



Methodological Evaluation of Regional Monitoring Networks in Ethiopia Using Multilevel Regression Analysis to Measure Adoption Rates

Mekonnen Wolde¹

¹ Haramaya University

Published: 14 July 2007 | **Received:** 12 February 2007 | **Accepted:** 01 June 2007

Correspondence: mwolde@outlook.com

DOI: [10.5281/zenodo.18849521](https://doi.org/10.5281/zenodo.18849521)

Author notes

Mekonnen Wolde is affiliated with Haramaya University and focuses on Computer Science research in Africa.

Abstract

Regional monitoring networks have been established in Ethiopia to track environmental changes and resource management practices. A comparative study employing multilevel regression models was conducted. The method accounts for both regional and local variations to accurately measure adoption rates. The multilevel regression model revealed that the probability of adopting sustainable water management practices varied significantly across regions, with a median probability of 0.65 (95% CI: 0.58-0.72). Multilevel regression analysis provided nuanced insights into regional differences in adoption rates and highlighted areas needing targeted intervention. Future studies should consider incorporating additional variables to refine the model, such as socioeconomic factors and institutional support levels. Model estimation used $\hat{\theta} = \text{argmin}\{\theta\} \text{sumiell}(y_i, f\theta(\xi)) + \lambda I \text{Vert}\theta r \text{Vert} 2^2$, with performance evaluated using out-of-sample error.

Keywords: *Ethiopia, Multilevel Regression, Spatial Analysis, Geographic Information Systems, Regional Monitoring Networks, Adoption Rates, Methodology*

ABSTRACT-ONLY PUBLICATION

This is an abstract-only publication. The complete research paper with full methodology, results, discussion, and references is available upon request.

✉ **REQUEST FULL PAPER**

Email: info@parj.africa

Request your copy of the full paper today!

SUBMIT YOUR RESEARCH

Are you a researcher in Africa? We welcome your submissions!

Join our community of African scholars and share your groundbreaking work.

Submit at: app.parj.africa



Scan to visit app.parj.africa

Open Access Scholarship from PARJ

Empowering African Research | Advancing Global Knowledge