

FISCAL POLICY, INSTITUTIONAL CONSTRAINTS, AND ECONOMIC GROWTH ACROSS ECONOMIES

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Abstract

This study investigates the relationship between fiscal policy, institutional frameworks, and economic growth across a broad set of economies, covering both advanced and emerging markets. Using global panel data, the analysis begins with fixed-effects regressions to capture baseline dynamics and then applies second-generation econometric models, cross-sectional dependence testing, slope homogeneity testing, and cross-sectionally augmented distributed lag (CS-ARDL) estimation. The analysis confirms strong cross-sectional dependence and slope heterogeneity across panel units, justifying the mean group estimator as the primary identification strategy. Fixed-effects estimates provide conditional support for a positive fiscal balance and investment effect on growth in institutionally disciplined environments. Complementary results from the cross-sectional augmented distributed lag model indicate that fiscal balances are determined primarily by gross domestic product, reflecting structural feedback and institutional constraints, rather than functioning as independent drivers of long-term growth. Overall, the findings emphasize the importance of institutional settings in conditioning the effectiveness of fiscal policy and in determining its contribution to stable economic outcomes, with important implications for fiscal rule design in emerging market contexts.

Keywords: Fiscal Policy, Economic Growth, Institutional Settings.

EKONOMİLER ARASI MALİYE POLİTİKASI, KURUMSAL KISITLAMALAR VE EKONOMİK BÜYÜME

Öz

Bu çalışma hem gelişmiş hem de gelişmekte olan ekonomileri kapsayan geniş bir örneklem üzerinden maliye politikası, kurumsal çerçeveler ve ekonomik büyüme arasındaki ilişkiyi incelemektedir. Küresel panel veri kullanılarak yapılan analiz, temel dinamikleri ortaya koymak amacıyla sabit etkiler regresyonlarıyla başlamakta; ardından ikinci nesil ekonometrik modeller, yatay kesit bağımlılığı testleri, eğim homojenliği testleri ve yatay kesit artırılmış dağıtılmış gecikme (CS-ARDL) tahmin yöntemleri uygulanmaktadır. Analiz, panel birimleri arasında güçlü bir yatay kesit

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bağımlılığı ve eğitim heterojenliği bulunduğunu doğrulamakta; bu da ortalama grup tahmincisinin temel tanımlama stratejisi olarak kullanılmasını gerektirmektedir. Sabit etkiler panel model tahminleri, kurumsal disiplinin güçlü olduğu ortamlarda mali bütçe dengesinin ve yatırımların büyüme üzerindeki olumlu etkisine koşullu destek sağlamaktadır. Yatay kesit artırılmış dağıtılmış gecikme modelinden elde edilen tamamlayıcı sonuçlar ise mali dengelerin, uzun dönemli büyümenin bağımsız belirleyicileri olarak işlev görmekten ziyade, esas olarak gayri safi yurt içi hasıla tarafından belirlendiğini göstermektedir. Bu durum, yapısal geri besleme mekanizmalarını ve kurumsal kısıtları yansıtmaktadır. Genel olarak bulgular, maliye politikasının etkinliğinin ve istikrarlı ekonomik sonuçlara katkısının kurumsal yapı tarafından koşullandığını vurgulamakta, ve ayrıca gelişmekte olan ekonomiler için mali kural tasarımıyla ilişkin önemli politika çıkarımları sunmaktadır.

Anahtar Kelimeler: Maliye Politikası, Ekonomik Büyüme, Kurumsal Çerçeve.

Introduction

The relationship between government fiscal policy and economic growth is a key topic in macroeconomics. Governments use various tools like taxes, public spending, and borrowing to influence their economic activity. These tools help manage business cycles, encourage investment, and reduce income inequality. However, fiscal policy varies in all countries or in time periods. The effectiveness depends on many factors, including the country's institutions, political system, and economic conditions (Acemoglu et al., 2005; International Monetary Fund [IMF], 2022).

In recent years, economists have paid more attention to how institutional rules affect fiscal policy. These rules include constitutional requirements for balanced budgets, debt limits, fiscal responsibility laws, independent fiscal councils, and political accountability systems. The literature emphasizes that the credibility and effectiveness of fiscal policy are determined not only by macroeconomic fundamentals but also by the institutional rules that govern fiscal decisions (Wyplosz, 2012; Debrun and Kumar, 2007).

Institutions serve important functions. They help create stable expectations, reduce the risk of lending to governments, and prevent the misuse of fiscal tools. However, very strict institutional rules can limit a government's ability to respond to economic crises or downturns. This tension between credibility and flexibility has become a major issue in fiscal governance research. Strict fiscal rules can support long-term financial sustainability and reduce borrowing costs by showing commitment to fiscal discipline. However, such rules may prevent governments from responding effectively to economic shocks. This problem became clear during the European debt crisis and throughout the COVID-19 pandemic (IMF, 2022). Eyraud et al. (2018) emphasize the need for fiscal rules that are flexible

enough to handle economic shocks while maintaining long-term sustainability.

The institutional framework also interacts with political structures. Distinct political systems, such as presidential versus parliamentary systems, or majoritarian versus proportional representation, significantly influence fiscal preferences and outcomes (Persson and Tabellini, 2006). Advanced economies may prioritize spending on public goods and social welfare programs, but they are also subject to electoral budget cycles, in which the incumbent government expands spending ahead of elections to attract voter support (Brender and Drazen, 2005; Alesina and Passalacqua, 2016). Empirical evidence further indicates that political fragmentation and weak coalition governments are associated with larger deficits and spending that moves with economic cycles, especially in countries with weak institutional controls (Roubini and Sachs, 1989; Hallerberg et al., 2009).

The timing of fiscal policy effects is equally critical. Short-term fiscal stimulus may substantially support economic output or stabilize demand, but its long-term success depends on expenditure composition, tax policy design, and debt sustainability. For example, public investments in infrastructure or education can yield lasting contributions on productivity and economic potential, whereas direct transfers for consumption may only provide temporary growth expansion. Past fiscal decisions also matter; previous debt accumulation or reduced policy choices can limit current choices. Hence, fiscal frameworks must deal with both economic stabilization and long-term sustainability.

Recent studies have examined how the timing of fiscal policy affects growth under different institutional settings. Cottarelli (2021) emphasizes that fiscal institutions should be adaptive to manage uncertainty over time, ensuring that short-term actions do not harm medium-term fiscal goals. Similarly, the IMF (2022) reveals that credible medium-term fiscal frameworks, supported by strong institutions, are essential for handling both shocks and long-term development needs, especially in emerging markets. Developing economies face additional challenges: weaker administrative capacity, higher political uncertainty, limited fiscal space, and restricted access to global capital markets heighten the risk of procyclical policy behavior (Frankel et al., 2013). In these countries, building strong institutions, including transparent budget processes, effective tax administration, and rule-based fiscal planning, becomes essential for effective growth-oriented policy (Lehtimäki, 2025).

The COVID-19 pandemic and government responses intensified these debates. While advanced economies quickly deployed large stimulus packages, many developing countries struggled to mobilize resources or faced credibility problems in capital markets. The different recovery paths have renewed global discussions about fiscal equity, governance, and reform. Recent studies show that flexible but credible fiscal frameworks, supported by

institutional reforms, have been more effective in moderating crises and supporting inclusive recovery (Brändle and Elsener, 2024; Ulloa-Suarez and Valencia, 2024).

Despite these expanding research studies, there remains a significant gap in understanding how fiscal policy interacts with economic growth over time under different institutional constraints, especially across diverse countries. Much existing research has focused either on advanced economies or on static relationships that overlook feedback effects over time, cumulative policy impacts, and changing institutional contexts. In particular, there is limited current empirical comparative research that systematically connects institutional characteristics, such as fiscal rules, regime types, and governance quality, to the long-term paths of public spending, investment, and growth.

