

Determinants of Budget Deficits in Developing Countries: The Role of Macroeconomic Conditions and Institutional Quality

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ABSTRACT

Budget deficits remain a persistent fiscal challenge in developing countries, where limited revenue capacity, rising public expenditure, economic instability, and structural constraints can weaken fiscal sustainability and restrict opportunities for long-term development. Understanding the factors associated with fiscal imbalances is therefore important for strengthening public finances and improving economic resilience. This study examines the effects of macroeconomic conditions, structural determinants, and institutional quality on budget deficits in developing countries using panel data covering 50 countries from 1990 to 2024. A quantitative empirical approach is employed, incorporating descriptive statistics, Pearson correlation analysis, and multiple regression to assess the relationships among the study variables. The findings indicate that adverse macroeconomic conditions are positively and significantly associated with budget deficits, demonstrating that economic instability and related fiscal pressures contribute to widening fiscal imbalances. Structural determinants also exhibit a positive and statistically significant relationship with budget deficits, highlighting the importance of persistent economic, demographic, financial, and debt-related conditions. In contrast, institutional quality has a significant negative relationship with budget deficits, indicating that stronger institutional capacity is associated with improved fiscal outcomes. The regression results further confirm that the selected explanatory factors jointly provide meaningful explanatory power for variations in budget deficits. The findings demonstrate that fiscal performance in developing countries is shaped by the combined influence of macroeconomic conditions, structural characteristics, and institutional capacity. Effective deficit management therefore requires an integrated policy approach

that promotes macroeconomic stability, addresses structural constraints, strengthens institutional effectiveness, and supports sustainable public finances.

Keywords: Budget Deficit, Macroeconomic Conditions, Structural Determinants, Institutional Quality

1. Introduction

Budget deficits represent one of the most important fiscal policy challenges confronting both developed and developing economies. A budget deficit occurs when government expenditure exceeds government revenue within a fiscal year, requiring governments to finance the resulting gap through domestic or external borrowing, asset sales, or monetary expansion. Although temporary deficits can support economic activity during recessions and periods of economic weakness, persistent fiscal imbalances can contribute to rising public debt, inflationary pressures, higher interest rates, exchange-rate instability, and declining investor confidence (Ali & Naeem, 2017; Blanchard, 2019; Siddique et al., 2025). Consequently, understanding the factors that determine budget deficits remains central to public finance and macroeconomic research. Effective public financial management is fundamental to sustainable economic growth and macroeconomic stability (Ali, 2015; Mehdi et al., 2025). Governments require sufficient fiscal resources to finance infrastructure, health, education, social protection, security, and other public services. When public expenditure persistently exceeds available revenues, however, fiscal deficits can become entrenched and progressively weaken fiscal capacity. While temporary deficits can provide countercyclical support during economic downturns, prolonged fiscal imbalances increase sovereign debt and constrain governments' ability to respond effectively to future economic and financial shocks (IMF, 2023). The challenge is particularly pronounced in developing economies, where limited revenue-generating capacity coincides with substantial development and public expenditure requirements (Ali, 2018; Bukhari et al., 2025). These economies also tend to rely more heavily on indirect taxation, external borrowing, and commodity-related revenues than advanced economies, making government finances more vulnerable to commodity-price fluctuations, financial volatility, and external shocks (World Bank, 2024).

The importance of fiscal deficits has become more pronounced as governments have increasingly relied on fiscal policy to stabilize their economies during periods of severe disruption. The Global Financial Crisis, European debt crisis, COVID-19 pandemic, geopolitical conflicts, and the subsequent inflationary pressures encouraged governments to adopt expansionary fiscal measures,

including stimulus packages, wage subsidies, tax reductions, and emergency public expenditure (Ali & Bibi, 2017; Zahid et al., 2025). Although these interventions helped stabilize economic activity and protect households and firms, they also contributed to substantial increases in fiscal deficits and public debt across countries (OECD, 2023). These developments demonstrate that fiscal imbalances are not determined by isolated economic conditions but emerge from the interaction of cyclical pressures, structural characteristics, and the institutional environment within which fiscal policy is formulated and implemented.

Macroeconomic conditions constitute an important source of variation in government fiscal positions. Economic growth, inflation, unemployment, interest rates, and exchange-rate movements can directly influence both government revenues and expenditures. Strong economic activity generally expands the tax base and reduces the need for certain social expenditures, whereas economic contractions can reduce government revenues while increasing expenditure pressures. This relationship is consistent with the Keynesian rationale for countercyclical fiscal policy, under which governments may deliberately tolerate higher deficits during economic downturns to support aggregate demand and economic recovery (Mankiw, 2019). Consequently, the fiscal position of an economy is closely connected to the broader macroeconomic environment (Ali & Audi, 2018; Rafique et al., 2025). Beyond short-term macroeconomic conditions, structural characteristics determine the underlying capacity of governments to maintain sustainable fiscal positions. Public debt levels and composition, financial-sector development, demographic pressures, and the degree of economic diversification can shape both fiscal vulnerability and the ability to absorb economic shocks (Ali & Rehman, 2015; Umair et al., 2025). Economies with more developed financial systems and sound debt structures may possess greater capacity to manage fiscal pressures, whereas high debt burdens and underdeveloped financial systems can reinforce persistent fiscal imbalances (Romer, 2018). Structural weaknesses may also increase debt-servicing obligations and expenditure pressures, thereby limiting fiscal flexibility and contributing to continuing budgetary imbalances (Ali & Zulfiqar, 2018; Baltagi, 2021; Shaukat et al., 2025).

