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Global economic policy uncertainty and fiscal responses in emerging markets: A dynamic error-correction panel

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Abstract

Purpose — This study examines how global economic policy uncertainty (GEPU) shapes government expenditure dynamics in emerging market economies.

Methods — Using an annual panel of 28 emerging economies from 1998 to 2023, this study analyzes short-run fiscal adjustments and long-run equilibrium relationships between global uncertainty and public expenditure. To address challenges arising from mixed integration orders and cross-sectional dependence driven by global shocks, it employs a multistage empirical strategy that combines fixed-effects estimation, Driscoll–Kraay robust inference, and a cross-sectionally augmented dynamic error-correction model (ECM).

Findings — The results provide robust evidence that higher GEPU is associated with higher government expenditure as a share of Gross Domestic Product (GDP). This relationship holds across alternative specifications and persists in the long run, indicating that fiscal responses to uncertainty are not purely transitory. Dynamic estimates reveal a statistically significant error-correction mechanism, confirming a stable long-term relationship among government expenditure, global uncertainty, and domestic economic conditions. Structural factors, particularly urbanization, further shape fiscal outcomes, whereas income per capita enters with a negative sign, though its effect is not consistently statistically significant across specifications.

Implication — The findings have important implications for fiscal sustainability and policy design in an increasingly uncertain global environment.

Originality — By explicitly accounting for non-stationarity and unobserved common global factors, this study contributes to the literature by providing new evidence of how emerging market governments respond to global risks.

Keywords — Global Economic Policy Uncertainty, Government Expenditure, Emerging Markets, Fiscal Policy, Error-Correction Model.

Introduction

Heightened global economic policy uncertainty (GEPU) has become an increasingly salient feature of the international economic landscape. Episodes such as the global financial crisis, trade policy tensions, the COVID-19 pandemic, and recent geopolitical disruptions underscore how uncertainty originating from major economies can spill over into emerging markets. These shocks affect investment, consumption, and capital flows, thereby exerting pressure on domestic

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macroeconomic stability and complicating fiscal policy implementation. In emerging market economies, global uncertainty creates a particularly complex policy environment. On the one hand, heightened uncertainty depresses private demand and amplifies downside risks, potentially necessitating countercyclical fiscal interventions. On the other hand, it can erode fiscal space by weakening revenue bases, increasing borrowing costs, and exposing public finances to external financing constraints. Therefore, understanding how governments balance these competing forces is central to assessing fiscal resilience and sustainability in emerging markets.

Despite a rapidly expanding literature on economic policy uncertainty (EPU) and macroeconomic outcomes, empirical evidence on fiscal responses to global uncertainty remains limited and methodologically fragmented. Much of the existing literature relies on static panel regressions that abstract from non-stationarity, cross-sectional dependence, and long-run dynamics. Given the global nature of uncertainty shocks and the persistence of fiscal variables, such approaches risk producing spurious or incomplete inferences. Moreover, little is known about whether fiscal responses to uncertainty reflect short-run stabilization efforts or deeper long-run adjustments in government expenditure behavior.

Extensive empirical literature has examined the cyclical behavior of fiscal policy, documenting systematic differences between advanced and developing economies. Gavin and Perotti (1997) show that fiscal policy in Latin America has historically been procyclical, with government expenditure rising during economic expansions and contracting during downturns. This pattern contrasts sharply with the countercyclical fiscal behavior typically observed in advanced economies. Subsequent studies attribute this procyclicality to multiple structural and institutional factors. Alesina et al. (1995) highlight political economic constraints and fiscal rigidities that limit governments' ability to smooth expenditure over the business cycle. Extending this line of reasoning, Talvi and Végh (2005) argue that volatility in tax bases and revenue collection amplifies fiscal procyclicality, particularly in economies with weak automatic stabilizers. More recent evidence indicates that fiscal behavior is shaped by both macroeconomic conditions and institutional quality. Alesina et al. (2008) show that weak institutions, credit constraints, and political distortions systematically bias fiscal policies toward procyclicality in emerging markets, while Woo (2009) finds that political polarization exacerbates fiscal instability and increases the sensitivity of government expenditure to economic shocks.

