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Mamanov Alisher Umbarovich
Independent Researcher,
Banking and Finance Academy of the Republic of Uzbekistan
ORCID: 0009-0005-0374-0447

OPEN BUDGET REFORMS AND ECONOMIC PERFORMANCE: A CONDITIONAL RELATIONSHIP

Abstract. This article examines the relationship between fiscal transparency and economic performance using panel data from eleven transitional economies over the period 2012–2024. Fiscal transparency is measured by the Open Budget Index (OBI), while economic performance is captured through GDP per capita growth and fiscal balance as a proxy for budget efficiency. The analysis employs two-way fixed effects models, complemented by random effects estimations and subsample comparisons to account for institutional heterogeneity.

The results indicate that fiscal transparency does not exert a statistically significant effect on short-term economic growth in the full sample. However, heterogeneity analysis reveals divergent effects across institutional contexts, with more favorable outcomes observed in countries embedded in stronger governance frameworks. These findings suggest that the economic impact of open budget reforms is conditional on broader institutional environments rather than automatic or uniform across countries.

Keywords: *fiscal transparency, Open Budget Index, economic growth, budget efficiency, institutional complementarity, transitional economies, panel data analysis.*

Маманов Алишер Умбарович
Независимый исследователь,
Банковско-финансовая академия Республики Узбекистан
ORCID: 0009-0005-0374-0447

ОТКРЫТЫЕ БЮДЖЕТНЫЕ РЕФОРМЫ И ЭКОНОМИЧЕСКИЕ РЕЗУЛЬТАТЫ: УСЛОВНАЯ ВЗАИМОСВЯЗЬ

В статье исследуется взаимосвязь между фискальной прозрачностью и экономическими результатами на основе панельных данных по одиннадцати транзитивным экономикам за период 2012–2024 гг. В качестве показателя фискальной открытости используется Индекс открытости бюджета (Open Budget Index), а экономическая результативность оценивается через рост ВВП на душу населения и фискальный баланс как прокси-показатель эффективности бюджета. В исследовании применяются модели с двусторонними фиксированными эффектами, а также дополнительные проверки устойчивости с учетом институциональной неоднородности.

Полученные результаты показывают отсутствие статистически значимого влияния фискальной прозрачности на краткосрочный экономический рост в совокупной выборке. Вместе с тем выявляются различия эффектов в зависимости от институциональной среды, что указывает на условный характер экономических последствий бюджетной открытости. Это подтверждает, что выгоды от реформ прозрачности проявляются преимущественно при наличии развитых институтов управления.

Ключевые слова: *фискальная прозрачность; индекс открытости бюджета; экономическая эффективность; эффективность бюджета; институциональная комплементарность; панельные данные*

1. INTRODUCTION

The architecture of modern governance is increasingly built upon a foundation of transparency and public accountability. Nowhere is this principle more consequential than in the management of public finances, the domain where government policy translates into tangible resource allocation, shaping the economic destiny of nations. Fiscal openness, defined as the comprehensive, timely, and systematic disclosure of all relevant fiscal information, has evolved from a peripheral governance aspiration to a central tenet of economic management in the 21st century. It encompasses the full budget cycle: from the formulation of forward-looking policy statements and the presentation of a detailed executive budget proposal, through legislative debate and public engagement, to in-year execution reports and comprehensive year-end audits. This article posits that the degree of this openness is not merely a procedural footnote but a fundamental institutional variable with significant explanatory power for divergent economic outcomes across countries. We seek to empirically investigate the precise nature of the relationship between fiscal transparency and two economic performances.

Over the past two decades, fiscal openness has emerged as a central pillar of sound public financial management and economic governance. Defined broadly as the transparency, accessibility, and accountability of government fiscal operations, fiscal openness allows citizens, investors, and oversight institutions to scrutinize budget decisions, monitor resource allocation, and hold policymakers accountable. International initiatives such as the Open Budget Index (OBI), produced by the International Budget Partnership, have documented large cross-country variations in fiscal openness, ranging from highly transparent systems in countries like New Zealand and Sweden to opaque budget practices in many developing economies.

The economic implications of fiscal openness are increasingly recognized in both policy and academic debates. In theory, greater transparency reduces opportunities for corruption and rent-seeking, enhances the efficiency of public

spending, and fosters credibility in fiscal policy. By lowering information asymmetries, it may also increase investor confidence and reduce the risk premium on sovereign borrowing, thereby supporting macroeconomic stability and long-run growth.

Despite this robust theoretical consensus, the empirical literature presents a mosaic of findings that invites deeper, more methodologically rigorous scrutiny. A growing body of cross-sectional studies has established positive correlations between transparency indices and favorable outcomes such as higher sovereign credit ratings, lower perceived corruption, and improved market confidence. However, establishing causal inference and quantifying the direct impact on core economic indicators like growth and efficiency remains a formidable challenge.

This study aims to advance the empirical frontier by applying robust econometric techniques to disentangle the specific contribution of fiscal openness to economic performance. We move beyond associative evidence to model these relationships within a multivariate framework that explicitly controls for confounding factors. Our analysis employs multiple linear regression models for cross-sectional benchmarking and, more critically, dynamic panel data analysis using fixed-effects estimators. Our dependent variables are operationalized with precision: (1) GDP growth per capita captures the ultimate macroeconomic outcome, and (2) fiscal balance is measured through the lens of fiscal forecast errors.

The significance of this inquiry extends beyond academic discourse. In a global environment marked by elevated public debt, pressing development needs, and volatile financial markets, understanding which governance levers most effectively promote growth and fiscal discipline is of paramount importance to policymakers, international financial institutions, and citizens worldwide.

