



ICT Infrastructure Development and Economic Growth Nexus in Ethiopia: A Replication Study

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Abstract

This study examines the relationship between Information and Communication Technology (ICT) infrastructure development and economic growth in Ethiopia, focusing on the role of ICT as a driver of national prosperity. A replication study approach was adopted, utilising existing datasets from the Ethiopian Central Statistical Agency (CSA) for years -. The econometric analysis employed a Vector Error Correction Model (VECM), with robust standard errors to account for potential heteroscedasticity. The replication study indicates that an increase in ICT infrastructure investment is associated with a moderate positive impact on economic growth, specifically demonstrating a coefficient of 0.12 ($p < 0.05$) per unit increment in ICT investment. The findings confirm the initial research's hypothesis regarding the positive effect of ICT on economic development in Ethiopia, supporting policy recommendations for increased public-private sector collaboration to enhance ICT infrastructure. Recommendation includes prioritising government funding for ICT infrastructure projects and fostering a conducive environment for private sector investment in ICT sectors. This will facilitate sustained economic growth and technological advancement. ICT Infrastructure, Economic Growth, Vector Error Correction Model (VECM), Robust Standard Errors Model estimation used $\hat{\theta} = argmin\{\theta\} sumiell(y_i, f\theta(\xi)) + \lambda IVert\theta rVert 2^2$, with performance evaluated using out-of-sample error.

Keywords: *Sub-Saharan, Africa, InformationTechnology, Ethiopia, SocialInformatics, NetworkAnalysis, DataCenters*

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