

Beyond Gender Labels: A Constraint-Based Targeting Map for Climate-Smart Agriculture in Ghana

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Policy Problem & Motivation

- Climate shocks make rice farming in Ghana's rice belt risky, reducing yields and incomes (Asare-Nuamah, 2021).
- Policies promote climate-smart practices and often target "women farmers", but actual adoption depends on land ownership, credit, and extension access, which differ within and across gender groups (NRDS II, 2025).

Core Research Question

Can we target constraints (land, credit, extension) instead of relying on gender labels?

Key Gaps in Resources & Perceptions

Female Decision-Makers	Male Decision-Makers
<ul style="list-style-type: none"> LAND: 59% own their main plot CREDIT: 1% have formal access CONSTRAINTS: Feel more constrained (2.73) 	<ul style="list-style-type: none"> LAND: 42% own their main plot CREDIT: 10% have formal access CONSTRAINTS: Feel less constrained (2.50)

Study Snapshot

- 319 rice-farming households, Ghana's Central Region (MoFA Rice Value Chain Project, 2022 household survey)
- Identified the primary farm decision-maker (147 Female, 172 Male)
- Measured adoption of 9 climate-smart practices

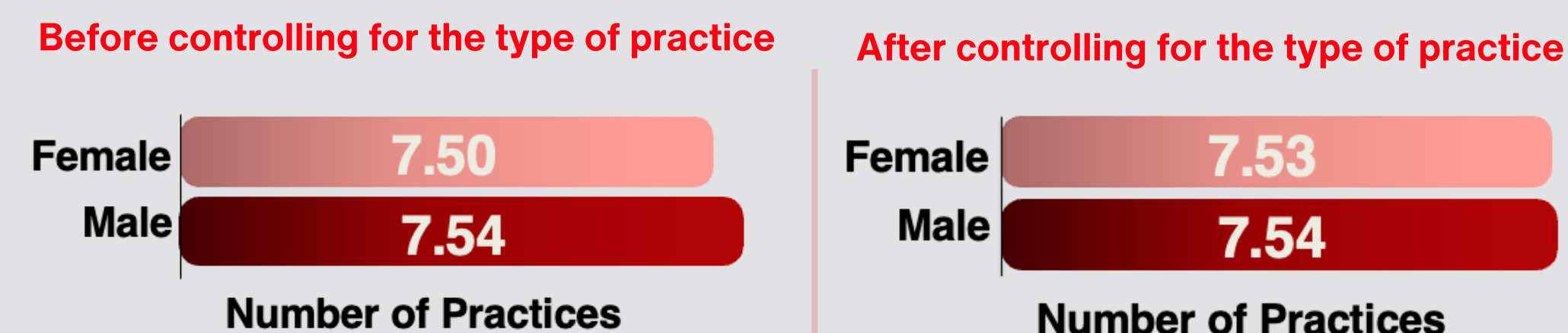
The Analytical Pathway

Step 1: Adoption Breadth Model: Poisson / Negative Binomial.
Outcome: Count of practices used (0-9). **Goal:** Test if gender gap persists after controlling for Land, Credit, Extension.

Step 2: Practice-Specific Drivers Model: Logistic Regression.
Outcome: Adoption of key practices (e.g., Climate Info). **Key Test:** Interaction between Gender × Credit