In parallel with the fiscal policy literature, a growing body of research has examined the macroeconomic consequences of economic policy uncertainty. The seminal contribution by Baker et al. (2016) introduced a systematic measure of EPU and demonstrated its strong association with declines in output, investment, and employment. The theoretical foundations of uncertainty effects trace to Bernanke (1983), who highlights the role of irreversibility and option value in delaying economic decisions under uncertainty. Building on this insight, Bloom (2009) formalizes uncertainty shocks as drivers of business cycle fluctuations, showing that heightened uncertainty leads to sharp, temporary contractions in economic activity. Microeconomic evidence further reinforces these findings. Bloom et al. (2007) show that firm-level investment and hiring decisions are highly sensitive to uncertainty, thereby providing micro foundations for aggregate effects. Complementing these approaches, Jurado et al. (2015) developed an alternative measure capturing latent macroeconomic uncertainty and confirmed its predictive power for economic activity. While this literature convincingly establishes uncertainty as a macroeconomic force, it primarily focuses on private-sector outcomes, leaving the fiscal response to uncertainty comparatively underexplored.

An expanding literature has begun to examine the interaction between uncertainty and fiscal policy. Using structural models, Born and Pfeifer (2014) show that policy uncertainty affects macroeconomic dynamics through expectations and fiscal transmission channels, suggesting that fiscal authorities may respond strategically to uncertainty to stabilize economic outcomes. Empirical studies further highlight nonlinear and state-dependent effects of uncertainty. Caggiano et al. (2014) demonstrate that uncertainty shocks have asymmetric effects across business-cycle regimes, implying that fiscal responses may differ between recessions and expansions. Methodologically, Ramey (2011) emphasizes the importance of treating government expenditure as an endogenous policy response rather than as an exogenous driver of economic activity.

Similarly, Ilzetzki et al. (2013) show that fiscal multipliers vary substantially across countries, with particularly strong effects in emerging economies.

Emerging economies are particularly vulnerable to global shocks because of their trade openness, financial integration, and limited policy buffers. Rodrik (1998) argues that larger governments can serve as a form of social insurance against external volatility, implying a positive relationship between exposure to global shocks and public spending. More recently, Eichengreen et al. (2008) document that global financial and policy shocks transmit unevenly across emerging markets, producing synchronized but heterogeneous macroeconomic responses. These spillovers suggest that fiscal outcomes across countries are unlikely to be independent, particularly in periods of heightened global uncertainty.

Macroeconomic panel data also raises several econometric challenges, including persistence, non-stationarity, and cross-sectional dependence. Im et al. (2003) propose panel unit root tests that accommodate heterogeneity across countries, while Pesaran (2004) develops formal tests for cross-sectional dependence in panel models. To address unobserved common factors, Pesaran (2006) introduces the Common Correlated Effects (CCE) estimator, which augments regression models using cross-sectional averages and has become standard in panels subject to global shocks and spillovers. Dynamic extensions, grounded in Pesaran et al. (1999), explicitly model long-run relationships through error-correction mechanisms. For inference, Driscoll and Kraay (1998) propose covariance estimators robust to heteroskedasticity, serial correlation, and cross-sectional dependence, while Nickell (1981) highlights biases that arise in dynamic fixed-effects panels.

Against this background, the present study examines how GEPU shapes government expenditure dynamics in emerging market economies. Using an annual panel of 28 emerging economies from 1998 to 2023, the analysis employs a comprehensive econometric framework that captures both short-run fiscal dynamics and long-run equilibrium relationships while accounting for unobserved global common factors. The empirical strategy combines fixed-effects estimation, robust inference under cross-sectional dependence, and a dynamic error-correction model augmented with cross-sectional averages.

This study contributes to recent literature in several ways. First, it explicitly models government expenditure as an endogenous response to global uncertainty rather than focusing solely on output or private-sector outcomes. Second, it concentrates on emerging markets, where fiscal constraints and exposure to global shocks are particularly pronounced. Third, by employing modern panel techniques that address non-stationarity and global spillovers, the study yields more credible inferences than much of the existing literature that relies on static specifications.

Methods

Data Sources and Sample

We adopted an unbalanced annual panel of 28 emerging economies from 1998 to 2023. The baseline regressions used 672 observations (primarily limited by the availability of financial development data), while other variables had up to 728 observations. The sample composition was determined by the availability of consistent data on government expenditure, macroeconomic indicators, and structural characteristics. The focus on emerging markets is motivated by their increased exposure to global shocks, more constrained fiscal space, and the historically procyclical fiscal behavior documented in the literature.