This study contributes to addressing this gap by offering a comprehensive framework that considers both institutional differences and time dynamics. Instead of relying on a single model, the approach combines cross-country evidence, long-term fiscal data, and recent research on fiscal governance. The findings improve the understanding of the institutional conditions under which fiscal policy can be effective and emphasize institution-sensitive factors in fiscal budgeting. Using global data that covers both developed and emerging economies, the study shows how institutional quality, fiscal rules, and political systems determine the effectiveness of fiscal policy. By including constitutional and political structures in the analysis of fiscal balance, private investment, and gross domestic product (GDP), it provides new insights into the role of institutions in determining fiscal outcomes and economic performance.

1. LITERATURE REVIEW

This section reviews key theoretical and empirical studies on the links between fiscal policy, institutional frameworks, and economic growth. It focuses on growth theories, the role of fiscal rules, political economic influences, and the time dynamics of fiscal interventions.

1.1. Fiscal Policy, Growth, and the Importance of Institutional Context

Early approaches to growth, such as classical and endogenous growth models, provided important insights about government spending (Barro, 1990; Easterly and Rebelo, 1993). These models highlight that fiscal policy can enhance sustainable growth when public expenditures are directed toward productive purposes. Investments in infrastructure, education, and health not only enhance human capital but also raise private sector productivity, thereby reinforcing the growth process. However, not all government spending helps growth. Kneller et al. (1999) distinguish between “productive” and “non-productive” expenditures, showing that only the former, such as investment in infrastructure or education, contribute positively to output. In contrast, taxes

that discourage business investment or government transfers that do not increase productivity may actually harm economic growth by reducing investment incentives.

Research has also shown that the effectiveness of fiscal policy depends heavily on a country's institutional settings. Bohn and Inman (1996) argue that well-designed fiscal rules, such as balanced-budget constraints or debt limits, can enhance policy credibility and reduce discretionary fluctuations. When such rules are clear and consistently applied, they help build investor confidence and policy predictability. Building on this work, Debrun and Kumar (2007) find that the success of fiscal rules depends on two key factors: political willingness to follow the rules and the capacity to enforce them. In this regard, independent fiscal councils play a central role, providing objective monitoring and strengthening accountability.

Von Hagen and Wyplosz (2008) show that fiscal rules lower sovereign risk premia only when they are backed by credible enforcement and political commitment. In the absence of such institutional support, adopting rules does not produce meaningful credibility gains.

Researchers have identified different ways that countries organize their fiscal governance systems. Hallerberg et al. (2009) further classify fiscal governance frameworks across OECD countries into “delegation,” “contract,” and “fiscal transparency” models, each reflecting a different balance of political control and institutional oversight.

Recent evidence continues to show that institutional channels are central to fiscal effectiveness in the post-pandemic period. Wyplosz (2012) argues that credible fiscal institutions help anchor expectations and reduce macroeconomic volatility, even if they do not directly raise growth, a point that has become especially relevant amid renewed consolidation pressures after the pandemic. Persson and Tabellini (2005) likewise show that constitutional design, particularly the balance between executive power and legislative constraints, affect the level and composition of public spending in ways that can influence long-run growth paths.

A major area of research examines how politics affects fiscal policy outcomes. Research in political economy has demonstrated how political structures and incentives effect spending and taxation behavior. Alesina and Perotti (1995) find that fiscal discipline, which involves controlled government spending and sustainable debt levels, is more likely when countries have stable political coalitions and fewer groups that can block policy decisions. Where political power is fragmented, reaching consensus on fiscal restraint becomes more difficult. Persson and Tabellini (2006) explore how democratizations and economic liberalizations influence public spending and taxation structures. Their findings show that the architecture of political institutions generates distinct fiscal and growth trajectories. Another important finding concerns electoral budget cycles. Brender and Drazen (2005) provide empirical evidence that governments often increase spending

before elections to win voter support. This tendency is particularly strong in newer democracies, where voters may have less experience in assessing fiscal performance.

Alesina et al. (2019) find that expenditure-based consolidations are significantly less damaging to growth than tax-based ones. They also show that institutional credibility moderates the growth costs of fiscal adjustment: countries with transparent fiscal frameworks experience smaller output losses during consolidation episodes.

1.2. Balancing Flexibility and Discipline in Times of Crisis

The 2008-2009 global financial crisis and COVID-19 pandemic tested how well fiscal institutions work during major economic shocks. These crises made earlier economic insights more relevant than ever. Blanchard and Giavazzi (2004) warn that strict fiscal rules help maintain sustainability but may prevent governments from responding effectively to economic crises.

Following the pandemic, Cottarelli (2021) calls for adaptive fiscal frameworks that maintain discipline while allowing timely responses to economic downturns.

Fan et al. (2023) and the Vienna Institute for International Economic Studies (2024) further document that while the acute phase of the crisis has passed, scarring effects continue to hinder recovery, reinforcing the case for adaptive fiscal frameworks that support resilience over the medium term. IMF (2026) extends this argument to fragile states, showing that macroeconomic instability and weak institutions compound the challenges of post-crisis stabilization and growth.

These frameworks need to balance long-term fiscal responsibility with the flexibility to act during emergencies. Recent research confirms that fiscal rules work only when supported by strong institutions. Eyraud et al. (2018) discuss “second-generation fiscal rules” that include flexibility clauses, medium-term targets, and built-in enforcement mechanisms to avoid harmful spending cuts during recessions.

Empirical evidence from the IMF (2022) shows that countries with credible fiscal rules and independent bodies experienced less fiscal deterioration during COVID-19. Checherita-Westphal and Žďárek (2017) document significant fiscal spillovers across euro area members, transmitted through financial market contagion and coordinated policy responses. These findings provide empirical justification for using second-generation panel estimators that explicitly account for cross-sectional dependence in fiscal dynamics. Bianchi and Coulibaly (2023) and Górajski and Kuchta (2023) reinforce this point, showing that financial integration and monetary-macroprudential coordination generate welfare-relevant spillovers that interact with fiscal dynamics and cannot be adequately captured by single-country frameworks.

This confirms that strong institutions help countries weather adverse economic shocks more effectively. Brändle and Elsener (2024) analyse EU countries and find that fiscal rules improve budget balances, reduce spending volatility, and enhance government credit ratings, especially when supported by independent fiscal councils. Building on this work, Brändle and Elsener (2024) show that such rules also improve budget forecast accuracy and public investment efficiency, highlighting their importance for medium and long-term economic planning.

The post-pandemic fiscal conditions have also renewed attention to the growth effects of fiscal consolidation. IMF (2022) shows that consolidation paths after the pandemic were determined not only by domestic policy choices but also by global financing conditions, underscoring the importance of cross-country spillovers in determining fiscal outcomes. This is especially relevant for large, heterogeneous panels, where fiscal dynamics are unlikely to be independent across countries. Ardanaz et al. (2021) find that fiscal consolidation tends to reduce public investment more sharply in weak institutional settings, whereas well-designed fiscal rules can protect productive spending. Their results suggest that rule design affects not only fiscal balances, but also the composition of expenditure, with important implications for long-run growth.

1.3. Cross-Country Perspectives on Rule Design and Effectiveness

At a broader global level, Lehtimäki (2025) finds that supranational fiscal framework, such as those within the EU, tend to outperform national rules in promoting investment growth and fiscal sustainability.

His cross-country analysis confirms that international coordination mechanisms, like those of the EU, generally deliver stronger outcomes for investment and fiscal stability than isolated national rules. Examining data from 1985 to 2021, he also finds that the effectiveness of fiscal rules increases markedly in contexts characterized by strong enforcement capacity and political stability. Apeti et al. (2025) examine 158 countries to understand how government spending patterns during economic cycles depend on institutional quality and exchange rate systems.

Ma and Zhu (2026) provide complementary evidence from China showing that macroeconomic policy coordination reduces systemic risk and supports growth, suggesting that the benefits of coordinated frameworks extend beyond the fiscal domain.