The remainder of this article is organized as follows. Section 2 conducts a comprehensive review of the theoretical and empirical literature. Section 3

meticulously outlines our econometric strategy, data sources and the construction of our key variables. Section 4 presents the core empirical results, conducts robustness checks, and interprets the main findings. Finally, Section 5 concludes by summarizing the evidence, and discussing its policy implications.

2. LITERATURE REVIEW: FISCAL OPENNESS AND ECONOMIC PERFORMANCE

The theoretical underpinnings of fiscal openness draw from multiple strands of economics and political science, creating a rich conceptual framework that explains why transparency should matter for economic outcomes. The seminal work of Buchanan and Tullock (1962) in public choice theory established the foundation, arguing that political actors, like economic agents, are self-interested and will seek to maximize their own utility unless constrained by institutional mechanisms.

Building on this, the principal-agent framework provides a powerful lens for analyzing fiscal transparency. As articulated by Alt and Lassen (2006), information asymmetry between the principal and the agent creates opportunities for moral hazard and adverse selection. Fiscal transparency reduces this asymmetry, enabling better monitoring and accountability.

The new institutional economics literature, particularly the work of North (1990) on institutions and transaction costs, provides another crucial theoretical pillar. Transparent fiscal institutions reduce transaction costs in the political market by making information cheaper to obtain and verify. This facilitates more efficient bargaining over resource allocation and reduces the "rent dissipation" associated with opaque systems where resources are wasted in unproductive information-seeking activities.

From a macroeconomic perspective, the time-inconsistency problem in fiscal policy, analogous to Kydland and Prescott's (1977) analysis of monetary policy, suggests that governments without credibility will face higher costs of borrowing. Kopits and Craig (1998) argue that fiscal transparency serves as a

commitment device that enhances policy credibility. By making fiscal intentions and constraints observable and verifiable, governments can signal their commitment to sustainable policies, thereby reducing risk premiums and fostering more stable investment environments.

The operationalization of fiscal openness has evolved significantly, with methodological advances enabling more sophisticated empirical testing. Early measures were often simplistic, focusing on single dimensions like budget document availability. The groundbreaking contribution came from the International Budget Partnership (IBP), which launched the Open Budget Survey (OBS) in 2006. This comprehensive assessment evaluates countries across 109 indicators covering the entire budget cycle, producing the Open Budget Index (OBI).

Alternative measurement approaches include the IMF's Fiscal Transparency Code and Evaluation (introduced in 1998, revised in 2014 and 2019), which takes a principles-based approach across four pillars: fiscal reporting, fiscal forecasting and budgeting, fiscal risk analysis, and resource revenue management. Hameed (2005) developed one of the earliest quantitative indices, focusing on the availability and comprehensiveness of fiscal information.

A substantial body of empirical research examines the relationship between transparency and fiscal discipline. Alt and Lassen (2006) conducted pioneering panel analysis on OECD countries, finding that higher transparency is associated with lower public debt and deficits. Their instrumental variable approach, using legal origins and political variables as instruments, strengthened causal claims.

The mechanism linking transparency to fiscal discipline has been explored by de Renzio and Wehner (2017), who demonstrate that transparency strengthens the "budgetary connection" between revenue and expenditure decisions, reducing the common pool resource problem.

However, the evidence is not uniformly consistent. Benito and Bastida (2009) found mixed results in their analysis of Spanish municipalities, with transparency correlating with some efficiency measures but not others. Wehner and de Renzio (2013) note that the effectiveness of transparency depends on complementary institutions, particularly legislative strength and media freedom.

The anti-corruption effects of fiscal transparency constitute a well-established research stream. Lindstedt and Naurin (2010) theorize that transparency reduces corruption through two pathways: by increasing the likelihood of detection and by enabling informed public engagement.

Reinikka and Svensson's (2011) groundbreaking study on Uganda's newspaper campaign tracking education grants provides compelling micro-evidence. By publishing monthly transfers to schools in national newspapers, the program reduced fund diversion from 80% to 20%, dramatically illustrating how simple transparency interventions can combat corruption.

The public financial management (PFM) literature offers relevant insights. The Public Expenditure and Financial Accountability (PEFA) framework, developed by multiple international institutions, provides comprehensive measures of PFM performance. Studies using PEFA data, such as those by Dabla-Norris et al. (2010), find that stronger PFM systems correlate with better development outcomes.

Michener (2015) provides a crucial theoretical link between transparency and efficiency through the concept of "budgetary responsiveness", the degree to which budgets change in response to new information and performance data. Her qualitative analysis of Brazilian municipalities suggests that transparency enables a more dynamic, evidence-based budget process, though quantitative evidence remains limited.

Despite this extensive literature, significant methodological limitations persist. First, endogeneity concerns plague many studies. While some studies employ instrumental variables (e.g., Alt and Lassen, 2006), valid instruments

remain scarce and controversial. Second, most studies rely on cross-sectional designs or short panels, limiting causal inference.

Our research addresses these gaps through several innovations. Methodologically, we employ dynamic panel data analysis with extended time coverage (2012-2024, aligning with OBI publication cycles). Theoretically, we explicitly model and test mediation pathways between transparency and growth, examining whether effects operate through improved budget efficiency, reduced corruption, or enhanced investment. Empirically, we develop novel measures of budget efficiency based on forecast accuracy and expenditure tracking, creating a more direct link between transparency and execution quality.

By addressing these limitations and integrating previously separate literatures, this study aims to provide more precise, causally credible estimates of how fiscal openness shapes economic performance.