Government expenditure, gross domestic product (GDP) per capita, inflation, population, trade openness, financial development, and urbanization data were obtained primarily from the World Bank's World Development Indicators (WDI) and related international databases. These sources ensure cross-country comparability and consistency over time. The key explanatory variable, global economic policy uncertainty (GEPU), is drawn from the Global Economic Policy Uncertainty (GEPU) index developed by Baker et al. (2016). This index aggregates policy uncertainty across major economies and captures uncertainty in fiscal, monetary, and regulatory policies. Because the GEPU index reflects global conditions rather than country-specific developments, it is treated as a common external shock that affects all countries in the sample

simultaneously. After merging all series and accounting for missing observations, the final dataset contained between 672 and 728 observations, depending on the availability of variables, as shown in the descriptive statistics.

Dependent Variable

The dependent variable in all empirical specifications is government expenditure as a percentage of GDP. This measure captures the relative size of the public sector and is widely used in fiscal policy literature to assess government activity across countries and over time. Expressing government spending relative to GDP facilitates cross-country comparability by scaling expenditure by economic size and helps isolate fiscal responses from pure output fluctuations. This variable varies significantly across countries and over time, reflecting differences in fiscal capacity, institutional development, and macroeconomic conditions.

Key Explanatory Variable: Global Economic Policy Uncertainty

The central explanatory variable is the GEPU index, which captures uncertainty about economic policy decisions in major economies and is constructed from newspaper-based frequency counts, tax code expiration measures, and professional forecaster disagreements.

In the empirical analysis, the GEPU index is mean-centered to facilitate interpretation while preserving its original variation. Accordingly, the GEPU coefficient can be interpreted as the change in government expenditure (in percentage points of GDP) associated with a one-unit increase in the centered global uncertainty index. Because GEPU is common across countries at any given time, it serves as a proxy for global shocks that are plausibly exogenous to individual emerging economies.

Macroeconomic and Structural Control Variables

To isolate the fiscal response to global uncertainty, this study includes a set of macroeconomic and structural control variables commonly used in fiscal policy research. Income per capita, measured as the logarithm of real GDP per capita, controls differences in economic development and fiscal capacity across countries. Higher-income economies may have more diversified revenue bases and different expenditure priorities, which can influence government expenditure behavior. Inflation, measured as the annual percentage change in the consumer price index, reflects macroeconomic instability and nominal pressures that may constrain real government expenditure or prompt fiscal adjustments.

Population size, measured logarithmically, controls for scale effects and demographic pressures on public expenditure. Larger populations may require higher absolute expenditure but lower expenditure ratios because of economies of scale. Trade openness, defined as the sum of exports and imports relative to GDP, reflects exposure to external shocks and global integration. More open economies may be more vulnerable to global uncertainty, potentially amplifying fiscal responses. Financial development is proxied by a standardized index based on domestic credit measures. Greater financial development may ease borrowing constraints and allow governments to smooth expenditure in response to shocks. Urbanization, measured as the share of the population living in urban areas, reflects structural demand for public services, infrastructure, and social spending. All continuous control variables, except inflation and population, are standardized to improve numerical stability and facilitate the comparison of coefficient magnitudes across regressors.

Interaction Term

To examine whether the fiscal response to global uncertainty varies with the level of economic development, the baseline specification includes an interaction term between global uncertainty and GDP per capita, allowing the marginal effect of uncertainty on government expenditure to vary across countries at different income levels, reflecting potential heterogeneity in fiscal capacity, access to credit markets, and institutional quality.

Empirical Strategy

Using an unbalanced annual panel of 28 emerging economies covering 1998 to 2023, this study examines the fiscal response of emerging-market governments to GEPU. The empirical strategy is designed to address three key challenges inherent in macroeconomic panel data: unobserved country-specific heterogeneity, cross-sectional dependence induced by global shocks, and mixed orders of integration across variables.

To address these challenges, the study was conducted in three stages. First, we estimated a baseline fiscal reaction function with country fixed effects to capture time-invariant heterogeneity across economies. Second, we assessed the robustness of the baseline estimates using Driscoll–Kraay standard errors, which are robust to heteroskedasticity, serial correlation, and cross-sectional dependence. Third, we adopted a dynamic error-correction framework augmented with cross-sectional averages to distinguish short-run fiscal dynamics from long-run equilibrium relationships, while explicitly accounting for unobserved global common factors.

This study relies exclusively on secondary, publicly available macroeconomic data obtained from international databases. The study did not involve human participants; therefore, no confidential information or ethical approval was required. The empirical analysis follows standard econometric reporting practices in applied macroeconomic research, ensuring transparency, reproducibility, and methodological rigor.

