



AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search

<http://ageconsearch.umn.edu>

aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

Measuring Women Empowerment: An Application of the Women Empowerment in Agricultural Index in Northern Ghana

Sandra Contreras sandrac@ksu.edu
Dr. Timothy Dalton timothydalton@agecon.ksu.edu
Dept. Agricultural Economics Kansas State University

Selected Poster prepared for presentation at the Agricultural & Applied Economics Association's 2013 AAEA & CAES Joint Annual Meeting, Washington, DC, August 4-6, 2013.

Measuring Women Empowerment: An Application of the Women Empowerment in Agricultural Index in Northern Ghana

Sandra Contreras and Dr. Timothy Dalton Dept. Agricultural Economics Kansas State University

Motivation

If women and men can fully develop their abilities as economic and social individuals, by having equal access to inputs, financial resources, participatory practices, and autonomy in their decisions, the productivity of labor in the agricultural sector would increase, and production in developing countries would raise by 2.5 to 4 percent (FAO 2011).

Objectives

- ✓ To apply an innovative instrument that measures women's empowerment in agriculture in Northern Ghana.
- ✓ To determine what mechanisms motivate the agricultural sector to be more inclusive towards women in Ghana
- ✓ To find correlations between women empowerment and demographic variables.

Background

Although numerous authors have argued that one of the mechanisms of agricultural economic growth is an agricultural sector that is more inclusive and equitable toward women, there have been few attempts to create a tool to measure the levels of equity among individuals in agriculture. (Seguino 2012; Behrman 2012).

Women empowerment has been measured using proxy variables like education and income, equity like ration of girls to boys in education, or the Gender Gap Index, these can be argued not to be good proxies of the gender disparity in agriculture because they don't provide a direct measure of inequality between genders and do not allow for heterogeneities between different sectorial groups.

Therefore there was a need to create a women empowerment index that is a survey based that focus on daily women's decision making, control over productive resources and income, leadership, and time allocation. This index should be able to track and identify key areas in which women (and men) lack empowerment.



Women Empowerment Index in Agriculture (WEAI)

The WEAI is constructed using two weighted sub-indexes developed by Alkire et al. (2013):

$$WEAI = \alpha * (5DE) + (1 - \alpha) * (GPI) \quad \alpha = 0.9 \quad (1)$$

(i) The Five Domain Empowerment Index (5DE); and (ii) The Gender Parity Index (GPI). Both range from zero to one and the higher the values the greater the level of empowerment.

The 5DE constructs an empowerment score for each woman in the sample. The score is a summation of the level of achievement in ten indicators grouped into five domains (Table 1). Specific questions relating to each indicator have been developed with closed-ended scaled qualitative responses.

Table 1. Composition of the Five Domain Empowerment Index and Weights

Domain	Indicators	Weight
Production	Input in productive decisions	1/10
	Autonomy in production	1/10
Resources	Ownership of assets	1/15
	Purchase, sale, or transfer of assets	1/15
	Access to and decisions on credit	1/15
Income	Control over use of income	1/5
Leadership	Group member	1/10
	Speaking in public	1/10
Time	Workload	1/10
	Leisure	1/10

Source: Alkire (2013)

5DE

The 5DE index summarizes either being or not "empowerment", can be constructed to measure the magnitude of either dimension, and can be calculated across the entire sample (or sub-samples) of men and women who completed the survey.

GPI

The GPI index is used to measure the relative difference between the 5DE measure of a man and woman in the same household. The GPI index is formulated as:

$$GPI = 1 - \frac{H_{GPI}}{I_{GPI}}$$

H_{GPI} : proportion of households in which the female does not achieve gender parity with her male counterpart.

I_{GPI} : average empowerment gap between men and women who have not achieved gender parity in the household.

The index is based on the Foster-Greer-Thorbeck Poverty Gap and is calculated in a similar manner to the 5DE index (Foster et al., 1984).