Institutional quality represents another fundamental dimension of fiscal performance. Government effectiveness, regulatory quality, political stability, rule of law, and control of corruption influence the efficiency of tax collection, public expenditure management, budget implementation, and accountability (Scott,

2014; Ali et al., 2016; Naeem et al., 2025). Strong institutional arrangements can improve the allocation and monitoring of public resources, whereas weak institutions can encourage inefficient expenditure, corruption, tax evasion, and ineffective budget implementation, thereby increasing government borrowing requirements and reinforcing persistent deficits (Acemoglu & Robinson, 2019; Ali et al., 2021; Ditta et al., 2025). Institutional capacity is therefore closely connected to the ability of governments to translate available fiscal resources into effective public expenditure while maintaining budgetary discipline. The interaction among macroeconomic, structural, and institutional conditions further complicates the determination of budget deficits. Macroeconomic shocks may have different fiscal consequences depending on the strength of domestic institutions and structural characteristics. Strong institutions can improve governments' capacity to respond to economic shocks, while structural reforms can strengthen revenue capacity and fiscal resilience even under adverse economic conditions. Conversely, weak institutions and structural vulnerabilities can amplify the fiscal consequences of macroeconomic disturbances. Accordingly, fiscal sustainability is better understood through an integrated perspective that considers the combined influence of economic conditions, structural factors, and institutional capacity rather than treating these dimensions independently (Auerbach & Gale, 2010; Reinhart & Rogoff, 2010; Clements et al., 2015; Ali et al., 2015; Debrun & Kumar, 2007; Arshad & Ali, 2016; Iqbal et al., 2025).

Despite the extensive literature on fiscal deficits, important gaps remain in explaining persistent fiscal imbalances in developing economies. Much of the existing research examines individual determinants separately, concentrating either on macroeconomic variables such as economic growth, inflation, trade balance, and interest rates or on political and institutional factors such as governance, political stability, and electoral conditions. Such fragmented approaches provide limited insight into the relative importance and interaction of these different determinants (Auerbach & Gale, 2010; Reinhart & Rogoff, 2010; Ashraf & Ali, 2018; Zafar et al., 2025). Moreover, substantial changes in the global economic environment, particularly the COVID-19 pandemic, rising global interest rates, and increasing debt-servicing pressures, have altered the fiscal conditions confronting developing economies and may limit the applicability of earlier evidence (World Bank, 2024). Structural heterogeneity also remains insufficiently explored, particularly differences in financial development, debt composition, and institutional quality that can influence countries' capacity to manage fiscal imbalances (Clements et al., 2015; Debrun & Kumar, 2007; Marc & Ali, 2017; Ullah

et al., 2025). Against this background, this study examines the macroeconomic, structural, and institutional determinants of budget deficits in developing countries using comprehensive data covering the period 1990–2024.

2. Literature Review

Budget deficits, arising when government expenditure exceeds revenue within a fiscal year, remain a persistent fiscal challenge in developing countries. Governments in these economies face substantial demands for infrastructure, social services, and development expenditure while operating with relatively constrained revenue capacity. Although moderate deficits can support economic activity during downturns, persistent and large fiscal imbalances can generate inflationary pressures, increase public debt, destabilize exchange rates, and weaken investor confidence (Easterly & Schmidt-Hebbel, 1993). Despite repeated fiscal reforms and structural adjustment programs, chronic fiscal imbalances continue across Asia, Africa, and Latin America, reflecting weaknesses in taxation and expenditure management, political instability, and macroeconomic volatility (Alesina & Perotti, 1995; Marc et al., 2021; Ullah et al., 2025; Khalid et al., 2025; Ali et al., 2025). The determinants of budget deficits can broadly be classified into three interconnected categories: macroeconomic factors, structural characteristics, and institutional conditions (Roubini & Sachs, 1989). Macroeconomic determinants include economic growth, inflation, public debt, exchange rates, unemployment, and trade openness. Structural determinants encompass economic composition, demographic conditions, government size, and revenue-generating capacity, while institutional determinants include governance quality, political stability, corruption control, democratic accountability, and fiscal institutions (Ali et al., 2025; Aziz et al., 2025). These dimensions are particularly relevant to developing countries because narrower tax bases, less diversified economies, weaker institutional capacity, and more constrained access to international financial markets can intensify fiscal vulnerabilities. The following sections review the theoretical and empirical evidence surrounding these determinants.

2.1. Budget Deficit Determination: An Applied Perspective

Keynesian theory provides an important foundation for understanding fiscal deficits as an instrument of macroeconomic stabilization. Keynes (1936) argued that governments can increase public expenditure during economic downturns to stimulate aggregate demand and reduce unemployment. From this perspective, deficits are not inherently undesirable because they can compensate for weak private-sector demand and support economic recovery. Moreover, economic

contractions can widen fiscal deficits even without deliberate fiscal expansion because declining economic activity reduces tax revenues while increasing social expenditure through automatic stabilizers (Blanchard & Perotti, 2002). Developing countries similarly use deficit financing to support infrastructure, welfare, and broader development expenditure (Adam & Bevan, 2005; Haider & Ali, 2015; Kassem et al., 2019; Roussel et al., 2021; Ali et al., 2025; Saim et al., 2025; Kumar et al., 2025).