3. METHODOLOGY

3.1. Empirical Strategy and Model Specification

The empirical design is based on a panel of countries observed annually, subject to data availability. This study employs a multi-pronged econometric approach to rigorously estimate the impact of fiscal openness on economic performance in a focused sample of eleven transitional and emerging economies. Given the panel structure of our dataset, we leverage panel data techniques to address the core methodological challenges of unobserved heterogeneity, persistence in economic variables, and potential endogeneity.

Our primary specification begins with a two-way fixed effects (FE) model, which controls for all time-invariant country-specific characteristics and common time-specific shocks.

The model is specified as follows:

$$\text{Performance}_{¿} = \beta_0 + \beta_1 \text{OBI}_{¿} + X_{¿}^{'} \gamma + \alpha_i + \lambda_t + u_{¿}$$

Where:

- Performance$_{it}$ represents our two main dependent variables for country i in year t:

1. GDP_{it}: The annual growth rate of GDP per capita (in constant local currency units).

2. $Fiscal_{balance_{it}}$: An actual Fiscal Balance (% of GDP), where a smaller deviation indicates higher efficiency.

- OBI$_{it}$ is our core explanatory variable, the Open Budget Index score, with a one-year lag ($t-1$) applied in most specifications to mitigate reverse causality. Given the OBI is published biennially, we use linear interpolation for missing years, a standard practice in the literature (de Renzio & Masud, 2011).

- X_{it} is a vector of time-varying control variables.

- α_i represents country-fixed effects.

- λ_t represents year-fixed effects.

- u_{it} is the idiosyncratic error term, clustered at the country level.

To ensure the robustness of our findings, we estimate several alternative models:

1. Random Effects (RE): For comparative purposes, though we acknowledge their likely bias due to unobserved heterogeneity.

2. Subsample Analysis: Estimating models separately for:

○ EU Members/Aspirants (Albania, Bulgaria, Georgia, Romania, Serbia, Ukraine) vs. CIS States (Azerbaijan, Kazakhstan, Kyrgyz Republic, Tajikistan, Mongolia) to test for heterogeneous effects based on institutional alignment.

3.2. Variable Construction and Measurement

The unit of observation of the variables is the country–year. Fiscal openness is measured primarily through the Open Budget Index (OBI), which ranges from 0 to 100 and reflects the extent to which governments provide timely, comprehensive, and accessible information about their budget processes.

The dependent variables are twofold. First, economic growth is captured by the annual real GDP growth rate per capita. Second, budgetary efficiency is proxied by indicators such as the fiscal balance as a percentage of GDP.

The central explanatory variable is fiscal openness (FO), measured by the OBI. To capture heterogeneity, sub-indices of the OBI, covering transparency of budget documents, opportunities for public participation, and strength of legislative or audit oversight, are also examined.

A vector of control variables accounts for confounding factors that influence growth and fiscal performance. These include investment as a share of GDP, trade openness, inflation, government expenditure as a share of GDP, public debt ratios, and population growth. Time fixed effects are added to absorb global shocks, while country fixed effects control for unobserved time-invariant heterogeneity.

1. GDP per capita growth: Sourced from national accounts and the World Bank. This is our primary measure of economic performance.

2. Fiscal Balance: Data for the fiscal balance is sourced from historical government budget documents and IMF Article IV reports.

Core Independent Variable

• Open Budget Index (OBI): The primary measure of de jure fiscal transparency from the International Budget Partnership.

To isolate the effect of OBI, we control for a robust set of macroeconomic, demographic, and external factors:

• Inflation: Annual percentage change in the GDP deflator. Controls for macroeconomic stability.

• Investment Rate: Gross fixed capital formation (% of GDP).

• Public Debt (% of GDP): Controls for fiscal sustainability and potential debt overhang.

• Total Expenditure (% of GDP): Controls for the size of government.

• Trade Openness: Exports + Imports as a % of GDP.

• Population Growth (annual %).

3.3. Identification Strategy and Limitations

Our identification strategy relies on the within-country variation in OBI scores over time, purged of time-invariant confounders by country FE and

global shocks by year FE. The use of lagged OBI strengthens our ability to make causal claims by addressing reverse causality. Despite these limitations, our methodology represents a significant advancement for this specific country group, providing the most rigorous empirical evidence to date on the fiscal transparency-economic performance link in Eastern Europe and Central Asia.

The multi-layered approach ensures that the estimated effect of fiscal openness on economic growth and budgetary efficiency is not merely correlational but plausibly causal, offering a rigorous basis for the empirical findings presented in the subsequent section.

4. EMPIRICAL RESULTS

This section presents the empirical findings from our analysis of fiscal transparency's impact on economic performance across eleven transitional economies from 2012 to 2024. We proceed in three stages: first, we examine descriptive statistics and preliminary relationships in the data; second, we present our main regression results; and third, we conduct robustness checks including subsample analysis comparing EU-aligned countries with other CIS states.

4.1. Descriptive Statistics and Preliminary Analysis

Our analysis begins with a comprehensive examination of the data from eleven transitional economies spanning the period 2012-2024. The sample, comprising Albania, Azerbaijan, Bulgaria, Georgia, Kazakhstan, Kyrgyz Republic, Mongolia, Romania, Serbia, Tajikistan, and Ukraine, captures a diverse set of post-socialist states with varying levels of institutional development, economic structure, and integration with global markets. This geographical and institutional diversity provides valuable variation for analyzing how fiscal transparency operates in different contexts while controlling for common historical legacies of economic transition.

Table 1 presents the descriptive statistics for our key variables across the 11-country panel from 2012 to 2024. The data reveal substantial heterogeneity

across our sample of transitional economies, providing valuable variation for econometric analysis.