Baseline Fixed-Effects Model

The baseline specification models government expenditure as a function of GEPU, domestic macroeconomic conditions, and structural characteristics. The estimated equation is as follows:

$$G_{it} = \alpha_i + \beta_1 GEPU_t + \beta_2 GDPpc_{it} + \beta_3 (GEPU_t \times GDPpc_{it}) + \gamma' X_{it} + \varepsilon_{it} \quad (1)$$

where (G_{it}) denotes government expenditure as a percentage of GDP in country (i) at time (t), (α_i) captures country-specific fixed effects, ($GEPU_t$) denotes the GEPU index, and ($GDPpc_{it}$) represents real GDP per capita. The vector (X_{it}) includes inflation, population size (in logarithms), trade openness, financial development, and urbanization.

Year fixed effects are excluded from Equation (1). Because global economic policy uncertainty varies only over time and is common across countries, including time dummies would mechanically absorb the variation in ($GEPU_t$), thereby leaving its coefficient unidentified. Identification, therefore, relies on common global variation in uncertainty over time, combined with cross-country heterogeneity in fiscal responses, while country fixed effects absorb all time-invariant differences across economies.

Equation (1) is estimated using the fixed-effects estimator with standard errors clustered at the country level. Inference is based on country-clustered standard errors, with Driscoll–Kraay standard errors used as a robustness check to account for serial correlation and cross-sectional dependence.

Robust Inference under Cross-Sectional Dependence

To ensure valid statistical inference in the presence of cross-sectional dependence and serial correlation, Equation (1) is re-estimated using Driscoll–Kraay standard errors. This approach preserves the fixed effects point estimates while adjusting the covariance matrix to be robust to general forms of spatial and temporal dependence. Table 4 presents the Driscoll–Kraay results.

Dynamic Error-Correction Model with Cross-Sectional Averages

To distinguish short-run fiscal adjustments from long-run equilibrium relationships and explicitly control for unobserved global common factors, we employ a dynamic error-correction specification augmented with cross-sectional averages, consistent with the CCE framework.
The estimated model is:

$$\Delta G_{it} = \phi G_{it-1} + \theta_1 GEPU_{t-1} + \theta_2 GDPpc_{it-1} + \theta_3 ln(Population_{it-1}) + \delta_1 \Delta GEPU_t + \delta_2 \Delta GDPpc_{it} + \delta_3 \Delta Inflation_{it} + \eta_1 \overline{G}_{t-1} + \eta_2 \overline{GDPpc}_{t-1} + \kappa_1 \Delta \overline{G}_t + \kappa_2 \Delta \overline{GDPpc}_t + \alpha_i + u_{it} \quad (2)$$

where bars denote cross-sectional averages that capture unobserved common factors, and ($\phi < 0$) measures the speed of adjustment toward the long-run equilibrium. Equation (2) is estimated using fixed effects and country-clustered standard errors.

Results and Discussion

Descriptive Statistics and Preliminary Evidence

Table 1 presents descriptive statistics for all variables. Government expenditure averages approximately 13% of GDP across the sample, with considerable cross-country and temporal variation. GEPU shows substantial volatility, reflecting major episodes such as the global financial crisis and the COVID-19 pandemic. Government expenditure averages approximately 13% of GDP, with substantial cross-country and time-series dispersion. Global uncertainty is highly volatile, consistent with major episodes such as the global financial crisis and the COVID-19 pandemic. Descriptive statistics are reported for the maximum available sample by variable, whereas regression estimates use the common sample implied by each specification (e.g., 672 observations in the baseline model owing to the availability of financial development data). Macroeconomic and structural variables also vary substantially, underscoring the heterogeneity of emerging markets and the importance of controlling for country-specific characteristics in empirical analysis.

Table 1. Descriptive Statistics

Variables	Mean	Std. Dev.	Min	Max	Obs.
Government spending (% GDP)	13.31	4.40	4.85	28.91	725
Global EPU (GEPU)	0.00	64.76	−76.16	170.95	728
Log GDP per capita	0.00	1.09	−2.73	2.56	728
Inflation (%)	6.94	8.55	−2.50	84.60	728
Log population	3.74	1.26	1.33	7.27	728
Trade openness	0.00	1.00	−1.62	4.20	728
Financial development	0.00	1.00	−1.77	2.90	672
Urbanization	0.00	1.00	−1.96	1.69	728

Notes: Control variables reported in standardized form have a mean of zero and unit variance. GEPU is mean-centered but retains its original scale.

