

THE ROLE OF FISCAL SUSTAINABILITY AND INSTITUTIONAL CREDIBILITY IN PUBLIC FINANCIAL MANAGEMENT AS A FACTOR OF ECONOMIC GROWTH IN CENTRAL AND EASTERN EUROPE

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Abstract

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This study examines the impact of public financial management (PFM) on economic growth in European Union (EU) member states by assessing whether fiscal discipline, effective investment, and institutional quality contribute to higher gross domestic product (GDP) per capita growth. The empirical analysis employs a dynamic panel model estimated through the system generalized method of moments (GMM) for 2015–2024, which addresses endogeneity and unobserved heterogeneity. The results show that a sound budget balance and higher gross capital formation significantly enhance growth, while government consumption exerts a negative effect. Corruption control also supports growth by improving the efficiency of public spending, consistent with earlier evidence on the role of institutions (Mauro, 1995). In line with Barro (1990), the findings confirm that the composition and quality of fiscal policy matter more than its size. The study concludes that strengthening fiscal sustainability and institutional credibility is essential for growth-oriented PFM reform in EU economies.

Keywords: Public Financial Management, Fiscal Sustainability, Institutional Credibility, Economic Growth, System GMM

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1. INTRODUCTION

Public financial management (PFM) plays a critical role in shaping economic outcomes by influencing the efficiency, effectiveness, and accountability of government operations. It encompasses the entire budgetary cycle — revenue mobilization, resource allocation, expenditure execution, auditing, and oversight (Simson et al., 2011). In transitioning and developing economies, effective PFM improves the quality of public service delivery, reduces governance-related leakages, and supports

macroeconomic stability (Pere & Buseni, 2024). It is also essential for strengthening institutional credibility and public trust in government, which are decisive for long-term development.

A growing body of scholarly work has explored the relationship between public finance and economic growth, though the findings remain mixed. Traditional public finance theory highlights the productivity of state intervention in growth-enhancing sectors such as infrastructure, education, and innovation (Ram, 1986; Barro, 1990). However, inefficient or poorly targeted government

expenditure may crowd out private investment and undermine fiscal sustainability, particularly where institutions are weak or governance quality is low (Odior & Alenoghena, 2014). Wagner's Law further suggests that economic expansion itself induces higher demand for public spending, implying a bidirectional relationship between fiscal policy and development.

The Central and Eastern European (CEE) member states of the European Union (EU) offer a unique empirical setting for examining this relationship. These countries have undergone deep structural and institutional reforms since the 1990s, transitioning from centrally planned to market-based economies, and aligning their fiscal systems with EU governance frameworks (Afonso & Jalles, 2014). EU integration introduced formal fiscal rules, transparency standards, and institutional constraints, which shaped public expenditure composition and strengthened accountability. However, despite convergence in formal frameworks, considerable divergence persists in fiscal capacity, administrative quality, and growth performance across the region.

The relevance of studying PFM in the CEE region has increased in the context of post-crisis fiscal consolidation, the COVID-19 pandemic, energy market instability, and renewed EU fiscal governance reform. These developments have intensified the policy trade-off between fiscal discipline and pro-growth expenditure. Understanding how PFM affects growth in this group of countries is therefore not only academically relevant but also policy-critical. EU institutions increasingly rely on empirical evidence to evaluate fiscal rule design, enforce governance reforms, and guide structural funding allocations.

Against this backdrop, this study investigates the impact of PFM — measured through fiscal discipline, capital investment, and institutional governance — on economic growth in eleven CEE EU member states over the period 2015–2024. In doing so, the paper aims to assess whether countries that combine sound budgetary practices with institutional integrity achieve stronger growth outcomes than those with weaker PFM systems. The findings are expected to contribute to the comparative fiscal governance literature while offering actionable insights for policymakers focused on convergence and macroeconomic resilience. The originality of this study lies in simultaneously examining both the quantitative (fiscal balance and capital formation) and qualitative (institutional governance) components of PFM within a unified empirical framework. Unlike previous studies that typically analyze either fiscal aggregates or broad governance indicators in isolation, this paper identifies how the interaction between fiscal discipline and institutional quality drives growth outcomes in post-transition EU economies. It also updates the empirical evidence by using post-COVID data, capturing a period of unprecedented fiscal stress and policy realignment within the EU, which makes the results highly relevant to ongoing debates on fiscal governance reform.

The rest of the paper is structured as follows. Section 2 outlines the theoretical and empirical background. Section 3 describes the methodological framework and estimation strategy. Section 4 presents and discusses the empirical results. Section 5 concludes with policy implications.

2. LITERATURE REVIEW

The relationship between PFM and economic growth has been one of the most widely investigated topics in economic theory for more than a century. At its core, the debate concerns how government revenue and expenditure decisions influence capital accumulation, productivity, and long-term development. Over time, this discourse has evolved from early public finance theory toward modern endogenous growth models that emphasize institutions, fiscal efficiency, and governance quality.