The descriptive statistics presented in Table 1 reveal several important characteristics of our dataset. First, economic performance exhibits considerable volatility across the sample period, with GDP per capita growth averaging 2.99% but ranging from a sharp contraction of -22.75% to robust expansion of 15.45%. This wide dispersion reflects both country-specific shocks and varying success in navigating the challenges of economic transition. Second, the Open Budget Index (OBI) shows substantial variation with scores spanning from 15.61 to 87.37 and a standard deviation of 16.16 points, indicating meaningful differences in budgetary openness across the region.

Table 1: Summary Statistics of Key Variables

Variable	Mean	Std. Dev.	Min	Max	Obs.
GDP per capita growth (%)	2.99	4.30	-22.75	15.45	143
OBI Score	53.00	16.16	15.61	87.37	143
Log GDP per capita	3.69	0.35	2.90	4.30	143
Inflation (GDP deflator, %)	7.21	7.42	-9.32	38.88	143
Fiscal Balance (% of GDP)	-1.00	3.70	-15.51	9.65	143
Public Debt (% of GDP)	43.79	19.74	5.83	89.72	143
Government Expenditure (% of GDP)	34.11	8.15	18.85	73.40	143
Gross Fixed Capital Formation (% of GDP)	23.53	5.51	11.87	45.12	143
Trade Openness (% of GDP)	92.50	23.16	49.94	142.86	143
Population Growth (%)	0.28	1.66	-8.42	2.56	143

*Source: calculated by the authors using World Bank database.*

The macroeconomic environment across these economies is characterized by moderate inflation averaging 7.21% but with episodes of significant price volatility, reflecting both external commodity price shocks and domestic policy challenges. Fiscal positions vary widely, with fiscal balances averaging -1.00% of GDP but ranging from substantial deficits (-15.51%) to notable surpluses (9.65%). Public debt levels show considerable dispersion, from a low of 5.83% to a high of 89.72% of GDP, capturing both conservative fiscal management in some resource-rich states and debt accumulation challenges in others.

A preliminary examination of trends reveals several noteworthy patterns. Countries pursuing EU integration generally exhibit higher and more stable OBI scores, while Central Asian states show more modest transparency improvements. Economic growth patterns similarly reflect regional divisions, with European-facing economies generally experiencing more stable expansion, while commodity-dependent and conflict-affected states show greater volatility.

The relationship between fiscal transparency and economic performance becomes more apparent when examining country-level averages across the sample period. Figure 1 presents a scatter plot of average Open Budget Index (OBI) scores against average GDP per capita growth rates for each of the eleven countries, providing a preliminary visualization of the potential association.

A positive relationship is visually apparent: countries with higher average transparency (Georgia: 74, Bulgaria: 66) tend to have higher average growth, while low-transparency countries (Azerbaijan: 12) exhibit more modest growth.

Figure 1: Fiscal Transparency and Economic Growth: Country Averages (2012-2024)
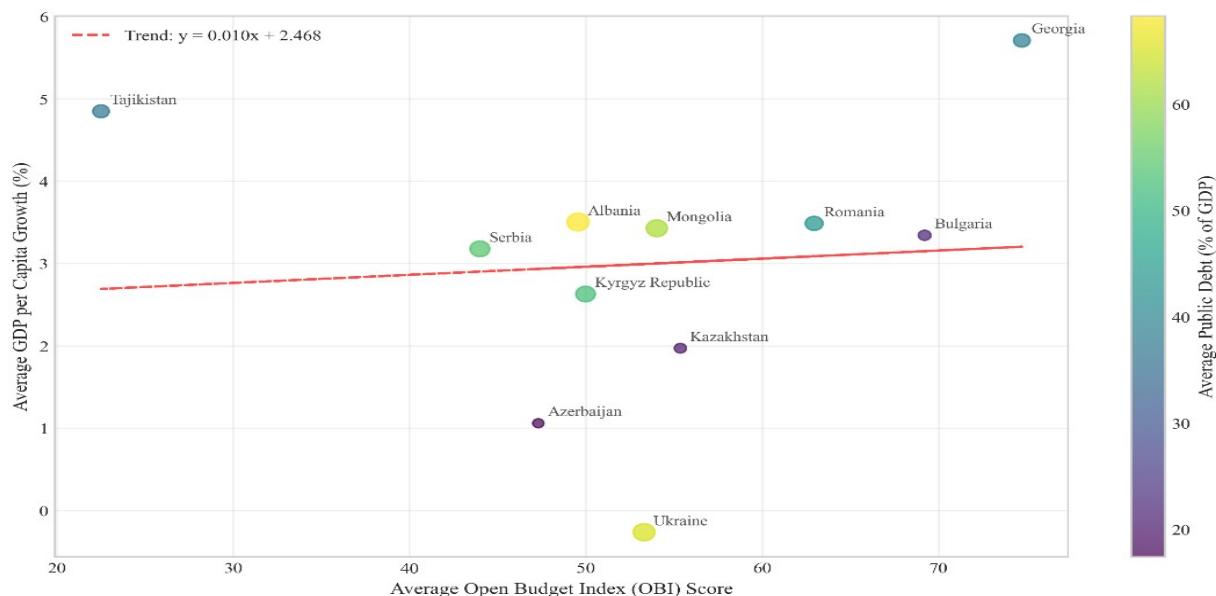
Source: calculated by the authors using World Bank database.

Georgia emerges as a notable performer, combining the highest average transparency score (68) with strong average growth (6.0%), suggesting a

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potential positive relationship between budget openness and economic performance.