Table 2. Panel Unit Root Tests (Levels) – IPS

Variable	W-t-bar	p-value	Order
Government expenditure	−1.42	0.077	I(0)
GEPU	0.03	0.512	I(1)
Log GDP per capita	−0.94	0.173	I(1)
Inflation	−2.21	0.014	I(0)
Log population	−0.31	0.379	I(1)
Trade openness	−0.68	0.249	I(1)
Financial development	−0.41	0.341	I(1)
Urbanization	−0.52	0.301	I(1)

To assess the time-series properties of the panel, unit root tests were conducted using the Im–Pesaran–Shin (IPS) and Fisher-type augmented Dickey–Fuller procedures. Tables 2 and 3 show that government expenditure and inflation are stationary at levels, whereas global uncertainty, income per capita, population, trade openness, financial development, and urbanization are non-stationary but become stationary after first difference (Table 4). This mixed order of integration motivates the use of an error-correction framework.

Table 3. Panel Unit Root Tests (Levels) – Fisher ADF

Variable	χ^2 statistic	p-value	Order
Government expenditure	68.41	0.031	I(0)
GEPU	41.22	0.612	I(1)
Log GDP per capita	45.10	0.487	I(1)
Inflation	92.55	0.001	I(0)
Log population	39.67	0.654	I(1)
Trade openness	44.90	0.501	I(1)
Financial development	42.36	0.593	I(1)
Urbanization	40.12	0.637	I(1)

Table 4. Panel Unit Root Tests (First Differencing)

Variable	IPS W-t-bar	Fisher χ^2	Stationary
Δ Government expenditure	−14.11	388.56	Yes
Δ GEPU	−12.81	319.19	Yes
Δ Log GDP per capita	−8.57	215.15	Yes
Δ Inflation	−19.36	613.96	Yes
Δ Log population	−2.07	104.03	Yes
Δ Trade openness	−17.43	519.61	Yes
Δ Financial development	−12.31	337.29	Yes
Δ Urbanization	−3.52	236.11	Yes

Cross-sectional dependence was formally tested using Pesaran's (2004) CD test applied to the residuals from the baseline fixed-effects model. The test strongly rejects the null hypothesis of cross-sectional independence (CD = 8.91, $p < 0.001$), indicating the presence of unobserved global factors affecting fiscal outcomes across countries. These diagnostic results underscore the importance of accounting for common global shocks and motivate the use of Driscoll–Kraay inference and a CCE-based dynamic error-correction framework in subsequent estimations.

Baseline Fixed-Effects Estimates

Table 5 presents the baseline fixed effects estimates from Equation (1). GEPU enters with a positive, statistically significant coefficient, indicating that higher global uncertainty is associated with higher government expenditure as a share of GDP in emerging economies. This finding is consistent with the interpretation of fiscal policy as a countercyclical or precautionary tool during increased global risk.

Table 5. Baseline Fixed-Effects Estimates
Dependent variable: Government expenditure (% of GDP)

Variable	Coefficient	Std. Error	t-statistic
Global Economic Policy Uncertainty (GEPU)	0.0088***	0.0023	3.73
Log GDP per capita	−0.261	0.491	−0.53
GEPU × Log GDP per capita	0.0042**	0.0018	2.29
Inflation	−0.0117	0.0107	−1.09
Log population	−7.697***	1.642	−4.69
Trade openness	−0.103	0.373	−0.28
Financial development	0.636	0.576	1.11
Urbanization	3.407***	0.957	3.56
Constant	42.147***	6.131	6.87
Within R^2: 0.305			
Observations: 672			
Countries: 28			

Notes: Country fixed effects are included. Standard errors are clustered at the national level.
*, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Income per capita enters with a negative coefficient, suggesting that higher-income emerging economies tend to maintain smaller public sectors once unobserved heterogeneity is controlled, although this effect is statistically insignificant in the baseline specification. Importantly, the interaction between global uncertainty and income per capita is positive and statistically significant, indicating that fiscal responses to uncertainty are stronger in more developed emerging economies.

Among the control variables, population size is strongly negatively associated with government expenditure ratios, reflecting scale effects on public expenditure. Urbanization has a positive and statistically significant effect, consistent with higher demand for public services and infrastructure in more urbanized societies. Inflation, trade openness, and financial development do not show robust effects in the baseline fixed-effects model.

Robustness to Cross-Sectional Dependence

Table 6 presents fixed-effects estimates with Driscoll–Kraay standard errors. The coefficient on GEPU remains positive and statistically significant, confirming the robustness of the baseline result to cross-sectional dependence and serial correlation. The interaction between uncertainty and income per capita remains positive and significant, further supporting evidence of heterogeneous fiscal responses across emerging economies.

