

The level of women farmers' participation in the agricultural research process and implications for food security in Ethiopia

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Introduction

Empowerment is central to women's participation in agricultural research and to boost their role in agriculture and contribution to food security. To do so it is important to understand the current level of their participation and the factors that influence their participation in the agricultural research process. This enables identification of entry points and design of effective strategies for women empowerment.

Study Objectives

- I. Understand how women are involved in the agricultural research process
- II. Assess the level of women's participation in the agricultural research process and,
- III. Determine the socio-economic factors that influence women's participation in the agricultural research process.

Methods

- The study was conducted in four districts in the highlands of Ethiopia and in two villages per district (fig 1).
- We conducted a survey of 230 female farmers using a semi-structured household questionnaire.
- Data were analyzed using frequencies, chi-square tests and analysis of variance (ANOVA). The Poisson regression model was used to determine the relationship between women's empowerment and level of participation in the research process.
- The domains and indicators of women's empowerment analyzed include REDUCTION (women's input in production decisions and autonomy in production); RESOURCES (access to and decision on credit); INCOME (control over use of income); LEADERSHIP (group membership and speaking in public); TIME (labor sufficiency).
- The level of women's participation is measured by the number of agricultural research stages in which they participate (the dependent variable in model 1 and model 2)

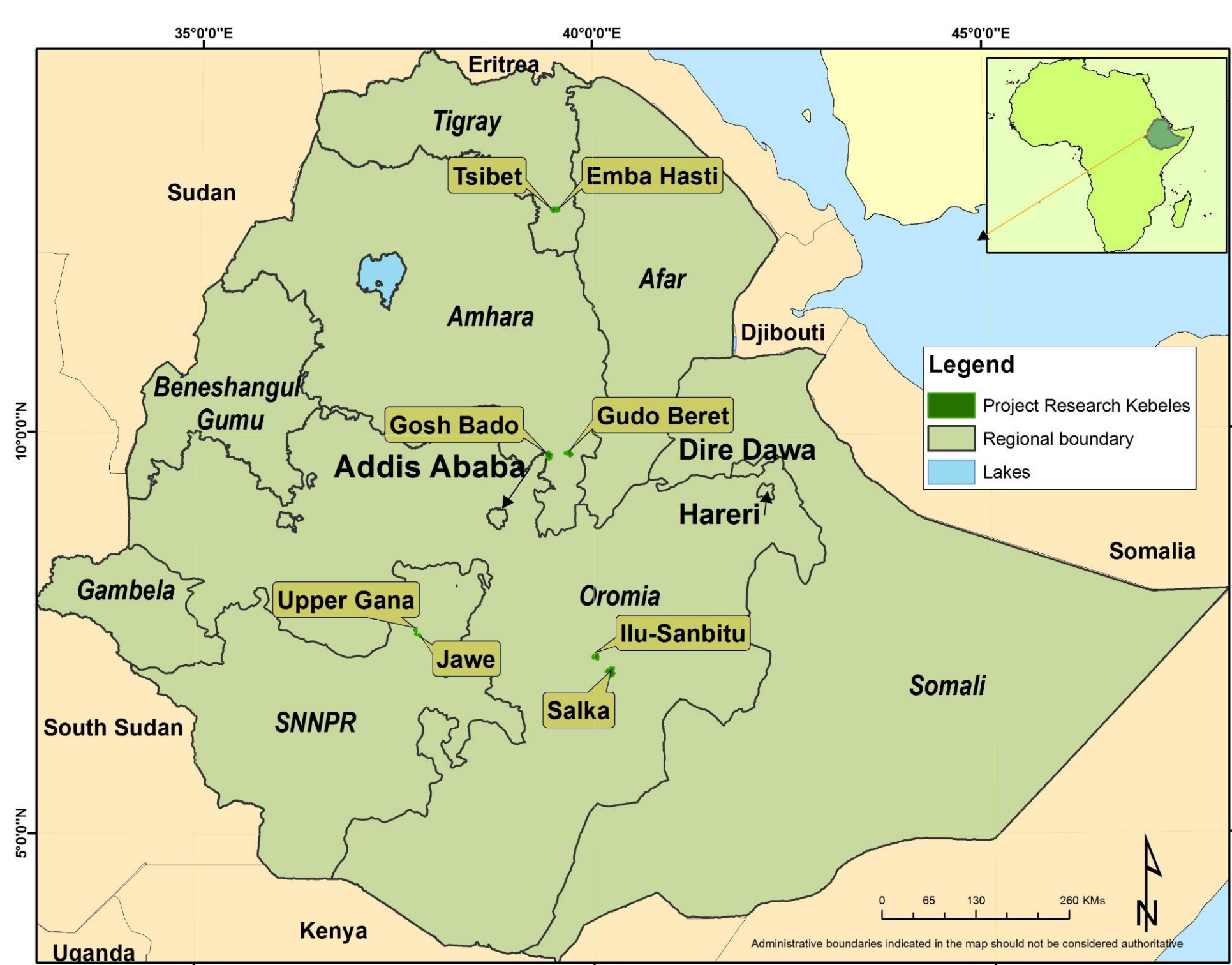


Fig 1 Map showing location of study sites



Results

Table 1. Percentage of women participating in each of the stages of the research process.

Stage	Frequency (n)	Percentage (%) (N=230)
Identification and prioritization of problems	97	42
Identification and testing of potential technology options	105	46
Dissemination of tested and validated technologies	62	27
Monitoring & evaluation	50	22
Capacity development	151	66