One of the earliest theoretical frameworks is Wagner's Law, which argues that as economies industrialize and modernize, public spending naturally expands due to growing demand for collective goods such as administration, education, welfare, and infrastructure. Wagner (1890) implied a positive association between economic development and the size of the state, suggesting that fiscal expansion is not a by-product of growth, but a precondition for sustaining it.

Later, endogenous growth theory shifted the focus from the size of public spending to its composition and productivity. Romer (1986) linked long-run growth to knowledge spillovers, innovation, and human capital, all of which depend partly on public investment. In this view, PFM systems that allocate resources efficiently toward education, research and development (R&D), and infrastructure can generate persistent growth effects. Barro (1990) advanced this logic by modelling the productive role of government expenditure directly: growth is strengthened when public spending raises the marginal productivity of private capital. However, Barro also cautioned against poorly targeted or inefficient expenditure, stressing that fiscal policy may be either growth-enhancing or growth-reducing depending on its quality and financing.

The next wave of theoretical and empirical research, including Sala-i-Martin (1996), reinforced the idea that institutional governance determines whether public spending translates into productivity gains. Countries with transparent and accountable institutions tend to convert fiscal resources into development, whereas those with weak governance often experience waste, leakage, and corruption. Thus, PFM effectiveness depends not only on how much governments spend, but also on how well that money is managed.

Theoretical developments have also incorporated the concept of the fiscal multiplier, which explains why the growth impact of public finance varies over time. Auerbach and Gorodnichenko (2012) show that fiscal multipliers are typically larger during recessions than expansions, implying that countercyclical fiscal policy can stabilize output and accelerate recovery. This makes PFM effectiveness partly contingent on timing and macroeconomic context.

Empirical research on PFM and growth has grown significantly since the 1980s, using a wide range of econometric approaches. Single-country studies provide detailed institutional insight but suffer from weak generalizability, while panel studies allow for comparisons across different fiscal regimes and governance systems, increasing statistical robustness.

Early cross-country studies had mixed conclusions. Ram (1986) and Grier and Tullock (1989) found conflicting effects of government size on growth because public expenditure was treated as a single undifferentiated aggregate. The turning point came with Barro (1990), who distinguished between productive and unproductive spending, demonstrating that only expenditure that raises productive capacity supports long-term growth. Easterly and Rebelo (1993) also showed that infrastructure investment is particularly growth-enhancing, whereas poorly structured fiscal systems fail due to inefficiency and weak institutional anchors. This paved the way for Kneller et al. (1999), who demonstrated that distortionary taxation and inefficient expenditure undermine growth, whereas non-distortionary taxation paired with productive spending supports it.

During the 2000s, research shifted toward European and middle-income economies. Afonso and Furceri (2010) concluded that fiscal stability and expenditure efficiency matter more for growth than the sheer size of the public sector, while Juselius et al. (2014) highlighted fiscal sustainability as a prerequisite for persistent growth effects. In the CEE region specifically, studies identified structural and institutional vulnerabilities: Staehr (2008) documented the procyclicality of fiscal policy, Égert (2010) showed weak automatic stabilizers, and Vukšić (2013) demonstrated that higher growth depends on improvements in spending efficiency rather than spending volume. Afonso and Jalles (2016) reinforced the importance of jointly evaluating fiscal outcomes and institutional governance.

More recent literature deepens this institutional perspective. Staehr and Urke (2022) provide EU-level evidence that public investment effectiveness is strongly mediated by absorption capacity, especially in new member states, while the Directorate-General for Economic and Financial Affairs (2023) shows that fiscal quality and institutional credibility have become central performance metrics under EU fiscal governance frameworks. Heimberger (2023a) confirms a methodological shift toward dynamic panel estimation and highlights the role of fiscal stance and institutional credibility in shaping growth outcomes. López-Villavicencio and Zoumenou (2025) find that credible enforcement of fiscal rules enhances growth by reducing macroeconomic uncertainty and improving the transmission of investment. Meanwhile, Ardanaz et al. (2025) demonstrate that investment multipliers are significantly higher when governance and allocative efficiency are strong, reinforcing the centrality of PFM design rather than public spending volume. These findings are consistent with the International Monetary Fund (IMF, 2025), which shows that the growth effects of fiscal policy depend primarily on institutional capacity, targeting, and quality of expenditure rather than its aggregate magnitude.

Overall, the literature demonstrates that the impact of PFM on growth cannot be understood without considering both the composition of fiscal instruments and the institutional capacity behind them. In the CEE region, where convergence and institution-building remain ongoing, the quality of PFM — not simply spending levels — is the key determinant of whether fiscal policy accelerates or hinders economic development.

