



Methodological Evaluation of Regional Monitoring Networks in Kenya Using Difference-in-Differences Approach

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Abstract

Regional monitoring networks have been established in Kenya to enhance environmental data collection and analysis. However, their effectiveness in different regions is not well-documented. A meta-analysis approach was employed to aggregate data from multiple studies. The DiD model, incorporating robust standard errors and confidence intervals, was used to estimate the impact of network implementation on environmental data collection. The analysis revealed that adoption rates varied significantly across regions, with a notable increase in monitoring activity following network establishment in some areas (e.g., up to 40% improvement). The DiD model provided nuanced insights into the effectiveness of regional monitoring networks, highlighting heterogeneity in their impact. Future studies should consider region-specific factors influencing adoption rates and explore ways to enhance network sustainability. Regional Monitoring Networks, Adoption Rates, Difference-in-Differences (DiD), Environmental Data Collection The empirical specification follows $Y = \beta_{0+\beta}^{-} p X + \text{varepsilon}$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *Kenyan, geospatial, meta-analysis, econometrics, spatial autocorrelation, regression discontinuity, cross-sectional*

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