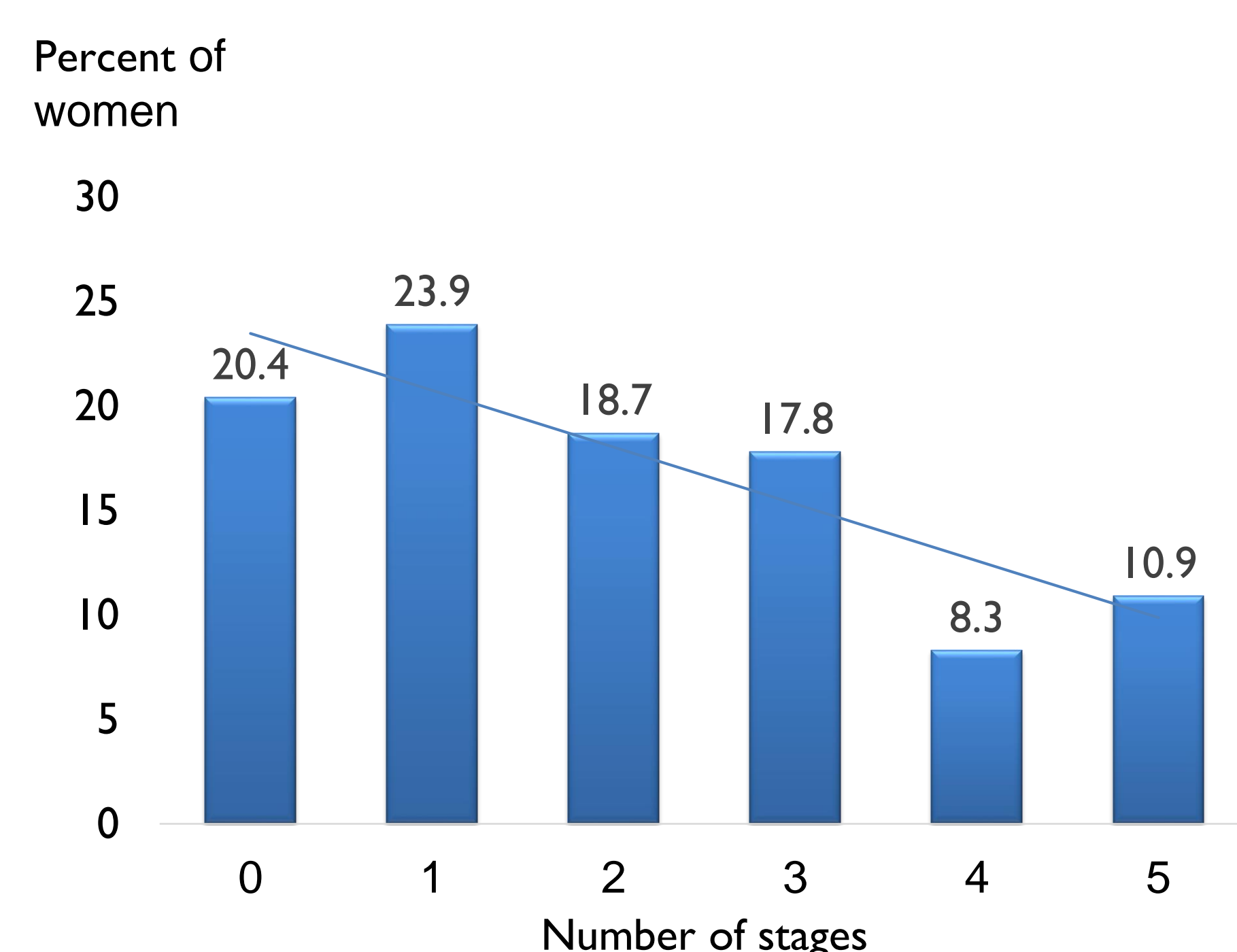


Fig 2: The level of women participation in the research stages

Results

Factors influencing women farmers' participation in the agricultural research process

Table 2. Results of standard Poisson regression and ordered Probit models for Model 1 (with composite empowerment index).

Variable	Standard Poisson model	Ordered Probit model
	Coefficient(S.E)	Coefficient(S.E)
Age	-0.004(0.005)	-0.005(0.008)
Education	0.096(0.041)**	0.170(0.076)**
Marital status	-0.241(0.098)**	-0.403(0.161)**
Land size	-0.005(0.006)	-0.009(0.009)
Information sources	0.058(0.028)*	0.089(0.049)*
Working adults	0.008(0.019)	0.009(0.029)
Access to Extension	0.693(0.178)***	0.978(0.191)***
Empowerment Index	0.226(0.029)***	0.390(0.053)***
Model statistics:		
Log Pseudo likelihood	-364.42	-343.53
Pseudo R2	0.131	0.135
P-value	0.000	0.000

*, ** and *** shows significance at 10%, 5% and 1% respectively

Table 3. Results of standard Poisson model and ordered Probit model for Model 2 (with decomposed empowerment index).

Variable	Standard Poisson model	Ordered Probit model
	Coefficient(SE)	Coefficient(SE)
Age	-0.004(0.008)	-0.008(0.014)
Education	0.074(0.051)	0.196(0.122)
Marital status	-0.134(0.148)	-0.205(0.278)
Land size	0.009(0.009)	0.019(0.025)
Working adults	-0.012(0.027)	-0.013(0.051)
Information sources	0.070(0.039)*	0.155(0.081)*
Access to extension	0.669(0.274)**	1.079(0.335)***
Group membership	0.279(0.133)**	0.563(0.239)**
Speak in public	0.394(0.147)***	0.636(0.254)**
Decision on credit	0.3691(0.186)**	-0.560(0.505)
Income control	0.498(0.305)	0.933(0.752)
Production decisions	-0.151(0.326)	-0.189(0.589)
Autonomy over land	0.486(0.166)***	0.993(0.283)***
Labor sufficiency	-0.092(0.138)	-0.254(0.318)
Log Pseudo likelihood	-163.56	-146.66
Pseudo R2	0.163	0.186
P-value	0.000	0.000

*, ** and *** shows significance at 10%, 5% and 1% respectively

Conclusion

- Empowerment of women significantly increases their level of participation in the stages of the agricultural research process, specifically, women's autonomy over land, membership to groups, and ability to speak in public.
- Access to information and extension enhances women's capacity to take part in more stages.
- This has implications for adoption of technologies that improve food security.
- Enhancing women's leadership and entrepreneur skills, access to information, and transforming constraining norms empowers them.

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