

Intra-Household Bargaining, Gender Consideration in Decision Making and Food Security Status of Farm Households in Abeokuta, Ogun State, Nigeria

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Abstract:

Women contribute significantly to food production in Nigeria, however, several research findings confirmed that they are often marginalized in the decision making process. This study examines intra-household bargaining, gender consideration in decision making process and food security among farming households in Abeokuta, Ogun state. A multistage sampling procedure was used to select 240 farming households; with husbands and wives interviewed separately. The study examines the wife's bargaining power over 13 households and farming decisions. Data analysis was done using descriptive statistics, Decision Making Index, and logit regression model. The result of the findings shows that the level of decision-making authority among wives varies significantly across households. The majority (57.5%) of the households were food insecure. Also, most of the men (84.2%) control the income from the sales of agricultural products and off-farm activities while the women (76.8%) took more decision regarding consumption and children's education. Besides, 63.33% of women have low bargaining power, while 26.25% have moderate bargaining power and 10.42% of the women have high bargaining power. The regression result shows that years of education of women ($p < 0.001$), household size ($p < 0.01$), access to credit ($p < 0.001$), main occupation of the household head ($p < 0.001$), membership of farmers' association of the household head ($p < 0.001$), age of household head ($p < 0.001$), age differential between spouse ($p < 0.005$), household income of household head ($p < 0.001$), proportion of women's income in household total income ($p < 0.005$), women bargaining power ($p < 0.005$) were significant factors influencing the food security status of the farming household in the study area. The study shows that there is a household gender-based decision which influences household food security. Households in which women did not participate in decisions making on income and food management were more vulnerable to household food insecurity because men were not concerned about household food requirements. The study affirms the roles of intra-household decision making on household food security. Therefore, gender-based resource allocation and women empowerment policies should be encouraged to ensure that households are food secure.

Keywords: decision making, farm households, food security, gender, income, resource allocation,

Introduction

Household decision making and resource allocation are critical to economic and human development. The decisions made at household levels influence the welfare of the household and the communities. Such decisions include where to live, how to generate income, invest and consume, and how many children to have (Kim *et al.*, 2017). The outcomes of such decisions influence economic performance at the household and national level. The dynamics of

intra-household decision making and resource allocation may have significant impact on the welfare of farm households in a poor economic environment.

Within households, many factors influence the dynamics of intra-household decision making. Such includes age, marital status, culture, income level, and education. If the male household members have different preferences, it is expected that households will

behave differently according to who controls household resources. For example, it is often argued that when women have better command over income, decisions on the use of resources tend to favour children more in terms of human capital investment (Hoddinott and Haddad 1995; Bourguignon and Chiappori 1992; Browning and Chiappori 1998; Bussolo, De Hoyos, and Wodon 2009). Lloyd and Blanc (1996) and Blackden and Bhanu (1999) argued that children in female-headed households in Sub-Saharan Africa have better enrollment rates than those in male-headed households. Higher involvement of women in decision making within the household has also been shown to lead to better outcomes in terms of nutrition (Piesse and Simister 2002). Household decision-making models assume family as a homogenous unit operating with a typical utility function (Becker, 1962), whose members share the same amount of access to and utilization of household's resources, including food. However, these models are not capable of explaining dynamics impacting intra-household resource allocation and its effects on distribution within the family.

There is a vast number of empirical and theoretical studies declining altruistic family joint utility function theory of Becker (1962). However, Sen (2013) theory of intra-household bargaining shows the inequality in the decision-making process among different members of households and how this inequality affects the distribution of resources.

Gender inequality both leads to and is a result of food insecurity. According to estimates, women and girls make up 60% of the world's chronically hungry and little progress has been made in ensuring the equal right to food for women enshrined in the Convention on the Elimination of All Forms of Discrimination against Women (World Food Programme, 2009; Spieldoch, 2011). Women face discrimination both in education and employment opportunities and within the household, where their bargaining power is low. On the other hand, gender equality is instrumental to ending malnutrition and hunger (FAO, ADB 2013). Women tend to be responsible for food preparation and childcare within the family and are more likely to spend their income on food and their children's needs. The gendered aspects of food security are visible

along the four pillars of food security: availability, access, utilization and stability, as defined by the Food and Agriculture Organization (FAO, 2006).

Food availability is defined at the World Food Summit as having sufficient quantities of foods available consistently (FAO, 1996). The critical roles women play in food production, processing, distribution and marketing cannot be overemphasized. They often work as an unpaid family worker and are involved in subsistence farming and represent about 43% of the agricultural labour force in developing countries, varying from 20% in Latin America to 50% in Eastern and Southeastern Asia and Sub-Saharan Africa (FAO, 2011). Despite these, women face discrimination in access to land, credit, technologies, finance and other services. Studies suggest that if women had the same access to productive resources as men, women could boost their yields by 20–30%; raising the overall agricultural output in developing countries by 2.5 to 4.0% (FAO, 2011).