They find that in countries with flexible exchange rates, the combination of fiscal rules and strong institutions helps contain pro-cyclical spending during booms and smooth contractionary pressures during busts. However, countries with fixed exchange rates find that fiscal rules alone may be insufficient or even harmful unless supported by high-quality institutions. Ulloa-Suarez and Valencia (2024), focusing on Latin America and the

Caribbean during the COVID-19 crisis, observe that although fiscal rules were implemented with greater flexibility, weak political backing and institutional deficiencies continue to endanger long-term fiscal discipline. These findings highlight that enforcement credibility and broad political support are essential for fiscal rules to work effectively.

Montes and Marroffino (2026) find that moderate fiscal rule adoption supports investment while excessive proliferation reduces it, identifying an inverted U-shaped relationship that is particularly pronounced in developing countries.

Complementing this regional evidence, recent panel studies suggest that fiscal rules have heterogeneous effects across development levels. In emerging economies, the investment-growth channel appears to work through mechanisms that differ from those observed in advanced economies, because sovereign risk premia and financing constraints can weaken the link between fiscal consolidation and private investment crowding-in that is more reliable in financially deeper markets (Acemoglu et al., 2005). This heterogeneity has important implications for fiscal-rule design in emerging markets, where institutional capacity constraints may limit the full transmission from fiscal discipline to growth.

1.4. Dynamic Effects and Intertemporal Trade-Offs

The long-term success of fiscal policy depends not only on institutional design but also on the timing of government interventions. Blanchard and Perotti (2002) and Mountford and Uhlig (2009) identify significant dynamic effects of fiscal shocks, emphasizing that outcomes depend critically on three factors: the composition of spending, the duration of policy measures, and the credibility of government commitments.

Carnot (2017) finds that the fiscal reforms in the Eurozone places greater emphasis on stabilization and growth; while credible short-term implementation of the current fiscal rules framework is essential, a long-term arrangement combining sustainability-focused rules with a common stabilization capacity could be more effective, provided that the stabilization mechanism and rules-based framework are designed jointly with symmetric triggers for support and contributions. Riblier (2023) shows that rising debt servicing costs weaken the positive effects of fiscal stimulus over time and may eventually reverse initial economic gains. This research provides a clear reminder that fiscal policy involves important trade-offs between short-term benefits and long-term costs. Combes et al. (2017) find that fiscal rules reduce procyclicality only when institutional quality is above a certain threshold. Below this threshold, rules either have no effect or can paradoxically strengthen procyclical austerity during downturns

The dynamic dimension of fiscal policy has been further examined in the context of panel data methodology. Frankel et al. (2013) document that

fiscal policy in emerging economies tends to be procyclical, governments expand spending during booms and contract during recessions, a pattern that fiscal rules aim to soften but succeed in doing so only where enforcement capacity is sufficiently strong.

1.5. Hypotheses Formulation

Building on classical growth theory, fiscal policy has the potential to support economic growth through productive spending and sound budgetary management. Yet, previous research has shown that the impact of fiscal instruments depends strongly on the institutional environment in which they are applied (Barro, 1990; Kneller et al., 1999; Debrun and Kumar, 2007). Strong fiscal rules, transparent governance, and credible enforcement mechanisms may amplify the positive effects of investment and fiscal balances on growth, while weak institutions may undermine their effectiveness. Recent cross-country evidence from Lehtimäki (2025) and Brändle and Elsener (2024) confirms that the growth-enhancing effects of fiscal rules are significantly stronger in contexts with high enforcement capacity and independent fiscal oversight, providing empirical grounding for this institutional conditionality.

Thus, the first hypothesis of this study is:

H1: Fiscal balances and private investment have a positive effect on GDP growth, depending on institutional settings and political frameworks.

At the same time, recent empirical evidence highlights that fiscal outcomes are often driven by macroeconomic dynamics themselves. Economic growth can influence fiscal balances, as higher GDP raises revenues and reduces fiscal pressures, thereby creating reverse causality (IMF, 2022; Apeti et al., 2025). Moreover, fiscal rules may increase persistence of balances without directly fostering growth. This leads to the second hypothesis:

H2: GDP growth is the main driver of fiscal balances and long-term growth dynamics, depending on institutional settings and political frameworks.

In sum, these hypotheses show that fiscal policy cannot be studied without also looking at institutions and wider economic trends. H1 suggests that fiscal balances and investment may help growth, but only when institutions are strong enough to support them. H2 highlights that growth itself often drives fiscal results, with institutions deciding how stable and lasting these effects will be. The procyclical fiscal behavior documented by Frankel et al. (2013) and the post-pandemic consolidation evidence from IMF (2022) further support the view that fiscal outcomes respond to macroeconomic conditions rather than independently shaping them, particularly in emerging and developing economy contexts. By testing these ideas across many

countries, the study aims to show in which situations fiscal tools work effectively and where they fail to deliver long-term benefits.

2. METHODOLOGY

This section provides insights into the dataset, related diagnostic statistics, and provides a detailed illustration of the econometric methodology employed in this analysis about fiscal policy dynamics.

2.1. Descriptive Statistics

The study uses a panel data set consisting of 149 countries from the World Economic Outlook (WEO) database (see Table 1 for corresponding countries).

Table 1. Countries in Data Sample

Algeria	Egypt	Kyrgyz Republic	Russia
Angola	El Salvador*	Lao P.D.R.	Rwanda
Antigua and Barbuda	Equatorial Guinea	Latvia	Saudi Arabia
Argentina	Estonia	Lebanon	Senegal
Armenia	Ethiopia	Liberia	Serbia
Australia*	Finland*	Libya	Sierra Leone
Austria*	France	Lithuania	Singapore*
Azerbaijan	Gabon	Luxembourg*	Slovak Republic
Bahrain	Georgia	Madagascar	Slovenia
Bangladesh	Germany*	Malawi	Somalia
Belarus	Ghana	Malaysia	South Africa*
Belgium	Greece*	Maldives	South Sudan
Benin	Grenada	Mali	Spain*
Bolivia	Guatemala	Malta*	Sri Lanka
Botswana	Guinea	Mauritius	Sudan
Brazil*	Guinea-Bissau	Mexico	Sweden*
Bulgaria	Haiti	Mongolia	Switzerland*

Burkina Faso	Honduras	Montenegro	Syria
Burundi	Hong Kong SAR*	Morocco	Tajikistan
Cambodia	Hungary	Mozambique	Tanzania
Cameroon	Iceland*	Myanmar	Thailand
Canada*	India	Namibia	Togo
Central African Republic	Indonesia	Nepal	Tunisia
Chad	Iran	Netherlands*	Turkey
Chile*	Iraq	New Zealand*	Turkmenistan
China	Ireland*	Nicaragua	Uganda
Colombia	Israel*	Niger	Ukraine
Democratic Republic of the Congo	Italy	Nigeria	United Arab Emirates
Republic of Congo	Jamaica	Norway*	United Kingdom*
Costa Rica	Japan*	Pakistan	United States*
Côte d'Ivoire	Jordan	Papua New Guinea	Uruguay
Croatia	Kazakhstan	Paraguay	Uzbekistan
Cyprus*	Kenya	Peru	Venezuela
Czech Republic*	Korea*	Philippines	Vietnam
Denmark*	Kosovo	Poland	Yemen
Dominica	Kuwait	Portugal*	Zambia
Dominican Republic*		Qatar	Zimbabwe
Ecuador*		Romania	

Note: * indicates advanced economies (N=36, IMF WEO High-Income OECD Classification), see IMF World Economic Outlook Report (IMF, 2024).

The sample period goes from 1980 to 2023 on an annual frequency basis. The analysis focuses on three core macroeconomic variables: fiscal balance (as an indicator of government budget position, government gross revenue – government gross expenditure), private investment (reflecting productive capital formation), and real GDP (measuring overall economic

activity). In the empirical models, we subset the countries according to major fiscal and political categories. The subcategories in the study are given as follows; (a) countries with an explicit fiscal rule (named as fiscal), (b) countries with no explicit fiscal rule (named as nonfiscal), (c) countries which have a unitary political system (named as unitary), and (d) countries which have a federal political system (named as federal). The data is retrieved from IMF’s Fiscal Monitor and World Economic Outlook Report (IMF, 2022, 2024).

