



Regional Monitoring Networks Reliability in Rwanda: A Replication Study

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Abstract

Rwanda has implemented regional monitoring networks to enhance policy-making and innovation in various sectors. These systems aim to provide timely data for decision-makers but face challenges related to reliability. A randomized controlled trial was conducted in Rwanda, where participants were randomly assigned to observe and evaluate the performance of the regional monitoring networks. Data collection included direct observations, surveys, and technical assessments. The study found that system reliability varied significantly by region ($p < 0.05$), with some areas showing a 20% improvement in data accuracy compared to baseline conditions. While the regional monitoring networks showed promise, they require targeted improvements in infrastructure and training for optimal performance. To enhance reliability, it is recommended that policymakers invest in upgrading network hardware, provide additional training sessions for operators, and implement a more robust quality assurance mechanism. Model estimation used $\hat{\theta} = \underset{\theta}{\operatorname{argmin}} \sum_{i=1}^n (y_i - f(\theta(\xi)))^2 + \lambda \|\theta\|_2^2$, with performance evaluated using out-of-sample error.

Keywords: *Sub-Saharan, Africa, Spatial, Qualitative, reliability, stochastic, modelling*

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