

# Understanding the patterns and drivers of adoption of land restoration practices: Evidence from seven African countries

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## 1 Background

- Land degradation threaten agricultural productivity across Africa.
- Initiatives like AFR100 under Bonn Challenge aim to scale restoration practices continent wide.
- Yet, scaling tree-based restoration remains limited despite proven benefits.
- Can peer-to-peer extension boost adoption? Evidence from seven Regreening Africa countries
- Are the practices adopted together (complements) or as substitutes (trade-offs)?

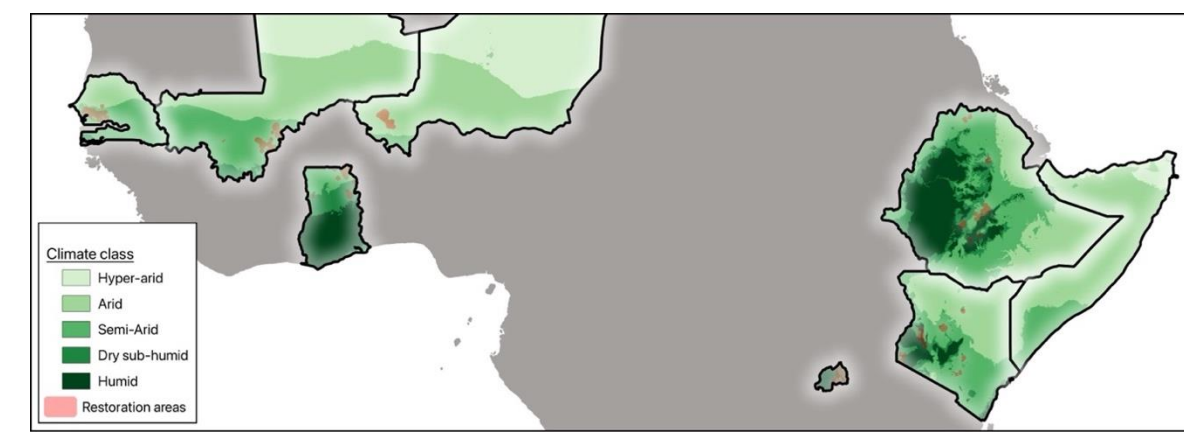


