

## **Modelling the Dynamics of Public Investment and Growth: ARDL vs GMM in OECD Economies**

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**Abstract:** Public investment in infrastructure is critical for fostering economic growth; however, its effectiveness is debated. This study investigates the impact of transport infrastructure expenditure on economic growth across 33 OECD countries, employing a comparative analysis of ARDL and GMM models. The findings indicate a positive and statistically significant relationship, with the magnitude of contributions according to the time horizon and estimation approach utilized. The ARDL model demonstrates evidence of cointegration, while the GMM framework elucidates dynamic effects. A comparative analysis demonstrates that the two models are complementary, offering distinct yet consistent perspectives for evaluating the effectiveness of investment policies. This analysis underscores the necessity for targeted public policies and contributes to the literature by offering a methodological comparison within developed economies.

**Keywords:** Economic Growth, GMM Estimation, Model Comparison, Panel Data, Panel ARDL, Transportation Public Investment

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