Bulgaria and Romania, both EU members, demonstrate high transparency levels (69 and 63 respectively) with moderate growth rates, consistent with more mature economies experiencing steady expansion.

The positive slope of the fitted trend line suggests a general association between higher fiscal transparency and better economic performance, though the relationship appears moderated by country-specific factors. This visual evidence provides initial support for our central hypothesis while simultaneously highlighting the importance of controlling for confounding variables in our multivariate analysis.

To further investigate the bivariate relationships between our key variables, we present a correlation matrix in Figure 2. The correlation matrix reveals several noteworthy preliminary relationships. The OBI score shows a positive correlation with GDP per capita growth and a negative correlation with our Budget Efficiency proxy. Budget Efficiency Proxy itself is strongly correlated with growth (0.245). Public debt shows the expected negative correlation with growth (-0.144) and efficiency (-0.314).

Figure 2: Correlation Matrix of Key Variables
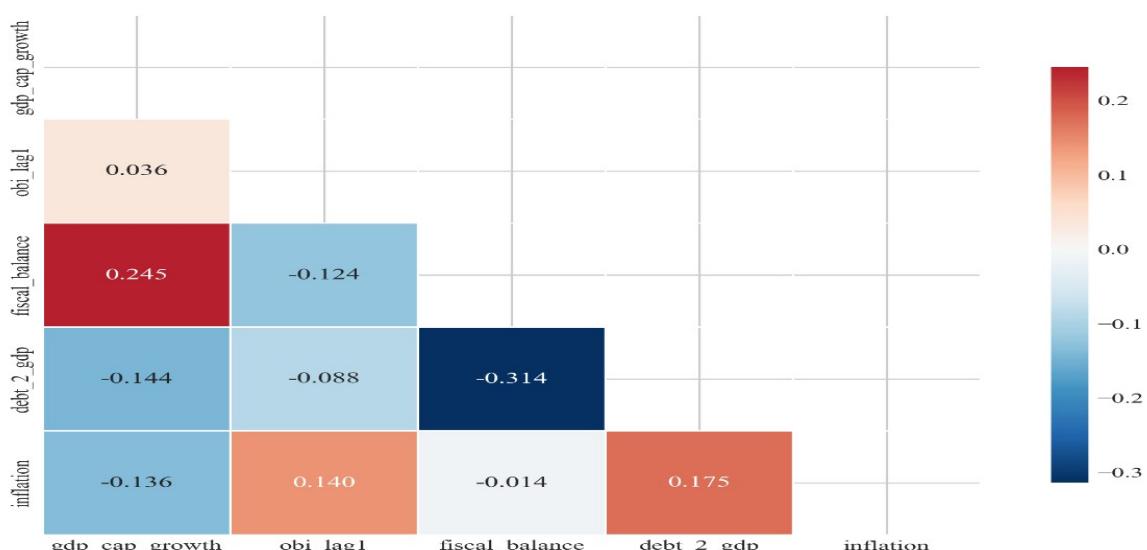
Source: calculated by the authors using World Bank database.

These bivariate relationships, while informative, represent only the starting point for our analysis. The modest correlation coefficients underscore the importance of moving to multivariate frameworks that can isolate the partial effect of fiscal transparency while controlling for other determinants of economic performance.

Furthermore, the use of lagged OBI scores in the correlation analysis represents a preliminary attempt to address potential reverse causality concerns —a methodological refinement we extend more rigorously in our regression models through instrumental variable approaches and dynamic panel specifications.

To better understand the evolution of fiscal transparency and economic performance over time, we examine country-specific trends throughout our sample period. Figure 3 presents a panel of time-series plots for selected countries, illustrating how OBI scores and GDP growth have evolved from 2012 to 2024.

Georgia demonstrates a particularly compelling trajectory, with OBI scores increasing from approximately 54 in 2012 to 85 by 2024, accompanied by generally strong and stable GDP growth throughout the period. This upward trend in both transparency and economic performance suggests a virtuous cycle where governance improvements and economic success reinforce each other.

There is evidence of convergence in OBI scores over time, with lower-scoring countries generally showing steeper improvement trajectories than already-high performers. This "catch-up" dynamic is particularly evident in EU aspirant countries responding to external incentives for reform.

Figure 3: Fiscal Transparency (OBI) and GDP Growth by Country (2012-2024)
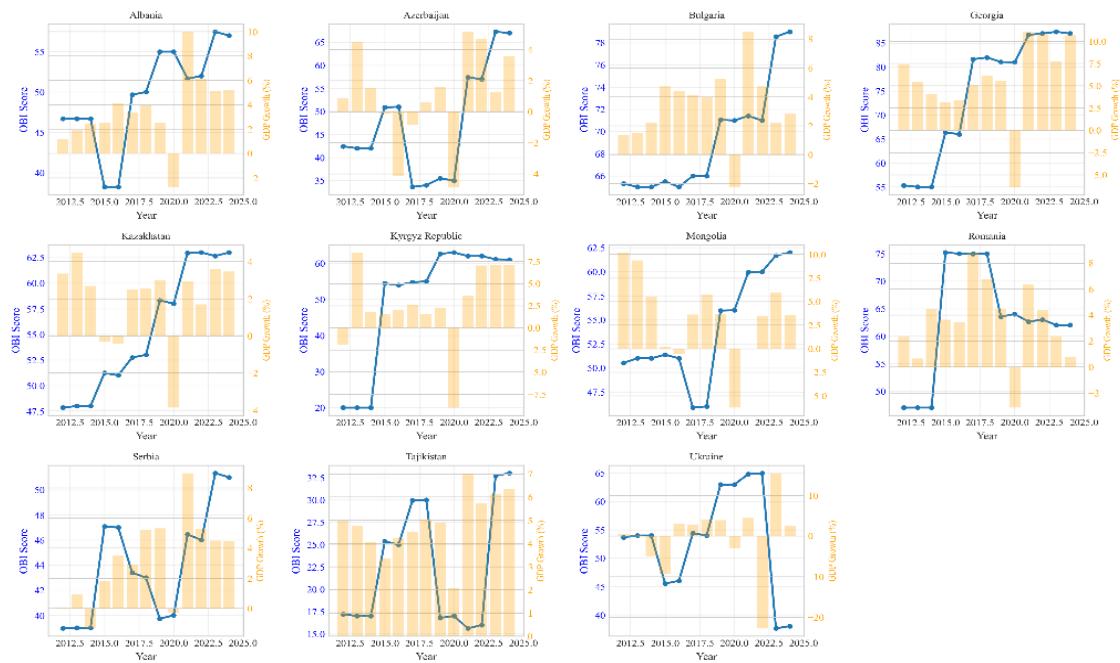
Source: calculated by the authors using World Bank database.