3. RESEARCH METHODOLOGY

3.1. Data and variables

In analyzing the role of PFM in stimulating economic growth, the selection of explanatory variables must reflect both theoretical relevance and institutional transmission mechanisms. The inclusion of inflation, gross capital formation, trade openness, tax revenue, government expenditure, governance indicators, and the fiscal balance captures the multidimensional nature of PFM and its impact on macroeconomic stability and institutional performance in CEE EU member states over 2015–2024.

Real gross domestic product (GDP) per capita growth serves as the dependent variable, measuring improvements in average economic welfare rather than aggregate output. Consistent with neoclassical and endogenous growth models (Mankiw et al., 1992), GDP per capita growth reflects differences in investment, productivity, and institutional quality, making it well-suited for cross-country growth comparisons.

Inflation is included as a proxy for macroeconomic stability. Persistent price instability erodes public spending efficiency, undermines real revenue performance, and distorts investment decisions. From a PFM perspective, stable inflation enhances fiscal predictability and improves budget execution. Afonso and Furceri (2010) confirm that inflation weakens long-term growth where institutional coordination between fiscal and monetary policy is limited, making it an essential control variable.

Gross capital formation measures investment in fixed assets and infrastructure. For CEE economies still closing structural gaps with Western Europe, public investment remains a major driver of growth. The literature (Barro, 1990) consistently shows that productive investment yields higher long-term returns than recurrent expenditure, and this indicator captures whether PFM systems effectively convert fiscal resources into growth-enhancing assets.

Tax revenue reflects the government's capacity to mobilize domestic resources and sustainably finance development. Higher revenue mobilization suggests stronger administrative capacity and reduces reliance on borrowing. Benedek et al. (2014) show that revenue efficiency supports growth when anchored in credible governance, a particularly relevant dimension for post-transition EU members.

General government final consumption expenditure (% of GDP) proxies the scale and composition of public spending. While essential for the delivery of core public services, excessive or inefficient current expenditure may crowd out private investment and reduce productivity. Gupta et al. (2005) emphasize that the growth effects of expenditure depend more on its efficiency than volume — an important consideration for CEE states still reforming legacy public administrations.

Governance indicators — government effectiveness and control of corruption — capture institutional quality and the credibility of fiscal management. They reflect not only the design but the execution of fiscal rules, procurement systems, and public service delivery. The literature (Kaufmann et al., 2011) confirms that institutional effectiveness shapes growth trajectories, particularly

in economies overcoming historical institutional weaknesses. Control of corruption is vital in this sample, as corruption distorts expenditure priorities and reduces the productivity of public investment (Tanzi & Davoodi, 1997).

Finally, the budget balance (% of GDP) reflects fiscal discipline and sustainability. Persistent deficits reduce fiscal space, increase future debt service, and limit the capacity for countercyclical policy. Bohn (1998) shows that maintaining credible fiscal balances reduces risk premia and strengthens investor confidence, indirectly supporting growth.

Taken together, the selected variables operationalize both the quantitative and qualitative

channels through which PFM influences real economic outcomes. They capture not only fiscal capacity and resource mobilization, but also institutional credibility, allocative efficiency, and sustainability. The 2015–2024 window is particularly relevant, as it covers the post-crisis restructuring process, the EU governance consolidation phase, and contemporary fiscal resilience challenges.

Further details on the construction, measurement units, and data sources of each variable are presented in Table 1. We also present descriptive statistics for all countries in the model (Table 2).

Table 1. Description of the variables

Variable	Symbol	Measurement units/Range	Source
Dependent variable			
GDP per capita growth	<i>GDPG</i>	Annual %	World Bank
Independent variables			
Inflation, consumer prices	<i>INF</i>	Annual %	World Bank
Gross capital formation	<i>GCF</i>	% of GDP	World Bank
Tax revenue	<i>TAX</i>	% of GDP	World Bank
General government final consumption expenditure	<i>FCE</i>	% of GDP	World Bank
Government budget deficit	<i>BUG</i>	% of GDP	Countryeconomy
Government effectiveness	<i>GE</i>	Index, ranging from approximately -2.5 (weak) to +2.5 (strong)	World Bank
Control of corruption	<i>CORR</i>	Percentile rank, which indicates the country's rank among all countries covered by the aggregate indicator, with 0 (lowest rank) to 100 (highest rank)	World Bank

Table 2. Descriptive statistics

Variable	Obs.	Mean	Std. Dev.	Min	Max
<i>GDPG</i>	110	3.059181	3.290618	-7.48748	13.65451
<i>INF</i>	110	3.998732	4.802265	-1.5448	19.70505
<i>GCF</i>	110	23.3687	3.22534	16.51982	34.53471
<i>TAX</i>	95	19.02688	2.782548	12.64199	23.3581
<i>BUG</i>	110	-2.47546	2.591807	-9.3	2.2
<i>FCE</i>	103	19.63077	2.692985	13.94139	26.53117
<i>GE</i>	99	0.744344	0.516925	-0.28694	1.684849
<i>CORR</i>	99	66.26834	12.17151	43.80952	92.38095

Source: Authors' calculation.

