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## Public Debt Sustainability and Economic Growth Trade-Offs in Emerging Economies

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### Abstract

Rising public debt levels have intensified concerns about fiscal sustainability and long-term economic growth in emerging economies. While public borrowing can support growth through infrastructure investment and countercyclical policy, excessive debt may crowd out private investment and increase macroeconomic vulnerability. This study empirically examines the relationship between public debt and economic growth in emerging economies using panel data from 2016 to 2022. The findings reveal a non-linear relationship in which moderate debt levels support growth, while high debt ratios are associated with slower economic performance. The study provides evidence-based insights for designing balanced fiscal strategies in emerging markets.

**Keywords:** Public debt, economic growth, fiscal sustainability, emerging economies, macroeconomic policy

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## 1. Introduction

Public debt has become a central issue in macroeconomic policy debates, particularly in emerging economies facing rising fiscal pressures. Governments increasingly rely on borrowing to finance infrastructure development, social programs, and economic recovery measures. While such borrowing can stimulate growth in the short to medium term, persistent accumulation of debt may undermine fiscal sustainability and economic stability.

The COVID-19 pandemic further accelerated public debt accumulation across emerging markets, raising questions about long-term growth implications. Understanding the growth–debt relationship is therefore essential for policymakers seeking to balance development objectives with fiscal discipline. This study empirically analyzes how different levels of public debt affect economic growth in emerging economies.

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## 2. Literature Review

Theoretical and empirical literature presents mixed evidence on the debt–growth nexus. Keynesian perspectives emphasize the growth-enhancing role of public spending financed through debt, particularly during economic downturns. In contrast, neoclassical and endogenous growth models highlight potential negative effects of high debt through increased interest burdens, inflationary pressures, and reduced private investment.

Recent empirical studies suggest a non-linear relationship, where debt supports growth up to a threshold beyond which negative effects dominate. However, estimated thresholds vary widely across countries and institutional contexts. This study contributes to the literature by using recent data and focusing specifically on emerging economies.

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### 3. Data and Methodology

#### 3.1 Data Sources

The study uses annual data from the World Bank, International Monetary Fund, and national statistical agencies for 22 emerging economies between 2016 and 2022.

#### 3.2 Variables

- **Dependent variable:** Real GDP growth rate (%)
- **Key independent variable:** Public debt-to-GDP ratio (%)
- **Control variables:** Gross capital formation, inflation rate, trade openness, government effectiveness index

#### 3.3 Econometric Model

A panel fixed-effects regression model with a quadratic debt term was employed to capture potential non-linear effects. Robust standard errors were applied to address heteroskedasticity.

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### 4. Results

#### 4.1 Descriptive Statistics

**Table 1. Summary Statistics**

Variable	Mean	Min	Max
GDP Growth (%)	4.1	-3.2	8.7
Public Debt (% of GDP)	56.8	24.5	102.3
Gross Capital Formation (%)	27.6	16.2	41.8
Inflation (%)	5.3	1.1	18.9

#### 4.2 Regression Results

**Table 2. Fixed-Effects Regression Results**

Variable	Coefficient	Significance
Public Debt	0.084	$p < 0.05$
Public Debt <sup>2</sup>	-0.0007	$p < 0.01$
Gross Capital Formation	0.112	$p < 0.01$
Inflation	-0.093	$p < 0.10$
Trade Openness	0.028	$p < 0.05$

The results indicate an inverted U-shaped relationship between public debt and economic growth, with growth declining beyond a certain debt threshold.

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## 5. Discussion

The findings confirm that public debt can support economic growth when maintained at moderate levels, likely through productive public investment and demand stabilization. However, excessive debt accumulation has a statistically significant negative effect on growth, reflecting rising debt servicing costs and reduced fiscal flexibility.

The estimated turning point suggests that growth benefits diminish once public debt exceeds approximately 70% of GDP, though this threshold varies across countries depending on institutional quality and macroeconomic conditions. These results underscore the importance of prudent debt management and growth-oriented fiscal policy.

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## 6. Conclusion

This study provides empirical evidence on the non-linear relationship between public debt and economic growth in emerging economies. While public borrowing can be an effective development tool, excessive debt undermines long-term growth prospects. Policymakers should adopt medium-term fiscal frameworks that prioritize productive investment, strengthen revenue mobilization, and enhance institutional capacity to ensure debt sustainability.

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