

# APPEALS project in Nigeria

## Agro-Processing, Productivity Enhancement and Livelihood Improvement Support (APPEALS) by FMARD and World Bank.

### Production & Productivity Enhancement



### Value Addition, Post-harvest mgt and WYEP



### Infrastructure Support



- Business Alliance and Out-grower Scheme
- Technology demonstration
- Grants for technology dissemination and adoption

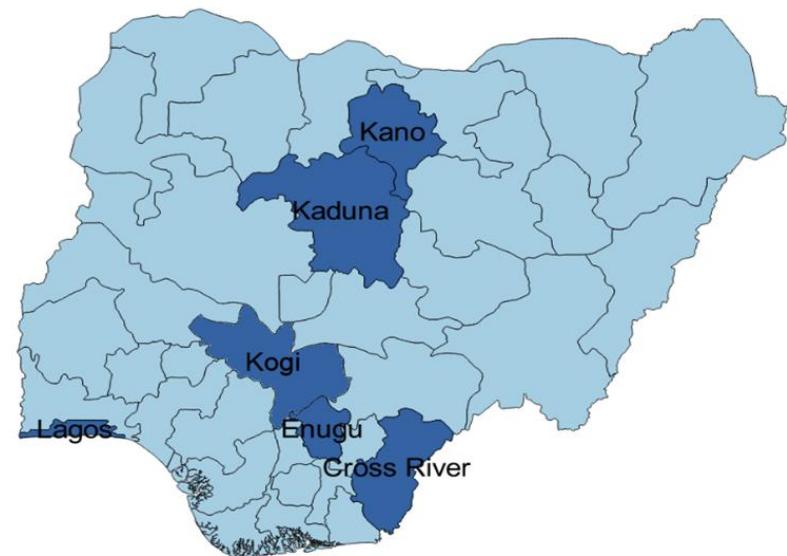
- Women and youth empowerment
- On-farm aggregation
- Market development and business linkages

- Infrastructure for production
- Infrastructure for processing

Objectives: to enhance agricultural productivity of small and medium scale farmers and improve value addition along priority value chains in the participating states.

# Background on APPEALS WYEP

- APPEALS WYEP component (US\$72m) aims to promote entrepreneurship in the agribusiness sector in 6 Nigerian states and targets young men (aged 18 - 40 years) and women (over age 18).
- Technical and Business training
- Business Plan preparation:
  - Business support services
  - Company name registration
  - Product certification
- Input grants (average \$5,300)
- 11 priority value chains: cassava, rice, cashew, poultry, aquaculture, cocoa, maize, tomatoes, ginger, dairy, and wheat. [Paper on selection of value chain.](#)
- GIL supported the government to test the marginal effect of different types of socioemotional skills.



# Today's Webinar – Two Causal Inference Studies

## **1. Randomized Controlled Trial (RCT) to test the impact of different types of socioemotional skills on performance of agribusiness owners.**

- Sample of 4,500 selected applicants of APPEALS WYEP beneficiaries across 6 states in Nigeria.
- Aspiring agribusiness owners who were selected for the APPEALS WYEP program are randomly assigned to receive different types of socioemotional skills training.

## **2. Regression Discontinuity Design (RDD) - Impact of a large-scale government agribusiness program for women and youth in Nigeria.**

- Sample of 8,500 applicants restricted to 3 states where there was oversubscription.
- Regression Discontinuity Design based on APPEALS eligibility score cut-off (determined mostly on value chain knowledge at interview stage)
- Use a group of non-beneficiaries near the cut-off as a comparison group.

# *Turning Inward and/or Outward: Which Socioemotional Skills Pay for Agribusiness Entrepreneurs in Nigeria?*

Smita Das, Clara Delavallade, Ayodele Fashogbon, and Sreelakshmi Papineni

Sreelakshmi Papineni

CGIAR webinar  
October 22, 2025

Preliminary evidence. Please do not  
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# Motivation

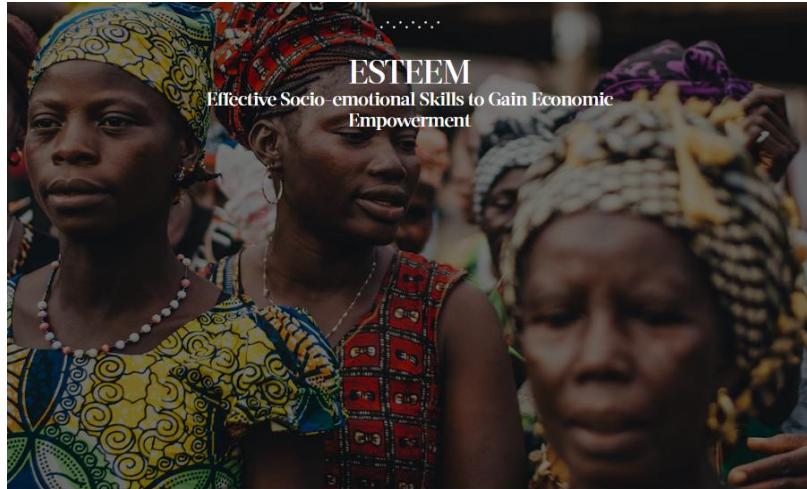
- **Labor market returns to socioemotional skills (SES)** are well-documented in many high-income countries (Borghans et al. (2008); Lindqvist and Vestman (2011); Heckman and Kautz (2012); Deming (2017); Edin et al. (2022)).
- In LMIC settings, growing body of evidence showing that psychology-focused programs that strengthen SES can positively impact economic outcomes (Campos et al. (2017), Chioda et al., (2021), Bossuroy et al. 2022).
- But limited evidence on **which SES** are most important for productivity and economic outcomes (Lippman et al., 2015).
- Are there certain types of SES that better spur productivity and economic growth, and do they **differ by gender and social context?**
- **Social role theory:** societal expectations shape skill development differently for men and women (Eagly, 1987; Eagly and Wood, 2012)

# Research Questions

- Does complementing an agri-business program (technical training and an input grant) with SES training improve its effectiveness?
  - How does SES training affect business performance and productivity?
  - How does SES training affect business owner's socioemotional skills, business practices, intrahousehold power relations, and empowerment and decision-making within the household?
  - Are there additional benefits to complementing interpersonal skills trainings with intrapersonal skills?
- Do impacts differ for men and women? And by prevailing gender norms?