The descriptive statistics presented in Table 2 provide key insights into the macroeconomic and institutional characteristics of the CEE countries included in the analysis. These results help to contextualize the subsequent empirical findings and highlight the variability of the dataset across both economic and governance indicators.

The dependent variable, *GDPG*, exhibits a mean of approximately 3.06%, suggesting moderate average economic growth across the sample of 11 CEE countries. However, the relatively high standard deviation (3.29) and the wide range from -7.49% to 13.65% indicate substantial heterogeneity in growth performance, likely reflecting different responses to internal and external shocks, including the global financial crisis and the COVID-19 pandemic. This variability is consistent with the structural asymmetries observed within the region, where some economies recovered rapidly while others experienced more prolonged downturns.

INF shows a mean of 4.00%, with considerable dispersion (standard deviation of 4.80). The minimum value of -1.54% suggests instances of deflation, while the maximum value of nearly 20% points to periods of high inflation in certain countries or years. This variability underscores the different stages of macroeconomic stabilization and monetary policy effectiveness in the region. The broad range also reflects differentiated

exposure to energy price volatility and imported inflation shocks.

GCF averages around 23.37% of GDP, with relatively lower dispersion (std. dev. 3.23). This indicates a generally stable pattern of investment activity in the region, although the range — from 16.52% to 34.53% — shows some countries investing at significantly higher levels than others, possibly reflecting varying access to capital or EU structural funds. Countries with higher investment ratios are typically those that leveraged EU grants and infrastructure projects more efficiently.

TAX averages 19.03% of GDP, which is modest compared to Western EU members, reflecting the still-developing fiscal capacity in some CEE economies. The lower bound of 12.64% suggests significant room for improvement in domestic revenue mobilization in certain countries, especially those with weaker tax administration systems or higher levels of informality.

BUG has a mean of -2.48% of GDP, consistent with efforts to maintain fiscal discipline. The minimum of -9.3% shows that some countries experienced severe fiscal imbalances during crisis periods, while the maximum of 2.2% indicates episodes of budget surplus, likely due to strong growth or EU-driven fiscal consolidation. This reflects the pro-cyclical character of fiscal policy observed in several transition economies.

FCE by the general government averages 19.63% of GDP, with values ranging from 13.94% to 26.53%, suggesting heterogeneity in the role of the state in the economy. Countries with higher *FCE* may have stronger welfare systems or more active fiscal policies, whereas lower values reflect leaner public sectors or fiscal consolidation strategies.

Institutional indicators reveal further variation. *GE* has a mean of 0.74 on a scale from approximately -2.5 to +2.5, indicating moderately strong institutional capacity overall. However, the range — from -0.29 to 1.68 — reveals significant disparities, illustrating that administrative quality and policy implementation capacity remain uneven across the region.

CORR has a mean percentile rank of 66.27, indicating that CEE countries, on average, rank in the top third globally. Nevertheless, the wide range — from 43.81 to 92.38 — points to divergent levels of corruption control, with some countries approaching Western European standards and others still struggling with governance issues.

This within-region governance gap is particularly relevant when interpreting differences in fiscal efficiency and investment effectiveness.

Overall, the descriptive statistics confirm that while CEE countries share a common institutional history and EU membership framework, there is substantial cross-country variation in both fiscal capacity and governance performance. This heterogeneity supports the application of panel econometric techniques that account for unobserved individual effects and justifies the use of a dynamic estimation approach. Additionally, the lower number of observations for some governance variables (*TAX*, *FCE*, *GE*, *CORR*) underscores the need for cautious interpretation and motivates robustness checks to ensure stability of the results.

3.2. Methodology

This paper investigates the relationship between PFM and economic growth in eleven CEE countries during 2015–2024 and employs the generalized method of moments (GMM) estimator as the most suitable methodological framework. The choice of GMM is driven by both theoretical considerations and empirical challenges arising from modelling fiscal-macroeconomic interactions over time. PFM functions such as revenue mobilization, expenditure control, fiscal transparency, and accountability may exert lagged effects on growth, which makes dynamic panel estimation necessary. The GMM approach developed by Arellano and Bond (1991) and refined by Arellano and Bover (1995) and Blundell and Bond (1998) efficiently captures persistence in the dependent variable while correcting for unobserved heterogeneity and simultaneity bias. Because economic performance in the CEE region is influenced by both current and past policy decisions, the inclusion of a lagged dependent variable becomes indispensable.

