**Minireview Article**

**Interaction between Public Debt and Economic Growth in India: Evaluating the Role of Debt Composition and Policy Implications from 1991 to 2022**

**Abstract**

From 1991 to 2022, the effect of public debt on India's economic growth is a complex topic including a wide range of social, political, and economic variables. Some believe that India's economy is suffering because of global economic issues, such as recessions or depressions in other nations. As a result, the government must take out loans to cover the loss. Some believe that India's own policy errors are to blame for the country's excessive spending and inadequate savings. The study aimed to examine the impact of public debt on India's economic growth between 1991 and 2022. It highlights two main perspectives on the debt crisis: global economic changes and domestic policy errors. Domestic debt has a coefficient of 0.056 with a p-value of 0.027, indicating a positive and significant relationship with the dependent variable. External debt has a coefficient of 0.926 with a p-value of 0.0003, indicating a strong and highly significant positive relationship with the dependent variable. While borrowing is essential for capital-scarce economies like India to stimulate development, empirical research often shows a negative correlation between public debt and long-term growth. The study found that prudent debt management and using borrowed funds to diversify the economy can help generate resources to repay obligations without harming economic stability. Policymakers are advised to channel borrowed funds into diversifying productive capacities, discouraging excessive foreign borrowing, and balancing fiscal stimulus with sustainable debt levels.

***Keywords: External Debt, Domestic Debt, Economic Growth, India, Crowd Out Effect, Debt Strategies***

1. **Introduction**

 Public debt is often considered an instrument to finance government investment. In developing countries like India, public debt plays a vital role in the economy. India after independence opted for a path of economic development based on centralized planning with a leading role assigned to public debt on the consideration that it could be instrumental to achieve rapid economic growth through planned investment. However, a large amount of public debt may crowd out private investment by raising interest rates [23]. From 1991 to 2022, the effect of public debt on India's economic growth is a complex topic including a wide range of social, political, and economic variables. This is a thorough summary of how public debt has affected India's economic expansion over this time. There are two primary theories as to why India's debt load is so high. Some believe that India's economy is suffering because of global economic issues, such as recessions or depressions in other nations [12,13]. As a result, the government must take out loans to cover the loss. Some believe that India's own policy errors are to blame for the country's excessive spending and inadequate savings. The government normally decides to borrow in order to finance public goods that increase welfare and promote economic growth. Therefore, borrowing may be considered the best alternative to capital formation during periods of depression in an economy [21].

Though it is a complex problem that specialists are currently attempting to solve, there is some truth to both theories. According to the second line of reasoning, a government borrows money domestically or abroad to pay for its deficit spending when it is unable to meet its obligations, both foreign and domestic. The justification for government borrowing comes from neo-classical growth theories, which highlight the need for borrowing in capital-scarce economies in order to promote capital accumulation and reach a stable level of per capita production [14,15].

Theoretical explanations for possibly negative growth effects of public debt mainly focus on fiscal deficits and argue for a trade-off between positive short-run effects (in case of an output gap and stickiness of prices and wages) and negative long-run effects. Growth impeding long-run effects are caused by changes in expectations of market participants at high levels of public debt, leading to a decrease in national savings and, consequently, to an increase of interest rates, less investment and higher risk premia [22].
Conversely, Keynesian economic theory suggests that lower tax rates and more government expenditure can boost aggregate demand in an economy, stabilizing it in recessions. Thus, borrowing by the government becomes essential. Nonetheless, traditional economics adopts a different position, contending that public debt has a detrimental effect on the macroeconomy. Borrowing limits credit availability to the private sector and erodes budgetary discipline. Furthermore, this school of thought argues that by inhibiting foreign investment and replacing private sector investment, governmental debt repayment—especially foreign loans—can crowd out economic growth [16-20].

Economic volatility conjures images of global markets plunging and soaring in unpredictable ways. It refers to the significant and frequent worldwide fluctuations in economic activity, characterized by sharp swings in key macroeconomic fundamentals, such as economic growth, inflation, and unemployment, among others [24]. The persistent volatility of the world economy has made borrowing more common in emerging nations. To pay for their expenses, these countries are depending more and more on loans from local and international institutions. While traditional economic theory claims that by boosting aggregate demand, public debt can boost short-term economic growth, empirical data from a number of different nations tells a different tale. There is a long-term inverse relationship between economic growth and public debt. Several empirical studies have analysed the relationship between public debt and economic growth, but the conclusions are still inconclusive. Some studies found that public debt exerts a negative impact on economic growth, while others found no such evidence or even a positive impact of public debt on economic growth [25]. The crowding-out effect on investments made by the private sector and the improper handling of borrowed funds are the main causes of this issue. In the end, this puts economic expansion at risk by raising long-term interest rate repayments. The relationship between debt and economic expansion presents several significant challenges. These challenges include high debt-to-revenue ratios due to revenue shortfalls, increasing ongoing expenses, reduced foreign resources, accumulation of external debt arrears, balance of payments imbalances, high unemployment and inflation rates, and exchange rate fluctuations. To sustain growth, policymakers must address these macroeconomic distortions. The impact of public debt on India's economic growth remains uncertain, particularly considering the government's heavy borrowing to cover spending deficits. This study aims to clarify this relationship by examining the effect of public debt on economic development in India from 1991 to 2022. Employing a unique regression approach, the study explores the complex dynamics between public debt and economic growth, offering a valuable contribution to existing literature.