# SES Intervention Design: ESTEEM framework

Effective Socio-emotional skills To gain Economic EMpowerment



SES Framework & Definitions



How Do SES Matter for Economic Empowerment?



Measuring SES



SES Training



Research Outputs



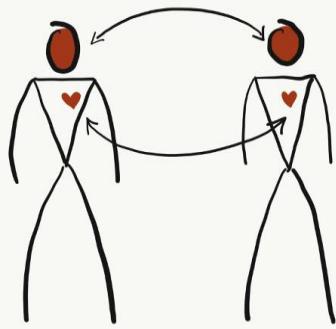
Research Team



	Intrapersonal	Interpersonal
Awareness	Emotional Awareness Self Awareness	Listening Empathy
Management	Emotional Regulation Self Control Personal Initiative Perseverance Problem Solving	Expressiveness Interpersonal Relatedness Influence Negotiation Collaboration

# Intervention content: 4 days of training

## Example INTERpersonal exercises



LISTEN at the level of the HEAD for facts and perspective, and the HEART for feelings

Practice asking OPEN questions & listening ACTIVELY

### "I" Statements

When you.....  
I feel...  
I understand that...  
It would be helpful if...

### Resolving Conflict

Stay Calm



Know YOUR & THEIR Fallback position



Build your case



Communicate your perspective

### "I" Statements

Look for Win-Win solutions

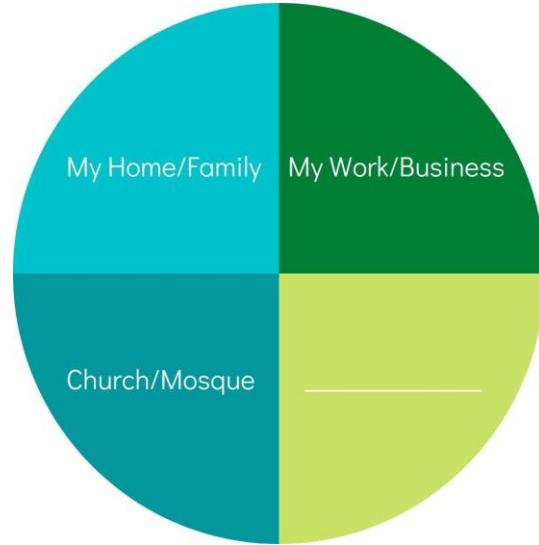


# Intervention content: 4 days of training, 6-7 hours/day

## Example INTRApersonal exercises



Life difficulties can be overwhelming!  
What are ways you can keep your emotional jug from spilling?



In each sphere:  
How am I feeling?  
What are my strengths and needs?  
Who can help?



How would Stoffel get past these obstacles?  
Get creative and brainstorm solutions!  
Consider pros and cons of each solution!  
Identify steps, skills, people who can help!

# Reinforcement: 1 min “EMOVI”s

## IPA Social and Emotional Skills Training Refresher



- Control group received public health messages related to Covid-19
- WhatsApp messages (75% had access)
- IVR was developed and implemented but had very little engagement, so the team proceeded with SMS
- If individual engaged, follow-up messages

# Study Design: Randomized controlled trial (RCT)

## Randomized controlled trial (RCT) design (within APPEALS)

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**Randomization**

stratified by gender, value chain and state.

**Sample**

N = 4500

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**Treatment 1:** Receives interpersonal socioemotional skills only through classroom instructions and reinforcement messages.

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**Treatment 2:** Receives a combination of interpersonal and intrapersonal socioemotional skills through classroom instructions and reinforcement messages.

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**Control Group:** Receives no classroom SES training and receives placebo messaging on COVID-19 information.

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# Study Design – Impact of APPEALS SES

## Randomized controlled trial (RCT) design (within APPEALS)

4,500 APPEALS program participants across 6 states

(Technical + Business Skills + Grant)

Individual randomization stratified by gender, state and value chains

**T1: Inter\_only**  
(~1500 – 50% women)

- SES: Interpersonal only
- Reinforcement emovi messages

**T2: Combination inter\_intra**  
(~1500 – 50% women)

- SES training: Combination of Interpersonal skills + Intrapersonal skills
- Reinforcement emovi messages