The suitability of GMM is further reinforced by the characteristics of the dataset. Cross-country macroeconomic research frequently involves

a relatively small number of countries (N) observed over a moderate time span (T), which fits the “small T , large N ” structure for which GMM was designed. In the case of the 11 CEE EU member states — Poland, Hungary, Romania, Bulgaria, the Czech Republic, Slovakia, Slovenia, Croatia, Estonia, Latvia, and Lithuania — the time dimension is long enough to exploit internal instruments but not sufficient to eliminate dynamic panel bias. Conventional estimators, such as ordinary least squares (OLS) or fixed effects (FE), would suffer from bias caused by the correlation between the lagged dependent variable and the error term (Nickell, 1981), whereas GMM uses lagged values as internal instruments, yielding more consistent estimates.

A further justification for GMM arises from the problem of endogeneity. Fiscal variables — such as government spending, tax revenues, and public investment — may be jointly determined with economic growth, leading to reverse causality. Countries experiencing faster growth often collect higher revenues or expand capital spending, which contaminates coefficient estimates if not properly addressed. As highlighted by Bond et al. (2001), GMM provides a robust solution by instrumenting endogenous regressors with their own lags. Additionally, many PFM indicators exhibit autocorrelation and interdependence across time. The system GMM estimator (Blundell & Bond, 1998) is particularly valuable in this context, as it effectively handles heteroskedasticity, serial correlation, and multiple endogenous variables. Roodman (2009) further emphasizes that system GMM is especially well-suited to macroeconomic applications where institutional and fiscal dynamics evolve gradually. The linear dynamic panel data model with explanatory variables and a lagged dependent variable $y_{i,t-1}$ can be written as follows:

$$y_{it} = \mu + \gamma y_{it-1} + \beta X_{it} + \alpha_i + \varepsilon_{it}; i = 1, \dots, N, \quad t = 1, \dots, T \quad (1)$$

where $i = 1, \dots, N$ indexes individual countries and $t = 1, \dots, T$ indexes time periods (years). y_{it} is the dependent variable (GDP growth for country i in period t), y_{it-1} is the lagged dependent variable with parameter γ , parameter μ is a constant, X_{it} are economic indicators varying across countries. α_i represents individual effects or country-specific errors, while the remaining model error term $\varepsilon_{it} \sim N(0, \sigma_\varepsilon^2)$ is normally distributed and assumed orthogonal to the exogenous variables and uncorrelated with the lagged dependent variable, $E(y_{i,t-1}, \varepsilon_{it}) = 0$.

GDP growth exhibits dynamic behavior, i.e., current values of GDP growth depend on its past values. A problem arises when including the lagged dependent variable as one of the explanatory variables due to the correlation between the individual effect α_i and the lagged dependent variable y_{it-1} . To avoid this bias, Arellano and Bond (1991) proposed transforming Eq. (2) into first differences as follows:

$$y_{it} - y_{i,t-1} = \gamma(y_{i,t-1} - y_{i,t-2}) + \beta(X_{it} - X_{i,t-1}) + \lambda(Z_{it} - Z_{i,t-1}) + \delta(W_{it} - W_{i,t-1}) + (\varepsilon_{it} - \varepsilon_{i,t-1}); \quad i = 1, \dots, N, t = 1, \dots, T \quad (2)$$

Individual effects are eliminated in the differenced equation form. Instrumental variables (lagged values of the dependent variable) are used to resolve the correlation between the lagged dependent variable and the error term. Instruments are expected to be highly correlated with the differenced lagged dependent variable but uncorrelated with the differenced error term.

When the dependent variable is highly persistent and when the ratio of the variance of individual effects to the variance of the error term increases ($\sigma_{\alpha}^2/\sigma_{\varepsilon}^2$), the difference GMM estimator shows certain weaknesses. Therefore, Blundell and Bond (1998) proposed the system GMM estimator, which uses both the differenced Eq. (1) and the levels Eq. (2).

Since the system GMM estimator has better properties compared to the difference GMM estimator, the empirical analysis is conducted using the system GMM estimator.

Another issue is the number of instruments, which can easily increase relative to the sample size. This problem is particularly pronounced in small samples, where instruments can cause overfitting of endogenous variables and fail to remove their endogenous components. This is addressed by using the collapse to reduce the number of instruments (Roodman, 2009). Additionally, following Windmeijer (2005), the two-step GMM estimator is calculated with corrected standard errors and t-test statistics, while the Hansen test is used to check the validity of instrumental variables.

This is particularly important when dealing with fiscal variables prone to measurement error or policy lags. In the context of the CEE region, where institutional capacities and statistical standards may vary across countries, robust diagnostic testing is essential to ensure empirical credibility. Thus, GMM not only strengthens estimation but also supports transparent validation of the empirical strategy.