Tables 2 - 6 present the descriptive statistics for the sample and relevant subsamples. Generally, we observe a higher standard deviation for fiscal balance. However, an exception is the nonfiscal subsample investment, which exhibits a higher standard deviation than fiscal balance. Compared to the nonfiscal case, the fiscal case shows lower mean value for GDP and a smaller standard deviation for GDP. Additionally, the standard deviation for investment is higher in the nonfiscal case. The mean fiscal balance is higher in the fiscal case. Unitary cases exhibit higher mean values for GDP and investment compared to federal cases. Federal cases, on the other hand, have a lower standard deviation for investment.

Table 2. Descriptive Statistics - Total

	GDP	Investment	balance	Fiscal
Mean	3.184	20.533		-2.351
Std. dev.	6.265	15.058		13.025
Variance	39.256	226.773		169.662
Skewness	4.687	6.836		-23.424
Kurtosis	119.782	133.140		821.006
No Obs.	7003	7003		6956

Source: Created by the author.

Both GDP and investment display excess kurtosis, indicating heavier tails than a normal distribution. Government spending, in contrast, shows less severe kurtosis. Positive skewness is evident in GDP and investment variables for all subsamples and the total sample, suggesting a clustering of data points towards the left tail. Most countries or time periods in the sample have relatively low or moderate levels of GDP and investment. A few extreme values are pulling the distribution to the right.

Table 3. Descriptive Statistics - Nonfiscal

	GDP	Investment	Fiscal balance
Mean	3.425	23.391	-2.770

Std. dev.	7.863	20.090	9.111
Variance	61.827	403.612	83.017
Skewness	3.229	9.017	-5.683
Kurtosis	73.211	134.940	89.458
No Obs.	2192	1884	1751

Source: Created by the author.

Table 4. Descriptive Statistics - Fiscal

	GDP	Investment	Fiscal balance
Mean	3.203	21.381	-2.809
Std. dev.	5.503	10.002	15.832
Variance	30.285	100.036	259.359
Skewness	7.268	1.554	-23.475
Kurtosis	185.772	16.733	709.691
No Obs.	3567	3,485	3,567

Source: Created by the author.

Table 5. Descriptive Statistics - Unitary

	GDP	Investment	Fiscal balance
Mean	3.411	22.299	-3.242
Std. dev.	6.663	15.359	15.522
Variance	44.399	235.901	240.956
Skewness	5.129	9.058	-21.789
Kurtosis	120.879	173.055	652.161
No Obs.	5125	4,464	3,959

Source: Created by the author.

Table 6. Descriptive Statistics - Federal

	GDP	Investment	Fiscal balance
Mean	2.715	21.167	-2.191
Std. dev.	5.869	8.036	5.194
Variance	34.455	64.586	26.981
Skewness	1.983	-1.092	-0.405
Kurtosis	59.594	5.521	8.948
No Obs.	861	737	820

Source: Created by the author.

2.2. Diagnostic Tests

We apply the Levin–Lin–Chu and Im-Pesaran-Shin unit-root tests to test for stationarity of the utilized panel data setting. As can be seen in Table 7, the null hypothesis that the panel contains a unit root, is rejected in favour of stationarity in the panel data. We apply a test specification with no time trend included and one lagged variable in eq. (1).

$$y_{it} = \rho_i y_{i,t-1} + z'_{it} \gamma_i + \varepsilon_{i,t}$$
 (1)

where i describes the panels, t indicates time, y is the variable subject to the applied test, and ε stationary error term, γ_i represents panel fixed effects. Panel unit-root tests are used to test the null hypothesis for all cross-units i (Panels contain unit roots) versus the alternative (Panels does not contain unit roots).

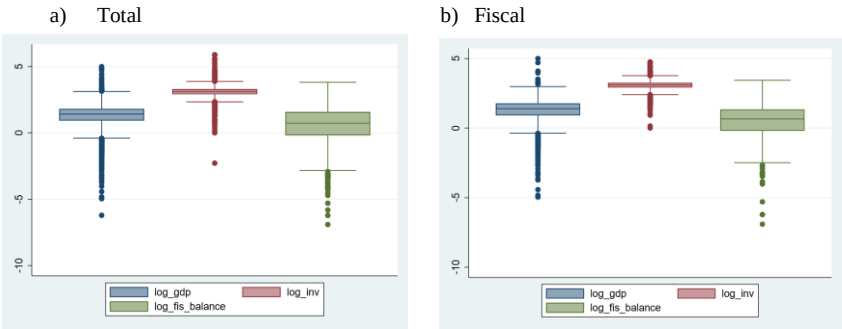
Table 7. Unit-Root Test

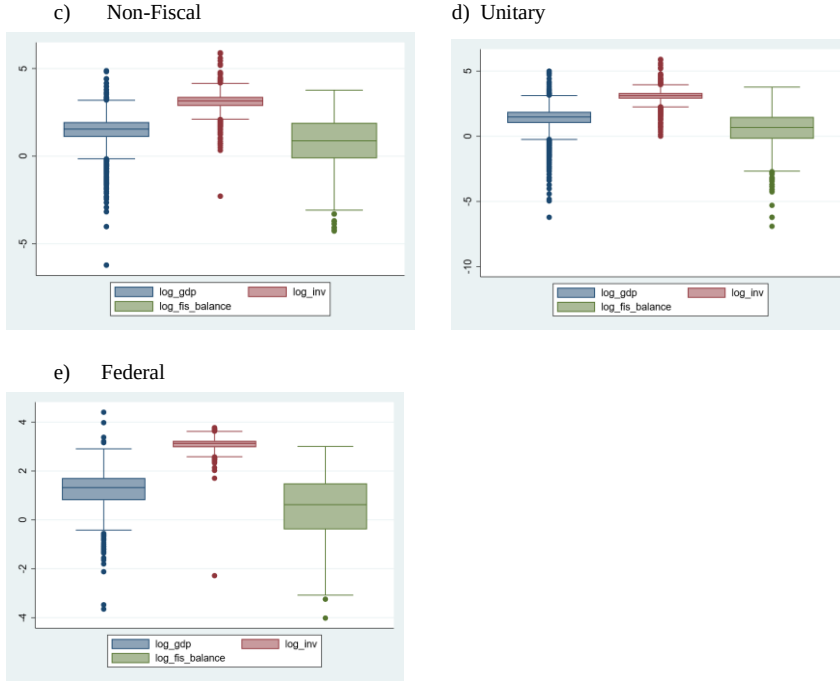
Variables	Levin–Lin–Chu		Im-Pesaran-Shin	
	Test value	P-value	Test value	P-value
GDP	-28.636***	0.000	-39.6216***	0.000
Investment	-7.471***	0.000	-13.2718***	0.000
Fiscal balance	-8.178***	0.000	-14.2362***	0.000

Note: Created by the author. *** $p < 0.01$; ** $p < 0.05$; * $p < 0.10$.

Figure 1 shows the boxplots for the related subsamples. For each plot the first order logarithmic transformation of the variables is used. As the figure depicts, the prevailing skewness and kurtosis values are mainly moderated, suggesting a suitable data set for the econometric application in the remainder. The heterogeneity across the subsamples provides evidence for using advanced econometric model specifications.

Figure 1. Boxplot For Subsamples





Source: Created by the author.

2.3. Model Specification

This study employs a comparative empirical cross-country analysis to examine the drivers, and economic implications of the interactions between fiscal policy and economic GDP output under alternative institutional settings from a global perspective. For each of the models the first order logarithmic transformations of the related variables are used.

2.3.1. Panel Analysis Model

The research design combines descriptive statistics, panel data analysis, and case studies to provide a comprehensive understanding of the issue. The general case to analyze the determinants of fiscal balance and economic GDP output is the fixed-effects panel regression model.

$$\begin{aligned}
 \log(GDP_{it}) &= \alpha_i + \beta_1 \log(GDP_{it-1}) + \beta_2 \log(INV_{it}) + \\
 &\beta_3 \log(FisBal_{it}) + \varepsilon_{it} \\
 \log(FisBal_{it}) &= \alpha_i + \beta_1 \log(FisBal_{it-1}) + \beta_2 \log(INV_{it}) + \beta_3 \log(GDP_{it}) \\
 &\quad + \varepsilon_{it} \tag{2}
 \end{aligned}$$

where, $\log(GDP)$, logarithm of GDP (suspected endogenous), $\log(INV)$, logarithm of private investment, $\log(FiscalBal)$, logarithm of Fiscal Balance, ε_{it} error term, α_i heterogenous fixed effects. Inclusion of fixed effects are tested based on Hausman test.