**Control**  
(~1500 – 50% women)

- No SES training
- Placebo COVID messages

# APPEALS WYEP Beneficiary Profile

## Demographics & Socioeconomics

**Age:** Average age is 33 years

**Education:** Over 73% hold at least a secondary educ or above

**Marital Status:** 60% married (67% women, 54% men)

## Employment & Business

**Worked for Pay (Last 30 Days):** 86% (84% women, 88% men)

**Business Ownership:** Over 50% own a business

**Sector of Business:** 50% in agriculture

## Financial Decision-Making & Income Control

**Main Income Earner:** 70% men vs. 25% women

**Who Controls Household Spending?**

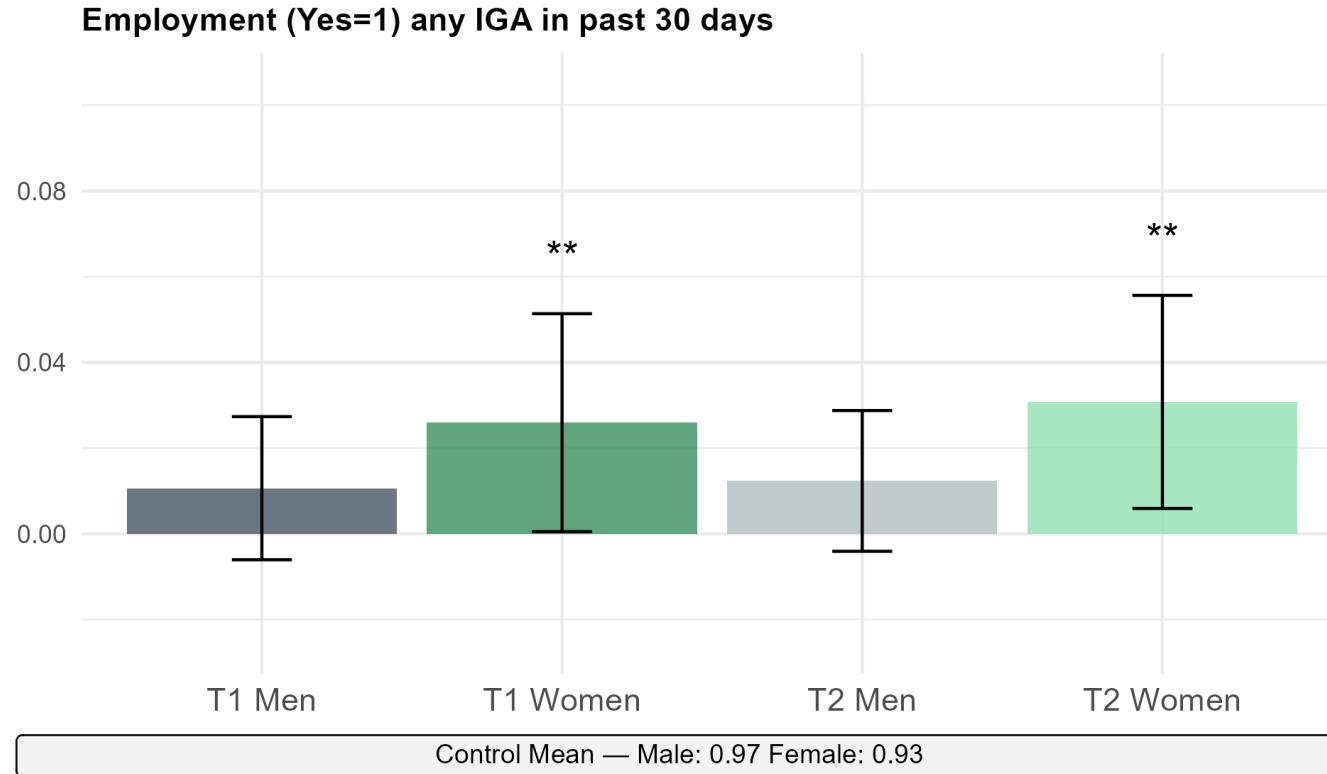
- 51% of men make financial decisions solely vs 18% women. Joint decisions: 15% of men, 23% of women

# Randomization Balance on Covariates Test

	T1 men		T2 men		T1 women		T2 women		Normalized Differences						
	(1)	(2)	(3)	(4)	(5)	(6)									
	Control Male	Interpersonal Only Male	Combination inter_intra Male	Control Female	Interpersonal Only Female	Combination inter_intra Female									
Variable							(1)-(2)	(1)-(3)	(2)-(3)	(4)-(5)	(4)-(6)	(5)-(6)			
Age (Number)	31.50 [0.19]	31.27 [0.20]	31.35 [0.19]	34.61 [0.35]	34.25 [0.34]	34.56 [0.33]	0.04	0.03	-0.01	0.04	0.01	-0.03			
Married (Yes = 1)	0.56 [0.02]	0.53 [0.02]	0.54 [0.02]	0.67 [0.02]	0.65 [0.02]	0.69 [0.02]	0.06	0.05	-0.01	0.06	-0.04	-0.09			
Worked for pay in the last week (Yes = 1)	0.63 [0.02]	0.63 [0.02]	0.64 [0.02]	0.54 [0.02]	0.51 [0.02]	0.49 [0.02]	0.00	-0.03	-0.03	0.06	0.10	0.04			
Owns a Business (Yes = 1)	0.78 [0.02]	0.75 [0.02]	0.77 [0.02]	0.78 [0.02]	0.78 [0.02]	0.79 [0.01]	0.05	0.02	-0.03	0.01	-0.03	-0.04			
Average Monthly Business Profits (NGN)	34518.83 [2791.98]	31446.35 [2340.81]	29925.07 [2009.93]	17160.35 [1078.19]	17788.90 [1147.50]	20100.26 [1543.45]	0.04	0.07	0.03	-0.02	-0.08	-0.06			
Number of Employees in Business (Number)	1.37 [0.08]	1.49 [0.09]	1.25 [0.08]	0.60 [0.06]	0.67 [0.06]	0.75 [0.07]	-0.05	0.06	0.10	-0.04	-0.09	-0.05			
Generalized self-efficacy (1-5)	4.20 [0.02]	4.18 [0.02]	4.20 [0.02]	4.14 [0.01]	4.16 [0.02]	4.12 [0.02]	0.04	0.01	-0.03	-0.05	0.04	0.09			
Participated in Own Farm Activity in past 30days?	0.55 [0.02]	0.58 [0.02]	0.57 [0.02]	0.39 [0.02]	0.39 [0.02]	0.40 [0.02]	-0.06	-0.05	0.02	0.00	-0.02	-0.02			
Participated in Non-Farm Enterprise Activity in past 30days?	0.53 [0.02]	0.54 [0.02]	0.53 [0.02]	0.54 [0.02]	0.54 [0.02]	0.53 [0.02]	-0.03	-0.00	0.03	-0.01	0.01	0.02			
Participated in Livestock Activity in past 30days?	0.36 [0.02]	0.38 [0.02]	0.37 [0.02]	0.33 [0.02]	0.31 [0.02]	0.31 [0.02]	-0.05	-0.04	0.01	0.03	0.05	0.01			
Participated in Wage Employment Activity in past 30days?	0.13 [0.01]	0.11 [0.01]	0.14 [0.01]	0.07 [0.01]	0.09 [0.01]	0.08 [0.01]	0.06	-0.03	-0.09	-0.08	-0.04	0.04			
Average monthly household income (NGN)	65234.03 [5624.59]	61281.33 [3643.11]	61167.87 [3210.99]	58128.35 [5413.50]	54106.39 [3297.45]	56990.53 [4558.77]	0.03	0.03	0.00	0.03	0.01	-0.03			
Number of Observations	750	750	750	750	750	750									
F-test of joint significance (p-value)							0.72	0.99	0.64	0.95	0.55	0.83			

Notes: \*\*\*, \*\*, and \* indicate significance at the 1, 5, and 10 percent critical level. The value displayed for t-tests are the differences in the means across the groups. The value displayed for F-tests are p-values. All variables are measured during the baseline.