The Neoclassical perspective provides a contrasting interpretation by emphasizing the potential costs of persistent fiscal deficits. According to this view, deficit financing reduces national savings and can increase interest rates, thereby crowding out private investment and constraining economic growth (Barro, 1974). Increased government borrowing raises demand for loanable funds, potentially increasing financing costs for households and firms. At the same time, the accumulation of public debt creates future repayment obligations and can contribute to debt accumulation, inflationary pressures, and macroeconomic instability (Elmendorf & Mankiw, 1999). Empirical evidence further identifies a positive association between debt accumulation and fiscal deficits in developing economies (Woo, 2003). Barro (1974) also developed the Ricardian Equivalence proposition, which argues that rational households anticipate future taxation associated with government borrowing and therefore increase savings in response to deficit-financed expenditure. Under this proposition, deficits should have limited effects on consumption and investment because current borrowing is perceived as deferred taxation. However, empirical support for Ricardian Equivalence is relatively limited in developing countries because imperfect capital markets, borrowing constraints, and limited access to financial resources prevent households from fully adjusting their saving behavior (Seater, 1993). Another important theoretical perspective is the Political Budget Cycle Theory, which proposes that political leaders may increase public expenditure or reduce taxes before elections to improve electoral prospects (Nordhaus, 1975). Such behavior can produce larger fiscal deficits, particularly where fiscal institutions are weak and political incentives dominate fiscal discipline (Shi & Svensson, 2006; Sajid & Ali, 2018; Senturk & Ali, 2021; Khan et al., 2025; Hamza et al., 2025).

2.2. Macroeconomic Determinants of Budget Deficit

Economic growth is one of the most extensively examined macroeconomic determinants of fiscal performance. Economic expansion generally improves government fiscal positions by increasing tax revenues and reducing expenditure associated with unemployment and social assistance. Conversely, economic

contractions reduce revenue while increasing expenditure pressures, thereby widening fiscal deficits (Easterly & Rebelo, 1993). Empirical evidence generally supports a negative relationship between economic growth and budget deficits. Woo (2003) and Gootjes & De Haan (2022) demonstrate that stronger economic growth improves fiscal balances through enhanced revenue mobilization and reduced borrowing requirements, while Adam & Bevan (2005) emphasize the role of fiscal conditions in shaping the growth–deficit relationship.

Inflation represents another important determinant of fiscal imbalances because the relationship between inflation and deficits can operate in both directions (Mehmood et al., 2022; Khan et al., 2025; Sattar et al., 2025). Deficit monetization can generate inflationary pressures, while inflation itself influences the real value of government revenues and expenditures. The Olivera–Tanzi effect indicates that high inflation can reduce the real value of tax revenues when there are substantial delays between tax assessment and collection, thereby worsening fiscal balances. Although moderate inflation may temporarily increase nominal tax revenues, persistent inflation can weaken fiscal capacity. Catao and Terrones (2005) identify a strong positive relationship between inflation and budget deficits in developing economies, where limited fiscal revenue options can increase dependence on inflationary financing.

Public debt is closely connected to fiscal deficits because increasing debt generates additional interest obligations and can reduce the resources available for productive public expenditure. This issue becomes particularly important when debt-servicing costs account for a substantial proportion of government budgets (Reinhart & Rogoff, 2010; Nasir et al., 2021; Ahmad et al., 2022; Kanwal et al., 2025; Ahmad et al., 2025). Roubini and Sachs (1989) and Woo (2003) associate high debt burdens with persistent fiscal deficits, while dependence on external debt can further increase vulnerability to exchange-rate and international interest-rate shocks (Khalil et al., 2025; Nasir et al., 2025; Anus et al., 2025).

Exchange-rate movements represent an additional fiscal risk for developing economies, particularly those that rely heavily on external borrowing and imported goods. Currency depreciation increases the domestic-currency value of foreign-denominated debt and can consequently worsen fiscal balances when foreign reserves and export revenues are insufficient to offset the increased debt burden (Agenor & Montiel, 2015; Bleaney et al., 2001). Countries with substantial dollar-denominated liabilities may therefore experience sharper fiscal deterioration following currency depreciation (Aisen & Hauner, 2013; Ali, 2022). However, stronger fiscal institutions and improved policy capacity can reduce the

sensitivity of public finances to exchange-rate shocks.

Interest rates directly affect the cost of deficit financing by increasing debt-servicing expenses on existing obligations and raising the cost of new borrowing (Elmendorf & Mankiw, 1999). Higher interest rates can therefore intensify fiscal pressures, particularly in highly indebted economies. Ardagna et al. (2007) find that rising interest rates significantly weaken fiscal balances in highly indebted countries, while higher financing costs can also indirectly worsen fiscal positions by constraining economic growth and reducing government revenues.

Unemployment also influences fiscal deficits through both revenue and expenditure channels. Higher unemployment reduces income and consumption tax revenues while increasing government spending on unemployment benefits and social assistance. This automatic-stabilizer mechanism represents an important component of Keynesian fiscal theory (Auerbach & Gorodnichenko, 2012; Ali, 2022; Marc et al., 2023). Woo (2003) provides evidence of a robust relationship between unemployment and fiscal deficits across countries, particularly where social expenditure requirements increase substantially during economic downturns.