2.3.2. Cross-Section Augmented Autoregressive Distribution Lag Model

The Cross-Section augmented Autoregressive Distribution Lag (CS-ARDL) model was introduced by Chudik et al. (2016) as an extension of the traditional ARDL model to panel data settings that exhibit cross-sectional dependence, which is common in macroeconomic and financial datasets.

The standard form of the CS-ARDL model for unit i at time t is:

$$y_{it} = \alpha_i + \lambda_i y_{i,t-1} + \beta_i' x_{it} + \theta_i' x_{i,t-1} + \gamma_i' \hat{z}_{i,t} + \varepsilon_{it} \quad (3)$$

where, $y_{i,t-1}$, dependent variable, $x_{i,t}$, vector of explanatory variables, $\hat{z}_{i,t}$, cross-sectional averages of the dependent and independent variables, capturing unobserved common factors, α_i , individual-specific fixed effects, $\varepsilon_{i,t}$, error term.

CS-ARDL model exhibits a dynamic structure by incorporating lags of dependent and independent variables and be estimated with heterogeneous slopes or imposed homogeneity (pooled version). CS-ARDL uses ARDL structure to allow both short-run and long-run effects with cross-sectional averages to remove common correlated effects. The mean group estimation estimates are obtained for each unit (each country) and then averaged. The estimation is done using the Dynamic Common Correlated Effects Estimator. Assumptions require a sufficient time dimension ($T \geq 20$) for asymptotics. The cross-sectional dependence can be tested by the CD test (Pesaran, 2015).

3. MODEL FINDINGS

This section presents the model results for alternative model specifications based on the models in the sections 2.3.1-2.3.3., describing the effects on economic growth and fiscal balance under alternative institutional properties.

3.1. Preliminary Tests

Prior to unit root testing and model selection, cross-sectional dependence (CD) has been examined using the Pesaran (2015, 2021) CD test, the Juodis and Reese (2021) CDw test, and the power-enhanced CDw+ test. Results reported in Table 8 confirm strong cross-sectional dependence across all variables: GDP growth (CD=103.43, $p=0.000$), fiscal balance (CD=7.84, $p=0.000$), and investment (CD=28.97, $p=0.000$). The presence of cross-sectional dependence indicates that macroeconomic shocks, such as the Global Financial Crisis or coordinated post-pandemic fiscal consolidation, transmit across countries simultaneously, is violating the independence assumption of first-generation panel estimators. Accordingly, second-generation methods which are robust to cross-sectional dependence should be preferred for the analysis.

Table 8. Cross-Sectional Dependence Tests

Variable	CD	p-value	CDw	p-value	CDw+	p-value
log_gdp	103.43	0.000	-1.73	0.083	11735.75	0.000
log_gov_balance	7.84	0.000	0.66	0.508	2563.48	0.000
log_inv	28.97	0.000	1.38	0.167	20921.37	0.000

Source: Created by the author.

The Pesaran-Yamagata Delta test has been conducted to examine slope homogeneity across panel units. On the balanced sample including GDP growth and investment, the test strongly rejects the null of slope homogeneity ($\Delta=15.698$, $p=0.000$; $\tilde{\Delta}=16.379$, $p=0.000$). Applying the HAC-robust Delta test of Blomquist and Westerlund (2013) to this subsample, the adjusted statistic rejects slope homogeneity at the 5% level ($\Delta=1.937$, $p=0.053$; $\tilde{\Delta}=2.122$, $p=0.034$). Collectively, these results confirm slope heterogeneity across panel units, justifying the use second-generation estimators, such as the cross-sectional augmented distributed lag (CS-ARDL) estimator which accommodates heterogeneous slopes by construction. The related results are reported in Table 9.

Table 9. Heterogeneity Tests

Sample	Test	Δ	p-value	$\tilde{\Delta}$	p-value
GDP, Investment	Pesaran-Yamagata	15.698	0.000	16.379	0.000
GDP, Fiscal Balance, Investment	Blomquist-Westerlund HAC	1.937	0.053	2.122	0.034

Source: Created by the author.

Given confirmed cross-sectional dependence the following panel unit root test are applied. The Pesaran Cross-Sectionally Augmented Dickey-Fuller (CADF) test is used for GDP growth ($N=149$) and investment ($N=138$). For fiscal balance, where internal gaps in the unbalanced panel precluded the CADF test, the Maddala-Wu Fisher-type ADF test with cross-sectional demeaning was applied. Results reported in Table 10 indicate that all variables are stationary in levels ($I(0)$), consistent with the use of growth rates and ratios rather than raw levels. Further, flexible models such as The CS-ARDL estimator accommodate $I(0)$, $I(1)$, and mixed integration orders, confirming the appropriateness of the chosen framework.

Table 10. Panel Unit Root Tests

Variable	Test	Z / χ^2 (Level)	p-value	Z / χ^2 (1st Diff)	p-value	Order
log_gdp	Pesaran CADF	-14.553	0.000	-32.416	0.000	$I(0)$

log_inv	Pesaran CADF	-11.043	0.000	-39.609	0.000	I(0)
log_gov_balance	Fisher-ADF	—	—	-6.482	0.000	I(0)*

Notes: Created by the author. *Level test unavailable due to panel gaps; first difference strongly rejects unit root.

3.2. Panel Diagnostics

Panel diagnostic tests were conducted prior to final estimation. The Wooldridge test rejects the null of no first-order autocorrelation ($F(1,74)=13.942$, $p=0.000$). The Modified Wald test rejects the null of homoskedasticity ($\chi^2(115)=3.1\times10^{32}$, $p=0.000$). The Hausman test fails to reject the null of no systematic endogeneity ($\chi^2(2)=0.40$, $p=0.820$), supporting the consistency of the random effects estimator for baseline comparison. Given the presence of autocorrelation and heteroskedasticity, all estimations employ Driscoll-Kraay standard errors, which are simultaneously robust to cross-sectional dependence, serial correlation, and heteroskedasticity (Driscoll and Kraay, 1998). Diagnostic test results are summarised in Table 11.

Table 11. Panel Diagnostic Tests

Test	Statistic	p-value	Decision
Wooldridge (autocorrelation)	$F(1,74) = 13.942$	0.000	Autocorrelation present
Wooldridge (autocorrelation)	$F(1,74) = 13.942$	0.000	Autocorrelation present
Modified Wald (heteroskedasticity)	$\chi^2(115)=3.1\times10^{32}$	0.000	Heteroskedasticity present
Hausman (endogeneity)	$\chi^2(2) = 0.40$	0.820	No endogeneity detected

Source: Created by the author.

3.3. Estimation Results

In the following section, various econometric model specifications are applied to examine the theoretical considerations discussed in the previous sections and to test the derived hypotheses.

3.3.1. Panel Regression

In this section, we present the baseline results of the panel regression model, which investigates the relationship between economic growth, investment, and fiscal balances across countries. The fixed-effects specification controls for unobserved heterogeneity at the country level, while time effects account for global shocks common to all economies. The estimation focuses on the dynamic role of lagged GDP alongside investment and fiscal balance indicators to capture both short-term interactions and long-run persistence.

The results are summarized in Table 12, which provides coefficient estimates, standard errors, and model diagnostics.

