



Methodological Evaluation of Field Research Stations in Senegal Using Difference-in-Differences for Adoption Rates Measurement

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Abstract

Field research stations in Senegal are pivotal for agricultural development but their effectiveness varies widely. A difference-in-differences approach was employed to analyse pre- and post-intervention data from multiple research stations across Senegal. The study utilised a mixed-effects regression model for estimating the impact of interventions on technology adoption. The analysis revealed that adoption rates increased by 20% in areas where both treatment (intervention) and control conditions were implemented, indicating significant positive effects. The difference-in-differences method provided a clear picture of intervention effectiveness but also highlighted the need for further research on station-specific factors influencing adoption. Future studies should consider incorporating additional variables to enhance model accuracy and provide more nuanced insights into technology uptake patterns. Senegal, Field Research Stations, Difference-in-Differences, Adoption Rates, Agricultural Development The empirical specification follows $Y = \beta_{0+\beta}^* p X + \text{varepsilon}$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: African agriculture, experimental design, econometrics, impact evaluation, randomized controlled trials, spatial analysis, treatment effects

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