Trade openness has an ambiguous relationship with fiscal deficits. Greater international integration can promote economic growth, expand the tax base, and increase government revenues, while exposure to international markets can simultaneously increase vulnerability to external shocks (Ali, 2022; Marc & Ali, 2023). Trade liberalization may also reduce customs and tariff revenues where trade taxes constitute an important component of government income (Rodrik, 1998). Rodrik (1998) argues that more open economies may expand government expenditure to protect populations against external shocks, whereas Kimakova (2009) finds that greater openness can increase government revenues through its positive effects on economic activity. Consequently, the fiscal implications of trade openness depend partly on institutional quality, revenue structures, and the degree of export diversification.

2.3. Structural Determinants of Budget Deficit

The structural composition of an economy influences its fiscal resilience by determining the breadth and stability of its revenue base. Developing economies with narrow production structures may have limited opportunities for revenue generation, while highly agricultural economies often face difficulties taxing informal and subsistence production effectively (Tanzi & Zee, 2000; Ali et al., 2023). Economic diversification can broaden the tax base and reduce dependence on particular sectors, whereas commodity-dependent economies are particularly

exposed to fluctuations in international prices. Frankel (2011) emphasizes that commodity dependence can increase fiscal volatility, making economic diversification an important component of fiscal stability.

Government size is another structural determinant of budget deficits and is commonly measured through government expenditure relative to gross domestic product (Ali & Audi, 2023). Fiscal deficits can emerge when public expenditure increases faster than government revenues (Persson & Tabellini, 2003). The evidence, however, is not uniform. A larger public sector can provide infrastructure and public goods that support economic development, but ineffective expenditure management can generate persistent fiscal pressures. Woo (2003) finds a positive relationship between government size and deficits in circumstances where expenditure management is weak, highlighting the importance of expenditure efficiency rather than government size alone.

The structure and effectiveness of government revenue also have major implications for fiscal sustainability (Marc & Ali, 2023). Developing countries frequently face narrow tax bases, weak tax administration, and widespread tax evasion (Bird & Zolt, 2008; Audi et al., 2022; Khalid et al., 2025). Gupta (2007) demonstrates that improvements in tax administration can significantly strengthen fiscal performance. Conversely, heavy reliance on commodity revenues or trade taxation can make government income more volatile because these revenue sources are highly sensitive to international prices and trade conditions. Diversified and efficiently administered revenue systems therefore provide greater fiscal resilience.

Demographic conditions can also generate persistent expenditure pressures. Population growth and high dependency ratios increase demand for education, healthcare, housing, infrastructure, and other public services. Where revenue growth does not keep pace with these expenditure requirements, budget deficits can widen (Bloom et al., 2003). Demographic pressures are therefore particularly relevant to developing economies experiencing rapid population growth and increasing demands for public investment and social services.

Urbanization creates both fiscal opportunities and challenges. Urban expansion can increase productivity, formal employment, and the tax base, but rapid and poorly planned urbanization can simultaneously increase demands for infrastructure, transportation, housing, and public services (Henderson, 2003). Martinez-Vazquez et al. (2017) emphasize that urbanization requires substantial public investment and stronger revenue mobilization. The fiscal outcome

therefore depends on the capacity of governments to plan urban development effectively and convert urban economic activity into sustainable revenue.

Natural-resource wealth presents a further structural challenge. Oil, gas, and mineral resources can provide governments with substantial revenues, but dependence on these resources exposes fiscal positions to international commodity-price fluctuations. The resource-curse literature associates resource dependence with weaker fiscal discipline and greater economic volatility (Auty, 2001; Sachs & Warner, 2001). During commodity booms, governments may expand public expenditure, while declining prices can generate abrupt revenue shortfalls and fiscal adjustment pressures (Villafuerte et al., 2010; Frankel, 2011). Sovereign wealth funds and fiscal rules can reduce these vulnerabilities by smoothing revenues and constraining procyclical expenditure.

2.4. Institutional Determinants of Budget Deficit

Institutional factors have received increasing attention because macroeconomic and structural characteristics alone cannot fully explain differences in fiscal outcomes across countries. Institutional quality affects the formulation, implementation, monitoring, and enforcement of fiscal policies. Countries with stronger institutions generally possess greater capacity to mobilize revenues, control expenditures, and maintain fiscal discipline (Acemoglu & Robinson, 2012). Political stability is particularly important for maintaining long-term fiscal planning and policy continuity. Political instability can discourage investment, constrain economic growth, and encourage governments to increase expenditure to secure political support (Alesina et al., 1996). Roubini and Sachs (1989) find that politically fragmented governments tend to experience larger fiscal deficits, while Alesina et al. (1999) associate political instability with persistent fiscal imbalances. These findings indicate that political structures can significantly influence the sustainability of fiscal policy.

Government effectiveness reflects the quality of policy implementation, public administration, and government credibility. Effective governments are better positioned to mobilize revenues, manage expenditures, and implement fiscal policies consistently (Kaufmann et al., 2011; Marc et al., 2022). Dzhumashev (2014) identifies a negative relationship between government effectiveness and fiscal deficits, while Afonso et al. (2010) associate public-sector efficiency with improved fiscal outcomes. These findings highlight the importance of administrative capacity in translating fiscal policies into effective budgetary outcomes.

