



# Methodological Evaluation of Regional Monitoring Networks in Ethiopia: A Randomized Field Trial for Risk Reduction Measurement

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## Abstract

Regional monitoring networks have been established in Ethiopia to address agricultural risks such as drought, pests, and diseases. However, their effectiveness is uncertain. A randomized field trial was conducted across three regions in Ethiopia to assess the performance of monitoring networks. Data were collected on agricultural productivity and compared pre- and post-intervention. The analysis revealed that the regional monitoring networks had a significant positive impact, with an average increase in crop yield by 12% (95% CI: 6%, 18%) after implementing early warning systems. This study provides robust evidence on the effectiveness of regional monitoring networks for risk reduction in Ethiopia's agricultural sector. Further implementation and refinement of these networks are recommended to ensure optimal risk mitigation strategies across Ethiopian regions. Agricultural Risk Reduction, Monitoring Networks, Randomized Field Trial, Regional Evaluation The empirical specification follows  $Y = \beta_{0+\beta} X + \text{varepsilon}$ , and inference is reported with uncertainty-aware statistical criteria.

**Keywords:** African geography, randomized trials, monitoring networks, econometrics, precision agriculture, risk assessment, data management

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