Table 12. Panel Regression Model

GDP Variables	(1) Total	(2) Fiscal	(3) Non-Fiscal	(4) Unitary	(5) Federal
log_gdp = L,	0.953*** (0.00625)	0.944*** (0.00865)	0.933*** (0.0269)	0.954*** (0.00732)	0.981*** (0.0154)
log_inv	0.0102 (0.00772)	0.0244** (0.0117)	0.0600* (0.0347)	0.0229** (0.0104)	-0.00356 (0.0155)
log_gov_balance	0.00140 (0.00170)	0.00535** (0.00250)	-0.00744 (0.00579)	0.00449** (0.00217)	-0.00277 (0.00316)
Constant	0.469*** (0.0662)	0.516*** (0.0968)	0.492* (0.255)	0.427*** (0.0816)	0.237 (0.148)
Observations	1,056	513	94	657	208
R-squared	0.962	0.964	0.943	0.968	0.959
Number of ID	140	63	14	87	27
F-statistic	7786	4047	424.3	5732	1387
F p-value	0	0	0	0	0

Gov Balance Variables	(1) Total	(2) Fiscal	(3) Non-Fiscal	(4) Unitary	(5) Federal
log_gov_balance = L,	0.182*** (0.0361)	0.181*** (0.0496)	0.194* (0.112)	0.186*** (0.0439)	0.165* (0.0861)
log_gdp	0.00788 (0.132)	-0.0784 (0.173)	-0.482 (0.584)	-0.124 (0.146)	0.353 (0.439)
log_inv	-0.277* (0.156)	-0.468** (0.213)	-0.452 (0.840)	-0.395** (0.195)	-0.884* (0.520)
Constant	1.617 (1.432)	3.123 (1.936)	7.009 (5.848)	3.276** (1.652)	0.0176 (4.454)
Observations	721	364	60	458	132
R-squared	0.045	0.056	0.089	0.054	0.067
Number of ID	113	53	10	71	23
F-statistic	9.417	6.035	1.535	7.335	2.530
F p-value	4.34e-06	0.000526	0.218	8.59e-05	0.0611

Note: Created by the author. *** $p < 0.01$; ** $p < 0.05$; * $p < 0.10$, Standard errors in parentheses

Overall, the fixed-effects regressions show that GDP exhibits strong persistence across all subsamples for GDP dependent models, while both private investment and fiscal balances alter by institutional context. This aligns with H1, which anticipates that investment and prudent fiscal positions contribute positively to GDP growth, particularly in unitary and fiscally disciplined institutional environments that support stable macroeconomic conditions.

Specially, for the full sample, lagged GDP has a dominant, positive, and significant effect (0.953, $p < 0.01$), confirming persistence in output. Investment and fiscal balance are insignificant, suggesting that in the full heterogeneous sample, fiscal discipline does not independently drive GDP once persistence is controlled for.

Regarding the fiscal rule subsample, alongside lagged GDP, investment becomes significant and positive (0.024, $p < 0.01$), as does fiscal balance (0.005, $p < 0.05$).

In the subsample where fiscal rule is absent, persistence in GDP is less somewhat less strong (0.933, $p < 0.01$). Investment shows a stronger positive effect (0.060, $p < 0.10$), while fiscal balance is negative and insignificant. This suggests that in the absence of fiscal rules, investment remains a partial driver of output, but fiscal positions do not contribute meaningfully to growth.

Unitary states show a pattern similar to the fiscal rules subsample — investment (0.023, $p < 0.05$) and fiscal balance (0.004, $p < 0.05$) are both positively significant, suggesting that centralised governance structures create conditions under which fiscal discipline supports growth. Federal systems, by contrast, show no significant effect from either investment or fiscal balance on GDP, with output dynamics almost entirely explained by lagged GDP (0.981, $p < 0.01$).

The fiscal balance equation exhibits different results. Lagged fiscal balance is consistently the dominant determinant across all subsamples (coefficients ranging from 0.165 to 0.194, all significant), confirming strong persistence in fiscal positions. Critically, GDP is insignificant across all subsamples, and investment enters negatively and significantly in the fiscal rules (-0.468 , $p < 0.05$), unitary (-0.395 , $p < 0.05$), and federal (-0.884 , $p < 0.10$) subsamples. This negative investment-fiscal balance relationship suggests a crowding-out dynamic: higher investment activity is associated with deteriorating fiscal positions, possibly through increased public spending on infrastructure or lower tax revenues during investment booms. At the same time, the strong persistence of fiscal balances suggests a policy-driven dynamic.

3.3.2. CS-ARDL

The cross-sectional augmented distributed lag (CS-ARDL) model is employed to account for both short- and long-run dynamics while controlling for cross-sectional dependence and slope heterogeneity across panel units. The confirmed presence of cross-sectional dependence (Pesaran CD test: 103.43, $p = 0.000$) and slope heterogeneity (Pesaran-Yamagata Delta: 15.698, $p = 0.000$) from the preliminary tests justify this estimator as the primary identification strategy. This approach provides complementary evidence on how fiscal balances, investment, and GDP interact over time across countries. The results are summarized in Table 13.

Table 13. CS-ARDL Model

GDP	(1)	(2)	(3)	(4)	(5)
Variables	Total	Fiscal	Non-Fiscal	Unitary	Federal
log_gdp = L,	0.867*** (0.0374)	0.962*** (0.0322)		0.946*** (0.0215)	0.907*** (0.0493)
log_gov_balance	0.00681** (0.00299)	0.00498** (0.00248)	0.0155 (0.0307)	0.00527** (0.00234)	0.0120*** (0.00434)
log_inv	0.0528* (0.0282)	0.0298 (0.0226)	0.130 (0.504)	0.0380* (0.0219)	0.0520 (0.0651)
Observations	865	426	74	527	172
R-squared	0.040	0.041	0.388	0.035	0.017
Number of groups	72	33	6	41	15
CD Statistic	7.933***	5.273***	0.136	7.287***	0.916
F value	33.48	37.03	1.662	43.76	74.60

Gov Balance	(1)	(2)	(3)	(4)	(5)
Variables	Total	Fiscal	Non-Fiscal	Unitary	Federal
log_gdp	2.182** (0.875)	1.445** (0.692)	-1.449 (1.974)	0.787 (0.596)	-3.125* (1.570)
log_gov_balance = L,	0.0385 (0.0585)	-0.00205 (0.0891)	-0.115 (0.175)	0.0230 (0.0747)	0.221* (0.123)
log_inv	1.081 (0.941)	-0.598 (1.283)	0.0768 (0.871)	0.891 (1.271)	3.906** (1.794)
Observations	540	284	43	353	99
R-squared	0.566	0.575	0.685	0.567	0.660
Number of groups	46	23	4	29	10
CD Statistic	0.819	0.568	12.96***	1.364	0.0442
F value	1.032	1.086	0.528	1.095	0.504

Note: Created by the author. Standard errors in parentheses, *** $p < 0.01$; ** $p < 0.05$; * $p < 0.10$.

When accounting for cross-sectional dependence and a richer dynamic structure, the CS-ARDL model finds systematic evidence that lagged GDP persistence is strong and consistently significant across all subsamples explain GDP. The related results are given as follows: total sample (0.867, $p < 0.01$),

fiscal rules (0.962, $p < 0.01$), unitary states (0.946, $p < 0.01$), and federal systems (0.907, $p < 0.01$). Once cross-sectional dependence and dynamic heterogeneity are properly accounted for, fiscal discipline emerges as a consistent, albeit modest, positive contributor to GDP growth in institutionally structured environments. This finding provides conditional support for H1. Fiscal balance positively affects GDP growth, particularly where institutional frameworks are present.

Investment enters positively and marginally significantly in the total sample (0.053, $p < 0.10$) and unitary states (0.038, $p < 0.10$), but is insignificant in the fiscal rules, non-fiscal, and federal subsamples. This suggests that investment contributes to growth primarily in centralised governance structures.

The CD statistics in the GDP equation remain significant for the total sample (7.933, $p < 0.01$) and unitary states (7.287, $p < 0.01$), confirming residual cross-sectional dependence even after CS-ARDL augmentation — a finding that reinforces the importance of using this estimator rather than first-generation panel methods.