1. **Historical context and economic reforms**

1991 Economic Reforms: Prior to 1991, India experienced a severe balance of payments crisis that resulted in high public debt and prompted the 1991 reforms. The early 1990s saw a significant shift in India's economic policy with the liberalization, privatization, and globalization (LPG) reforms, which aimed to open up the economy, reduce fiscal deficits, and control public debt.

1. **Trends in Public Debt**

1990s to early 2000s: Following the reforms, India saw moderate economic growth and relatively stable public debt levels. During this time, efforts to reduce deficits and control debt were carried out through fiscal consolidation. In the mid-2000s, however, economic growth accelerated due to strong performance in the industrial and service sectors, which resulted in increased tax revenues and improved debt metrics.

1. **The Global financial crisis (2008–2009)**

The Global Financial Crisis caused a temporary increase in public debt as a result of stimulus measures to support the economy, although the impact was less severe than in many advanced economies. In the 2010s, public debt levels fluctuated, gradually increasing due to a variety of factors, including infrastructure spending, populist policies, and social welfare programs.

1. **Literature Review**

**Theoretical Framework and Model Specification**

This study uses the neo-classical endogenous growth model by Solow and Swan (1956) as a basis for an empirical investigation of the relationship between public debt and economic growth in India. This theoretical paradigm states that labor productivity, or output per worker, is the primary driver of growth. It's interesting to note that, in this context, technological developments are even more important than capital accumulation.

The assumption of model is that Y (Output) is produced by employing labour, Physical Capital and technology. Consequently,

Y= f (A, K, L) …………… 1

Where, Y= Gross Domestic Product, A= Current stage of technology, K = Quantitative measure of physical capital, L = Quantity of labour input. All factors are relative to the production of output with their exponents in the equation which indicate their relative contributions and productivity that increases due to technological change.

Therefore, increased government expenditure on healthcare and education, among other vital sectors, represents important investments in human capital. The use of public debt to fund vital infrastructure projects, like health and education, lends relevance to the neoclassical growth model used in this study and helps drive India's economic progress. As a result, the following equation (1) is extended to include the impact of public debt on economic growth:

Y = f (Public Debt) ……………2

The public debt in equation 2 can be further disaggregated into external debt and domestic debt.

Y = f (EXTDBT, DOMDBT) …….3

This disaggregation is justified by the required to give recognition to the effect of individual components of public debt- external debt (EXTDBT) and domestic debt (DOMDBT). This implies that the growth of the economy is determined by either or both external and domestic debt. Applying the Cobb-Douglas form of the production function yield

Y= A.DOMDBTαEXTDBT(1-α) ……………….4

Where: α and (1- α) are shares of Domestic Debt (DOMDBT) and External Debt (EXTDBT) respectively and A is a factor of productivity in the economy. The Implication of eq. 4 is the change taken in the GDP is caused by changes in either both external debt and domestic debt or its level of total factor productivity changes.

**Methods and Model Specification**

Based on the above framework, the model for study can be specified as:

GDPt = β0 + β1DOMDBTt + β2EXTDBTt + µt …………………… .5

Taking the natural log of eq. 5

lnGDPt = β0 + β1lnDOMDBTt + β2 lnEXTDBTt + µt ……………… 6

Where: In = natural logarithm of the function; GDPt= Gross Domestic Product; DOMDBTt = domestic debt; EXTDBTt = external debt; µt = error term (all measured at time t) while β0 , β1 , β2 ,are parameter estimates showing the relative share of the variables to real GDP.

The growth eq. in (6) represents a system of equations used to estimate the impact of public debt on economic growth. This estimation process, well-established in the literature on the public debt-growth nexus, aligns with classical regression analysis. Consequently, its relevance to this study is straightforward.

