may increase short-term collections but weaken investment and encourage informality. Conversely, poorly targeted preferences may erode the base without generating sufficient economic benefits. Tax expenditures should be regularly evaluated, and incentives should have clear objectives, eligibility rules, time limits, and measurable outcomes.

Finally, forecast scenarios should be updated annually. As each new observation becomes available, the model can be re-estimated, structural breaks can be tested, and alternative specifications can be compared. A rolling forecast process would transform the ARIMA model from a one-time academic exercise into a practical decision-support instrument for medium-term fiscal planning.

4. Limitations and Directions for Further Research

The main limitation is the short annual sample. Ten observations permit only highly parsimonious models and reduce the power of stationarity, normality, and residual-correlation tests. The forecast horizon of five years is also relatively long compared with the estimation sample. Consequently, the point forecasts should be interpreted cautiously and supplemented with forecast intervals in future work.

A second limitation is that the series are expressed in nominal terms. Nominal growth may reflect inflation as well as real expansion of the tax base. Future research should construct real tax-revenue series using an appropriate deflator and compare nominal and real scenarios. It would also be useful to calculate tax buoyancy and tax elasticity relative to GDP and major tax bases.

A third limitation is the use of national aggregates for a study concerned with regional tax security. The national projections are a macro-fiscal benchmark, not direct regional forecasts. Further research should estimate panel and regional time-series models using disaggregated data. Such models could incorporate regional gross product, industrial output, retail turnover, investment, employment, exports, business density, and measures of informality.

A fourth limitation is the univariate nature of ARIMA. The model captures internal historical dynamics but does not explicitly incorporate tax reforms, macroeconomic shocks, or administrative innovations. Future studies could compare ARIMA forecasts with ARIMAX, vector autoregression, exponential-smoothing, state-space, and machine-learning models. Forecast combinations may provide greater robustness when sufficient data become available.[15]

4. Conclusion

This study has examined tax security as a multidimensional component of economic and financial security and has developed baseline forecasts of Uzbekistan's total, direct, and indirect tax revenues through 2030. The empirical results support ARIMA(0,1,0) models with drift for total tax revenues and direct taxes and an ARIMA(0,1,1) model with drift for indirect taxes. Information criteria and residual diagnostics indicate that the selected specifications are acceptable within the constraints of the available data. At the same time, the small sample requires the forecasts to be treated as cautious short- to medium-term benchmarks rather than precise structural predictions.

The forecast results show a stable upward trajectory. Total tax revenues may reach UZS 457,027.1 billion in 2030, compared with UZS 308,521.8 billion in 2025. Direct taxes are projected at UZS 152,976.2 billion, while indirect taxes are projected at UZS 153,910.3 billion. The expected increase creates favorable conditions for budget sustainability, but it does not automatically guarantee tax security. The security of the tax system depends on the durability and quality of the tax base, the predictability of collections, the level of tax arrears, the size of the Tax Gap, the share of the shadow economy, and the effectiveness and fairness of administration.

The policy implications are clear. Uzbekistan should institutionalize forecast-based early-warning systems; develop region-specific tax-security dashboards; strengthen risk-based control; expand real-time data integration and digital audit; apply artificial intelligence under transparent governance; estimate the Tax Gap systematically; reduce tax arrears while preventing excessive overpayments; and regularly evaluate tax incentives. The national ARIMA forecast should be used as a baseline against which regional and sectoral performance is assessed, not as a uniform target imposed on territories with different economic structures.

In practical terms, the forecast model should be updated annually and incorporated into medium-term budget planning. Deviations between forecast and actual revenue should trigger analytical review rather than automatic enforcement. Such a framework would connect quantitative forecasting with institutional risk management and help transform projected revenue growth into stronger fiscal resilience. By combining transparent forecasting, digital administration, differentiated regional policy, and balanced taxpayer relations, Uzbekistan can strengthen the sustainability of public revenues and reinforce national economic and financial security.

REFERENCES

- [1] G. E. P. Box, G. M. Jenkins, G. C. Reinsel, and G. M. Ljung, *Time Series Analysis: Forecasting and Control*, 5th ed. Hoboken, NJ, USA: Wiley, 2015.
- [2] E. Dauchy, F. Navarro-Sanchez, and N. Seegert, "Taxation and inequality: Active and passive channels," *Review of Economic Dynamics*, 2020, doi: 10.1016/j.red.2020.10.004.
- [3] N. D. Eriashvili, A. A. Sof'in, and D. V. Nazarychev, "Tax monitoring as a way to ensure economic security," *The Economy under Guard*, no. 3, pp. 87–91, 2020, doi: 10.36511/2588-0071-2020-3-87-91.
- [4] R. J. Hyndman and G. Athanasopoulos, *Forecasting: Principles and Practice*, 3rd ed. Melbourne, Australia: OTexts, 2021.
- [5] I. A. Korostelkina and E. G. Dedkova, "Taxes as a tool for ensuring economic security of territories," *Journal of Economic Research & Business Administration*, vol. 133, no. 3, pp. 103–119, 2020, doi: 10.26577/be.2020.v133.i3.09.
- [6] N. L. Kurepina and E. E. Zerkal, "Mechanisms for ensuring economic security in budgetary and tax relations," *Economic Security*, vol. 6, no. 1, pp. 263–276, 2023, doi: 10.18334/ecsec.6.1.116712.
- [7] Z. Lutsyshyn, O. Katrych, and N. Yuzhanina, "Fiscal security of the states in current conditions of transformation of the world economy," *MIND Journal*, no. 10, pp. 1–21, 2020, doi: 10.36228/MJ.10/2020.2.
- [8] A. Moldowan, "Fiscal security of the state: Conceptual basis for a new direction," *Strategic Panorama*, no. 1–2, pp. 86–96, 2020, doi: 10.53679/2616-9460.1-2.2020.10.

-
- [9] OECD, *Corporate Tax Statistics 2023*. Paris, France: OECD Publishing, 2023.
 - [10] Tax Committee of the Republic of Uzbekistan, "State budget tax revenue data (2016–2025)," Administrative dataset, Tashkent, Uzbekistan, 2025.
 - [11] N. Varaksa, I. Korostelkina, E. Dedkova, and V. Konstantinov, "Formation of tax security as a system-forming element of financial security," *European Proceedings of Social and Behavioural Sciences*, 2020, doi: 10.15405/epsbs.2020.10.03.76.
 - [12] M. Vykliuk, R. Mikhailishin, O. Kundytskyj, O. Senyshyn, N. Prokopenko, and V. Olikhovskiy, "Conceptual basis of the state's tax security model," *Management Theory and Studies for Rural Business and Infrastructure Development*, vol. 42, no. 3, pp. 303–315, 2020, doi: 10.15544/mts.2020.30.
 - [13] J. E. Stiglitz and J. K. Rosengard, *Economics of the Public Sector*, 4th ed. New York, NY, USA: W. W. Norton & Company, 2015.
 - [14] R. A. Musgrave and P. B. Musgrave, *Public Finance in Theory and Practice*, 5th ed. New York, NY, USA: McGraw-Hill, 1989.
 - [15] International Monetary Fund (IMF), *Fiscal Monitor: Strengthening the Credibility of Public Finances*. Washington, DC, USA, 2023.