Monitoring Networks in Senegal: Time-Series Forecasting for Adoption Rate Measurement

Mbacké Diallo[1,2], **Amadou Diop**[3,4], **Saliou Ndiaye**[3,4], **Mboup Sall**[3,5]

[1] Department of Research, Council for the Development of Social Science Research in Africa (CODESRIA), Dakar

[2] Department of Research, Institut Sénégalais de Recherches Agricoles (ISRA)

[3] Institut Sénégalais de Recherches Agricoles (ISRA)

[4] Department of Research, Institut Pasteur de Dakar

[5] Council for the Development of Social Science Research in Africa (CODESRIA), Dakar

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Correspondence: mdiallo@yahoo.com

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Author notes

Mbacké Diallo is affiliated with Department of Research, Council for the Development of Social Science Research in Africa (CODESRIA), Dakar and focuses on Environmental Science research in Africa.

Amadou Diop is affiliated with Institut Sénégalais de Recherches Agricoles (ISRA) and focuses on Environmental Science research in Africa.

Saliou Ndiaye is affiliated with Department of Research, Institut Pasteur de Dakar and focuses on Environmental Science research in Africa.

Mboup Sall is affiliated with Council for the Development of Social Science Research in Africa (CODESRIA), Dakar and focuses on Environmental Science research in Africa.

Abstract

Monitoring networks have been established in Senegal to track adoption rates of environmental technologies among rural communities. A comprehensive analysis of existing monitoring data from various regions was conducted, employing advanced statistical techniques including ARIMA models for forecasting future trends in adoption rates. The application of ARIMA models revealed significant predictive power with an $ARIMA(1,1,0)$ model achieving a forecast accuracy within 5% confidence intervals, indicating reliable trend predictions. This study validates the use of time-series forecasting as a robust method for monitoring and predicting adoption rates in Senegal's rural areas. The findings suggest integrating ARIMA models into ongoing regional monitoring efforts to enhance the accuracy and reliability of adoption rate measurements.

Keywords: *Sub-Saharan, GIS, econometrics, panel analysis, spatial distribution, predictive modelling, diffusion of innovations*

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