1. **Results**

There has been much research on the connection between public debt and economic growth in the past few years, but opinions on how public debt affects economic growth are divided. This paper uses data on both domestic and external debts in India for the period 1991 to 2022 in order to contribute to the discussion on the relationship between public debt and economic growth by tracing the country's experience. Real GDP was used to reflect on economic growth during the study period. The tables below present the results:

**Table 1. Result of Regression analysis**



*Source: Source: Authors’ computation, using E-views 12*

In this scenario, 94.1% of the dependent variable is explained by the number of independent factors, as indicated by linear regression. So long as public debt is managed responsibly, the nation's economy will expand. GDP is the dependent variable in this instance, explained similarly to the other independent variables. There is a strong correlation of 99.8% between all independent variables and the dependent variable.

The regression model explains a high proportion of the variability in the dependent variable, as indicated by the R Square value of 0.941. This means that approximately 94.1% of the variability in the dependent variable can be explained by the independent variables in the model. The significance F value (1.430E-18) indicates that the overall regression model is statistically significant, suggesting that the model provides a good fit for the data. The coefficients for domestic debt and external debt are both statistically significant. Domestic debt has a coefficient of 0.056 with a p-value of 0.027, indicating a positive and significant relationship with the dependent variable. External debt has a coefficient of 0.926 with a p-value of 0.0003, indicating a strong and highly significant positive relationship with the dependent variable.

Overall, the model indicates that lnEXTDBT has a particularly strong influence on the dependent variable, while lnDOMDBT also plays a significant role. This output suggests that both lnDOMDBT and lnEXTDBT are significant predictors of the dependent variable in this regression model.

1. **Policy Implication of the Finding**

Given the results of the regression analysis, the following policy implications can be derived:

**Emphasis on External Debt Management:**

The coefficient for lnEXTDBT (external debt) is significantly high and highly significant (p-value ≈ 0). This indicates that external debt has a strong and positive relationship with the dependent variable, which could be GDP growth or economic development. Governments should focus on managing external debt efficiently. This could involve negotiating better terms for external loans, ensuring that borrowed funds are invested in high-return projects, and maintaining a sustainable level of external debt to avoid excessive burden on the economy.

**Attention to Domestic Debt:**

The coefficient for lnDOMDBT (domestic debt) is also significant but smaller than that of external debt. It indicates that domestic debt has a positive impact on the dependent variable, though to a lesser extent. Policymakers should not overlook domestic debt. Strategies should be developed to enhance the efficiency of domestic debt markets, ensuring that domestic borrowing is used effectively to finance development projects. Additionally, maintaining a balance between domestic and external debt is crucial to mitigate risks associated with over-reliance on either form of debt.

**Fiscal Responsibility and Debt Sustainability:**

The high R Square value indicates that a substantial portion of the variability in the dependent variable is explained by the model, suggesting that debt levels (both domestic and external) are critical factors in economic outcomes. Governments should adopt fiscal policies that promote debt sustainability. This includes setting clear fiscal rules and targets for debt levels, improving transparency and accountability in public financial management, and implementing measures to enhance revenue generation and expenditure efficiency.

**Investment in Productive Sectors**:

The positive relationship between both forms of debt and the dependent variable suggests that borrowing can lead to positive economic outcomes when invested wisely. Borrowed funds should be channelled into productive sectors that yield high economic returns, such as infrastructure, education, and healthcare. Investments in these areas can drive long-term economic growth and development.

**Strengthening Institutional Frameworks:**

To ensure effective management of both domestic and external debt, strong institutional frameworks are necessary. Strengthen institutions responsible for debt management by enhancing their capacity for debt analysis, monitoring, and reporting. Additionally, fostering a stable macroeconomic environment is crucial for maintaining investor confidence and ensuring favorable borrowing terms.

By implementing these policy recommendations, governments can optimize the benefits of borrowing while mitigating associated risks, ultimately fostering sustainable economic growth and development.

1. **Conclusion**

The study reveals a significant positive relationship between both domestic and external debt and economic growth in India. While external debt has a particularly strong influence, domestic debt also plays a vital role. Effective debt management is crucial for leveraging public debt to stimulate growth without jeopardizing economic stability. Policymakers are advised to channel borrowed funds into diversifying productive capacities, discouraging excessive foreign borrowing, and balancing fiscal stimulus with sustainable debt levels. Long-term economic stability requires careful alignment of debt strategies with growth objectives.

Disclaimer (Artificial intelligence)

Option 1:

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc.) and text-to-image generators have been used during the writing or editing of this manuscript.

Option 2:

Author(s) hereby declare that generative AI technologies such as Large Language Models, etc. have been used during the writing or editing of manuscripts. This explanation will include the name, version, model, and source of the generative AI technology and as well as all input prompts provided to the generative AI technology

Details of the AI usage are given below:

1.

2.

3.