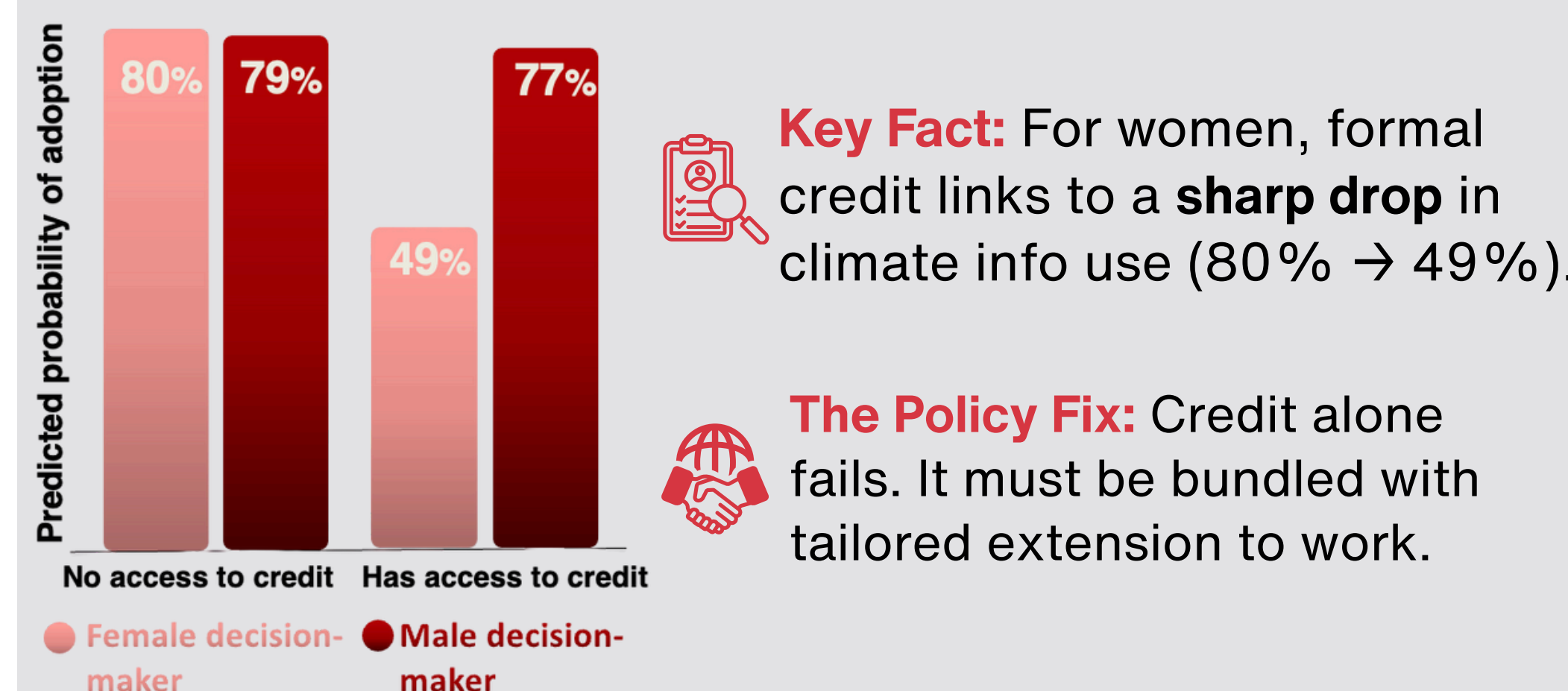
Analysis based on data from **309 rice-farming** households with complete data.

