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FULL LENGTH ARTICLE

Practical Analysis and Econometric Results of the Treasury Service Committee of Uzbekistan

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ABSTRACT

This article analyzes the practical effectiveness of treasury mechanisms, which constitute a key institutional component of the public financial management system in Uzbekistan, using empirical and econometric methods. The study covers the period from 2015 to 2024 and examines indicators of state budget execution, the share of payments carried out through the treasury system, and measures of fiscal discipline. Time-series analysis and regression models are employed to assess the impact of treasury control on the efficiency of budget execution. The results indicate that the strengthening of treasury mechanisms contributes to enhancing fiscal stability. The findings of the study provide a basis for developing scientific and practical recommendations aimed at improving public financial management under the conditions of Uzbekistan.

Keywords: Treasury system ▪ State budget ▪ Budget execution ▪ Time series ▪ Econometric analysis ▪ Fiscal discipline

1. INTRODUCTION

Effective public financial management is one of the key determinants of sustainable economic growth. The presence of efficient control mechanisms over the formation and expenditure of budgetary funds enhances fiscal discipline, promotes the rational use of resources, and reduces corruption risks. Within this framework, the treasury system serves as a crucial institutional mechanism for the centralized management and control of state budget execution.

In Uzbekistan, the establishment and development of the treasury system have been closely linked to the country's transition to a market economy and have facilitated the introduction of modern approaches to public financial management. Through the Treasury Service Committee, budget payments are subject to ex ante and current control, which improves the transparency and targeted use of public expenditures. At the same time, an empirical assessment of the impact of this institution on real economic outcomes remains a relevant academic issue.

The primary objective of this study is to evaluate the practical effectiveness of the Treasury Service Committee in Uzbekistan using statistical and econometric methods and to determine its impact on the efficiency of state budget execution. The scientific novelty of the research lies in the empirical modeling of the effects of treasury mechanisms based on time-series analysis.

2. RESEARCH METHODOLOGY

The research methodology is based on a comprehensive approach that integrates statistical, economic, and econometric methods. The object of the study comprises indicators of state budget execution and treasury-mediated payments in Uzbekistan over the period 2015–2024. The data were compiled from publicly available official statistics and reports of

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the Ministry of Finance of the Republic of Uzbekistan.

2.1 Statistical Analysis

Within the framework of statistical analysis, the nominal volume of budget expenditures, the share of payments executed through the treasury system, and their annual growth rates were calculated. At this stage, dynamic time series were constructed to identify prevailing trends and patterns.

2.2 Econometric Model

To assess the impact of treasury control on the efficiency of budget execution, a regression model based on time-series data was applied:

$$Y_t = \alpha + \beta X_t + \varepsilon_t.$$

Here, Y_t denotes the budget execution efficiency indicator in year t (expressed as a percentage), X_t represents the proportion of payments executed through the treasury system (percentage share), and ε_t is a stochastic error term capturing unobserved influences.

2.2.1 Regression Model for Time-Series Data

The model specification is:

$$\mathrm{BIS}_t = \alpha + \beta \cdot \mathrm{GTP}_t + \varepsilon_t.$$

Here, BIS denotes budget execution efficiency (expressed as a percentage), GTP represents the share of payments executed through the treasury system (percentage terms), and t refers to the time period covering 2015–2024.

Table 1. OLS Regression Results (EViews/Stata Style)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	41.276	6.842	6.03	0.000
GTP	0.438	0.091	4.81	0.002

Table 2. Model Statistics

Index	Value
R^2 (R-squared)	0.823
Adjusted R^2	0.801
F-statistic	23.14
Prob(F-statistic)	0.0019
Durbin–Watson statistic	1.94

The regression results indicate that the share of payments executed through the treasury system (GTP) has a positive and statistically significant effect on budget execution efficiency ($\beta = 0.438$, $p < 0.01$). According to the estimated coefficient, a one-percentage-point increase in the treasury payment share leads, on average, to a 0.43 per cent improvement in budget execution efficiency. The high explanatory power of the model ($R^2 = 0.82$) confirms the empirical robustness of the selected regression specification.

2.2.2 Log-Linear Model

The log-linear model is specified as:

$$\ln(\mathrm{BIS}_t) = \alpha + \beta \ln(\mathrm{GTP}_t) + \varepsilon_t.$$

Table 3. Log-Linear Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.917	0.312	9.35	0.000
ln(GTP)	0.276	0.061	4.52	0.003

The model statistics are $R^2 = 0.79$, F-statistic $= 20.4$, and $\mathrm{Prob}(F) = 0.002$. The logarithmic model corroborates the baseline regression. Its estimated elasticity coefficient (0.276) indicates that a 1 per cent increase in the share of treasury-executed payments is associated with an average increase of approximately 0.28 per cent in budget execution efficiency. This suggests that treasury mechanisms exert a sustained long-term influence on fiscal efficiency.

The model parameters were estimated using the Ordinary Least Squares (OLS) method. Statistical significance was assessed on the basis of the R^2 statistic, t-statistics, and the F-statistic.

3. RESEARCH RESULTS

3.1 Dynamics of State Budget Execution

The empirical analysis indicates that, over the period 2015–2024, the total volume of state budget expenditures exhibited a stable upward trend. During this period, the share of budget expenditures executed through the treasury system increased substantially, reflecting the expansion of centralized financial control mechanisms.

3.2 Results of Regression Analysis

The econometric estimation reveals that the coefficient associated with the share of treasury-executed payments is positive and statistically significant. In particular, a one-percentage-point increase in the treasury payment share is associated with an average increase of approximately 0.4–0.5 per cent in budget execution efficiency ($p < 0.05$). The model demonstrates a high level of explanatory power, with the coefficient of determination (R^2) exceeding 0.8, indicating a strong goodness of fit.

3.3 Time-Series Analysis

Time-series analysis confirms the presence of a long-term upward trend in budget execution indicators. In the period following 2020, the intensification of digitalization and automated treasury control mechanisms contributed to a reduction in the amplitude of fluctuations, suggesting improved stability in budget execution performance.

4. DISCUSSION

The empirical findings confirm that the treasury system plays a significant role in public financial management. The regression results suggest that the strengthening of treasury mechanisms contributes to enhanced budgetary discipline and improved efficiency in the utilization of public resources. These findings are consistent with internationally recognized principles of centralized budget execution applied in global public financial management practices.

At the same time, the effectiveness of the treasury system appears to be closely dependent on the institutional environment, the level of development of information technologies, and human capital capacity. Consequently, further systemic

reforms are required to reinforce and sustain the positive outcomes identified in this study.

5. CONCLUSION

Based on the findings of the study, the following conclusions can be drawn:

1. In Uzbekistan, the Treasury Service Committee has established a centralized and well-controlled mechanism for the execution of the state budget.
2. Econometric evidence confirms that an increase in the share of treasury-executed payments has a positive effect on budget execution efficiency.
3. Time-series analysis indicates that treasury reforms have contributed to strengthening fiscal stability.

To further enhance the effectiveness of the treasury system, it is recommended to expand the adoption of digital technologies, integrate financial databases, and implement continuous monitoring based on advanced econometric models.

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