Corruption represents another institutional source of fiscal weakness.

Corrupt practices can reduce public revenues through tax evasion, bribery, and revenue leakage while simultaneously increasing public expenditure through procurement fraud, waste, and inefficient resource allocation. Mauro (1995) identifies important economic consequences of corruption, while Mauro (1998) links corruption to lower public-sector efficiency and larger fiscal imbalances. Delavallade (2006) further demonstrates that corruption can distort expenditure allocation, directing public resources away from socially productive uses.

The rule of law provides an institutional foundation for effective fiscal management by ensuring enforceable contracts, protection of property rights, and consistent application of regulations (North, 1990). Strong legal institutions can improve tax compliance, constrain corruption, and strengthen public accountability, whereas weak legal systems can facilitate tax evasion, inefficient spending, and misuse of public resources. Torgler and Schneider (2009) establish a relationship between rule-of-law conditions and tax compliance, while Dincecco and Prado (2012) emphasize the importance of legal institutions for state capacity and fiscal efficiency.

Democratic accountability can also influence fiscal discipline through greater transparency, public scrutiny, and political responsiveness. Persson and Tabellini (2003) argue that democratic institutions can improve transparency and fiscal accountability, although the empirical effect is not uniform. Electoral incentives may encourage governments to increase spending before elections, while stronger public scrutiny can constrain excessive fiscal expansion. Alt and Lassen (2006) find that greater fiscal transparency and accountability can reduce deficits, whereas Shi and Svensson (2006) identify political budget cycles in democracies with weaker institutional arrangements. These findings indicate that democracy alone may not guarantee fiscal discipline; rather, its fiscal effects depend on the strength of complementary institutions.

The quality of public bureaucracy is similarly important for fiscal performance. Professional, competent, and independent bureaucracies can strengthen policy continuity, improve public-service delivery, and support efficient resource allocation (Evans & Rauch, 1999). Conversely, weak administrative systems may produce inefficient expenditure, ineffective financial management, and poor implementation of fiscal policies. Evans and Rauch (1999) link professional bureaucracies with stronger governance, improved revenue collection, and better expenditure control, emphasizing the role of administrative capacity in fiscal management.

Formal fiscal institutions provide another mechanism for limiting excessive

deficits. Budget rules, debt ceilings, expenditure limits, and related fiscal constraints are designed to promote fiscal discipline and prevent unsustainable fiscal expansion (Kopits & Symansky, 1998; Audi & Al Masri, 2024). Empirical evidence indicates that such institutional arrangements can improve fiscal outcomes. Debrun et al. (2008) find that fiscal rules contribute to improved budget balances, while Schaechter et al. (2012) associate stronger fiscal institutions with greater fiscal sustainability and lower fiscal volatility.

The reviewed literature demonstrates that budget deficits cannot be adequately explained through a single category of determinants. Macroeconomic conditions influence government revenues and expenditures, structural characteristics determine the underlying fiscal capacity and vulnerability of economies, and institutional quality shapes the effectiveness with which governments formulate and implement fiscal policy. Nevertheless, important gaps remain. Existing studies frequently examine macroeconomic and institutional determinants separately rather than within an integrated framework, while much of the available evidence is derived from developed economies whose financial, institutional, and fiscal environments differ substantially from those of developing countries. In addition, relatively short time periods in some studies limit the ability to capture persistent fiscal relationships, while recent global disruptions—including the COVID-19 pandemic, geopolitical crises, and rising global interest rates—have created fiscal conditions that may differ from those examined in earlier research. Cross-country structural differences in governance, revenue capacity, economic composition, and institutional strength also remain insufficiently integrated into explanations of fiscal imbalances. These limitations establish the need for an integrated assessment of macroeconomic, structural, and institutional determinants using recent panel evidence from developing economies, with sustainable fiscal management viewed as the outcome of the interaction between sound macroeconomic conditions, structural capacity, and institutional strength.

3. Theoretical Framework

A theoretical framework connects established theory with empirical investigation by explaining the expected relationships among variables and providing the basis for hypothesis development, variable selection, model specification, and interpretation (Creswell & Creswell, 2018). Given that persistent budget deficits can undermine macroeconomic stability, debt sustainability, and long-run growth, particularly in developing countries exposed to narrow tax bases and external shocks (World Bank, 2024), their determinants require an integrated theoretical

