



Methodological Evaluation of Regional Monitoring Networks in Senegal Using Difference-in-Differences for Clinical Outcomes Measurement,

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Abstract

Regional monitoring networks have been established to improve veterinary care in Senegal by facilitating data sharing between regional veterinary services. A difference-in-differences approach was applied to assess changes in clinical outcomes before and after network implementation across Senegalese regions. Data from veterinary clinics were analysed to evaluate the impact of the networks on treatment efficacy. The DiD model revealed a statistically significant improvement ($p < 0.05$) in overall clinical outcomes for small animals treated within the first year post-network establishment, with a proportion increase of 12% compared to the baseline period. The regional monitoring networks have demonstrated positive impacts on veterinary care effectiveness, particularly in terms of treatment efficacy improvements. Further research should explore long-term sustainability and potential areas for improvement within these networks. The empirical specification follows $Y = \beta_{0+\beta}^{-} p X + varepsilon$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *African geography, monitoring networks, longitudinal studies, econometrics, impact evaluation, randomized trials, spatial analysis*

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