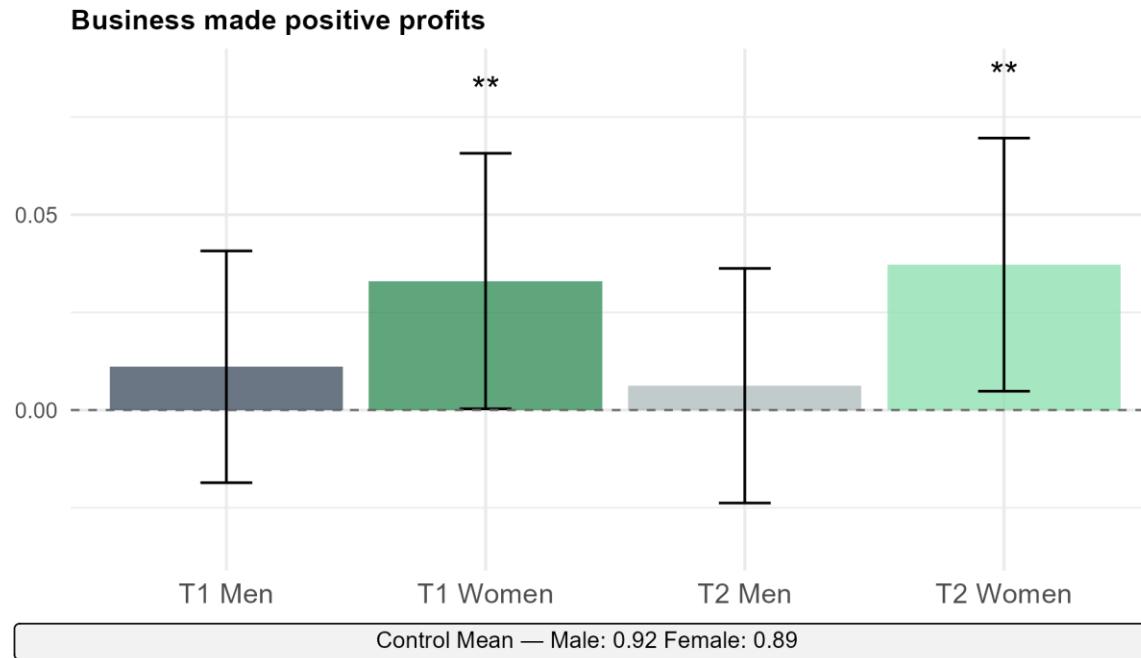
# Results – Impact of APPEALS SES on Labor Supply



*For men: No impact on employment, already at 97% in the control group.*

*For women: more likely to be employed in any income generating activity (T1 and T2)*

# Results – Impact of APPEALS SES on Business Profitability

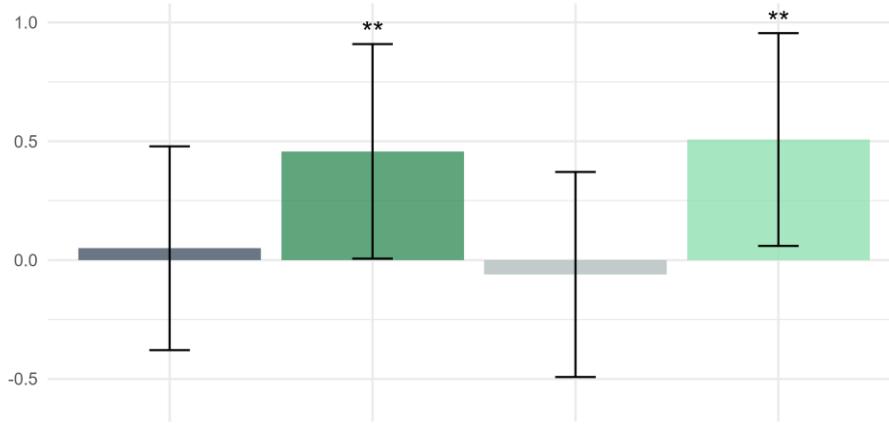


*For men: no evidence of an impact on business performance, on average.*

*For women: SES training does not increase the likelihood of business ownership, which is already high. However, it boosts the likelihood that a woman's business makes positive profits.*

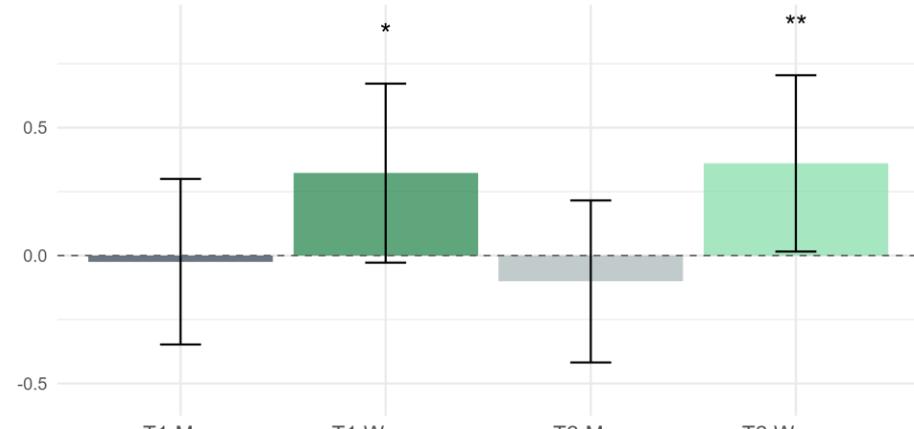
# Results – Impact of APPEALS SES on Business Profitability

Annual business profits - unconditional (IHS)



Control Mean — Male: 12.73 Female: 11.75

Annual business profits - conditional (IHS)



Control Mean — Male: 13.53 Female: 12.76

- While SES trainings improved women's business profits (on the extensive and intensive margin), it did not improve men's, on average.
- Approximately 50% higher profits for women (30% conditional).
- Interpersonal and combination treatments have similar economic impacts for women.

# What mediates the impact of the SES training?



## APPEALS SES on employment, capital, and business practices

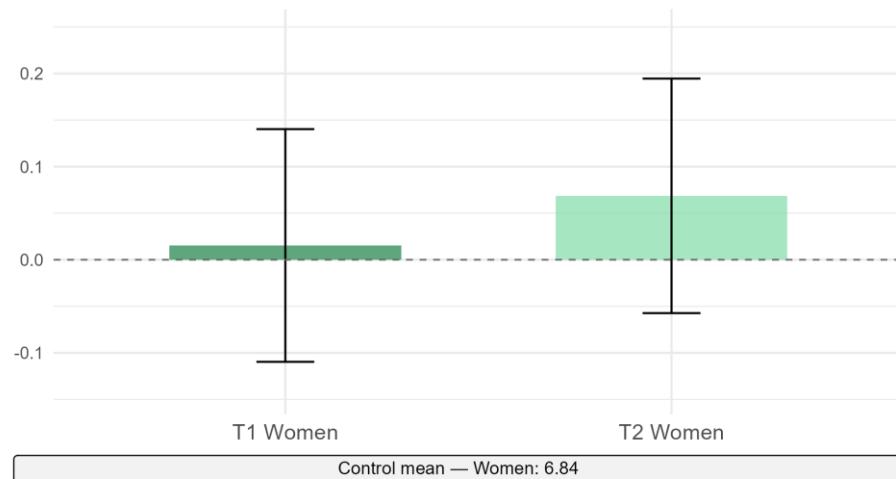
- No evidence of an impact on total number of employees or on capital investment in the business, or on business practices (e.g., stock control, financial planning, marketing, or record keeping).
- Increased savings and value of productive assets for T1 and T2 women.