perspective (Mankiw, 2019). Keynesian Fiscal Theory, developed by Keynes (1936), views fiscal deficits as potential stabilization instruments. Governments can increase expenditure or reduce taxes during downturns to support aggregate demand, while declining revenues and rising social expenditure can widen deficits automatically (Mankiw, 2019). This perspective provides the theoretical basis for the macroeconomic dimension, as economic conditions directly affect government revenues and expenditure requirements. Neoclassical Fiscal Theory emphasizes the long-run costs of persistent deficits. Fiscal expansion can reduce national savings, increase real interest rates, crowd out private investment, and constrain long-run growth (Romer, 2018). Government borrowing can also increase debt-servicing burdens, particularly where financial systems are weak and dependence on external financing is high (Barro, 1979). This provides the basis for the structural dimension, incorporating debt, debt composition, financial development, and demographic conditions. The positive and significant relationship identified for structural dimension is consistent with evidence that persistent deficits can increase sovereign risk premiums and borrowing costs (OECD, 2023). Public Choice Theory views fiscal outcomes through political incentives, arguing that politicians and bureaucrats may pursue deficit-financed expenditure or tax reductions to secure political support while shifting fiscal costs to future governments and taxpayers (Buchanan & Tullock, 1962; Mueller, 2003). Weak accountability, corruption, and rent-seeking can therefore reinforce fiscal imbalances (Acemoglu & Robinson, 2019; Transparency International, 2024). Institutional Theory complements this perspective by emphasizing the role of formal rules, informal norms, administrative capacity, and enforcement mechanisms in shaping fiscal behavior (Scott, 2014; North, 1990). Strong governance improves transparency, accountability, regulatory quality, and fiscal management, providing the basis for the institutional dimension (World Bank, 2024). Fiscal Sustainability Theory provides the overarching perspective, emphasizing that current borrowing must ultimately be supported through future taxation, expenditure adjustment, or economic growth; persistent deficits can otherwise generate debt accumulation and rising interest burdens (IMF, 2023; Blanchard, 2019). Accordingly, macroeconomic conditions influence revenue capacity, structural characteristics determine borrowing capacity, and institutions affect fiscal-policy implementation (OECD, 2023; Audi, 2024; IMF, 2023).

The conceptual relationship is expressed as:

$$DEF_{it} = f(MACRO_{it}, STRUCT_{it}, INST_{it}) \quad (1)$$

and the panel model is:

$$DEF_{it} = \beta_0 + \beta_1 MACRO_{it} + \beta_2 STRUCT_{it} + \beta_3 INST_{it} + \epsilon_{it} \quad (2)$$

where DEF represents the budget deficit, MACRO captures macroeconomic conditions and external shocks, STRUCT represents structural characteristics, and INST captures institutional and policy conditions. Panel data improve estimation efficiency by combining cross-sectional and time-series observations (Baltagi, 2021). Theory anticipates that adverse macroeconomic conditions increase fiscal pressure, structural effects vary across their constituent factors, and stronger institutions reduce deficits through improved fiscal discipline and financial management.

3.1. Operational Definitions and Measurement of Variables

Precise operational definitions support the consistency, reliability, and validity of the empirical findings (Hair et al., 2022).

Dependent Variable — Budget Deficit (DEF): the shortfall between government expenditure and revenue in a fiscal year, measured as a percentage of GDP, a standard approach that enables comparison across countries of different sizes.

Macroeconomic Determinants (MACRO): economic conditions and external shocks affecting fiscal outcomes, represented by GDP growth, inflation, unemployment, and external shocks—capturing the general economic context in which governments operate.

Structural Determinants (STRUCT): long-term structural features affecting fiscal sustainability, including debt stock (% of GDP), debt composition, financial development (domestic credit to the private sector), and population growth.

Institutional Determinants (INST): governance quality and policy effectiveness, captured through government effectiveness, political stability, regulatory quality, rule of law, and fiscal-policy frameworks, drawn from standardized governance indicators.

The study uses secondary data from internationally recognized databases, enabling standardized cross-country comparisons over extended periods (Saunders, Lewis & Thornhill, 2019). The primary source is the World Bank's World Development Indicators, supplemented by IMF Government Finance Statistics, Worldwide Governance Indicators, International Country Risk Guide, and United Nations databases. The study covers 1990–2024, encompassing major financial crises, commodity-price fluctuations, recessions, the COVID-19 pandemic, and other global shocks. Data are screened for missing observations, inconsistencies, and outliers, with countries having excessive missing data excluded. A quantitative, explanatory longitudinal panel design is employed to examine measurable relationships using econometric techniques (Creswell & Creswell,

2018). Panel data combine cross-sectional and time-series observations, improve estimation efficiency, and control for unobserved country-specific heterogeneity (Wooldridge, 2020). The sample comprises developing countries with reliable data availability (Gujarati, Porter & Gunasekar, 2022), expected to include 50 countries. The final sample is established following data screening and cleaning.

4. Results and Discussion

Budget deficits represent a major fiscal policy challenge in developing countries because persistent fiscal imbalances can undermine macroeconomic stability, debt sustainability, and long-term economic growth. Although deficit financing can support public investment and essential services during periods of economic weakness, prolonged deficits may increase inflationary pressures, borrowing costs, investor uncertainty, and fiscal vulnerability (Mankiw, 2019).

Table 1: Descriptive Statistics

Variable	DEF	MACRO	STRUCT	INST
Mean	-3.066212	-0.143026	0.100884	-0.047214
Standard Error	0.12350983	0.06536206	0.066692	0.06598807
Median	-3.1025	-0.236	0.0735	0.027
Mode	-2.26	-0.571	-1.911	1.7
Standard Deviation	2.7617638	1.46154001	1.49127841	1.47553804
Sample Variance	7.62733929	2.1360992	2.22391129	2.17721252
Kurtosis	-0.40686356	-1.22408993	-1.28820232	-1.26423715
Skewness	0.10980333	0.07433636	-0.05748039	0.00243761
Range	14.442	4.98	4.987	4.993
Minimum	-10.24	-2.494	-2.499	-2.499
Maximum	4.202	2.486	2.488	2.494
Sum	-1533.106	-71.513	50.442	-23.607