Data

We used a recent comprehensive database constructed from a population-based survey collected in Northern Ghana in 2012. The sample included districts in the Northern, Upper West, and Upper East Regions.

Data Summary

- ✓ 4,990 respondents and 2,556 households where both male and a female were present.
- ✓ 1,602 households completed all of the modules for the female and male components.
- ✓ 2,316 females and 2,674 males, completed all questions

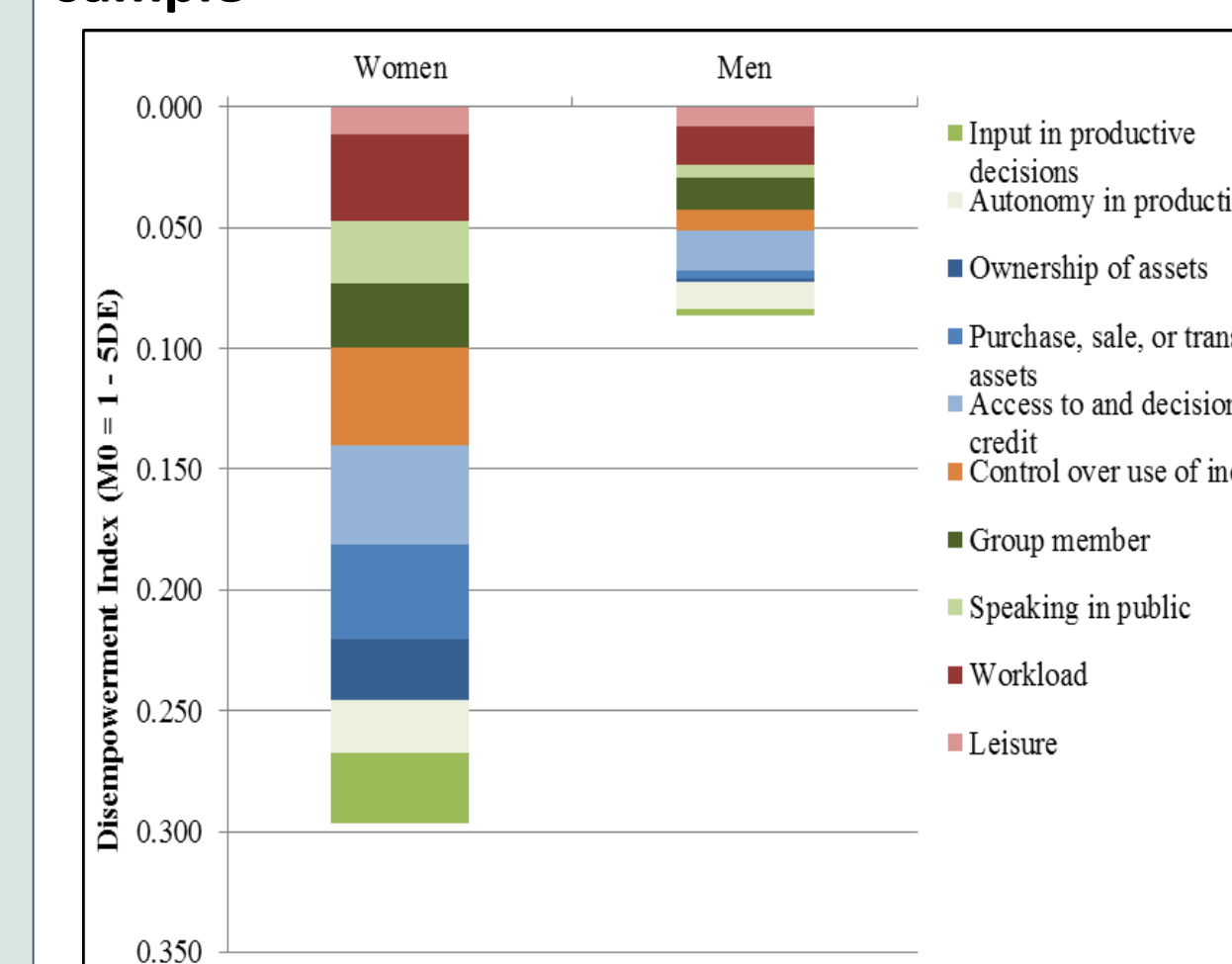
WEAI Results

- ✓ 72.50 percent of the women in Northern Ghana are disempowered.
- ✓ The average inadequacy score of disempowered women is about 41 percent, indicating that despite the high disempowerment among these women.
- ✓ Women experience adequate achievement in about 59 percent of the domains in the Five Domain Empowerment (5DE) sub-index.
- ✓ On average, 81.11 percent of the women are experiencing gender disparity and the average empowerment gap is 26.79 percent.
- ✓ The average WEAI for the sample is estimated at approximately 0.71.

Table 2: Women's Empowerment in Agriculture Index

Indexes	Rural Northern Ghana	
	Women	Men
Disempowered Headcount (H)	72.5%	26.8%
Average Inadequacy Score (A)	40.9%	32.3%
Disempowerment Index (M0)	0.297	0.087
5DE Index (1-M0)	0.703	0.913
No. of observations used	2228	2611
Total observations	2604	2809
% of Data used	85.6%	93.0%
% of women with no gender parity (H_{GPI})	73.3%	
Average Empowerment Gap (I_{GPI})	26.6%	
GPI	0.805	
WEAI	0.714	

Figure 1: Contribution of each indicator to disempowerment in Rural Northern Ghana sample



