



Public Debt and Private Sector Investment in Iran: A Nonlinear Autoregressive Distributed Lag Method

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Abstract

Achieving an 8% economic growth target in Iran's Seventh Development Plan necessitates targeted investment growth. The theoretical significance lies in the relationship between public debt and private sector investment. Data from the 2010s indicate deterioration in private investment alongside a rising trend in public debt. Therefore, it appears that increasing public debt has disrupted private sector investment. This study employs a nonlinear autoregressive distributed lag model to examine the relationship between public debt and private investment in Iran using data spanning 1980 to 2023. The results demonstrate that both short-term and long-term positive and negative shocks in public debt have respectively negative and positive effects on private investment. Specifically, increased government borrowing reduces private investment, with a one-percent rise in public debt causing a 1.7% decline in private investment in the long run. Furthermore, changes in economic growth and trade openness positively impact investment. Given the positive effects of trade openness shocks, it can be concluded that reforms in trade interactions to support exports of goods produced by private investors are essential. Additionally, inflation and exchange rate fluctuations negatively affect private investment, underscoring the need for enhanced focus on monetary, fiscal, and exchange rate policies.

Keywords: Investment, Government Borrowing, Monetary and Fiscal Policy, Nonlinear Autoregressive distributed lag Model.

JEL Classification: P33, H63, E58, C22.

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1. Introduction

Achieving the ambitious 8% economic growth target set forth in Iran's Seventh Five-Year Development Plan requires a substantial and targeted increase in investment, particularly within the private sector. Due to a persistent decline in foreign direct investment (FDI) since 2011—attributed to political and institutional challenges—it is anticipated that the majority of the necessary investment will have to originate from domestic private investors. The private sector plays a pivotal role because investment in this domain influences both aggregate supply and demand. Consequently, targeted investment by private enterprises can stimulate economic activity, enhance employment, and improve productivity.

Nonetheless, both empirical and theoretical literature highlight that one of the major obstacles to private sector investment, especially in developing economies such as Iran, is the suboptimal expansion of government activity, often manifested through rising public debt. The persistent increase in public debt in recent years has raised concerns regarding its potential crowding-out effects on private investment. This study aims to investigate whether the recent surge in public borrowing has adversely affected private sector investment in Iran.

2. Theoretical framework

From a theoretical perspective, rising government debt increases the demand for financial resources, which can exert upward pressure on interest rates. Since private investment is highly sensitive to interest rate fluctuations, an increase in borrowing costs discourages private sector borrowing and investment. Furthermore, the availability of safe government bonds in financial markets tends to divert savings from potentially productive private investments toward risk-free public debt, thus exacerbating the crowding-out effect. Consequently, a sustained rise in public debt can undermine the private sector's investment capacity, weakening both aggregate demand and supply. This in turn diminishes the government's future tax revenue base and may trigger a vicious cycle of fiscal stress. Given these dynamics, the relationship between public debt and private investment is complex and multifaceted, warranting thorough empirical investigation.

3. Methodology

This study empirically examines the nonlinear relationship between public debt and private sector investment in Iran utilizing annual data from 1980 to 2023. The Nonlinear Autoregressive Distributed Lag (NARDL) model is employed to distinguish between asymmetric effects of positive and negative shocks in public debt on private investment, both in the short run and long run. The NARDL framework is particularly suitable for this analysis as it captures potential nonlinearity and asymmetry often neglected by

conventional linear models.

The model is specified as follows:

$$x_t = x_{t-1} + \varepsilon_t = x_0 + \sum_{i=1}^t \varepsilon_i$$

In which, $x_t = (finv_t, debt_t, y_t, inf_t, to_t, int_t, ex_t)$ is the vector including $finv_t$ as a private investment, $debt_t$ as a public debt, y_t as an economic growth, inf_t as an inflation, to_t as a trade openness, int_t as an interest rate, and ex_t as an exchange rate.

4. Discussion

The empirical results indicate that negative shocks to public debt (debt reductions) have a statistically significant positive effect on private investment in the short term, whereas positive shocks (debt increases) do not exhibit a significant short-term impact. However, in the long run, increases in public debt exert a substantial negative effect on private sector investment. Specifically, a 1% increase in public debt leads to a 1.7% decline in private investment, underscoring the structural crowding-out effect of persistent government borrowing in Iran.

The study also finds that economic growth and trade openness positively influence private investment, highlighting the importance of export-oriented strategies and international economic integration. These results imply that trade policy reforms aimed at supporting exports of domestically produced goods could incentivize private investment by expanding market access and enhancing investor confidence.

Conversely, inflation and exchange rate volatility have negative impacts on private investment, illustrating the detrimental effects of macroeconomic instability on investment decisions. These findings emphasize the necessity for coherent and consistent monetary, fiscal, and exchange rate policies. In particular, policymakers should prioritize macroeconomic stability to foster an environment conducive to private sector investment.

5. Conclusion and Suggestions

The findings are consistent with international literature, including studies by Reinhart and Rogoff (2010, 2012), and Kumar and Woo (2010), which underline the adverse effects of excessive public debt on private sector performance. Comparable conclusions have been reported in the Iranian context by scholars such as Bagheri Pormehr et al. (2021), Akhlaghi Yazdizadeh et al. (2023), and Falahati & Heydarian (2018), all highlighting a negative relationship between government debt and private investment. In conclusion, the evidence underscores the critical necessity of prudent public debt management to protect and promote private investment, which is essential for sustainable economic growth. The Iranian government should avoid excessive

reliance on debt financing and instead focus on enhancing public expenditure efficiency and maintaining a stable macroeconomic environment. Further, trade policy reforms alongside measure to reduce inflationary pressures and stabilize exchange rates will be crucial in attracting and sustaining private investment. Without such reforms, achieving the 8% growth target outlined in the national development plan may be unfeasible. Given the significant influence of public debt on private sector investment, adopting appropriate debt control strategies is imperative. Public debt sustainability plays a vital role in stabilizing macroeconomic variables, particularly in the post-2008 financial crisis global environment where many countries prioritize debt sustainability policies. In Iran, with the ongoing upward trend in public debt, heightened attention to this issue is increasingly necessary. A critical first step for macroeconomic analysis and policy formulation is the availability of reliable and comprehensive data on government debt, which currently remains a major limitation for effective research and policymaking in this area.

6. Ethical Considerations

6.1. Compliance with ethical guidelines

The present study has followed the scientific principles of research.

6.2. Author's Contribution

The authors contribute equally in writing this article.

6.3. Conflict of interest

The authors declare that there is no conflict of interest in this research.

6.4. Acknowledgments

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