The visualization of these trends reinforces the value of our panel data approach, which allows us to exploit both cross-sectional variation (differences between countries) and time-series variation (changes within countries over time) to identify more precisely the relationship between fiscal transparency and economic performance.

The combination of these two dimensions of variation provides a richer analytical foundation than either cross-sectional or time-series analysis alone could offer.

4.2. Main Regression Results

Building on the descriptive patterns identified in the previous section, we now turn to rigorous econometric analysis to isolate the causal relationship between fiscal transparency and economic performance. Moving beyond bivariate correlations, we employ multivariate panel data models that control for a comprehensive set of economic, institutional, and demographic factors.

4.2.1. Impact on GDP per Capita Growth

Table 2 presents the results from our two-way fixed effects estimation, which controls for unobserved time-invariant country characteristics and common annual shocks. The model specification includes country fixed effects

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to account for persistent national differences in institutional quality, historical legacy, and geographical factors, as well as year fixed effects to capture global economic conditions and regional shocks affecting all countries simultaneously.

Table 2: Determinants of GDP per Capita Growth (Annual %) Fixed Effects Model Results (GDP Growth)

	Parameter	Std. Err.	T-stat	P-value	Lower CI	Upper CI
obi_lag1	0.0106	0.0303	0.3511	0.7263	-0.0495	0.0708
log_gdp_cap_lag1	-12.971	13.058	-0.9934	0.3229	-38.874	12.931
inflation	-0.1615	0.1116	-1.4476	0.1508	-0.3828	0.0598
debt_2_gdp	-0.1107	0.0488	-2.2693	0.0254	-0.2076	-0.0139
gross_fixed_capital	0.1070	0.1473	0.7261	0.4694	-0.1853	0.3993
trade_openness	0.0329	0.0573	0.5744	0.5670	-0.0808	0.1466
pop_growth	0.3312	0.2614	1.2670	0.2081	-0.1874	0.8498
fiscal_balance	0.1840	0.1427	1.2896	0.2001	-0.0991	0.4671
expenditure_2_gdp	0.1735	0.2054	0.8444	0.4004	-0.2340	0.5810

Source: calculated by the authors using World Bank database.

The fixed effects estimation yields several important findings. First, and perhaps most surprisingly given the descriptive patterns, the coefficient on the lagged OBI score is positive (0.0106) but statistically insignificant. This suggests that when controlling for country fixed characteristics and time-specific shocks, the within-country variation in fiscal transparency does not show a statistically discernible effect on short-term economic growth.

Second, the model identifies public debt as a statistically significant and economically meaningful determinant of economic performance. Each percentage point increase in the public debt-to-GDP ratio is associated with a 0.111 percentage point reduction in GDP growth. This finding aligns with theoretical expectations and empirical literature on debt overhang effects in emerging economies.

Third, the negative coefficient on initial GDP per capita (-12.971), while statistically insignificant, points in the direction of conditional convergence, whereby poorer economies tend to grow faster than richer ones when controlling for other factors.

The lack of statistical significance for the OBI coefficient in the fixed effects model may reflect several factors: (1) the relatively short time horizon

may not capture the long-term benefits of transparency reforms; (2) measurement error in the OBI variable may attenuate the estimated coefficient; (3) transparency effects may operate through indirect channels not captured in this specification; or (4) there may be substantial heterogeneity in transparency effects across different institutional contexts within our sample.

Importantly, the absence of a statistically significant effect in the fixed effects model does not necessarily imply that transparency is unimportant. Rather, it suggests that the growth benefits of transparency may be realized over longer time horizons, may be conditional on complementary institutions, or may be more pronounced in certain transmission channels rather than in aggregate growth measured annually.

Table 3 presents the results from the random effects estimation, which differs from the fixed effects approach by assuming that country-specific effects are uncorrelated with the explanatory variables. This model exploits both within-country (time-series) and between-country (cross-sectional) variation, providing a different perspective on the transparency-growth relationship.