The main source of disempowerment for women in rural Ghana comes from the decisions on credit indicator which contributes with 14 percent to the disempowerment of women. Control over use of income that is about 13.5 percent, and Purchase, sale, or transfer of assets with 13 percent.

Model

The results of the Ordinary Least Square model used to test CI influence demographic and economic factors is as follows:

$$CI = \alpha + \beta_1(\text{percapita consumption}) + \beta_2(\text{age}) + \beta_3(\text{northern region}) + \beta_4(\text{rural}) + \beta_5(\text{female}) + \beta_6(\text{married}) + \beta_7(\text{read - write english}) + \beta_8(\text{female * islam}) + \beta_9(\text{female * married}) + \epsilon$$

CI= Inadequacy count

Percapitaconsumption=per-capita consumption in monetary units. Served as a proxy for income.

Age= Age in years of the respondent

Northern Region= Dummy for people living in the Northern Region

Rural= Dummy for people who lives in rural areas of Ghana

Female=Dummy for sex of the respondent

Married= Dummy indicating that the respondent is married.

No Read-Write English=Dummy indicating the person does not read or write English.

Female*islam= Interaction term between dummies female and religion Islam

Female*Married= Interaction term between dummies female and married

Regression Results

The results from the model that are shown in table 3, can be interpreted as:

Variable	Coefficient	SE
Constant	0.2869657	0.012104 **
Per-capita consumption	-0.0009269	0.011731 **
Age	-0.0005661	0.001596 ***
Northern region	-0.0077207	0.0054329 **
Rural	-0.0086573	0.0061558 **
Female	0.0265657	0.111604 *
Married	-0.0372441	0.079928 **
No Read and write in English	0.0040248	0.065908 **
Female*Married	0.1105239	0.124307 *
Female*Islam	0.0289574	0.086693 ***
Number of obs =	3248	
R-squared =	0.2203	