## APPEALS SES on socioemotional skills measures

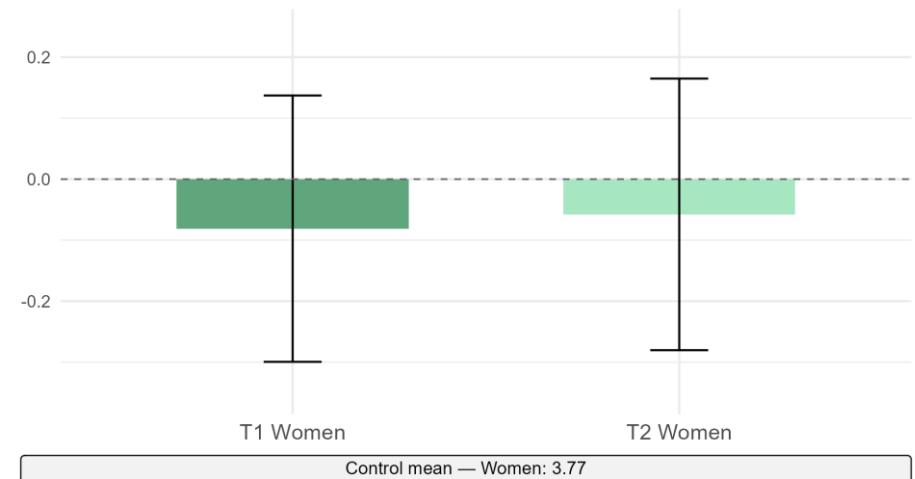
- For **men**, SES training improves self-reported generalized self-efficacy and relationship management skills (maintaining relationships and negotiation). Men's SES (behavioral): T2 Emotional awareness and Perseverance.
- For **women**, SES training enhances self-reported empathy and negotiation. All effects only for T1 ==> content specialization may be important for improving self-assessment of SES. Women's SES (behavioral): T1 Empathy, and collaboration.

# Results – Impact of APPEALS SES on Women's Empowerment

Pro-WEAI index (modified)



Decision-making power index



No evidence of an effect on women's empowerment and decision-making power.

# What mediates the impact of the SES training?



## **APPEALS SES on Women's Empowerment**

No evidence of an effect on women's empowerment and decision-making power.

## **APPEALS SES on Mental Models**

No evidence of an effect on self-esteem, or attitudes/norms, or mental health.

## **APPEALS SES on Marital Satisfaction and IPV**

Increased satisfaction in marriage, conflict resolution, and reduced acceptability of violence against women among T2 women.

# Results – Impact of APPEALS SES by Gender Norms

## Heterogeneity Analysis by Gender Norms

- Restrictive gender norms are defined using responses to the question:  
**“Out of 10 people in your community, how many believe that *if a woman earns more than her husband, it will almost certainly cause problems?*”**

## Results

Less restrictive norms yield higher impacts on economic and socioemotional outcomes for women across T1 & T2; and for men in T2.

- **Men:**
  - Higher employment rates & stronger business performance (higher profits under T2 when there is little perceived judgment from the community for defying traditional gender roles). Improved SES (perseverance, problem-solving, empathy).
- **Women:**
  - Increased business profits & self-reported SES improvements across T1 & T2.
  - Stronger gains in behavioral SES, particularly empathy.

# Conclusion – APPEALS SES

## Different impacts for men and women

- Women specialize in one business, hire more female workers, and increase profits by 50%+, but see no change in decision-making or empowerment.
- Men diversify income sources, increase household income, and reduce spending on temptation goods.

## Gendered skill development reinforces social norms

- Women gain interpersonal (communal) skills (e.g., collaboration, empathy).
- Men develop intrapersonal (agentic) skills (e.g., decision-making, problem-solving).

## Policy implications

- Tailored training: Interpersonal skills and combination benefit women; combined training is more effective for men.
- Structural barriers matter: Business success does not automatically increase women's decision-making power—addressing gender norms is key.

# Encouraging Agribusiness among Women and Youth in Nigeria

Smita Das, Clara Delavallade, Ayodele Fashogbon, Garima Nain, and Sreelakshmi Papineni

Sreelakshmi Papineni

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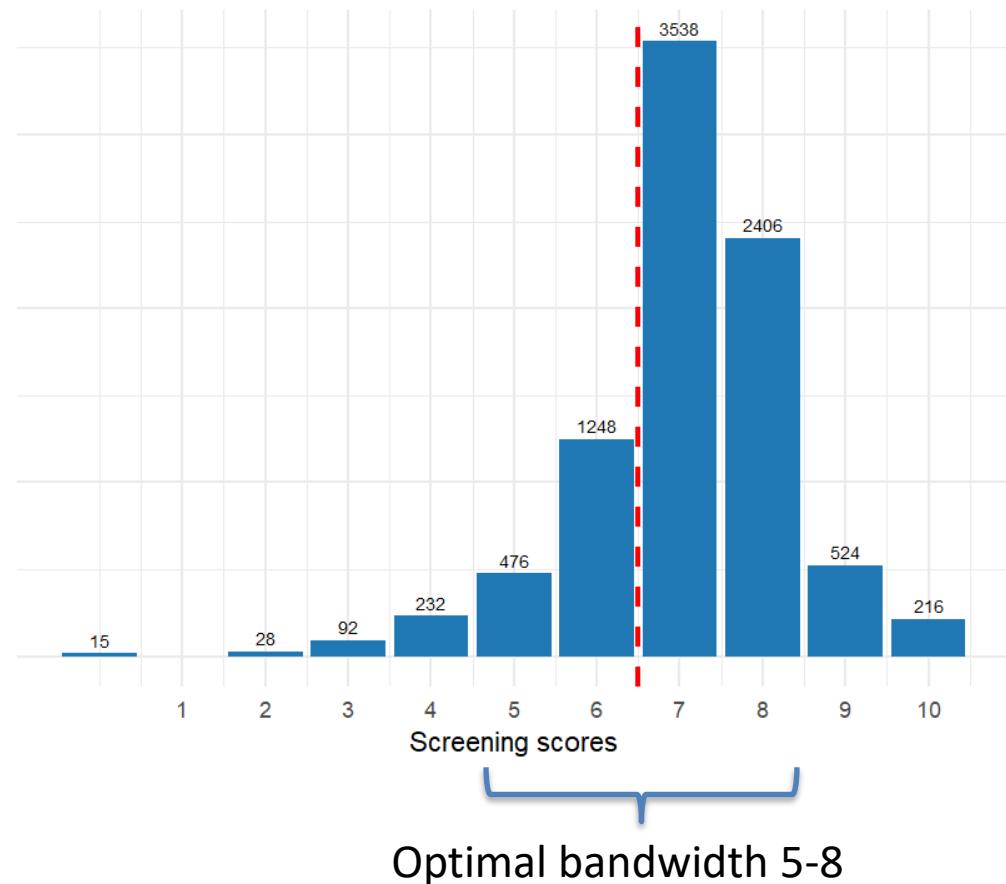
# Study Design – Overall Impact of APPEALS WYEP