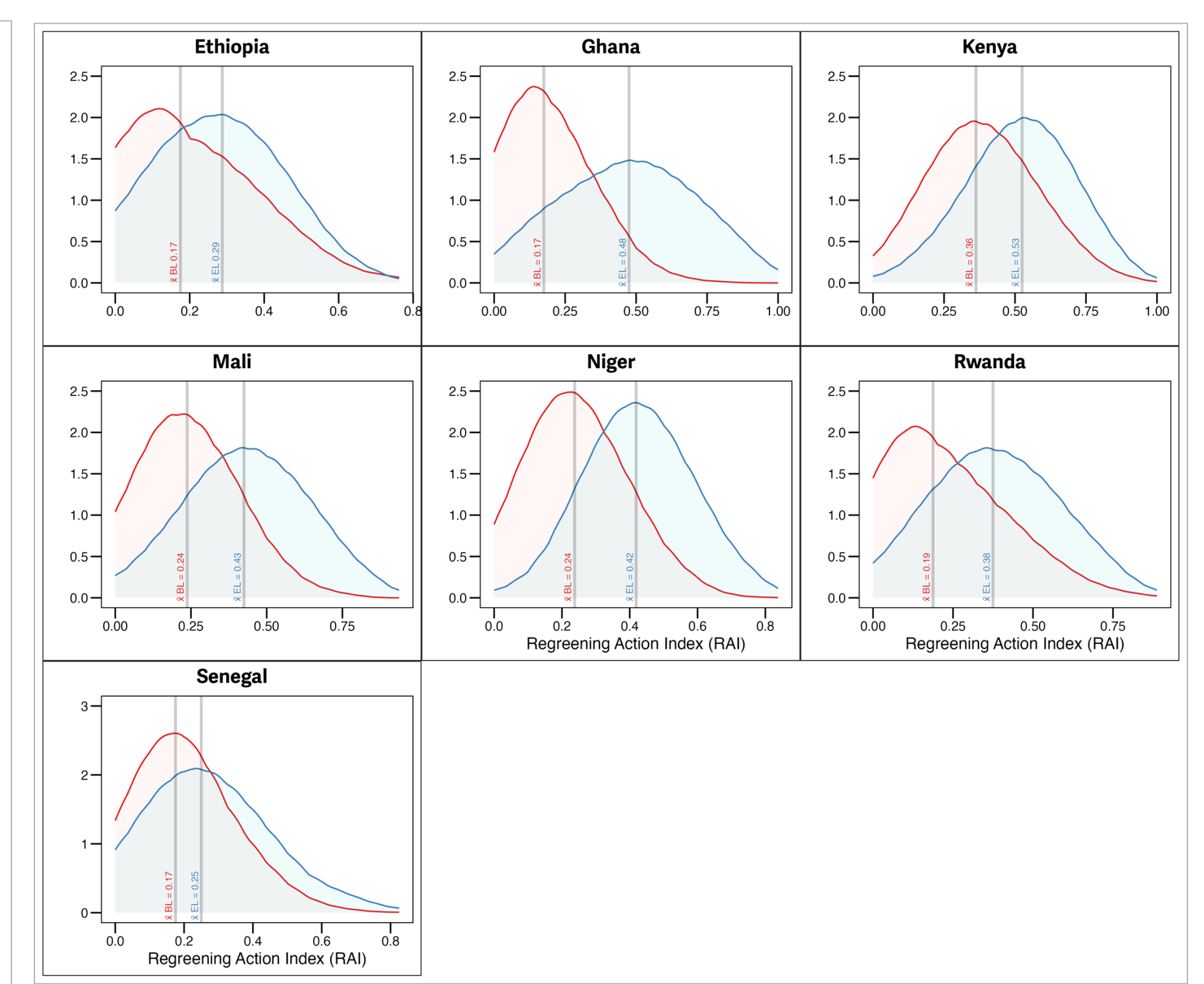
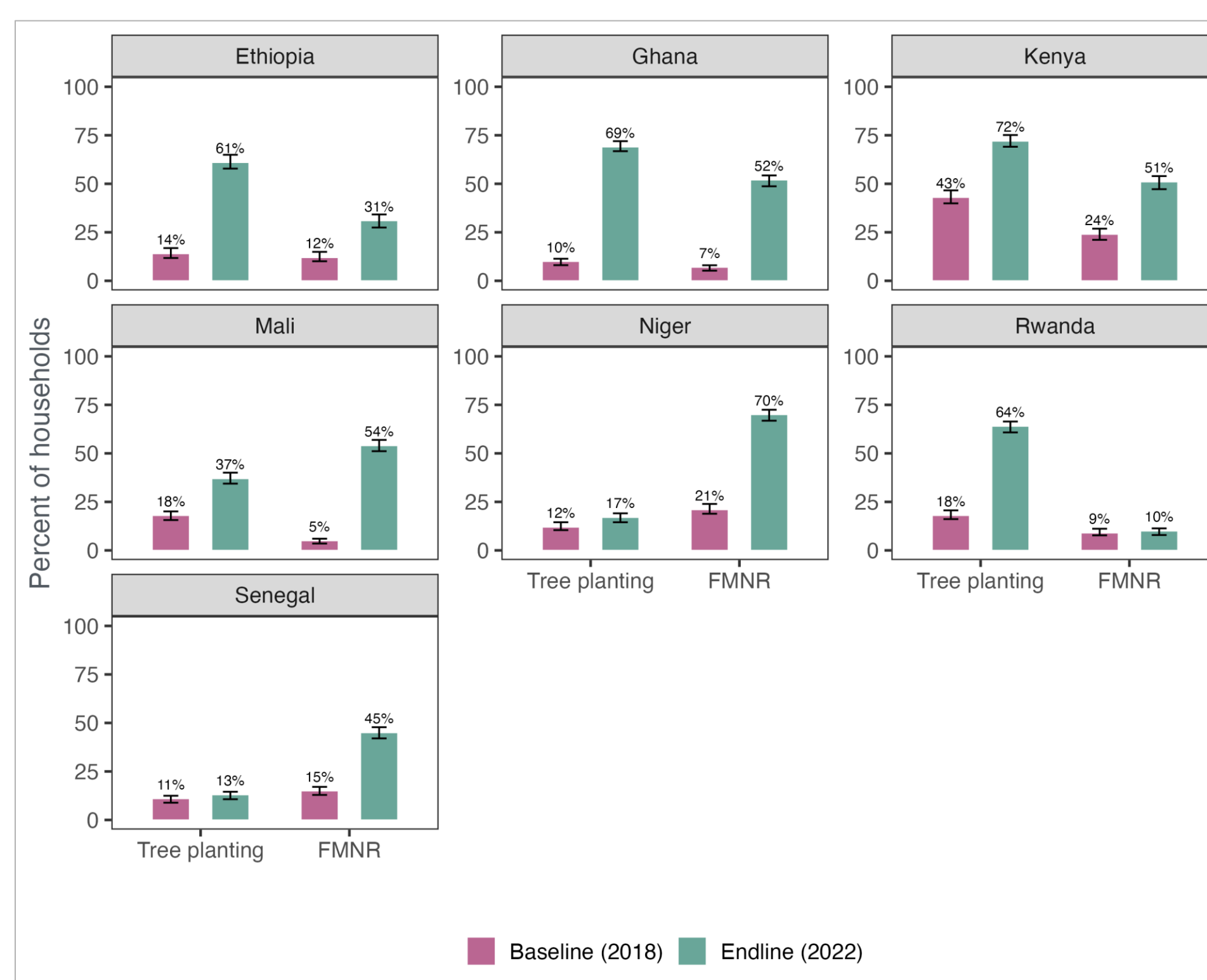
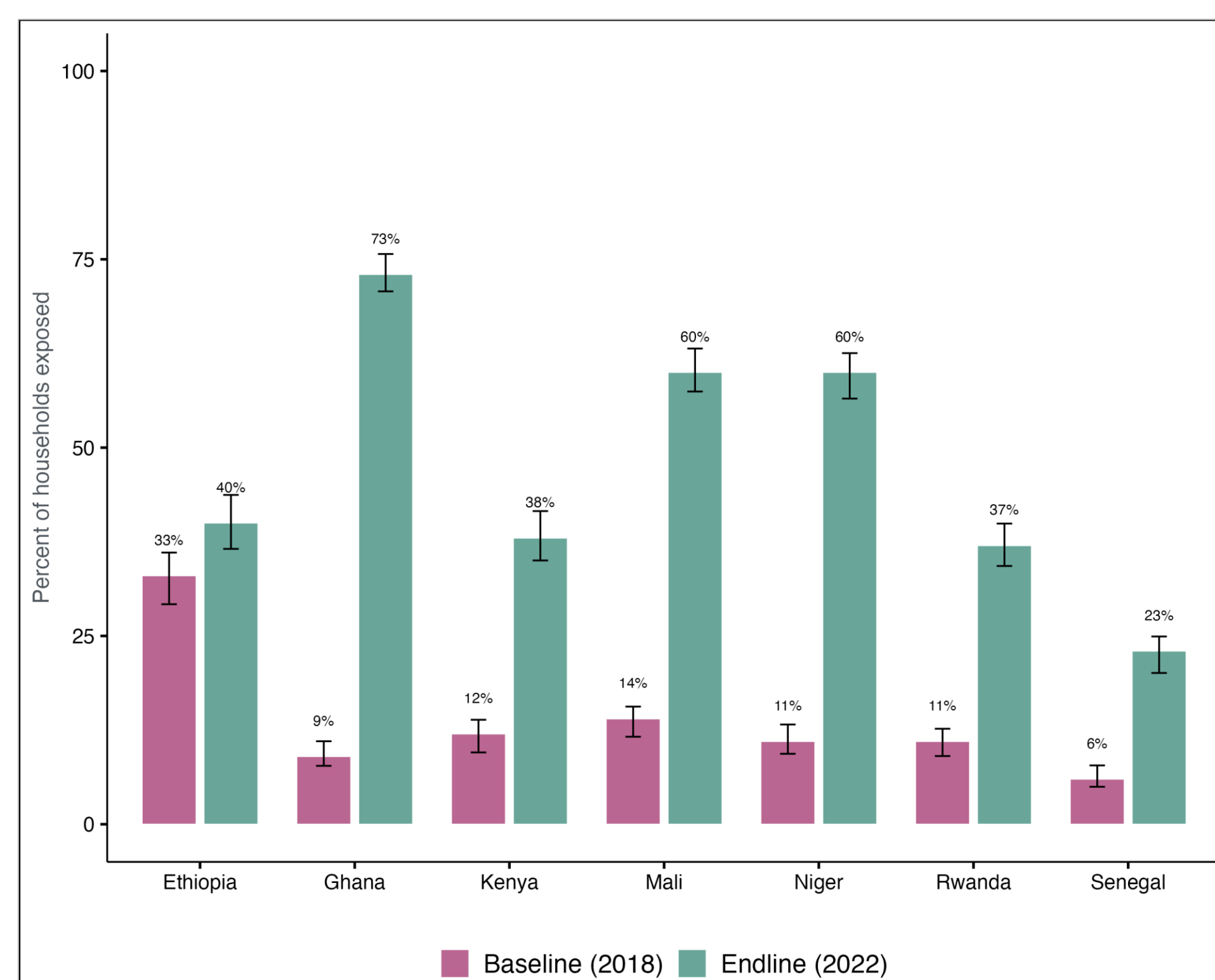
Fig. 1: Eight Regreening Africa I program sites and restoration intervention areas.