Table 6. Fixed-Effects Estimates with Driscoll–Kraay Standard Errors
Dependent variable: Government expenditure (% of GDP)

Variable	Coefficient	Driscoll–Kraay Std. Error	t-statistic
Global Economic Policy Uncertainty (GEPU)	0.0088***	0.0025	3.55
Log GDP per capita	−0.261	0.161	−1.62
GEPU × Log GDP per capita	0.0042***	0.0012	3.59
Inflation	−0.0117	0.0116	−1.01
Log population	−7.697***	1.029	−7.48
Trade openness	−0.103	0.264	−0.39
Financial development	0.636**	0.288	2.21
Urbanization	3.407***	0.736	4.63
Constant	42.147***	3.802	11.09
Within R^2: 0.305			
Observations: 672			
Countries: 28			

Notes: The estimation uses fixed effects with Driscoll–Kraay standard errors robust to heteroskedasticity, serial correlation, and cross-sectional dependence. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively. The magnitudes and signs of the remaining control variables are largely unchanged, indicating that the baseline findings are not driven by unmodeled global shocks or error correlation.

Dynamic Adjustment and Long-Run Relationships

Table 7 presents the results from the dynamic CCE error-correction model (ECM). The estimation sample differs from Tables 5 and 6 because the ECM uses lags and first differences and excludes financial development owing to data limitations. The coefficient on the lagged level of government expenditure is negative and highly statistically significant (−0.281), confirming a stable long-run equilibrium relationship among government expenditure, GEPU, and domestic economic conditions. The magnitude of the error-correction term indicates that approximately 28% of deviations from long-run fiscal equilibrium are corrected within one year, suggesting a relatively rapid fiscal adjustment process in emerging market economies.

The positive coefficient on lagged GEPU indicates that global uncertainty shifts the expenditure trajectory beyond contemporaneous adjustments, consistent with persistent effects rather than purely short-lived responses. Income per capita enters negatively in the long-run relationship, consistent with static results. Short-run dynamics show that contemporaneous increases in global uncertainty are associated with higher government expenditure growth, whereas

changes in income per capita and inflation have contractionary effects on fiscal expansion. The cross-sectional averages absorb unobserved global shocks, ensuring that the estimated coefficients reflect country-specific fiscal behavior rather than synchronized global movements.

Table 7. Dynamic Common Correlated Effects Error-Correction Estimates
Dependent variable: Δ Government Spending (% of GDP)

Variable	Coefficient	Std. Error	t-statistic
Error-correction term (L. Government spending)	−0.281***	0.040	−7.04
L. Global Economic Policy Uncertainty (GEPU)	0.0020**	0.0010	2.06
L. Log GDP per capita	−0.313	0.234	−1.34
L. Log population	−2.909***	1.019	−2.85
Δ GEPU	0.0021*	0.0012	1.86
Δ Log GDP per capita	−2.856***	0.704	−4.05
Δ Inflation	−0.025***	0.006	−3.98
L. Cross-sectional avg. government spending	0.326	0.215	1.52
L. Cross-sectional avg. GDP per capita	0.821**	0.305	2.69
Δ Cross-sectional avg. government spending	0.895***	0.241	3.71
Δ Cross-sectional avg. GDP per capita	3.427*	1.822	1.88
Constant	10.253***	3.187	3.22
Observations: 696			
Countries: 28			

Notes: *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively. Estimators: fixed effects with cross-sectional averages (CCE-ECM); Standard errors: clustered at the country level. Cross-sectional averages in levels and first differences control for unobserved common global factors. The sample differs from Tables 3 and 4 owing to lag/difference construction and variable availability.

A Hausman specification test was conducted to evaluate the appropriateness of the fixed-effects estimator relative to the random-effects alternative. The test strongly rejects the null hypothesis that the random-effects estimator is consistent ($\chi^2 = 41.8$, $p < 0.001$), confirming that the fixed-effects specification is the appropriate model for the empirical analysis. Collectively, evidence from static fixed-effects regressions, Driscoll–Kraay robustness checks, and the dynamic CCE error-correction framework consistently supports the conclusion that GEPU is central to shaping government expenditure dynamics in emerging market economies. Fiscal responses to uncertainty operate through both short-run adjustments and persistent long-run mechanisms, even after accounting for no stationarity, cross-sectional dependence, and unobserved global factors.

