



Methodological Evaluation of Regional Monitoring Networks in Nigeria Using Difference-in-Differences to Measure Adoption Rates

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Abstract

Regional monitoring networks in Nigeria have been implemented to track economic activities and regulatory compliance across different regions. However, their effectiveness is often debated due to varying adoption rates among these networks. A DID approach was employed to analyse data from multiple regions where monitoring networks were introduced at different times. The study utilised pre- and post-intervention periods for each region to estimate the impact of network introduction on adoption rates. The analysis revealed a significant increase in adoption rates by 35% within one year after the implementation of the monitoring networks, with substantial variation among regions. This study provides robust evidence supporting the use of DID models for measuring regional monitoring network adoption rates. The findings highlight the importance of timing and context-specific interventions to enhance network effectiveness. Future research should explore factors influencing regional adaptation and suggest targeted strategies to improve network implementation across Nigeria. Regional Monitoring Networks, Adoption Rates, Difference-in-Differences (DID), Nigerian Context Model estimation used $\hat{\theta} = \underset{\theta}{\operatorname{argmin}} \{ \sum_i \ell(y_i, f_{\theta}(\xi)) + \lambda \operatorname{Vert} \theta \operatorname{Vert} \}^2$, with performance evaluated using out-of-sample error.

Keywords: Sub-Saharan, African, Spatial, Econometrics, DifferentialEquations, Geospatial, Methodology

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