Infrastructure-Led Growth: A Quantitative Examination

Chen-Wei Tseng
Financial and Fiscal Commission, South Africa

Abstract

The link between infrastructure and economic growth is frequently emphasized in policy discussions and political rhetoric, yet empirical assessments of their interaction provide mixed results, and the extent of its impact remains unclear. This study scrutinizes the concept of 'infrastructure-led growth' by applying three quantitative econometric approaches: crosssectional, time-series, and panel regressions, to estimate the influence of infrastructure on the gross domestic product (GDP). Utilizing a comprehensive dataset from the World Bank for the years 2007-2023, covering 16 selected countries in a near-balanced panel, the findings at the levels corroborate the prevailing theory that infrastructure development and capital investments significantly contribute to economic productivity, often in conjunction with employment and job creation. At the difference, the paper finds that the empirical evidence supporting infrastructure-led growth is inconsistent and resonates with the paradoxical nature of estimating what essentially amounts to an accounting identity in the production function. However, the series of regressions conducted in this study provide valuable insights into the significance and nuances of individual countries' growth patterns and deviations. Ultimately, the actual impact of infrastructure development on economic productivity varies considerably, influenced by the unique characteristics of each country and their specific economic contexts over time.

Keywords: gross fixed capital formation; economic growth; regression; econometrics; data analysis