Women’s Empowerment in Agriculture: What role for food security in Bangladesh?

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Introduction

• Justification for increasing resources under women’s control has revolved around efficiency gains (agricultural productivity (Udry 1996); food security and nutrition outcomes (Hoddinott and Haddad 1995; Quisumbing 2003)

• Achieving gender equity and empowering women is a goal in itself (MDG3). Would women’s empowerment also lead to improved food security outcomes?

• We use a new measure of women’s empowerment:
  – To diagnose areas where gaps in empowerment exist for women in rural Bangladesh, a country facing chronic food insecurity
  – To examine the relationship between women’s empowerment in agriculture and two measures of household food security:
    • Per adult equivalent calorie availability
    • Household dietary diversity
The Women’s Empowerment in Agriculture Index (WEAI)

• Survey-based index designed to measure empowerment and inclusion of women in the agricultural sector
  – Collaboration between USAID, IFPRI and the Oxford Poverty and Human Development Initiative
  – Piloted in Bangladesh, Guatemala and Uganda
  – Initially designed as an M&E tool for the US government’s Feed the Future programs
  – Also broadly applicable as a diagnostic tool to identify potential areas for policy intervention

• Details on methodology, piloting and validation available in Alkire et al. (2013); belongs to class of decomposable indices similar to the Multidimensional Poverty Index (MPI)
Scope of the WEAI

- Focus is strictly on empowerment in agriculture, distinct from:
  - Economic status
  - Education
  - Empowerment in other domains

This enables clear analysis of external determinants of empowerment in agriculture.

- WEAI is international; Local adaptation possible.
How is the Index constructed?

WEAI is made up of two sub indices

Women’s Empowerment in Agriculture Index (WEAI)
- All range from zero to one; higher values = greater empowerment

Gender parity Index (GPI)
- Women’s achievement’s relative to the primary male in hh

Five domains of empowerment (5DE)
- A direct measure of women’s empowerment in 5 dimensions
Five domains of empowerment

- Production 1/5
  - Ten Indicators
    - Input in productive decisions 1/10
    - Autonomy in production 1/10
    - Ownership of assets 1/15
    - Purchase, sale, or transfer of assets 1/15
    - Access to and decisions on credit 1/15
  - Control over use of income 1/5

- Resources 1/5
  - Group Member 1/10
  - Speaking in Public 1/10

- Income 1/5
  - Leisure 1/10
  - Workload 1/10

- Leadership 1/5

- Time 1/5

A woman’s empowerment score shows her own achievements
Who is empowered?

A woman who has achieved ‘adequacy’ in 80% or more of the weighted indicators is empowered.
5DE Methodology

- The 5DE is based on the Alkire Foster methodology and reflects:
  - **Incidence of Empowerment** - The percentage of women who are empowered
  - **Adequacy among the Disempowered** - The weighted share of indicators in which disempowered women enjoy adequate achievements
- Based on each woman’s empowerment profile
- Identifies *who* is empowered
- Shows *how* women are disempowered
- Rigorous properties
Gender Parity Index (GPI)

Reflects two things:

1. **The percentage of women who enjoy gender parity.** A woman enjoys gender parity if
   - she is empowered or
   - if her empowerment score is equal to or greater than the empowerment score of the primary male in her household.

2. **The empowerment gap** - the average percentage shortfall that a woman without parity experiences relative to the male in her household.

The GPI adapts the Foster Greer Thorbecke Poverty Gap measure to reflect gender parity.
5DE = H_e + H_d A_e

H_e is the percentage of empowered women
H_d is the percentage of disempowered women
A_e is the average absolute empowerment score among the disempowered

GPI = H_p + H_w R_p

H_p is percentage of women with gender parity
H_w is the percentage of women without gender parity
R is the women’s relative parity score compared to men

H_e + H_d = 100%  H_p + H_w = 100%
Recap: Objectives of Study

– To diagnose areas where gaps in empowerment exist for women in rural Bangladesh

– To examine the relationship between women’s empowerment in agriculture and two measures of household food security:
  • Per adult equivalent calorie availability
  • Household dietary diversity
Data

- Final estimation sample: 4,195 households
- HH-level data on weekly food acquisition used to construct calorie and dietary diversity measures
- WEAI survey data used to construct individual empowerment scores for primary males and females in households
Why focus on women’s empowerment?

