JOURNAL OF APPLIED FINANCE AND ECONOMIC POLICY

VOL 09 ISSUE 01

E-ISSN: 2520-0674

PUBLIC DEBT SUSTAINABILITY AND ECONOMIC GROWTH: A COMPARATIVE STUDY OF DEVELOPING AND DEVELOPED COUNTRIES

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Abstract. *Public debt sustainability has become a central macroeconomic concern as countries face repeated shocks, higher interest rates, and growing development needs. This study compares how public debt affects economic growth in developing versus developed economies, emphasizing fiscal space, borrowing costs, institutional quality, and the credibility of policy frameworks. Drawing on debt sustainability concepts used by the IMF and World Bank, the paper explains why similar debt-to-GDP ratios can lead to different growth outcomes across country groups. We propose a comparative analytical framework that links debt dynamics to growth through interest-growth differentials, crowding-out channels, exchange-rate risk, and governance capacity. The study concludes that debt is most growth-enhancing when it finances productivity-raising investment, when fiscal institutions credibly anchor deficits, and when rollover/refinancing risks are contained—conditions that are typically stronger in advanced economies.*

Keywords: *public debt, debt sustainability, economic growth, developing countries, developed countries, fiscal space, interest-growth differential, debt management.*

1. INTRODUCTION

Public debt can support growth by financing infrastructure, human capital, and countercyclical stabilization. Yet, when debt grows faster than repayment capacity, it raises risk premia, compresses fiscal space, and can trigger macroeconomic instability—especially in countries with shallow financial markets or high foreign-currency exposure. Debt sustainability is therefore not only about the level of debt, but also about its structure (maturity, currency, creditor composition), the credibility of fiscal rules, and the economy's growth prospects. Global institutions operationalize these ideas through Debt Sustainability Analyses (DSAs) that assess the trajectory of public and external debt under baseline and stress scenarios, with particular emphasis on low-income and developing economies. A major debate in the literature concerns whether there are "thresholds" beyond which debt

becomes harmful for growth. Early influential work argued that high debt is often associated with slower growth, though later research emphasizes endogeneity and reverse causality: weak growth may itself cause higher debt. This paper synthesizes these perspectives and explains why the debt–growth link can differ systematically between developing and advanced economies.

Intergenerational Equity and Fiscal Responsibility

Debt sustainability is not only a macroeconomic issue but also an ethical one. Persistent fiscal imbalances may shift the burden of repayment to future generations, limiting their fiscal space and development opportunities. Sustainable borrowing frameworks should therefore align present public investment with long-term productivity gains, ensuring that future taxpayers benefit proportionally from today's debt-financed spending. Intergenerational accounting approaches help evaluate whether current policies are equitable and fiscally responsible over time.

Composition of Public Expenditure and Growth Quality

The impact of debt on growth depends significantly on how borrowed funds are allocated. Debt used for productive capital formation—such as infrastructure, research and development, education, and healthcare—can enhance long-term output and debt repayment capacity. In contrast, debt used primarily for recurrent expenditures or politically motivated subsidies may weaken sustainability. Thus, expenditure composition matters as much as debt levels.

Interest Rate Volatility and Monetary-Fiscal Interaction

The sustainability of public debt is closely linked to monetary policy conditions. When interest rates rise sharply—particularly in tightening cycles—countries with high debt stocks may face increased refinancing costs. In developing economies with less credible monetary frameworks, debt monetization risks may intensify inflationary pressures. Coordinated monetary and fiscal policies are therefore essential to maintain macroeconomic stability.

External Vulnerability and Global Financial Cycles

Global financial conditions strongly influence debt sustainability in emerging markets. Sudden stops in capital inflows, tightening global liquidity, or appreciation of reserve currencies can sharply increase debt-servicing costs for countries with foreign-currency liabilities. Advanced economies, benefiting from reserve currency status and stronger financial integration, are often less vulnerable to such external shocks.

Political Economy Constraints

Fiscal sustainability is often shaped by political incentives. Electoral cycles, coalition politics, and governance quality may influence borrowing decisions. In some developing economies, weak institutional checks can lead to pro-cyclical fiscal expansions, increasing debt during economic booms rather than consolidating buffers. Political stability and transparent fiscal governance enhance long-term sustainability.