## 2 Methods and Data

- Data source**
  - Two period panel data from 7,214 farmers across seven African countries
- Adoption indicators**
  - Binary variables - tree planting, Farmer Managed Natural Regeneration (FMNR), Tree care and management, Farm manure application
  - Regreening Action Index (RAI) 0-1 scale to measure intensity accounting for multidimensional nature of restoration effort
- Econometric models**
  - Correlated Random Effect (CRE) Probit Model – estimate adoption drivers accounting for household differences
  - CRE recursive bivariate probit – controls for endogeneity issues using village level exposure to training and distance from district as instrumental variables
  - Multivariate probit (MVP) – examines whether practices are adopted together (complements) or as substitutes (trade-offs).

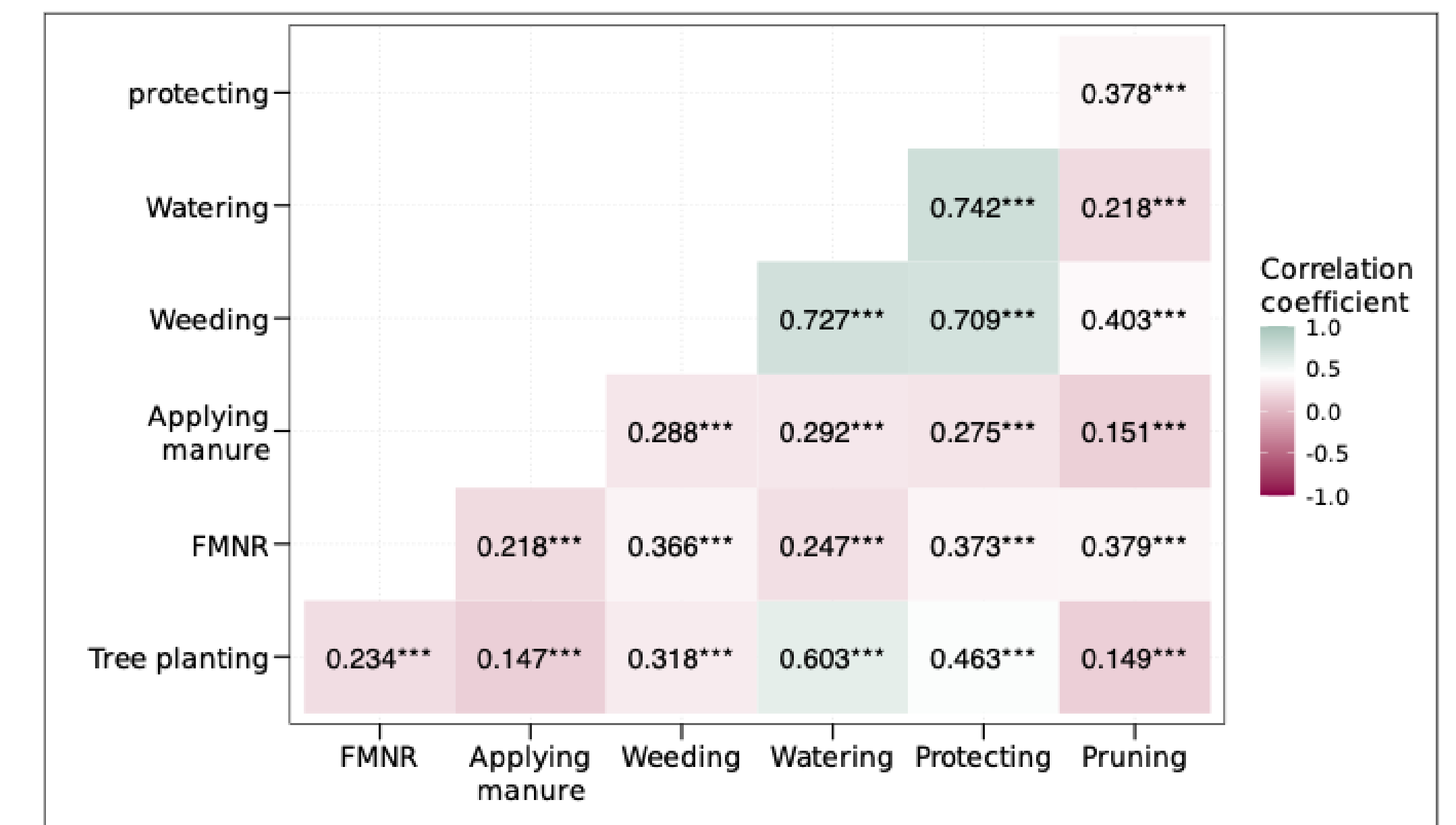
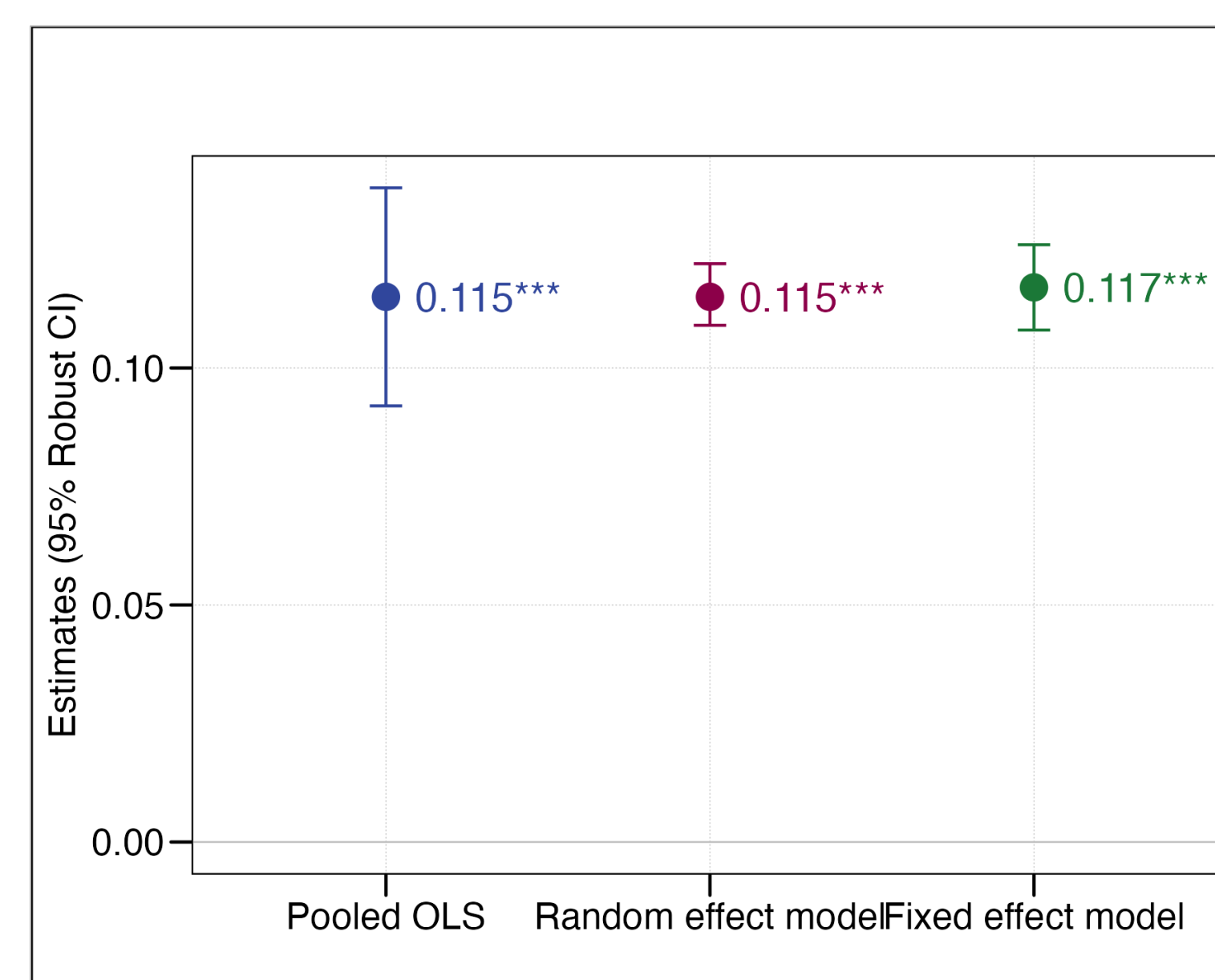
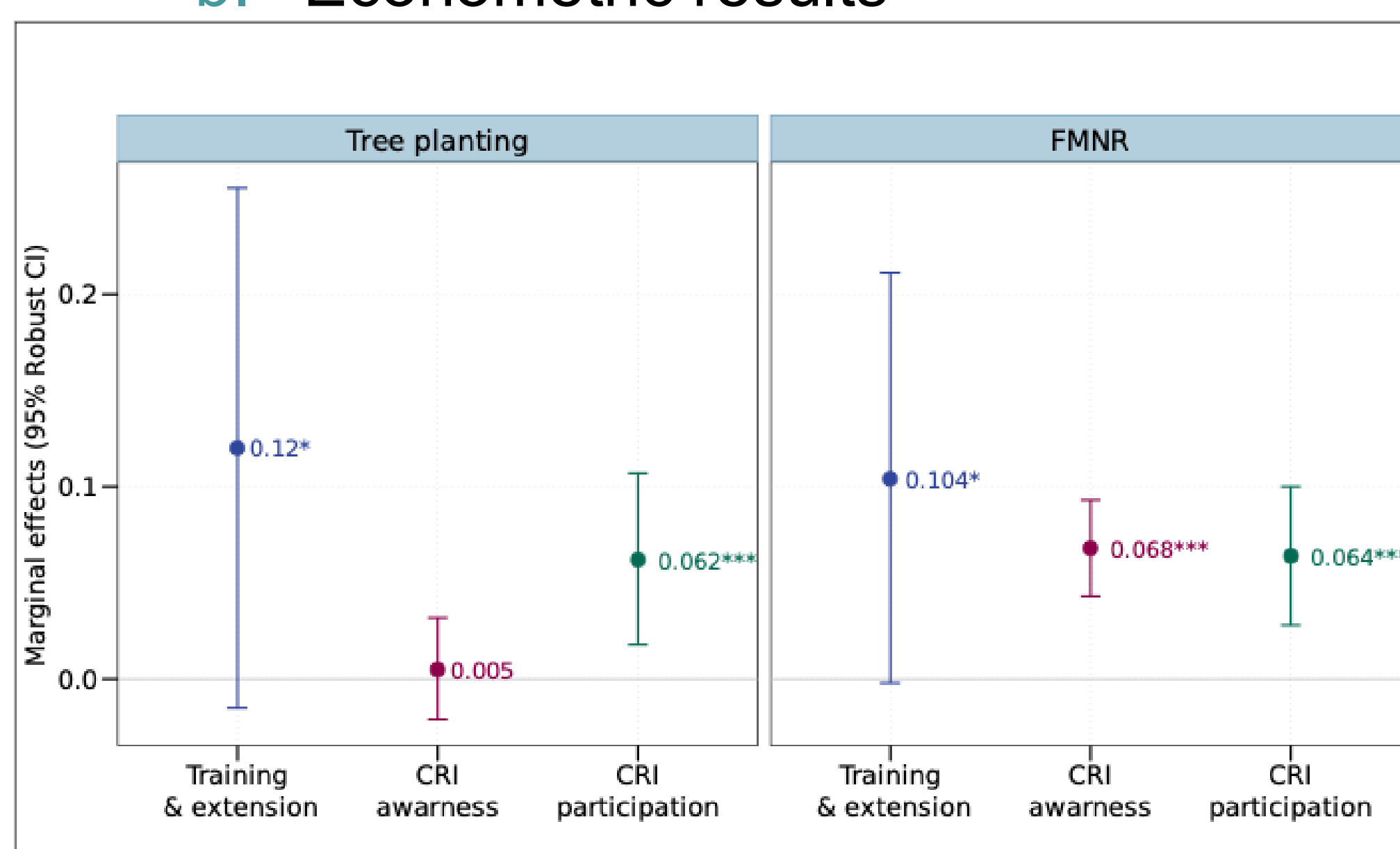
## 3 Results

### a. Descriptive summary - exposure and adoption patterns



- Exposure rates increased sharply (4x in Senegal and 8x in Ghana)
- Adoption of tree planting shows significant growth over time but variable across country
- All countries, except Rwanda achieved increased adoption of FMNR, indicating broader scalability
- Country specific patterns - different restoration pathways
- RAI (0-1 scale) moved from low intensity at baseline to higher intensity at endline, indicating farmers on only adopted practices but implemented them more intensively

### b. Econometric results



- Significant association between peer-to-peer extension support and adoption of restoration practices, although the effect size is small.
- Similar association observed participation in community level restoration initiatives
- Exposure to peer-to-peer training and extension support shifted the RAI by 0.115.
- MVP result shows positive correlations ( $\rho = 0.147$  to  $0.742$ ), confirming strong complementarity across all restoration practices

## 4 So what? Conclusions and implications

- Peer-to-peer extension boosts adoption
- Bundle of restoration practices are adopted together – they are complementary
- Findings support scaling peer-to-peer extension for continental restoration targets
- Evidence supports **holistic extension approaches** - basic establishment practices (tree planting, FMNR) complemented by intensive care packages