## Eligibility Criteria

### Sample selection

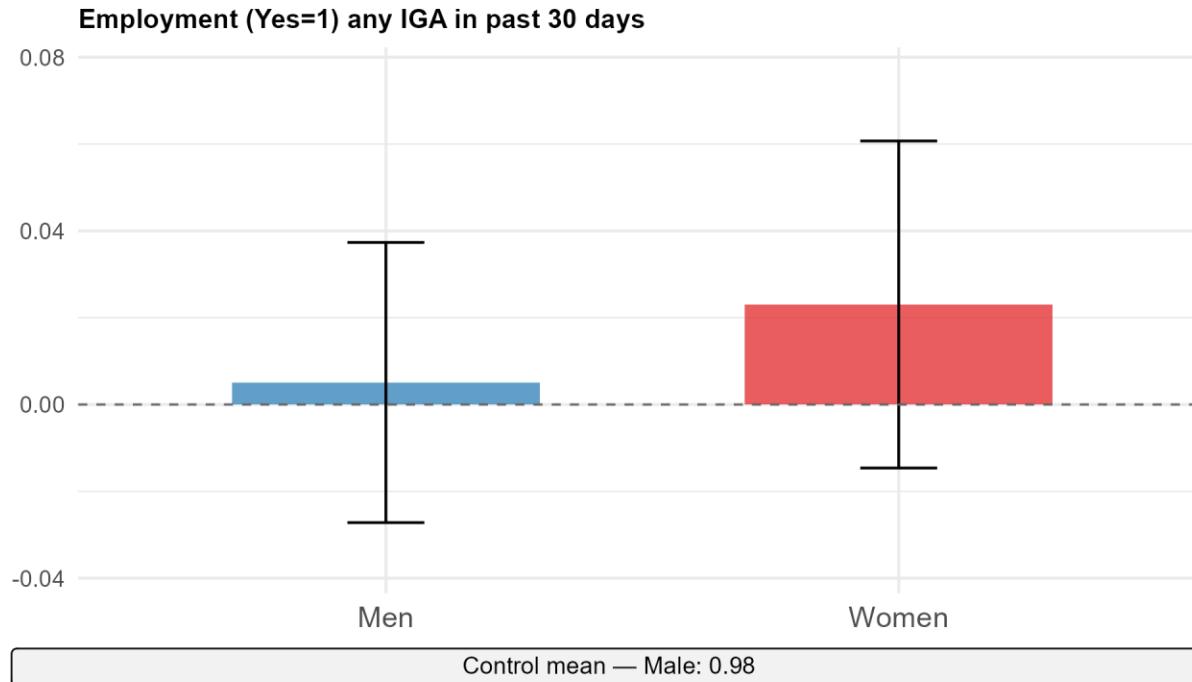
- **Non-APPEALS group:**  
Candidates scoring 5 or 6.
- **APPEALS beneficiaries:**  
Candidates scoring 7 or 8.
- Random sampling was conducted, stratified by state, gender, and screening score.
- Analysis restricted to the 3 states where there was oversubscription at shortlisting stage.