Demographic Pressures and Aging Populations

In developed economies, demographic transitions—especially aging populations—pose long-term fiscal risks through rising pension and healthcare obligations. These structural liabilities may increase public debt even without discretionary fiscal expansion. Developing countries, while younger demographically, may face fiscal pressures related to employment creation and social infrastructure needs.

Contingent Liabilities and Hidden Debt

Debt sustainability assessments must account for contingent liabilities such as state-owned enterprise guarantees, public-private partnership obligations, and financial-sector bailouts. These liabilities may not appear in headline debt figures but can significantly increase fiscal

risks if realized. Transparent accounting standards and fiscal risk statements are essential for accurate sustainability evaluation.

Structural Reforms and Productivity Enhancement

Long-term sustainability improves when structural reforms raise productivity and potential output. Reforms in taxation, labor markets, governance, and financial systems can enhance economic resilience and reduce the debt-to-GDP ratio through stronger growth rather than austerity alone. Developing economies particularly benefit from reforms that broaden tax bases and formalize economic activity.

Debt Restructuring Mechanisms and Crisis Resolution

For countries facing unsustainable debt levels, timely restructuring mechanisms are critical. International frameworks for sovereign debt restructuring aim to restore sustainability while minimizing economic disruption. The speed and coordination of restructuring processes often determine recovery trajectories, with delays increasing output losses and social costs.

Financial Sector Stability and Sovereign-Bank Nexus

High public debt can strengthen the sovereign-bank nexus, especially where domestic banks hold large volumes of government securities. A deterioration in sovereign creditworthiness may directly affect banking sector stability, amplifying systemic risk. Developed economies with diversified financial systems may better absorb such shocks compared to developing economies with concentrated banking sectors.

Inflation as an Implicit Adjustment Mechanism

Historically, some advanced economies have reduced real debt burdens through moderate inflation. However, reliance on inflationary adjustment can undermine policy credibility and erode purchasing power. In developing economies, inflationary financing may quickly destabilize exchange rates and increase poverty, limiting its viability as a sustainability strategy.

Exchange Rate Regime and Debt Dynamics

Flexible exchange rate regimes may absorb external shocks but can increase the domestic currency value of foreign-denominated debt. Fixed or managed regimes, while providing short-term stability, may lead to reserve depletion if fiscal deficits persist. The interaction between exchange rate policy and debt composition is therefore central to sustainability outcomes.

Climate Change and Green Financing

Climate-related shocks and adaptation needs are reshaping fiscal policy globally. Borrowing for climate resilience and green infrastructure may initially increase debt levels but can enhance long-term economic stability and reduce disaster-related fiscal shocks. International climate finance mechanisms can support sustainable borrowing strategies in vulnerable developing countries.

Digitalization and Revenue Mobilization

Advances in digital tax administration, financial inclusion, and data analytics improve revenue collection efficiency. Strengthened domestic resource mobilization reduces reliance on external borrowing and enhances sustainability. Developed economies often benefit earlier from digital systems, while developing countries are gradually adopting similar innovations.

Income Inequality and Social Stability

High debt combined with austerity measures can exacerbate inequality and social tensions, particularly in developing countries. Sustainable fiscal consolidation strategies should balance macroeconomic stability with inclusive growth to prevent social unrest that could further weaken economic performance.

Fiscal Multipliers and Debt Effectiveness

The effectiveness of debt-financed fiscal expansion largely depends on the size and variability of fiscal multipliers, which measure the change in output resulting from a change in government spending or taxation. In advanced economies, particularly during recessions characterized by underutilized capacity and accommodative monetary policy, fiscal multipliers tend to be larger. When interest rates are near the lower bound and private investment is subdued, government spending can crowd in private activity rather than crowd it out. In such contexts, debt-financed stimulus may generate a virtuous cycle: higher output increases tax revenues, which partially offsets the initial borrowing requirement and stabilizes the debt-to-GDP ratio over time. In contrast, developing economies often face structural supply-side constraints such as infrastructure bottlenecks, limited industrial diversification, shallow financial markets, and weak administrative capacity. Under these conditions, fiscal multipliers may be smaller because additional demand quickly translates into inflationary pressures or import leakage rather than domestic output expansion. Moreover, higher borrowing costs and tighter credit conditions can reduce the net expansionary effect of fiscal stimulus. If investors perceive fiscal expansion as unsustainable, rising sovereign risk premiums may neutralize the intended growth benefits by increasing interest burdens and capital outflows. Monetary-fiscal interaction also shapes multiplier outcomes. When central banks maintain credible inflation targets and coordinate policy responses, fiscal expansion can operate more effectively. However, in economies with weaker monetary independence, fiscal deficits may trigger exchange-rate depreciation and inflation expectations, eroding real incomes and dampening multiplier effects. Thus, the growth impact of public debt is conditional on macroeconomic stability, institutional credibility, and structural readiness to absorb public investment efficiently.