*, **, *** indicates significance at the 90%, 95%, and 99% level, respectively

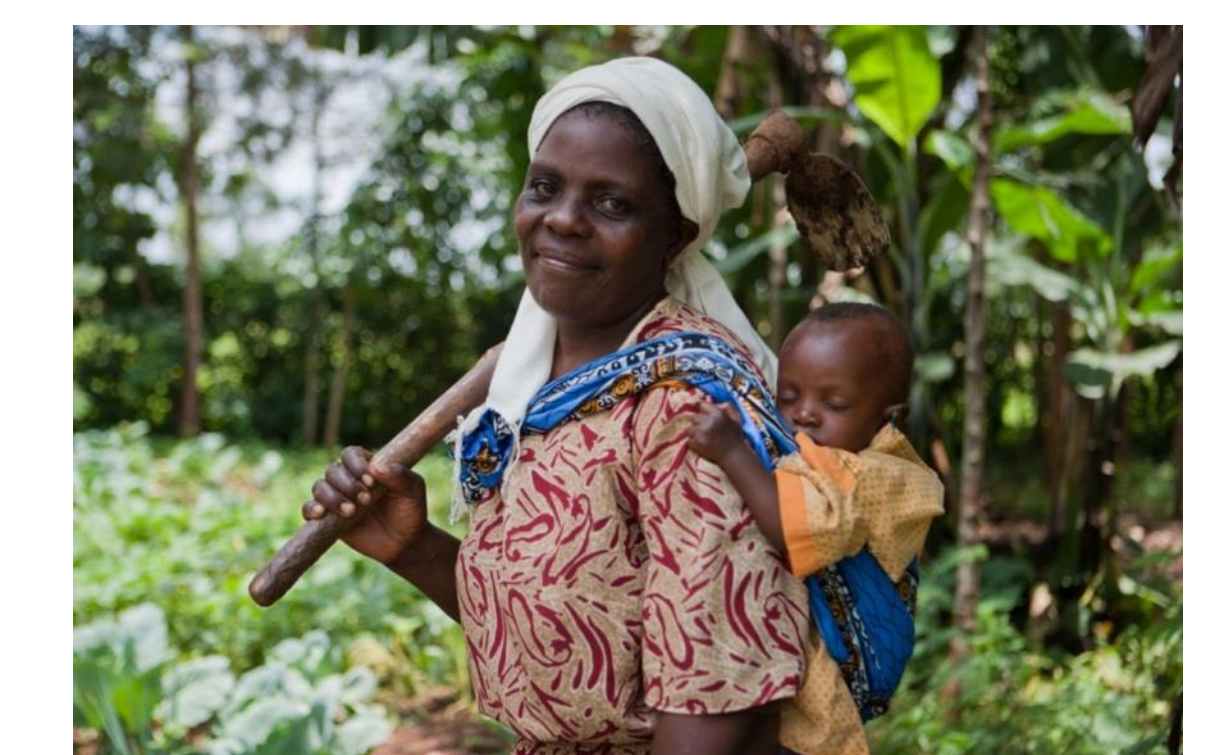
Being a female and being married are factors that contribute to the disempowerment of women in Ghana.

On average a women that self-reported being Muslim would have a higher CI therefore a lower WEAI score than those that are not Muslims.

not being able to read and write in English contributes to the disempowerment score of a person. On the other hand, the CI score, for male and females, decreases with age, with higher level of consumption and being married, thus all these variables are positive correlated to empowerment.

Key Findings from WEAI in Northern Ghana

- ✓ Women in rural northern Ghana are disempowered according the WEAI, they have a 72.5 % empowerment level.
- ✓ On average, 41% of disempowered women experience adequate achievement in approximately 59% of the 10 indicators in the WEAI index.
- ✓ The major source of disempowerment comes from *access to and decisions about credit*.
- ✓ Women are more satisfied than men with their leisure time compare to the *workload load they have*, also they are being able to take production decision in an independent manner.
- ✓ The biggest disparity between men and women comes from *purchase, sale or transfer of assets*.
- ✓ Some demographic factor that contribute to the disempowerment of women in Ghana are: *being married, and not know how to write or read in English*.



CONTACT INFORMATION

Sandra Contreras sandrac@ksu.edu

KANSAS STATE UNIVERSITY

Department of Agricultural Economics