- Although the WEAI allows you to generate male and female empowerment scores, we focus on women’s empowerment scores.
- There is more variability in women’s scores.
- There is a higher percentage of women (76%) who are disempowered compared to men (57%) according to the 5 domains of empowerment.
Which domains contribute most to women’s disempowerment in Bangladesh?

- Inadequacy in LEADERSHIP: 35.1%
- Inadequacy in RESOURCES: 21.6%
- Inadequacy in INCOME: 15.8%
- Inadequacy in PRODUCTION: 14.9%
- Inadequacy in TIME: 12.7%
- Group Membership: 18.3%
- Access to and decisions on credit: 9.5%
- Ownership of assets: 4.5%
- Purchase, sale or transfer of assets: 7.5%
Empirical Specification

We estimate the following:

\[ f = \beta_0 + \beta_1 \text{empowerment} + \beta_2 h + \beta_3 c + \varepsilon \]

where:

- \( f \) = vector of food security outcomes
- \( \beta_i \) = coefficients to be estimated
- \( h \) = vector of household characteristics
- \( c \) = vector of community characteristics
- \( \varepsilon \) = error term
Food Security Outcome Variables

1. Per adult equivalent calorie availability
   - Daily calorie equivalents from 7-day household food consumption data, divided by the number of adult equivalents in household

2. Diet diversity score
   - Count of food groups consumed using the 7-day household food consumption data
   - Food was grouped into 12 categories: 1) cereals; 2) white tubers and roots; 3) vegetables; 4) fruits; 5) meat; 6) eggs; 7) fish and other seafood; 8) legumes and nuts; 9) milk and milk products; 10) oils and fats; 11) sweets; and 12) spices, condiments, and beverages
Empowerment Measures

Main Specifications:

• Empowerment score of primary female (5DE)
• Gender parity gap (=0 if have gender parity)

In addition, selected components of empowerment score based on the WEAI diagnostics:

• Leadership domain:
  – Number of groups in which she is an active member

• Resources domain:
  – Average number of credit decisions she participates in solely/jointly
  – Number of assets she has sole/joint ownership of
  – Number of decisions over purchase/sale/transfer of assets she participates in solely/jointly
Instrumental Variables

• Potential endogeneity bias:
  – Women’s empowerment within the household may be affected by the same factors affecting the availability of food and dietary diversity

• Apply standard IV techniques using the following instruments for empowerment:
  – Male-Female difference in age (*all models*)
  – Number of types of informal credit sources in the community (*all models*)
  – Number of community activities the woman participated in during the previous year (*empowerment score, group membership & gender parity models*)
  – Whether homestead land has been inherited by the woman (*asset ownership & rights over assets models*)
Other Control Variables

- Head characteristics (age, age squared, years of education, occupation dummies)
- Household size
- Household age-sex composition (%)
- Area of cultivable land owned (acres)
- Price of rice
- Production diversity: Number of food crops produced by household (endogenous)
- Number of dairy cows owned by household
- Dummies for ownership of hand tube well, access to electricity
- 7 Division dummies
Impacts on calorie availability (kcal per adult equivalent per day)

- Empowerment Score: 1133.1
- Group membership: 1075.8
- Credit decisions: 761.7
- Asset ownership: 183.9
- Rights over assets: 8.0, 27.6
- Gender parity gap: -182.7, -1344.2

OLS vs. IV
Impacts on weekly household dietary diversity (number of food groups)
Summary of Results

• Empowerment gaps are greatest in terms of leadership in the community and control and access to resources.

• Overall women’s empowerment score, the number of groups in which women actively participate, women’s control of assets are positively associated with calorie availability and dietary diversity.

• Reducing the empowerment gap between men and women in the same household also contributes to increasing calorie availability and dietary diversity.

• Results concerning credit decision-making need to be interpreted with caution (weak instruments, seeking credit is not necessarily a sign of empowerment in this context).

• Increasing production diversity also contributes to household calorie availability and dietary diversity.
Policy implications

• Support policies to reduce gender gaps between men and women
• Continue efforts to increase opportunities for women to exercise leadership in the community, as in group-based programs (NGOs)
• Strengthen women’s property rights to land and other assets
• Support agricultural policies to increase production diversity in this predominantly rice-based economy
Thank You