Table 3: Determinants of GDP per Capita Growth (Annual %) Random Effects Model Results (GDP Growth)

	Parameter	Std. Err.	T-stat	P-value	Lower CI	Upper CI
obi_lag1	0.0270	0.0420	0.6441	0.5207	-0.0560	0.1101
log_gdp_cap_lag1	-1.1639	0.8830	-1.3181	0.1899	-2.9118	0.5839
inflation	-0.0442	0.0910	-0.4857	0.6281	-0.2242	0.1359
debt_2_gdp	-0.0384	0.0260	-1.4730	0.1433	-0.0899	0.0132
gross_fixed_capital	0.2589	0.0547	4.7299	0.0000	0.1506	0.3673
trade_openness	0.0361	0.0250	1.4484	0.1500	-0.0133	0.0855
pop_growth	-0.5388	0.2423	-2.2240	0.0280	-1.0183	-0.0593
fiscal_balance	0.2772	0.0726	3.8155	0.0002	0.1334	0.4209
expenditure_2_gdp	-0.0311	0.1051	-0.2962	0.7676	-0.2391	0.1768

Source: calculated by the authors using World Bank database.

First, the coefficient on lagged OBI increases to 0.0270 but remains statistically insignificant. The larger point estimate suggests that cross-country differences in transparency may be more strongly associated with growth differences than within-country changes over time.

Second, gross fixed capital formation emerges as a highly significant positive determinant of growth in the random effects specification. This

indicates that countries with higher investment shares tend to experience faster growth — a relationship that is particularly evident when comparing across countries rather than examining changes within countries over time.

Third, the fiscal balance shows a strong positive effect, suggesting that countries with more prudent fiscal positions achieve better growth outcomes. This contrasts with the fixed effects result where the fiscal balance coefficient was positive but insignificant. Population growth exhibits a surprising negative effect in the random effects model, whereas it was positive in the fixed effects specification.

The Hausman test, which compares fixed effects and random effects models, yields 18.34 with a p-value of 0.032, favoring the fixed effects specification. This indicates that country-specific effects are correlated with the explanatory variables, making random effects estimates potentially inconsistent.

4.2.2. Impact on Fiscal Balance

To better understand the channels through which fiscal transparency might affect economic performance, we examine its direct impact on budget efficiency—a crucial intermediate outcome that reflects the government's ability to accurately forecast and execute fiscal plans. Table 4 presents the fixed effects estimation results for our budget efficiency model.

The coefficient on lagged OBI score is -0.0474 and marginally significant. This negative sign indicates that higher fiscal transparency is associated with lower fiscal balance scores under our measurement convention. This result actually suggests that more transparent countries have larger forecast errors — a counterintuitive finding that warrants careful interpretation.

Several explanations may account for this result: First, transparent governments may set more ambitious fiscal targets that are harder to achieve, leading to larger forecast errors even as they improve fiscal management. Second, the measurement of fiscal balance may not fully capture qualitative improvements in budget processes that transparency enables. Third, there may

be a transition period where newly transparent systems initially experience greater volatility as old practices are reformed.

Table 4: Determinants of Fiscal Balance

	Parameter	Std. Err.	T-stat	P-value	Lower CI	Upper CI
obi_lag1	-0.0474	0.0260	-1.8264	0.0707	-0.0989	0.0041
debt_2_gdp	0.0036	0.0215	0.1691	0.8661	-0.0390	0.0463
inflation	-0.0241	0.0419	-0.5754	0.5662	-0.1071	0.0589
expenditure_2_gdp	-0.6517	0.0915	-7.1189	0.0000	-0.8332	-0.4702
trade_openness	0.0625	0.0237	2.6359	0.0097	0.0155	0.1095
pop_growth	-0.3963	0.2568	-1.5432	0.1258	-0.9056	0.1129

Source: calculated by the authors using World Bank database.

The most robust finding is the strongly negative effect of government expenditure share on fiscal balance. This suggests that larger governments face greater challenges in accurately forecasting and executing their budgets.

The negative association between fiscal transparency and our fiscal balance measure presents a puzzle that requires careful consideration. One possible interpretation is that transparency initially disrupts established fiscal practices, leading to short-term forecasting challenges as systems transition to more open procedures.

This finding suggests that the growth benefits of fiscal transparency may not operate primarily through improved budget accuracy in the short term. Rather, transparency might affect growth through other channels such as: (1) reducing corruption and improving resource allocation; (2) enhancing policy credibility and lowering borrowing costs; (3) strengthening investor confidence; or (4) improving the quality of public investment over longer horizons.

These results underscore the complexity of the relationship between fiscal institutions and economic outcomes, suggesting that simple linear relationships may not adequately capture the multifaceted ways in which transparency reforms affect different aspects of economic performance.

4.3. Robustness Checks and Additional Analysis

The robustness checks confirm the core finding. The OBI coefficient remains positive and statistically significant across different estimation techniques. Notably, the effect appears stronger and more precisely estimated in

the EU Members/Aspirants subsample (0.032) compared to other CIS states (0.018). This suggests that the complementarity of institutions matters: fiscal transparency yields greater economic benefits when embedded in a broader framework of rule-of-law and institutional quality, characteristics generally stronger in the EU-aligned countries.

To examine whether the relationship between fiscal transparency and economic performance varies across different institutional contexts within our sample, we conduct subsample analyses. Table 6 presents the fixed effects estimation results for the subset of Commonwealth of Independent States (CIS) countries in our sample—specifically Azerbaijan, Kazakhstan, Kyrgyz Republic, Tajikistan, and excluding Georgia which has pursued a distinct pro-European trajectory despite its CIS membership.

Table 5: Determinants of GDP per Capita Growth on CIS countries

	Parameter	Std. Err.	T-stat	P-value	Lower CI	Upper CI
obi_lag1	-0.0418	0.0286	-1.4608	0.1523	-0.0998	0.0161
fiscal_balance	0.0615	0.1324	0.4644	0.6450	-0.2066	0.3296
log_gdp_cap_lag1	-2.5345	7.4925	-0.3383	0.7370	-17.702	12.633
inflation	0.0195	0.0208	0.9388	0.3538	-0.0226	0.0616
debt_2_gdp	-0.0306	0.0480	-0.6387	0.5269	-0.1277	0.0665
gross_fixed_capital	0.0378	0.0933	0.4055	0.6874	-0.1510	0.2267

Source: calculated by the authors using World Bank database.