When accounting for cross-sectional dependence and dynamic heterogeneity, GDP growth is shown to be highly persistent across all subsamples, while fiscal balance shows a modest but consistently positive effect in institutionally structured settings, providing conditional support for H1. Investment plays a limited and context-specific role, contributing to growth mainly in centralized systems, while remaining residual cross-sectional dependence emphasizes the importance of the CS-ARDL framework for reliable inference.

The fiscal balance model gives a very different pattern from the GDP equation. GDP enters positively and significantly in the total sample (2.182, $p < 0.05$) and the fiscal rules subsample (1.445, $p < 0.05$), but negatively and significantly in the federal subsample (-3.125 , $p < 0.10$). The positive GDP-to-fiscal-balance channel in the total and fiscal rules subsamples is consistent with the automatic stabiliser mechanism, which means higher GDP growth improves fiscal positions through revenue expansion. The negative coefficient in federal systems is a substantively important finding, suggesting that in federal governance structures, GDP growth is associated with deteriorating rather than improving fiscal balances. This possibly reflects procyclical spending patterns at subnational levels that counterbalance central government consolidation.

Lagged fiscal balance is significant only in the federal subsample (0.221, $p < 0.10$) and insignificant in the remaining subsamples, suggesting that fiscal persistence, which was a dominant feature of the FE specifications, largely disappears once cross-sectional dependence and dynamic heterogeneity are controlled for. This suggests that earlier evidence of strong fiscal inertia was, at least in part, driven by unaccounted cross-sectional dependence. Once this is controlled for, fiscal balances appear more

responsive to contemporaneous economic conditions than previously assumed.

Investment effects further underscore the importance of institutional context. Investment is insignificant in the full sample and in most subsamples but becomes positive and strongly significant in federal systems (3.906, $p < 0.05$). This indicates that, in decentralised settings, investment activity plays a central role in shaping fiscal outcomes, potentially reflecting increased tax revenue due to enhanced economic activity resulting from higher investments.

The CS-ARDL results reinforce the view that fiscal balances primarily respond to macroeconomic conditions rather than independently driving growth, but they also reveal that this relationship is significantly conditioned by institutional structure.

3.3.3. Advanced and Emerging Economies Split

To explore whether the relationship between fiscal policy and growth depends on a country's level of development, the baseline Fixed-Effects (FE) and CS-ARDL models were re-estimated separately for advanced and emerging economies. The advanced economy subsample consists of 30 countries classified as high-income OECD members by the IMF, while the remaining 116 countries make up the emerging economy subsample.

The FE results in Panel A point to distinct differences in how investment drives growth across these two groups in Table 14.

Table 14. FE Panel Regression — Advanced vs Emerging Economies

Panel A: Dependent Variable = logged

Variables	(1) Advanced	(2) Emerging
<i>log_gdp L.</i>	0.9842*** (0.0044)	0.9566*** (0.0232)
<i>log_inv</i>	0.0056. (0.0177)	0.0235* (0.0134)
<i>log_gov_balance</i>	0.0018. (0.0017)	0.0016. (0.0024)
<i>Constant</i>	0.2003** (0.0841)	0.3701* (0.2014)
Observations / R ² / N_groups / F-stat	390 / 0.995 / 30 / 18824.37	893 / 0.966 / 116 / 637.73

Panel B: Dependent Variable = log_gov_balance

Variables	(1) Advanced	(2) Emerging
<i>log_gov_balance L.</i>	0.1821*** (0.0605)	0.2143*** (0.0449)
<i>log_gdp</i>	0.1818. (0.1485)	-0.1535. (0.2403)
<i>log_inv</i>	0.4406. (0.7318)	-0.1068. (0.1740)
<i>Constant</i>	-2.7333. (3.4140)	2.6338. (2.3790)
Observations / R ² / N_groups / F-stat	306 / 0.067 / 28 / 4.35	563 / 0.051 / 92 / 7.78

Note: Created by the author. Standard errors in parentheses. *** $p < 0.01$; ** $p < 0.05$; * $p < 0.10$. Advanced economies classified based on IMF WEO high-income OECD grouping. All models include panel fixed effects. Sample period: 1996–2024.

GDP persistence is remarkably strong and statistically significant in both advanced (0.984, $p < 0.01$) and emerging (0.957, $p < 0.01$) economies, confirming that output inertia is a dominant force across all economies. However, investment yields a significant impact only within the emerging economy subsample (0.024, $p < 0.10$) and fails to reach significance in advanced economies, suggesting that capital accumulation remains an active growth driver in developing contexts where capital stocks are still below their steady-state levels. Interestingly, the fiscal balance is insignificant in both subsamples. This indicates that the positive fiscal-to-growth effect observed in the institutionally disciplined groups of our main analysis does not automatically appear when countries are divided only by their development status.

Turning to the fiscal balance equation in Panel B, the lagged fiscal balance remains persistently significant for both advanced (0.182, $p < 0.01$) and emerging (0.214, $p < 0.01$) economies, showing that fiscal inertia is a universal feature regardless of development level.

Conversely, GDP and investment are insignificant across both groups, suggesting that once we control for this persistence, neither immediate economic activity nor investment reliably drives fiscal balances. It is worth noting, however, that the GDP coefficients move in opposite directions: positive for advanced economies (0.182) and negative for emerging economies (−0.154). Although neither coefficient is statistically significant. This directional difference suggests that the automatic stabilization mechanism operates more reliably in advanced economies with deeper institutional capacity, while developing economies may exhibit more cyclical fiscal dynamics.

The CS-ARDL results in Panel A (Table 15) reinforce the FE findings with greater precision.

Table 15. CS-ARDL Model — Advanced vs Emerging Economies

Variables	Panel A: Dependent Variable = $\log_gdp$	
	(1) Advanced	(2) Emerging
<i>Mean Group:</i>		
<i>log_gdp L.</i>	0.9847*** (0.0391)	0.9459*** (0.0477)
<i>log_gov_balance</i>	0.0045** (0.0022)	0.0019. (0.0054)
<i>log_inv</i>	0.0368. (0.0341)	-0.0344. (0.0211)
Observations	357	637
R-squared	0.054	0.063
Number of groups	19	46
CD Statistic	5.063	1.228

Panel B: Dependent Variable = log_gov_balance		
Variables	(1) Advanced	(2) Emerging
<i>Mean Group:</i>		
<i>log_gov_balance L.</i>	0.0029. (0.1596)	-0.1694. (0.1676)
<i>log_gdp</i>	3.8900. (2.5196)	2.8527. (2.5510)
<i>log_inv</i>	-4.5491. (6.2142)	-1.5301. (1.3508)
Observations	260	354
R-squared	0.689	0.619
Number of groups	14	26
CD Statistic	-1.142	-0.763

Note: Created by the author. Standard errors in parentheses. *** $p < 0.01$; ** $p < 0.05$; * $p < 0.10$. A dash (–) indicates the lagged dependent variable was dropped due to insufficient observations in that subsample. CD Statistic follows $N(0,1)$ under H_0 of cross-sectional independence. Advanced economies classified based on IMF WEO high-income OECD grouping.

GDP persistence remains the dominant driver in both the advanced (0.985, $p < 0.01$) and emerging (0.946, $p < 0.01$) subsamples. Crucially, the fiscal balance has a positive and significant effect in advanced economies (0.005, $p < 0.05$) but is entirely insignificant in emerging economies (0.002).

This is the central finding of the split analysis — the fiscal-to-growth channel identified in the main CS-ARDL results operates primarily through advanced economies with strong institutional frameworks, while it is absent in emerging economies.

Meanwhile, investment appears marginally positive in advanced economies and marginally negative in emerging economies, though neither coefficient crosses conventional significance thresholds.

The fiscal balance equation in Panel B shows uniformly insignificant coefficients across both groups for all regressors, including the lagged fiscal balance which was significant in the FE specification. Crucially, the CD statistics are negative and insignificant for both advanced (–1.142) and emerging (–0.763) economies. This confirms that the CS-ARDL augmentation successfully absorbs cross-sectional dependence within the fiscal balance equation for both subsamples.

Together, these findings exhibit a development-level heterogeneity across economies. The fiscal balance-to-GDP growth channel is active in advanced economies but absent in emerging economies.