The specific period under study (2015 to 2024) includes critical events such as the implementation of post-crisis fiscal consolidation, the expansion of EU structural funds, the COVID-19 pandemic, and the economic recovery strategies pursued across the region. These developments introduce time-varying shocks that may influence both fiscal behavior and growth trajectories. The GMM framework is capable of capturing the dynamic adjustments to such shocks while controlling for country-specific FE and time effects, thereby avoiding omitted variable bias.

Furthermore, the empirical literature increasingly recognizes GMM as a preferred approach in growth and fiscal policy studies. For example, Afonso and Jalles (2016) apply GMM to examine the effect of fiscal rules on growth across EU countries, while Tapsoba (2012) uses a similar framework to assess fiscal convergence. In studies focusing on public expenditure, debt, and tax efficiency, GMM has proven to be an effective method for capturing short- and long-term dynamics in a way that traditional panel techniques cannot (Heimberger, 2023a). The selection of this technique, therefore, aligns with established best practices in empirical macroeconomics.

In addition, the countries under consideration share certain structural features that make the GMM model particularly relevant. Many of the CEE

member states underwent rapid institutional transitions, significant EU integration, and public finance reforms aimed at increasing fiscal discipline and transparency. These transformations have had differentiated impacts on growth, which cannot be assumed to be uniform or exogenous. As highlighted by Staehr (2010), public finance indicators in these countries reflect complex interactions between EU conditionality, domestic policy preferences, and inherited fiscal structures. The dynamic GMM framework can incorporate such heterogeneity through individual effects and endogenous fiscal responses.

While the benefits of GMM are substantial, the application of the model also requires careful attention to instrument proliferation and the potential for weak instruments. As Roodman (2009) warns, an excessive number of instruments can weaken the Hansen test and overfit endogenous variables. In response, this paper adopts parsimonious instrument strategies and ensures robustness checks to confirm the stability and validity of the estimates. These precautions are necessary to maintain empirical integrity and avoid spurious results.

While system GMM is the most suitable estimator for dynamic panel growth models with endogenous fiscal variables, other econometric approaches could also be applied depending on the research objective and data structure. One alternative would be the fixed effects (FE) estimator, which controls for unobserved heterogeneity across countries but is unable to address dynamic panel bias or endogeneity arising from reverse causality between fiscal variables and growth. A second option is pooled mean group (PMG) estimation within an autoregressive distributed lags (ARDL) framework, which is appropriate when the researcher is primarily interested in long-run equilibrium relationships, though it assumes homogeneity of long-run coefficients that may be unrealistic for structurally diverse CEE economies. A panel vector autoregressive (PVAR) model could also capture dynamic interactions among fiscal variables and growth without imposing a strict causal ordering, but it requires longer time series and is sensitive to lag selection. Finally, quantile regression for panel data may be used to explore heterogeneity in the fiscal-growth nexus across different stages of development or institutional quality, though it does not address endogeneity as effectively as GMM. Compared to these alternatives, system GMM offers the most appropriate balance between efficiency, internal instrumentation, and robustness in small-T macro panels, which is why it remains the dominant estimator in fiscal policy and growth studies.

In conclusion, the decision to employ the GMM estimator in this study is grounded in methodological soundness and empirical necessity. The presence of dynamic relationships, endogenous regressors, unobserved heterogeneity, and complex fiscal-growth linkages among the CEE countries necessitates the use of a tool that can handle these challenges effectively. By adopting the GMM framework, this paper seeks to provide more reliable and policy-relevant evidence on how PFM affects economic growth in Central and Eastern Europe during a critical period of economic transformation and recovery.

4. EMPIRICAL RESULTS AND DISCUSSION

In this section, we begin with an analysis of the results of multicollinearity. The correlation matrix indicates that most variables have a weak relationship between them (Table 3). We have a multicollinearity problem if the correlation between selected determinants is above 0.8. Gujarati

and Porter (2009) and the simultaneous inclusion of the variable in the model should be avoided. However, the presence of multicollinearity in the series is not surprising for the GMM estimator; it can automatically remove multicollinearity from the series (Arellano & Bond, 1995).

As we can see from Table 3, in our model, there is no multicollinearity among the selected variables.

Table 3. Correlation matrix

Variable	GDPG	INF	GCF	TAX	BUG	FCE	GE	CORR
GDPG	1							
INF	-0.051	1						
GCF	-0.0028	0.3617	1					
TAX	0.0001	0.0223	-0.0644	1				
BUG	0.3347	-0.1573	-0.1757	0.1095	1			
FCE	-0.2096	-0.0333	0.1483	0.1483	-0.2767	1		
GE	-0.1817	-0.0462	0.1851	0.0286	0.1639	0.5374	1	
CORR	-0.221	0.0848	0.1403	0.0757	0.0809	0.0001	0.622	1

Source: Authors' calculation.