Debt Transparency and Data Reliability

Debt transparency plays a central role in determining the sustainability and credibility of fiscal policy. Accurate and timely reporting of public debt—including central government liabilities, local government borrowing, contingent guarantees, and state-owned enterprise obligations—reduces uncertainty for investors and international financial institutions. Transparent fiscal accounts lower information asymmetry, enhance sovereign creditworthiness, and typically reduce risk premiums on government bonds. In advanced economies, well-established public financial management systems, independent audit institutions, and adherence to international accounting standards strengthen debt reporting frameworks and reinforce investor confidence. In developing economies, however, challenges related to institutional capacity, fragmented reporting systems, and limited oversight mechanisms can result in incomplete or delayed debt data. Off-budget borrowing, public-private partnership liabilities, and undisclosed guarantees may remain outside official statistics, creating hidden fiscal risks. Such opacity can distort debt sustainability assessments and lead to sudden market corrections once liabilities become visible. Historical cases of sovereign stress demonstrate that undisclosed obligations often amplify fiscal crises by eroding trust and triggering abrupt capital outflows. Improving debt transparency requires comprehensive fiscal risk statements, integrated debt management systems, and compliance with international reporting standards. Digitalization of public finance systems and collaboration with international organizations can enhance monitoring and data reliability. Ultimately, transparent reporting not only improves sustainability assessments but also strengthens governance, accountability, and long-term macroeconomic stability.

Sovereign Credit Ratings and Market Perception

Sovereign credit ratings play a crucial role in shaping market perception, capital flows, and borrowing costs. International rating agencies assess a country's fiscal position, macroeconomic stability, institutional quality, and political risk to determine its

creditworthiness. These ratings directly influence sovereign bond yields because many institutional investors rely on rating thresholds when allocating capital. A downgrade—especially from investment-grade to speculative-grade status—can trigger capital outflows, forced asset sales, and a sharp increase in interest rates. Higher borrowing costs, in turn, worsen debt dynamics by increasing the interest-growth differential (r–g), making debt stabilization more difficult. Developed economies often benefit from stronger institutional frameworks, credible monetary policies, diversified economies, and deep domestic capital markets. These structural advantages allow them to sustain relatively high debt-to-GDP ratios without severe rating penalties. In some cases, advanced economies issuing debt in their own reserve currencies face lower default risk perceptions, which cushions them against abrupt rating-driven financial stress. Conversely, developing economies typically experience greater volatility in ratings due to higher exposure to political instability, exchange-rate fluctuations, commodity price shocks, and external financing constraints. Market sentiment in these economies can shift rapidly, amplifying sovereign risk premiums even when debt levels are moderate. Importantly, ratings not only reflect economic fundamentals but also shape expectations. Perception effects can become self-fulfilling: deteriorating confidence increases borrowing costs, which then weakens fiscal indicators further. Thus, maintaining transparent fiscal management, credible policy commitments, and institutional strength is critical for stabilizing both ratings and market perceptions.