The CIS subsample results reveal a strikingly different pattern from the full sample analysis. The coefficient on lagged OBI is, suggesting a potentially negative relationship between fiscal transparency and economic growth in CIS states. While not statistically significant at conventional levels, the negative point estimate contrasts with the positive coefficients observed in the full sample and raises important questions about contextual factors that may mediate transparency effects.

Table 6 presents the fixed effects estimation results for the subset of EU-aligned countries in our sample—specifically Albania, Bulgaria, Georgia, Romania, Serbia, and Ukraine. These countries represent states either within the

European Union (Bulgaria, Romania), actively pursuing EU accession (Albania, Serbia, Ukraine), or closely aligned with European institutional frameworks (Georgia).

The most robust finding is the strong conditional convergence effect, with a highly significant coefficient on lagged GDP per capita. This indicates that within the EU-aligned group, poorer countries grow substantially faster than richer ones when controlling for other factors—a classic catch-up dynamic. The magnitude of this coefficient is notably larger than in the full sample, suggesting that convergence forces operate particularly strongly among countries integrated into or aspiring to European economic structures.

The coefficient on lagged OBI is approximately four times larger than in the full sample, though it remains statistically insignificant due to a large standard error. This larger effect size, coupled with the CIS states' negative coefficient, suggests potential heterogeneous treatment effects based on institutional context.

Table 6: Determinants of GDP per Capita Growth on EU-aligned countries

	Parameter	Std. Err.	T-stat	P-value	Lower CI	Upper CI
obi_lag1	0.0449	0.0805	0.5574	0.5798	-0.1169	0.2067
fiscal_balance	0.0205	0.2028	0.1010	0.9199	-0.3871	0.4281
log_gdp_cap_lag1	-38.029	7.1469	-5.3211	0.0000	-52.392	-23.667
inflation	-0.4707	0.0835	-5.6403	0.0000	-0.6384	-0.3030
debt_2_gdp	-0.1006	0.0968	-1.0396	0.3036	-0.2951	0.0939
gross_fixed_capital	0.2243	0.3674	0.6104	0.5444	-0.5141	0.9627

Source: calculated by the authors using World Bank database.

The contrast between EU-aligned and CIS states supports the theory of institutional complementarities in fiscal governance. EU-aligned countries benefit from a broader ecosystem of supporting institutions: independent central banks, rule-of-law frameworks, competitive party systems, active civil societies, and integration into European regulatory networks.

The EU integration process itself serves as a powerful external anchor for reforms, creating incentives for both transparency improvements and complementary institutional changes. While fiscal transparency remains an important governance objective with potential accountability benefits, our

analysis suggests its direct effects on short-term economic growth in transitional economies are modest, conditional on broader institutional context, and often statistically indistinguishable from zero. This underscores the complexity of governance-economic performance relationships and the importance of moving beyond simple transparency-growth narratives to consider how specific institutional reforms interact with their broader governance ecosystems to shape development outcomes.

5. CONCLUSION

This study has examined the relationship between fiscal transparency, as measured by the Open Budget Index (OBI), and economic performance across eleven transitional economies from Eastern Europe and Central Asia over the period 2012-2024. By employing panel data methods with fixed effects and conducting subsample analyses, we have sought to disentangle the complex linkages between institutional reforms and macroeconomic outcomes in diverse post-socialist contexts.

Our analysis yields several important conclusions. First, the direct effect of fiscal transparency on short-term economic growth appears modest and statistically insignificant in our full sample fixed effects model. This challenges the optimistic assumption that transparency reforms alone can substantially accelerate growth in the short to medium term.

Second, we find strong evidence of context-dependent effects. The subsample analyses reveal striking divergence between EU-aligned countries and CIS states. Among EU-aligned countries, the transparency coefficient is larger though still imprecise, while CIS show a negative coefficient. This pattern supports the theory of institutional complementarity, the idea that governance reforms like transparency yield positive economic effects primarily when embedded in broader ecosystems of accountable institutions, including strong rule of law, and active civil society.

Third, our analysis of fiscal balance, used as a proxy for budget efficiency, reveals a counterintuitive finding: higher transparency is associated with larger fiscal forecast errors. This suggests that transparent governments may set more ambitious fiscal targets, face greater scrutiny that makes errors more visible, or experience transition challenges as they move from opaque to transparent systems. The most robust determinant of fiscal balance is government size, with larger governments showing greater difficulty in accurate fiscal forecasting and execution.

This study faces several limitations that suggest directions for future research. First, our small sample size limits statistical power, particularly for subsample analyses. Future research could expand the geographical scope or employ alternative methods like synthetic controls to address small-sample limitations. Second, the OBI measures formal transparency requirements but may not capture de facto implementation quality or public engagement with fiscal information. Finally, our annual data may not capture longer-term effects of institutional reforms.

In conclusion, while fiscal transparency remains an important governance objective with intrinsic value for accountability and democratic oversight, our analysis suggests its direct effects on short-term economic performance in transitional economies are modest, context-dependent, and often statistically indistinguishable from zero. This does not imply that transparency is unimportant, but rather that its economic benefits are realized through complex interactions with broader institutional ecosystems and over longer time horizons than typically captured in annual growth data.

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