Table 4. Regression results

Variable	Coefficient	Std. Err.	t	Prob
<i>L1.GDPG</i>	-0.47975	0.105121	-4.56	0
<i>INF</i>	0.114696	0.075235	1.52	0.132
<i>GCF</i>	0.226757	0.109806	2.07	0.042
<i>TAX</i>	0.042957	0.11223	0.38	0.703
<i>FCE</i>	-0.38488	0.206335	-1.87	0.066
<i>BUG</i>	0.772821	0.156604	4.93	0
<i>CORR</i>	0.116583	0.042777	-2.73	0.008
<i>GE</i>	0.053505	1.328309	0.04	0.968
Constant	15.381	5.582212	2.76	0.007
Number of countries			11	
Test for AR(1) errors (p)			0.056	
Test for AR(2) errors (p)			0.212	
Hansen test (p-value)			0.168	

Source: Authors' calculation.

The regression results presented in Table 4 provide important insights into the relationship between PFM and economic growth, with *GDPG* as the dependent variable. The lagged dependent variable (*L1.GDPG*) is statistically significant at the 1% level, with a negative coefficient of -0.4798. This indicates a degree of persistence in economic growth, suggesting that past growth performance has a dampening effect on current growth rates. Such a finding is consistent with the empirical literature that incorporates dynamic panel models to capture inertia in economic activity, as emphasized in Arellano and Bond (1991) and later applied in studies of transition economies (Rodríguez-Pose & Krøijer, 2009).

Among the explanatory variables capturing aspects of PFM, the budget balance (*BUG*) exhibits a strong and statistically significant positive association with GDP growth. The coefficient of 0.7728 is significant at the 1% level, indicating that sound fiscal balances are conducive to growth. This supports the theoretical proposition that maintaining fiscal discipline can enhance macroeconomic stability and investor confidence, leading to improved growth outcomes. These findings are aligned with those of Afonso and Jalles (2016), who show that fiscal rules and prudent budget management are associated with higher growth, particularly in EU member states.

Another significant variable is *GCF*, which is positively associated with GDP growth and statistically significant at the 5% level. The coefficient of 0.2268 confirms the importance of capital accumulation in

driving economic performance. This is in line with the predictions of the neoclassical growth model and corroborated by numerous empirical studies (Barro, 1991; Levine & Renelt, 1992), which identify investment as a robust determinant of growth across countries and time periods. The inclusion of *GCF* also controls for the physical investment's impact, allowing a more isolated examination of the influence of PFM-related variables.

CORR, often considered a core component of governance and PFM quality, is statistically significant at the 1% level with a positive coefficient of 0.1166. This result implies that improvements in the *CORR* are associated with higher economic growth. The result echoes findings in the governance literature, particularly those of Mauro (1995) and, more recently, Dreher and Herzfeld (2005), who emphasize that corruption distorts public expenditure allocation and reduces efficiency, ultimately hindering economic growth. In the context of EU member states, where transparency and institutional quality are central to structural reforms, such findings are particularly relevant.

On the other hand, *FCE* is negatively associated with growth, with a coefficient of -0.3849, and is marginally significant at the 10% level. While not conclusive, this result raises concerns about the growth-enhancing role of government consumption. This is consistent with the view that public consumption, especially when not productivity-enhancing, can crowd out private investment and reduce overall economic efficiency. Similar findings have been reported in earlier works

by Barro (1991), suggesting that while some types of public spending (e.g., on infrastructure or education) may promote growth, others may have a neutral or even negative effect.

INF and *TAX* do not emerge as statistically significant in this model. The coefficient of inflation is positive (0.1147) but insignificant, indicating that, within the sample and time frame considered, inflation has not exerted a robust influence on GDP growth. The weak association may be due to the moderate inflationary environment in most EU countries during the study period, suggesting that inflation has not reached thresholds at which it would harm growth. Similarly, the *TAX* variable is positive (0.0430) but highly insignificant, implying that variations in *TAX* as a percentage of GDP are not systematically associated with short-term growth fluctuations. These findings resonate with the broader fiscal policy literature, where the growth effects of taxation are often found to depend more on the structure than on the overall level of taxation (Arnold et al., 2011).

GE is not statistically significant and has a small positive coefficient (0.0535), but with a large standard error, reflecting uncertainty in its impact. The lack of significance may be attributed to multicollinearity with other governance indicators, particularly the *CORR* variable, or to limited variation in *GE* among the sample countries.