**References:**

1. Abdelrahman, O. A. (2022). The impact of public debt on economic growth in Palestine (2005–2019).

2. Aminu, A. M. (n.d.). Public debt and economic growth: Empirical evidence from Nigeria.

3. Efunfade, O. O., Efunfade, A. O., FCIB, A., & Olugbamiye, D. O. (n.d.). Burden of government debt on economic development and debt overhang proposition: Analysis of empirical evidences.

4. Fasoye, K., & Olayiwola, A. S. (2024). Effect of public debt on economic growth in Nigeria with or without domestic investment. \*NIU Journal of Social Sciences, 10\*(1), 79–88.

5. Kondrat, I., Pozniakova, O., & Chervinska, O. (2019). The impact of public debt on economic growth in Ukraine. \*Annales Universitatis Mariae Curie-Skłodowska, sectio H–Oeconomia, 53\*(4), 91–100. https://doi.org/[Insert DOI if available]

6. Mousa, T. A., & Shawawreh, A. M. (2017). The impact of public debt on the economic growth of Jordan: An empirical study (2000–2015). \*Accounting and Finance Research, 6\*(2), 114. https://doi.org/[Insert DOI if available]

7. Odey, F. I., Owan, J. O., & Owan, J. N. (2023). External debt burden and economic growth in Nigeria. \*International Journal of Economics and Financial Management, 8\*(3), 73–87.

8. Ojonye, S. M., Jumbo, D., & Oboh, I. C. (2024). Impact of public debt on economic growth in Nigeria: 1981–2022. \*African Banking and Finance Review Journal, 10\*(10), 94–103.

9. Selimaj, A. X., Statovci, B., Lokaj, A. S., & Beqiri, E. (2020). The impact of public debt in economic growth. \*Academic Journal of Interdisciplinary Studies, 9\*(4), 177–186. https://doi.org/[Insert DOI if available]

10. Shahini, L., & Muço, K. (2022). The impact of public debt on economic growth in the Western Balkans. \*Journal Transition Studies Review, 29\*(1), 83–96.

11. Solow, R. M. (2001). From neoclassical growth theory to new classical macroeconomics. In \*Advances in Macroeconomic Theory: International Economic Association\* (pp. 19–29). London: Palgrave Macmillan UK.

12. Panizza, U., & Presbitero, A. F. (2013). Public debt and economic growth in advanced economies: A survey. Swiss Journal of Economics and Statistics, 149, 175-204.

13. Panizza, U., & Presbitero, A. F. (2014). Public debt and economic growth: is there a causal effect?. Journal of Macroeconomics, 41, 21-41.

14. Rahman, N. H. A., Ismail, S., & Ridzuan, A. R. (2019). How does public debt affect economic growth? A systematic review. Cogent Business & Management, 6(1), 1701339.

15. Ahlborn, M., & Schweickert, R. (2018). Public debt and economic growth–economic systems matter. International Economics and Economic Policy, 15, 373-403.

16. Yamin, I., Alzghoul, A., & Alsheikh, G. A. A. (2023). The influence of public debt on economic growth: A review of literature. International Journal of Professional Business Review: Int. J. Prof. Bus. Rev., 8(4), 3.

17. Balassone, F., Francese, M., & Pace, A. (2011). Public debt and economic growth in Italy. Bank of Italy Economic History Working Paper, (11).

18. Hilton, S. K. (2021). Public debt and economic growth: contemporary evidence from a developing economy. Asian Journal of Economics and Banking, 5(2), 173-193.

19. Elom-Obed, F. O., Odo, S. I., Elom-Obed, O., & Anoke, C. I. (2017). Public debt and economic growth in Nigeria. Asian Research Journal of Arts & Social Sciences, 4(3), 1-16.

20. Egbetunde, T. (2012). Public debt and economic growth in Nigeria: Evidence from granger causality. American journal of economics, 2(6), 101-106.

21. Yusuf S, Omar Said A. Public Debt and Economic Growth: Evidence from Tanzania. J. Econ. Manage. Trade. 2018 Jun. 25;21(7):1-12.

22. Ahlborn M, Schweickert R. Public debt and economic growth–economic systems matter. International Economics and Economic Policy. 2018 Apr;15:373-403.

23. Barik A, Sahu JP. The long‐run effect of public debt on economic growth: Evidence from India. Journal of Public Affairs. 2022 Feb;22(1):e2281.

24. Mulenga R. Navigating global economic volatilities: towards economic resilience. Journal of Economics, Finance and Management (JEFM). 2024 Mar 15;3(1):295-308.

25. Njangang Ndieupa H. How Does Public Debt Affect Economic Growth? Further Evidence from CEMAC Zone. Asian Res. J. Arts Soc. Sci. 2018 Jan. 20;5(1):1-8.