### Distribution of Screening Scores



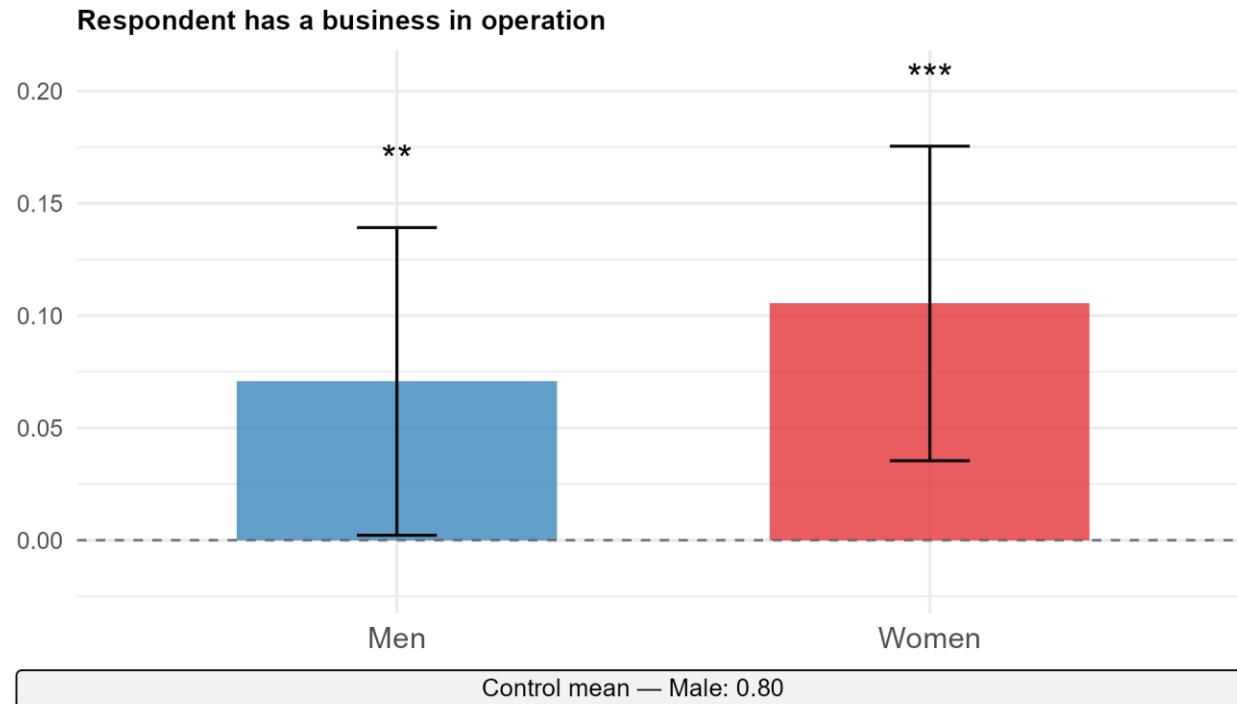


# Results – Impact of APPEALS WYEP on labor supply



*No impacts on likelihood of employment, already at 98% in the control group.*

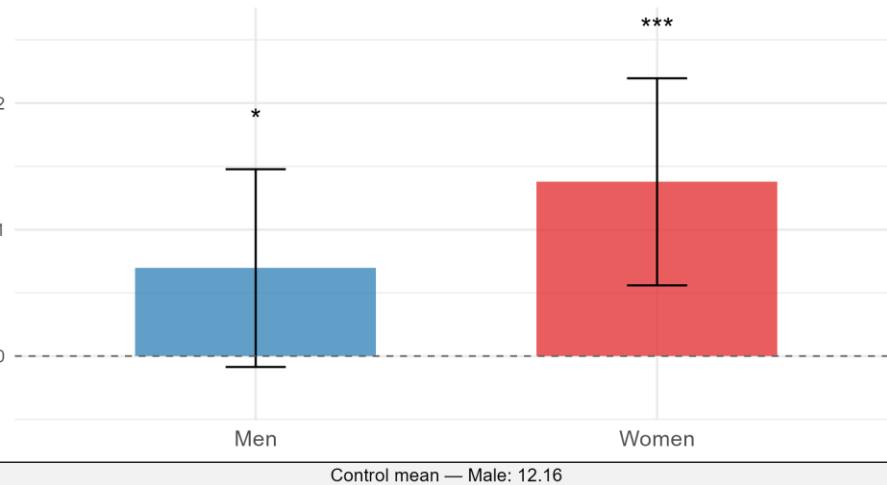
# Results – Impact of APPEALS WYEP on business



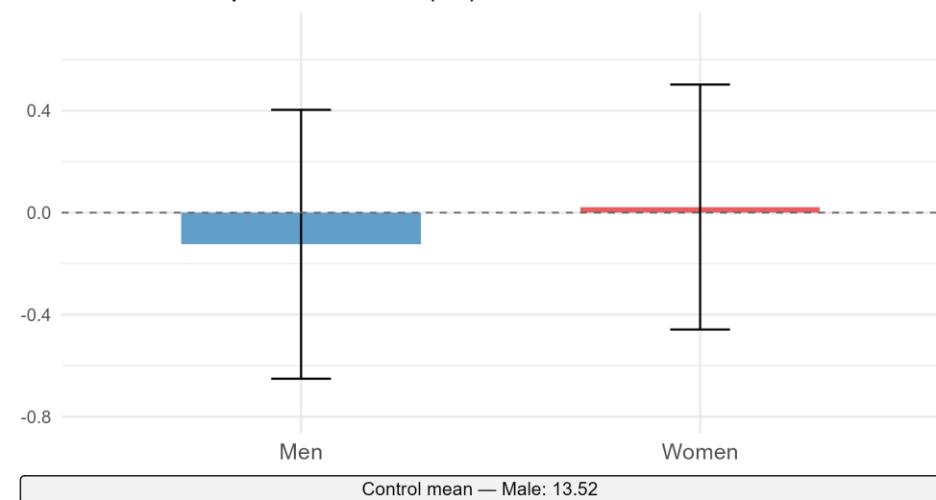
*For men and women more likely to have a business that is operational.*

# Results – Impact of APPEALS WYEP on business profits

Annual business profits - unconditional (IHS)

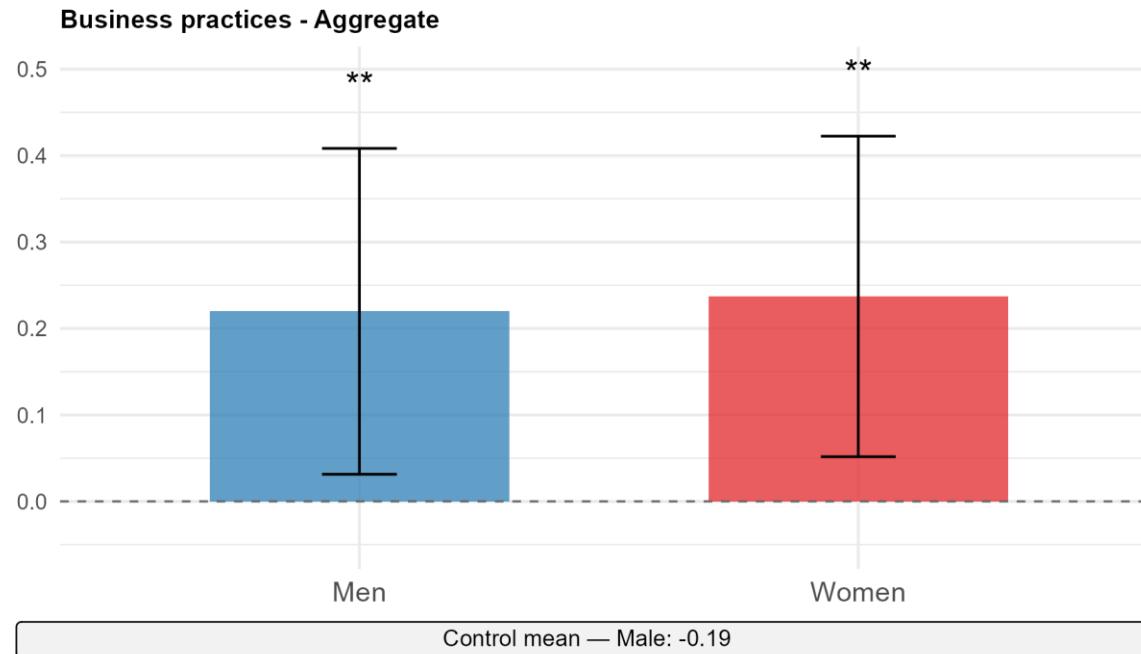


Annual business profits - conditional (IHS)