Domestic vs. External Debt Composition

The composition of public debt—whether domestic or external—significantly influences sustainability risks and macroeconomic stability. Domestic debt, typically denominated in local currency, reduces exposure to exchange-rate fluctuations and enhances monetary policy flexibility. Governments can rely on domestic financial markets to refinance obligations, thereby lowering vulnerability to sudden stops in international capital flows. However, heavy reliance on domestic borrowing may crowd out private sector credit, particularly in developing economies with shallow banking systems. This crowding-out effect can suppress private investment and limit long-term growth prospects. External debt, on the other hand, provides access to larger financing pools and may carry lower interest rates when global liquidity conditions are favorable. For developing economies with limited domestic savings, external borrowing can support infrastructure development and capital formation. Nevertheless, external debt introduces significant currency and refinancing risks. Depreciation of the domestic currency increases the local-currency value of foreign-denominated debt, raising debt-service burdens and potentially triggering balance-of-payments pressures. Moreover, external debt markets are often more sensitive to global financial cycles, making developing countries vulnerable to shifts in investor sentiment and global interest rates. The optimal debt composition depends on institutional strength, exchange-rate regime, financial market development, and reserve adequacy. Countries with strong monetary credibility and ample foreign exchange reserves are better positioned to manage external borrowing risks, whereas economies with weaker institutions may benefit from a cautious and diversified debt structure.

Financial Repression and Debt Management

Financial repression refers to a set of policies through which governments channel funds to themselves at below-market interest rates. These policies may include regulated interest rate ceilings, high reserve requirements for banks, capital controls, directed lending to government securities, and restrictions on cross-border capital movements. By limiting alternative investment options and maintaining artificially low yields on government bonds, financial repression can reduce the effective cost of servicing public debt and slow debt accumulation in the short run. Historically, several advanced economies used financial

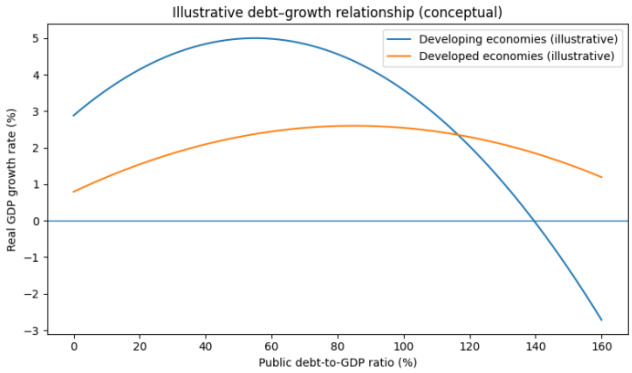
repression after major crises, such as post-war periods, to gradually reduce high debt ratios. However, while such strategies can provide temporary fiscal relief, they often come at the cost of financial market distortions. Suppressed interest rates may discourage savings, reduce financial sector efficiency, and misallocate capital. In developing economies, prolonged repression can undermine banking sector health, weaken investor confidence, and slow financial deepening. Moreover, financial repression may create implicit taxation on savers, reducing real returns and potentially eroding public trust. Over time, distorted credit allocation can dampen productivity growth and limit private sector development. Therefore, although financial repression can serve as a short-term debt management tool, sustainable debt reduction ultimately requires structural reforms, credible fiscal consolidation, and growth-enhancing investment rather than prolonged market distortion.

Naveed Rafaqat Ahmad emphasizes the role of risk-based regulatory models in managing technological change within public administration. He proposes that governments classify AI applications according to their potential societal impact, ensuring that high-risk systems receive stronger regulatory oversight and monitoring compared to low-risk administrative tools. This approach allows governments to balance innovation with public protection.

Yusoff et al. (2026) examined the factors that support sustainable growth of small and medium enterprises by focusing on entrepreneurial intention, organizational culture, and networking capabilities. The study explained that strong internal culture and effective business networks help SMEs build competitive advantages and maintain long-term development.

Salhab et al. (2025) explored the application of AI-based tools in improving production efficiency and quality management within 3D animation processes. The research highlighted that Cascadeur software assists in automation, reduces workflow difficulties, and enables professionals to achieve better productivity and creative performance.

Maruf et al. (2024) analyzed the role of robotic hand-in restaurant services in enhancing modern dining experiences in Kuala Lumpur. The authors found that AI-powered robotic systems improve service accuracy, reduce operational delays, and provide customers with innovative and technology-driven restaurant services.



Summary:

Public debt can support development when it finances productive investment and is backed by credible institutions. However, sustainability risks are typically higher in developing economies because borrowing costs are more sensitive to credibility and external shocks, and debt structures often carry greater rollover and currency risk. Comparative evidence suggests the debt–growth relationship is not universal: it depends on endogeneity (growth affects debt), fiscal space, and policy credibility. Strengthening fiscal institutions, improving debt

composition, and embedding borrowing decisions within DSA-based frameworks can help countries balance development needs with macroeconomic stability.

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