Discussion and Policy Implications

The empirical analysis provides consistent, robust evidence that global economic policy uncertainty (GEPU) significantly influences government expenditure dynamics in emerging market economies, both statistically and economically. Across baseline fixed-effects estimates, Driscoll–Kraay robust inference, and the dynamic error-correction framework, heightened global uncertainty is associated with an expansion in government expenditure as a share of GDP. The stability of this finding across alternative specifications indicates that fiscal responses to global uncertainty reflect systematic policy behavior rather than model-specific artifacts or spurious correlations. These results are consistent with a growing literature emphasizing the macroeconomic consequences of policy uncertainty for government decision-making and fiscal outcomes (Baker et al., 2016; Bloom, 2009; Caldara et al., 2020; Mumtaz & Ruch, 2025).

These findings are consistent with earlier evidence that fiscal policy responds systematically to external shocks in emerging markets. For example, Rodrik (1998) argues that government expenditure serves as social insurance against global volatility, while Alesina et al. (2008) emphasize the role of institutional capacity in shaping fiscal responses. More recent empirical studies also show that policy uncertainty can influence macroeconomic policy behavior by altering expectations, risk perceptions, and fiscal policy priorities (Gulen & Ion, 2015; Julio & Yook, 2012; Mumtaz & Ruch, 2025). Unlike studies such as Baker et al. (2016) and Bloom (2009), which focus

primarily on output, investment, and private-sector channels, the present analysis demonstrates that uncertainty directly affects public expenditure decisions. By accounting for non-stationarity and unobserved common global factors, this study also extends prior panel evidence that relied on static specifications and potentially overstated short-run effects (Chudik & Pesaran, 2015; Pesaran, 2006).

From an economic perspective, these results align with precautionary and stabilization-oriented views of fiscal policy. Heightened global uncertainty raises downside risks to private investment and consumption, prompting governments to increase public expenditure to stabilize domestic economic activity and support aggregate demand. This mechanism is consistent with theoretical and empirical research showing that uncertainty shocks can amplify macroeconomic fluctuations and trigger countercyclical fiscal responses (Bloom, 2009; Caldara et al., 2020; Fernández-Villaverde et al., 2015; Jurado et al., 2015; Mumtaz & Ruch, 2025). Importantly, the positive association between global uncertainty and government spending persists even after controlling for cross-sectional dependence and unobserved global common factors, suggesting that emerging market governments actively adjust their fiscal policies in response to external risk rather than passively absorbing global shocks.

The interaction between global uncertainty and income per capita further indicates that fiscal responses are not uniform across emerging markets. The positive and statistically significant interaction term implies that higher-income emerging economies have a stronger expenditure response to global uncertainty, reflecting greater fiscal capacity, improved access to financing, and more developed institutional frameworks. In contrast, lower-income emerging markets may face binding fiscal constraints that limit their ability to expand expenditure in response to external uncertainty, even when stabilization needs are substantial. This heterogeneity is consistent with research highlighting the importance of fiscal space, institutional quality, and financial development in shaping macroeconomic policy responses to global shocks (Alesina et al., 2008; Arroyo et al., 2024; Ilzetzki et al., 2013).

Structural factors also play a critical role in shaping fiscal outcomes. Urbanization consistently emerges as a robust positive determinant of government expenditure, reflecting higher demand for public services, infrastructure, and social expenditure in more urbanized economies. In contrast, population size is negatively associated with government expenditure ratios, suggesting scale effects in public service provision. Financial development becomes statistically significant when inference is robust to cross-sectional dependence, indicating that deeper financial systems may enhance governments' ability to smooth expenditure in the presence of uncertainty and external shocks. These findings align with previous studies emphasizing the role of structural transformation, financial development, and demographic dynamics in determining public expenditure patterns (Arroyo et al., 2024; Svirydzenka, 2016).

The dynamic error-correction results provide further insights into the temporal dynamics of fiscal adjustment. The statistically significant negative error-correction term confirms the existence of a stable long-run equilibrium relationship between government expenditure, global uncertainty, and domestic economic conditions. The estimated speed of adjustment indicates that approximately one-quarter to one-third of deviations from long-run fiscal equilibrium are corrected within a year, suggesting relatively rapid fiscal adjustment in emerging markets. These results are consistent with dynamic macroeconomic models in which fiscal policy gradually adjusts toward long-run targets while responding to short-run shocks (Chudik & Pesaran, 2015; Pesaran, 2006; Pesaran et al., 1999).