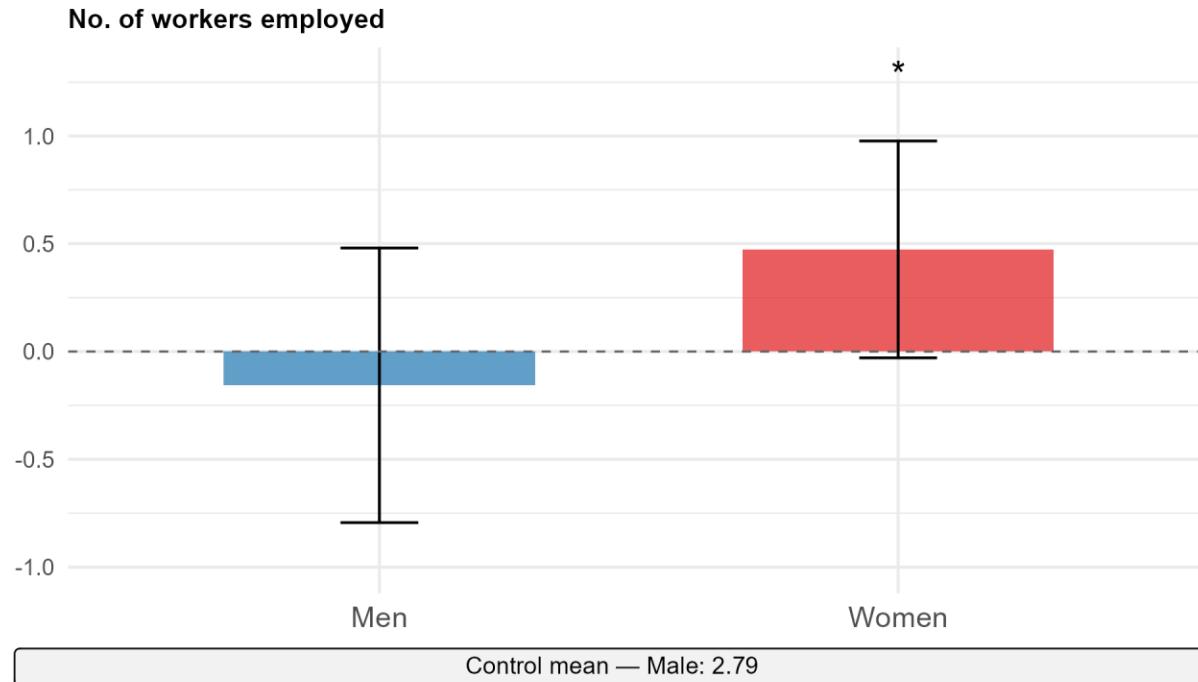
*For men and women, the higher profits are on the extensive margin. That is APPEALS WYEP get more men and women into agribusiness but profits conditional on having an agribusiness are not higher.*

# Results – Impact of APPEALS WYEP on business practices



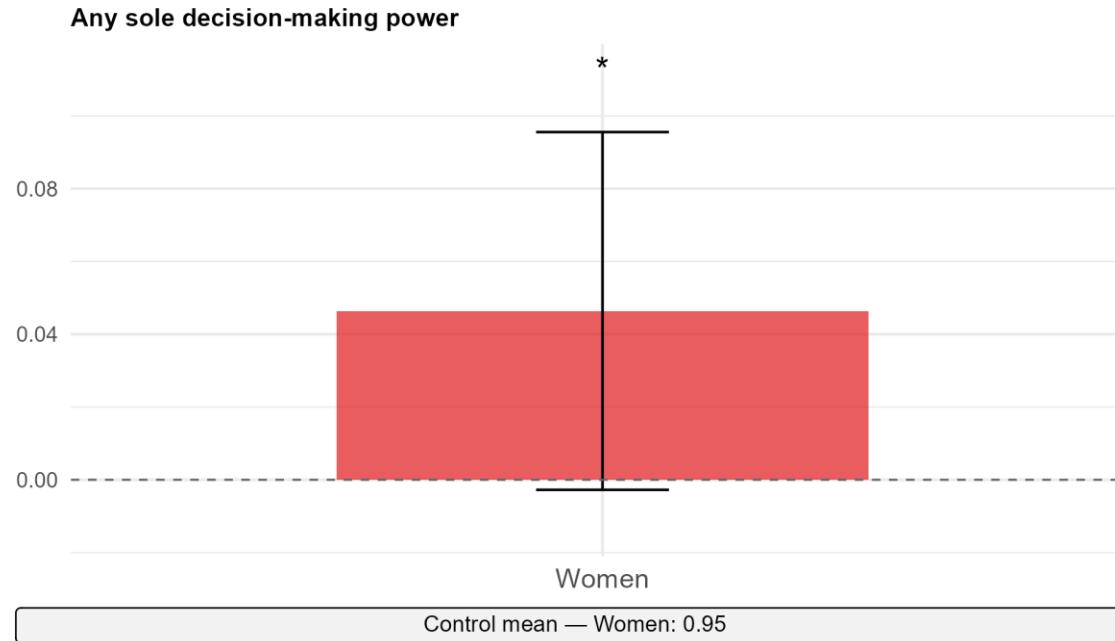
*For men and women we find an increase in an index of business practices*

# Results – Impact of APPEALS WYEP on job creation



For **women** we find an increase in the number of employees hired.

# Results – Impact of APPEALS WYEP on empowerment



*For women, no evidence of an impact on pro-WEAI index and decision-making power index. Increase in making any sole decision.*

# Results – Impact of APPEALS WYEP



## **... on socioemotional skills measures**

No evidence of an impact on socioemotional skills measures. Men's interpersonal skills are higher.

## **.... on Mental Models**

No evidence of an effect on self-esteem, or attitudes/norms, or mental health.

## **... on Marital Satisfaction and IPV**

No evidence of an impact on satisfaction in marriage.

# Thank You!