An important aspect of the findings is that several theoretically relevant variables — such as *GE*, *TAX*, and *INF* — do not emerge as statistically significant drivers of growth in the CEE countries. This result suggests that their influence may be indirect or conditional rather than immediate. In the case of *GE*, the lack of statistical significance likely reflects its relatively low cross-country variation in the sample, as CEE member states have already undergone harmonization of administrative standards under EU accession, thereby reducing its explanatory power. Similarly, changes in tax revenue appear not to affect growth in the short run, which supports the argument that the structure of taxation matters more than its aggregate level in transitioning economies. The insignificance of inflation can be interpreted in light of the relatively moderate price environment during most of the study period, meaning inflation did not reach disruptive thresholds that would visibly constrain growth. Taken together, these results imply that macroeconomic stability and baseline governance capacity are already “pre-conditions” in the CEE region and therefore do not explain growth variation as strongly as institutional credibility and fiscal discipline do.

These findings further suggest that not all components of PFM contribute equally to economic performance, and that their growth effects depend on the underlying institutional context. The strong significance of the budget balance and *CORR* variables highlights that credibility, transparency, and the integrity of public finances matter more than the absolute size of government intervention. This is consistent with recent empirical evidence showing that EU growth outcomes are more sensitive to fiscal quality than to fiscal volume. In contrast, the insignificance of taxation, inflation, and *GE* indicates that their influence may operate through second-round governance channels rather

than through direct macroeconomic transmission. Importantly, the negative coefficient on government consumption reinforces the view that public spending must be strategically composed rather than simply expanded. Overall, the results confirm that strengthening fiscal governance and improving the efficiency of public investment are more effective for promoting growth than broad increases in public expenditure.

5. CONCLUSION

This paper investigates the extent to which PFM influences real GDP growth in selected CEE member states of the EU during 2015–2024. Using a dynamic panel framework and the two-step system GMM estimator, it examines the growth effects of fiscal and governance-related variables, including budget balance, government final consumption, gross capital formation, tax revenues, inflation, corruption control, and government effectiveness. The analysis builds on the premise that the quality of fiscal governance — beyond traditional macroeconomic indicators — plays a critical role in supporting long-term growth trajectories, especially in reforming economies.

The CEE region provides an informative empirical setting due to its deep institutional transformation following EU accession and its gradual convergence toward European governance standards. Despite legislative harmonization, substantial variation remains in fiscal discipline, public investment management, and institutional quality. Persistent governance gaps, including corruption risks and inefficient allocation of public resources, raise the question of whether better fiscal institutions translate into superior macroeconomic performance. This study contributes to the debate by jointly modelling fiscal and governance indicators and addressing endogeneity through a dynamic panel approach.

The results yield several important findings. First, the negative and statistically significant coefficient on the lagged dependent variable confirms growth persistence in the sample and justifies the dynamic specification. Second, the budget balance variable shows a robust, positive association with growth, supporting the view that prudent fiscal management fosters macroeconomic stability and investor confidence (Afonso & Jalles, 2016). Third, gross capital formation is positively and significantly linked to real growth, highlighting the role of well-targeted public investment as a catalyst for productive capacity and private-sector crowding-in effects.

By contrast, government final consumption displays a weakly negative association with growth, consistent with Barro’s (1991) view that consumption-driven outlays often lack productivity-enhancing effects. Tax revenues and government effectiveness are statistically insignificant, which may reflect short sample dynamics, overlapping EU fiscal frameworks, or measurement constraints. Standard macroeconomic controls such as inflation and trade openness also do not show significant explanatory power in this specification, likely due to the dominance of institutional and fiscal structure effects.

A particularly notable result is the strong and positive impact of corruption control on growth.

This finding is aligned with the literature (Mauro, 1995; Kaufmann et al., 2011), which emphasizes that lower corruption strengthens resource allocation efficiency, public trust, and policy credibility. For CEE states still consolidating institutional maturity, this relationship underscores the growth dividends of improved enforcement — not just rule adoption.

The study acknowledges several limitations. System GMM relies on valid instruments; although diagnostic tests do not indicate misspecification, instrument proliferation risks cannot be fully dismissed. The sample is restricted to 11 CEE EU states, limiting external generalizability. Additionally, several PFM dimensions — such as audit practices, transparency, and procurement oversight — could not be included due to data availability. Future research could broaden institutional coverage, employ mixed-methods designs, or assess governance resilience under crisis conditions such as the COVID-19 pandemic and energy shocks.

The policy implications are clear: maintaining fiscal discipline, improving the composition and productivity of public investment, and strengthening anti-corruption enforcement are essential for sustained growth. Institutional reform should prioritize not only legal frameworks but also implementation quality, monitoring, and accountability mechanisms. EU conditionalities tied to governance outcomes — rather than formal compliance — could further strengthen incentives for reform.

Overall, the findings reaffirm that sound PFM matters for macroeconomic performance in emerging EU economies. Strengthened budget discipline, efficient investment allocation, and reduced corruption jointly contribute to a more stable and growth-conducive environment. These results open avenues for future research on the channels through which fiscal governance shapes long-run development.

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