Adoption Breadth: Main Results

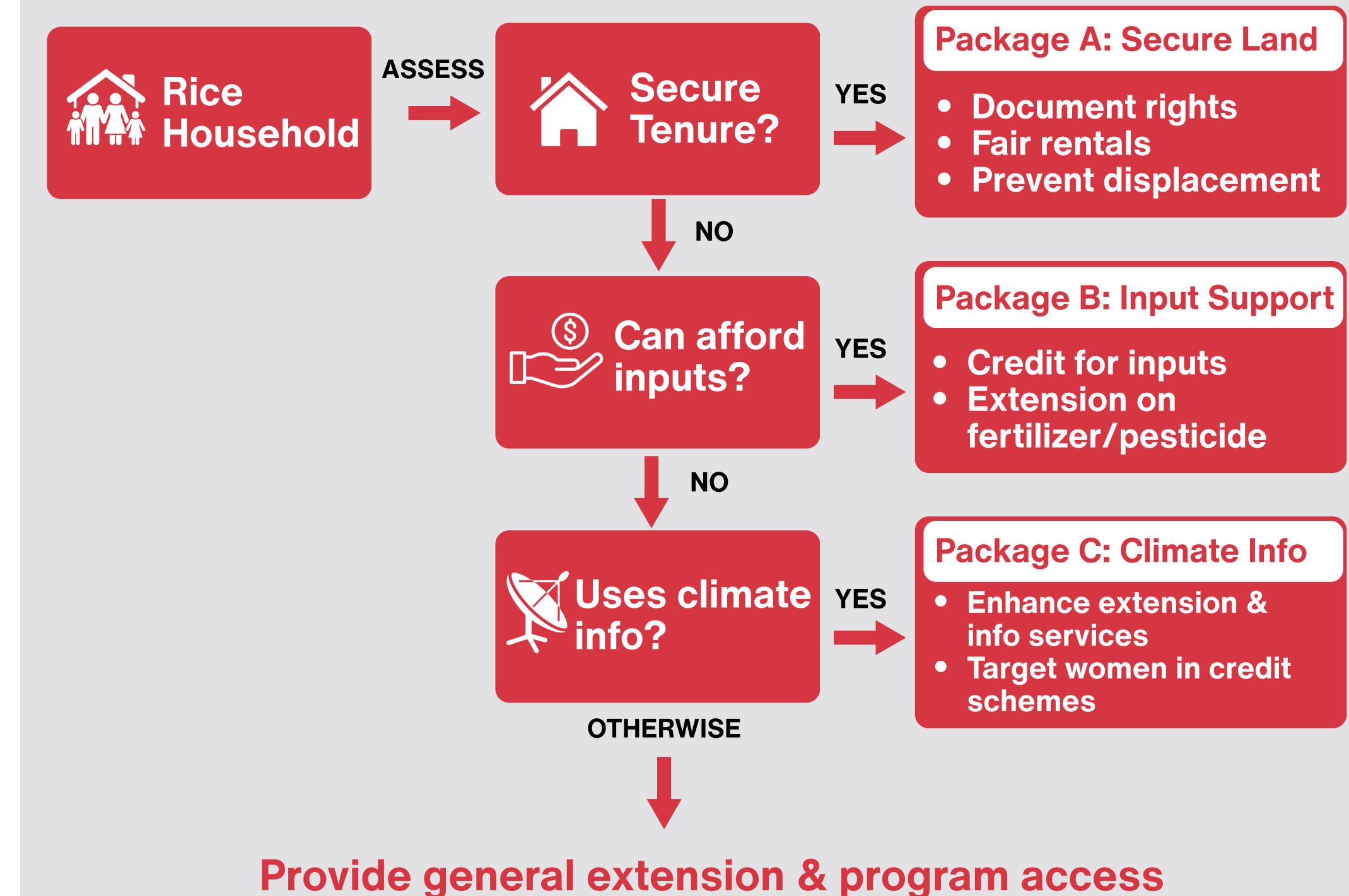


- What Actually Drives Adoption?** Access to extension services and farm size.
- Policy Implication:** Focus on easing resource constraints, not on gender labels.

The Credit-Information Puzzle



Targeting Map for Policy



Policy Takeaways & Conclusion

- Stop Targeting Gender Labels:** The adoption gap disappears when we account for access to land, credit, and extension.
- Start Targeting the Binding Constraint:** Direct support using simple diagnostics: tenure, credit access, extension contact.
- Bundle Support to Fit the Practice:**
 - Land Support** → Land-attached practices.
 - Credit + Extension** → Input-intensive practices.
 - Enhanced Info Services** → Knowledge-intensive practices (prioritize women in credit schemes).

The Bottom Line

Move from asking "Woman or man?" to "What's the constraint?" This constraint-based targeting map provides the practical tool for this shift

References

Asare-Nuamah, P. (2021). Climate variability, subsistence agriculture and household food security in rural Ghana. *Heliyon*, 7(7), e07538

Coalition for African Rice Development. (2025). *Ghana national rice development strategy II (G-NRDS II)*. Coalition for African Rice Development