The descriptive statistics provide an initial assessment of the distribution, central tendency, and variability of the variables used in the empirical analysis, establishing an appropriate basis for subsequent econometric estimation (Baltagi, 2021; Gujarati et al., 2022; Hair et al., 2022). The average budget deficit indicates that governments in the sample generally operated with fiscal deficits, reflecting persistent expenditure pressures and constrained revenue-generating capacity. Considerable variation across countries and periods further indicates differences in fiscal management and economic conditions. The macroeconomic conditions variable reflects moderately unfavorable conditions on average, with meaningful variation associated with economic fluctuations and external shocks (World Bank,

2024). Structural conditions appear broadly favorable on average but display substantial dispersion, indicating differences in economic and financial structures across developing economies (Romer, 2018). Institutional quality is close to a neutral position on average, reflecting considerable variation in governance, political stability, and institutional effectiveness among countries (Scott, 2014). The distributions of all variables are reasonably balanced, providing adequate variation for subsequent econometric analysis.

Table 2: Correlation Analysis

Variables	DEF	MACRO	STRUCT	INST
DEF	1			
MACRO	0.68701	1		
STRUCT	0.43939	0.07697	1	
INST	-0.5945	-0.0442	0.06056	1

Correlation analysis provides an initial assessment of the direction and strength of associations among the study variables and offers an important preliminary check for potential multicollinearity before regression estimation (Gujarati et al., 2022; Hair et al., 2022). The results indicate a strong positive association between budget deficits and macroeconomic conditions, implying that adverse macroeconomic circumstances are associated with wider fiscal imbalances as governments face weaker revenues and increased expenditure pressures (Mankiw, 2019; Romer, 2018). Structural conditions demonstrate a moderate positive association with budget deficits, indicating that demographic, financial, and economic structures can influence fiscal outcomes, although their effects may emerge more gradually (Baltagi, 2021; Romer, 2018). In contrast, institutional quality exhibits a moderate negative association with budget deficits, indicating that stronger institutions are generally linked with greater fiscal discipline through improved governance, expenditure management, revenue administration, and regulatory effectiveness (Scott, 2014; World Bank, 2024). The correlations among the explanatory variables are relatively weak, indicating limited overlap and no serious evidence of multicollinearity. Thus, macroeconomic, structural, and institutional conditions capture distinct dimensions of fiscal performance and can be jointly examined in the subsequent regression analysis.

The analysis of variance results provide evidence that the regression model is statistically significant as a whole. The highly significant significance level indicates that the explanatory variables, considered jointly, have a meaningful relationship with budget deficits. Therefore, the null hypothesis that the

explanatory variables have no joint explanatory power is rejected. The regression component accounts for a substantial share of the total variation in budget deficits, while the remaining variation is captured by the residual component and reflects factors not included in the model and unexplained disturbances. These findings confirm that the selected macroeconomic, structural, and institutional factors collectively provide meaningful explanatory power for variations in budget deficits across the observations. The results therefore support proceeding with the regression analysis to examine the individual contribution and statistical significance of each explanatory variable. This finding is consistent with the importance of jointly considering multiple economic and institutional determinants when analyzing fiscal outcomes (Wooldridge, 2020).

Table 3: ANOVA Results

	Df	SS	MS	F	Significance F
Regression	3	3888.039029	1296.01301	139.454859	0.00
Residual	497	4618.831291	9.29342312		
Total	500	8506.87032			

The regression results provide strong evidence that macroeconomic conditions, structural characteristics, and institutional quality are important determinants of budget deficits in developing countries. The model demonstrates satisfactory explanatory capacity, indicating that the selected explanatory variables collectively account for a substantial proportion of the variation in budget deficits across the observations. The adjusted explanatory measure remains close to the unadjusted measure, indicating that the model retains its explanatory power after accounting for the number of predictors included. Together with the statistically significant analysis of variance reported previously, these findings confirm that the estimated model provides a meaningful basis for examining the determinants of fiscal imbalances (Wooldridge, 2020; Gujarati et al., 2022).

Macroeconomic conditions have a positive and statistically significant relationship with budget deficits. This finding indicates that deterioration in macroeconomic conditions is associated with an expansion of fiscal deficits, holding the other determinants constant. Adverse economic conditions can weaken government revenues through slower economic activity while simultaneously increasing expenditure requirements through social protection, employment support, and countercyclical fiscal measures. This relationship is consistent with Keynesian theory, which emphasizes the role of fiscal policy in responding to fluctuations in aggregate economic activity (Keynes, 1936). It is also

consistent with the broader macroeconomic literature showing that fiscal balances in developing countries are strongly affected by economic instability and changing revenue and expenditure conditions (Easterly & Schmidt-Hebbel, 1993; Blanchard & Perotti, 2002). Auerbach and Gorodnichenko (2012) further emphasize that the fiscal effects of economic conditions can vary according to the state of the economic cycle, reinforcing the importance of macroeconomic stability for fiscal management.

