



ICT Infrastructure Development and Economic Growth Nexus in Ethiopia: A Spatial Planning Perspective

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Abstract

ICT infrastructure development is crucial for economic growth in Ethiopia, particularly given its role as a developing country with significant spatial disparities. The analysis employs a spatial econometric model to estimate the impact of ICT investments on GDP per capita across different administrative units. Initial findings suggest that increased investment in telecommunications significantly boosts GDP by approximately 2.5% for every

10 million invested, with rural areas benefiting more than urban regions. The study concludes that targeted spatial

$\hat{\theta} = \operatorname{argmin}_{\theta} \sum_i \ell(y_i, f(\theta(x_i))) + \lambda \|\theta\|_2^2$, with performance evaluated using out-of-sample error.

Keywords: African Geography, Spatial Econometrics, Network Theory, Information Systems, Telecommunications, Rural Development, GIS Applications

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