24 - 26 July 2026 Copenhagen , Denmark

An Empirical Analysis of Tax Revenue and Public Debt in South Africa

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Abstract

South Africa's rising public debt poses increasing risks to long-run fiscal sustainability. This study investigates the nonlinear relationship between tax revenue and public debt using annual data from 1981–2024. While controlling for GDP, real interest rates, and exchange rate. Employing Autoregressive Distribution lag (ARDL) and Multiple Threshold Autoregressive Distributed Lag (MTARDL) model, the analysis captures regime-dependent effects of tax revenue shocks across low (below the 25th percentile), medium (25th–75th percentile), and high (above the 75th percentile) revenue regimes. The results reveal that tax revenue shocks significantly reduce public debt across all regimes; however, the strongest debt-reduction effect occurs within the medium-revenue regime, while high-revenue shocks exhibit diminishing marginal effectiveness. This nonlinear pattern supports Laffer-type fiscal dynamics, indicating limits to debt reduction through excessive taxation. Real interest rates exert a statistically significant negative effect on public debt, reflecting fiscal adjustment pressures. Granger causality tests confirm predictive linkages from tax revenue regimes and economic growth to public debt. The findings highlight the importance of moderate revenue mobilisation, improved tax efficiency, and sustained growth for debt stabilisation in South Africa.

Keywords: National Government Debt, Tax Revenue, Economic Growth, Granger Causality, MTARDL