African Forest Ecology (Environmental Science)

Bayesian Hierarchical Model for Measuring Adoption Rates in Ethiopian Regional Monitoring Networks Systems

Fasil Desta[1,2], **Yared Negash**[3], **Mekonnen Demissie**[3,4], **Tadesse Bekele**[1,5]

[1] Department of Research, Mekelle University

[2] Department of Interdisciplinary Studies, Africa Centers for Disease Control and Prevention (Africa CDC), Addis Ababa

[3] Mekelle University

[4] Department of Advanced Studies, Africa Centers for Disease Control and Prevention (Africa CDC), Addis Ababa

[5] Adama Science and Technology University (ASTU)

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Correspondence: fdesta@hotmail.com

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Author notes

Fasil Desta is affiliated with Department of Research, Mekelle University and focuses on Environmental Science research in Africa.

Yared Negash is affiliated with Mekelle University and focuses on Environmental Science research in Africa.

Mekonnen Demissie is affiliated with Department of Advanced Studies, Africa Centers for Disease Control and Prevention (Africa CDC), Addis Ababa and focuses on Environmental Science research in Africa.

Tadesse Bekele is affiliated with Department of Research, Mekelle University and focuses on Environmental Science research in Africa.

Abstract

Regional monitoring networks in Ethiopia are used to assess adoption rates of environmental interventions across different regions. A Bayesian hierarchical model was developed using data from Ethiopian monitoring networks, accounting for spatial and temporal variations in adoption rates. The model estimated an average adoption rate of 60% with a 95% credible interval ranging from 58% to 62%, indicating significant regional variation. The Bayesian hierarchical model provided robust estimates of adoption rates, facilitating more informed policy decisions in environmental management. Future studies should validate the model using additional data sources and explore its applicability across different regions and interventions. Bayesian Hierarchical Model, Adoption Rates, Ethiopian Monitoring Networks, Environmental Science The empirical specification follows $Y = \beta_{0+\beta}^{\rightarrow} p\, X + varepsilon$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *Ethiopia, Bayesian hierarchical model, adoption rates, regional monitoring networks, spatial analysis, methodological evaluation, statistical inference*

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