This pattern matches the theoretical view that deep financial markets, strong enforcement capacity, and credible fiscal institutions are necessary to activate fiscal-to-growth transmission chain.

In emerging economies, growth is mainly driven by GDP persistence, with investment playing a more active yet modest role, while the fiscal balance carries no statistical weight.

These results reinforce the conclusion that institutional quality, rather than development level on its own, is the critical factor determining whether fiscal discipline translates into economic growth, as the institutional subsample analyses in Sections 3.3.1.-3.3.2. demonstrate more distinctly.

3.4. Discussion

The empirical results presented above carry several important implications for the theoretical and empirical literature on fiscal policy, institutional frameworks, and economic growth. This section interprets the findings considering the existing literature, examines the causal mechanisms at work, and addresses the heterogeneity observed across estimation frameworks.

The most consistent finding across all specifications is that GDP growth systematically drives fiscal balances (H2) rather than the reverse. This result aligns with the automatic stabiliser literature, which argues that fiscal positions respond endogenously to the business cycle through revenue and expenditure mechanisms (Barro, 1990). The causal direction runs from output to fiscal balance through two reinforcing channels: first, higher GDP growth mechanically raises tax revenues while reducing cyclical expenditures such as unemployment transfers, improving the fiscal position without any discretionary policy action; second, growth-driven improvements in fiscal positions reduce sovereign debt burdens, lowering risk premia and further reinforcing the growth trajectory. This is consistent with Frankel et al. (2013), who document that fiscal policy in emerging economies tends to be procyclical, and with more recent evidence from Apeti et al. (2025), who find that the growth effects of fiscal rules are highly dependent on the institutional environment in which they operate.

Investment demonstrates a weak positive but statistically significant effect on GDP growth in the following fixed-effects specifications: fiscal, non-fiscal, unitary, which aligns with the neoclassical growth framework and mirrors the broader empirical literature identifying capital accumulation as a primary engine of output expansion. The underlying causal mechanism operates via capital deepening, wherein increased investment expands the productive capital stock, boosts labour productivity, and scales up the economy's long-term potential output over time. This dynamic is weakly supported by the study's first hypothesis (H1), particularly when assisted by robust institutional frameworks. However, when controlling for endogeneity, this effect weakens in significance, exposing a bidirectional causal pathway wherein robust economic growth also attracts investment.

The weakening of fiscal policy effects under more advanced identification strategies demonstrates that the impact of fiscal policy on growth is rarely direct and instead operates through an interconnected institutional transmission chain. Credible fiscal rules reduce uncertainty and sovereign risk, which lowers government borrowing costs. This in turn limits

the crowding-out of private investment, expanding the productive capital stock and sustaining GDP growth over the medium to long term.

However, this mechanism depends highly on institutional quality. Where legal enforcement is weak, political accountability absent, or administrative capacity limited, the chain breaks at its first link and expected growth projections collapse. These conditions explain why cross-country estimates of fiscal policy effects tend to be weak on average (IMF, 2026).

The presence of cross-sectional dependence, confirmed by the Pesaran CD test, emphasizes that national fiscal and growth dynamics cannot be evaluated as isolated country-specific phenomena. This introduces a critical dimension that earlier studies employing first-generation panel estimators routinely overlooked. The transmission effects run from global shocks to domestic fiscal outcomes via three primary channels (The Vienna Institute for International Economic Studies, 2024; Fan et al., 2023). First, synchronized business cycles generate simultaneous revenue shifts across nations. Second, international capital flow reversals trigger a global tightening of financial conditions. Third, coordinated policy regimes, such as global stimulus packages or synchronized consolidation shifts, generate correlated fiscal adjustments regardless of domestic conditions (Bianchi and Coulibaly, 2023).

This finding directly mirrors literature regarding the macroeconomics of crisis eras, which emphasizes that national recovery trajectories and consolidation paths are heavily dictated by international financing constraints and global policy coordination (Ma and Zhu, 2026; Górajski and Kuchta, 2023). By employing a CS -ARDL framework, this study explicitly controls for these shared common factors using cross-sectional averages, yielding a more precise identification of the domestic fiscal policy channel net of external spillovers.

The empirical divergence across specifications reflects the deep compositional heterogeneity of the global sample. The Pesaran-Yamagata Delta test confirms severe slope heterogeneity across panel units, validating the theoretical expectation that fiscal multipliers and investment-growth dynamics vary fundamentally across economies. The causal mechanism which is driving this divergence depends on financial market depth and institutional maturity. Advanced economies possess deep, liquid domestic capital markets, more credible monetary frameworks, and stronger fiscal institutions, which together enable the full institutional transmission chain to function effectively. Emerging economies, by contrast, confront shallow capital markets, greater financing constraints, enlarged sovereign risk, and highly volatile capital flows, which frequently maintain elevated risk premia even when local fiscal positions improve.

These findings have important implications for governments, international financial institutions, and analysts who evaluate sovereign risk.

For governments, the results show that fiscal consolidation is more likely to support long-term economic growth when backed by strong and

credible institutions, such as independent fiscal councils, clear spending rules, and transparent long-term debt targets. This supports the move toward modern fiscal frameworks that combine long-term fiscal discipline with enough flexibility to respond to economic downturns, where strong institutions ensure that fiscal rules are followed over time.

For international organizations such as the IMF, World Bank, and New Development Bank, fiscal reform programs should prioritize institutional and governance improvements alongside deficit reduction targets. Budget balances are heavily influenced by global cycles, meaning consolidation without institutional strengthening tends to produce weak, short-lived results (IMF, 2026). For investors and credit rating analysts, sovereign risk assessments should weight long-term growth trends and institutional quality over short-term fiscal indicators, which often offer a misleading picture of underlying fiscal health.

Conclusion

This study examines the dynamic relationship between fiscal policy, institutional frameworks, and economic growth using a large global panel of 149 countries over the period 1980–2023. The study applies a rigorous second-generation econometric approach, including cross-sectional dependence testing and CS-ARDL estimation at global scale, going beyond prior studies that relied on simpler methods or narrower samples.

First, the study clarifies the causal link between fiscal balances and economic growth, demonstrating that the traditionally assumed policy-to-growth channel is largely a statistical artifact driven by endogeneity. Under rigorous identification strategies, this relationship weakens substantially. Second, it shows that the institutional transmission mechanism, where fiscal rules boost growth by lowering sovereign risk, crowding in private investment, and stabilizing expectations, is highly heterogeneous, functioning effectively in advanced economies but remaining constrained in developing nations with lower institutional capacity.

Standard panel estimates suggest that investment (coefficient 0.023–0.060) and fiscal balances (coefficient 0.004–0.005) positively support growth, consistent with Barro (1990) and Kneller et al. (1999), providing conditional support for H1. However, these effects largely disappear in significance once endogeneity and cross-country interdependencies are properly addressed ($CD = 103.43$, $p = 0.000$). The CS-ARDL results show that fiscal balances are driven primarily by GDP itself, hence, through automatic stabilizers, rather than by active fiscal policy, consistent with Frankel et al. (2013), IMF (2022), and Apeti et al. (2025). In short, growth drives fiscal positions more than fiscal policy and investments drive growth, providing substantial support for H1.

The fiscal-growth transmission chain, running from credible rules to lower sovereign risk to private investment to growth, functions more completely in advanced economies with stronger institutions. Where enforcement, oversight, and accountability are weak, fiscal discipline fails to deliver growth perspectives (Fan et al., 2023; Ma and Zhu, 2026).

Fiscal consolidation works best within credible institutional frameworks, independent fiscal councils, binding expenditure rules, transparent debt management. Emerging economies should build institutional capacity before or alongside adopting fiscal rules, as rules without enforcement are unlikely to compress risk premia or attract private investment (Górajski and Kuchta, 2023).

Future research should disaggregate fiscal data by expenditure and revenue type, examine the conditions under which the transmission chain activates in emerging economies, and incorporate governance indices as continuous interaction terms to identify the institutional thresholds at which fiscal rules begin to reliably support growth.

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