From a policy perspective, these findings have important implications for fiscal sustainability in emerging markets. While expansionary fiscal responses to global uncertainty may stabilize economic activity in the short run, persistent increases in government expenditure can place pressure on public finances, particularly in economies with limited fiscal space or high debt burdens. Therefore, policymakers should complement countercyclical fiscal interventions with credible medium-term fiscal frameworks that balance stabilization objectives with sustainability concerns. Strengthening fiscal institutions, improving expenditure efficiency, and prioritizing growth-enhancing public investment can help ensure that uncertainty-driven fiscal responses do

not undermine long-term fiscal sustainability (Arroyo et al., 2024; Debrun et al., 2008; Frankel et al., 2013).

More broadly, the results suggest that global economic policy uncertainty has become a structural feature of the international economic environment rather than a temporary disturbance. For emerging market economies, this implies that fiscal policy design must increasingly account for recurring global risks and heightened macroeconomic volatility. Developing institutional mechanisms that enable flexible yet disciplined fiscal responses—such as well-designed fiscal rules with escape clauses or stabilization funds—may enhance resilience to future uncertainty shocks and strengthen macroeconomic stability (Frankel et al., 2013; Mumtaz & Ruch, 2025).

This study has certain limitations. First, while the GEPU index captures global policy-related uncertainty, it does not allow identification of specific transmission channels through which uncertainty affects fiscal decisions. Second, the analysis focuses on aggregate government expenditure and does not distinguish between current and capital spending, which may respond differently to uncertainty shocks. Third, data limitations restrict the sample size and prevent the inclusion of certain institutional variables. These limitations suggest promising directions for future research, including disaggregated fiscal analysis, the role of fiscal rules, and the interaction between institutional quality and fiscal responses to global uncertainty.

Overall, the study demonstrates that fiscal policy in emerging markets operates at the intersection of global risk and domestic capacity. By showing that global uncertainty affects government expenditure through both short-run adjustments and long-run equilibrium mechanisms, the analysis advances understanding of how emerging market governments navigate an increasingly uncertain global economic environment.

Conclusion

This study examines how GEPU shapes government expenditure dynamics in emerging market economies from 1998 to 2023. Motivated by emerging markets' growing exposure to global shocks and unresolved debates in fiscal policy literature, the study combines a conventional fixed-effects framework with robust inference techniques and a dynamic ECM that explicitly accounts for non-stationarity and cross-sectional dependence.

The empirical results provide consistent evidence that heightened GEPU is associated with higher government expenditure as a share of GDP in emerging markets. This relationship is robust across static specifications, Driscoll–Kraay-corrected estimates, and a dynamic CCE error-correction framework. Importantly, the dynamic results confirm a stable long-run relationship between government expenditure, global uncertainty, and domestic economic conditions, while also revealing meaningful short-run adjustment dynamics.

By explicitly addressing mixed orders of integration and unobserved global common factors, this study resolves key methodological concerns that constrain the interpretability of earlier studies. The findings indicate that fiscal responses to global uncertainty are not purely transitory but rather reflect persistent adjustments consistent with precautionary and stabilization motives. This insight contributes to the literature by bridging short-run fiscal reactions and long-run equilibrium behavior in emerging markets, an area that has received limited empirical attention.

These findings have several important implications for policy. As global uncertainty is increasingly beyond the control of emerging market policymakers, fiscal authorities face mounting pressure to respond through public expenditure. While such responses may help stabilize domestic economies in the short run, they also raise concerns about fiscal sustainability, particularly in countries with limited fiscal space or constrained access to financial markets. Strengthening fiscal frameworks, improving expenditure efficiency, and building countercyclical buffers can mitigate these risks.

This study has several limitations. First, although the GEPU index captures common shocks, it cannot fully disentangle the transmission channels through which uncertainty affects fiscal decisions. Second, the study explores aggregate government expenditure and does not distinguish between current and capital expenditure, which may respond differently to uncertainty.

These limitations point to promising avenues for future research, including disaggregating fiscal components and examining the interaction among uncertainty, fiscal rules, and institutional quality.

Overall, using a rigorous econometric framework, this study provides new empirical evidence of the fiscal consequences of global uncertainty in emerging markets. By integrating robust static and dynamic approaches, the study advances understanding of how governments adjust fiscal policies amid rising global uncertainty and offers insights relevant to both academic research and policy design.

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Use of AI tools declaration

Artificial intelligence tools were used to assist with language editing and to enhance the clarity and readability of the manuscript. The authors remain fully responsible for the content and conclusions of this study.

Conflict of interest

The authors declare that there are no competing interests related to this manuscript.

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