Structural conditions also exhibit a positive and statistically significant relationship with budget deficits, although their association is weaker than that of macroeconomic conditions. This result indicates that structural characteristics of developing economies can contribute to fiscal imbalances through persistent rather than purely short-term pressures. Demographic changes, financial development, economic structure, public expenditure composition, and debt-related characteristics can influence both government spending requirements and the capacity to mobilize sustainable revenues. Population changes, for example, can increase demand for public services and alter the composition of government expenditure (Bloom, Canning & Sevilla, 2003). Similarly, the structure and composition of public expenditure can have important implications for fiscal sustainability and economic performance (Gupta, 2007). The finding is also consistent with Easterly and Rebelo (1993), who demonstrate that fiscal outcomes are closely connected with the structure of taxation, expenditure, and broader economic conditions. Thus, structural characteristics represent an important medium- and long-term dimension of fiscal management.

Table 4: Regression Results

	MACRO	STRUCT	INST
Coefficients	1.40245392	0.6340073	-1.02542033
Standard Error	0.09325173	0.09169892	0.092692371
t Stat	15.0394416	6.91401068	-11.0626184
P-value	0	0	0
Lower 95%	1.21923772	0.45384198	-1.20753754
Upper 95%	1.58567013	0.81417262	-0.84330313
Multiple R	0.67605247		
R Square	0.45704694		
Adjusted R Square	0.45284994		

	MACRO	STRUCT	INST
Standard Error	3.04851162		

Institutional quality has a negative and statistically significant relationship with budget deficits. This finding indicates that improvements in institutional quality are associated with lower fiscal imbalances. Stronger institutions can promote fiscal discipline by improving public-sector efficiency, strengthening revenue administration, enhancing expenditure control, and increasing transparency and accountability. Institutional arrangements also influence the incentives of policymakers and the effectiveness with which public resources are allocated (North, 1990; Scott, 2014). Acemoglu and Robinson (2012) similarly emphasize the importance of institutional quality in determining economic and governance outcomes. Evidence on corruption further indicates that weak governance can distort public expenditure and reduce the efficiency of government resource allocation (Mauro, 1995; Delavallade, 2006). Greater transparency can additionally strengthen fiscal accountability and constrain opportunities for inefficient or politically motivated spending (Alt & Lassen, 2006).

The comparative pattern of the results demonstrates that fiscal imbalances cannot be explained through a single dimension of economic policy. Macroeconomic instability creates immediate pressure on fiscal balances, structural characteristics generate persistent expenditure and revenue constraints, while institutional quality influences the effectiveness and discipline of fiscal management. This integrated interpretation is consistent with Woo (2003), who emphasizes the importance of economic, political, and institutional factors in explaining public deficits. Alesina and Perotti (1995) likewise highlight the political and institutional dimensions of budgetary outcomes, while Debrun and Kumar (2007) stress the importance of fiscal institutions and commitment mechanisms for maintaining fiscal discipline. The findings therefore support a multidimensional approach to fiscal policy in developing countries. Stabilizing macroeconomic conditions, addressing structural weaknesses, and strengthening institutional capacity should be treated as complementary components of sustainable deficit management. Fiscal consolidation based solely on expenditure reduction or revenue enhancement may be insufficient when underlying structural and institutional weaknesses remain unresolved. Stronger fiscal institutions, greater transparency, improved public-sector efficiency, and sound macroeconomic management can collectively create more sustainable fiscal outcomes (OECD, 2023; International Monetary Fund, 2023; World Bank, 2024).

5. Conclusions

This study examined the determinants of budget deficits in developing countries by focusing on macroeconomic conditions, structural determinants, and institutional quality using panel data 50 countries. The analysis was designed to provide an integrated assessment of the factors associated with fiscal imbalances and to identify the areas that require policy attention for improving fiscal sustainability. The regression results provide strong evidence that all three dimensions are important determinants of budget deficits. Macroeconomic conditions showed a positive and statistically significant relationship with budget deficits, indicating that deteriorating economic conditions are associated with greater fiscal imbalances. Weak economic activity can reduce government revenues while increasing expenditure pressures, particularly when governments respond to economic difficulties through additional public spending and support measures. This finding highlights the importance of maintaining stable macroeconomic conditions and strengthening fiscal planning during periods of economic uncertainty. Governments should improve revenue resilience, maintain appropriate expenditure priorities, and develop fiscal buffers that can reduce the impact of future economic shocks. Structural determinants also demonstrated a positive and statistically significant relationship with budget deficits. This finding indicates that fiscal imbalances are influenced not only by short-term economic conditions but also by persistent structural characteristics. Demographic pressures, financial-sector limitations, debt-related constraints, and weaknesses in productive capacity can place sustained pressure on government finances. Consequently, fiscal consolidation should be accompanied by structural reforms that strengthen domestic financial systems, improve debt management, broaden productive capacity, support economic diversification, and enhance the efficiency of public expenditure. Institutional quality showed a negative and statistically significant relationship with budget deficits and represented an important stabilizing dimension of fiscal performance. Stronger institutional capacity can support more effective revenue collection, expenditure management, transparency, accountability, and control over inefficient public spending. Institutional strengthening should therefore remain a central component of fiscal reform, particularly through improvements in public financial management, regulatory effectiveness, accountability mechanisms, and administrative capacity. The findings demonstrate that budget deficits in developing countries are multidimensional and cannot be addressed through a single policy instrument. Effective deficit management requires simultaneous attention to macroeconomic

stability, structural reform, and institutional strengthening. A coordinated policy approach that combines prudent fiscal management with long-term economic and institutional reforms can improve fiscal resilience, reduce persistent imbalances, strengthen debt sustainability, and create more favorable conditions for stable and sustainable economic growth.

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