Women's access to food is closely connected to households' food access because they are typically responsible for food supply in households (The World Bank, Food and Agriculture Organization, International Fund for Agricultural Development, 2008). Women can access food by producing it for their consumption or purchasing it with income. Income is either generated from market activity or by redistributive mechanisms through the government's social protection measure or community's solidarity (FAO, ADB 2013).

A study conducted by Haddad and Hoddinott, (1994) in Côte d'Ivoire found that for men, it needs eleven times bigger income of women to improve children's nutrition to the same level at which women achieve. Kennedy and Peters (1992), demonstrated that poorer female-headed households often succeed in providing more nutritious food for their children than poorer male-headed households. Geheb, Kalloh, Medard, Nyapendi, Lweya and Kyangwa, (2008) posited that people living near Lake Victoria, women typically considered their children as the first or second most significant expenditure, while men did not view them as a

cost. Women prefer to spend more on children's daily needs as they share more time with them.

The theory of cooperative bargaining suggests that expenditure decisions are proportional to resource contribution (Manser and Brown 1980; McElroy and Homey 1981). In this respect, as a woman's income increases in the share of total household income, so does her bargaining and decision-making power. Hoddinott and Haddad (1995) suggested that a doubling of the share of cash income held by women within a household may increase the share of the budget allocated to food by the household by about 2.0%, and may reduce much more significantly the shares allocated to cigarettes and alcohol by 26.0% and 14.0% respectively.

The gender assessment prepared by the World Bank (2005) in Uganda, suggested similar differences between male-and female-headed households, with a higher share of consumption spent on alcohol and cigarettes in male-headed households, and a higher share spent on school fees in female-headed households, especially in the case of divorced and widowed heads. Backiny-Yetna and Wodon (2010) found that the effects of female labour income share on household consumption patterns were not large and not always statistically significant for the Republic of Congo. Also, women make these critical contributions with limited access to necessary resources, low decision making on allocation and use of those resources, and the derived benefits (Johnson-Welch, 1999). A lot of literature (Amali, 1989; Okonjo, 1991; Auta et al., 2000; Rahman and Alamu, 2003) have shown the various contributions of women to agricultural production.

Despite substantial evidence worldwide about the impact of women's income on intra-household decision making, including consumption allocations and allocation of productive resources, the evidence for Sub-Saharan Africa like Nigeria remains limited. However, useful household surveys are becoming much more common, enabling research on 5, as illustrated for Senegal (Bussolo, De Hoyos, and Wodon (2009), and for the Republic of Congo (Backiny-Yetna and

Wodon, 2010). Hence, this study sought to establish the women intrahousehold decision making and its implications on the food security status of rural farm households in Abeokuta agricultural zone, Ogun state.

Specifically, the study described the socio-economic characteristics of farm households; determine the food security status of the farm households; estimate women and men involvement in decision making in terms of production, sales and consumption; and the effects of women bargaining power on the food security status of a farm household in the study area.

Methodology

The study was conducted in Abeokuta agricultural zone of Ogun state. Abeokuta, which is the capital of Ogun state, situated in south-west Nigeria, covers an approximate area of about 40.63 km². It lies between latitude 70 10 N and 70 15 N and longitudes 30 17 E and 30 26. Abeokuta is a historic Yoruba town, formed by the Egbas in 1830.

A multistage random sampling procedure was employed for the study. The first stage involves random selection of four (4) blocks (Ilewo, Olorunda, Ilugun and Opeji) out of the six (6) blocks in Abeokuta agricultural zone. The second stage involves a random selection of four cells from each block making a total of sixteen blocks and the final stage involves the random selection of fifteen (15) farm households in each of the selected cells to give a total of 240 farm households.

This study was based on rural farm households and specifically on married male-headed households (excluding female-headed households or households in which another male, such as a relative, has assumed the role of head-of-household). This study restricts the sample only to male heads and female spouses who belong to a household where there is both head and spouse, excluding households where there is no spouse, as well as female-headed households (Anderson, Reynolds and Gugerty, 2017). The reason for this selection is to compare decision power between men and women, it is necessary to have both men and women in the household-which, in practice,

means that both a household head and a household spouse need to show up in the data. When there is no spouse, decisions are made only by the lone parent, and when there is a female head, in the Nigerian context, this essentially means that the father or male household head has died or has migrated. Note that this exclusion does not lead to bias. It is merely that the analysis is carried over a subset of the population, but this subset is substantial because most households have both a spouse and a head. For language simplicity, "men" will refer to male household heads, and "women" will refer to the spouses of household heads. The male and female primary decision-makers were adult person responsible for organizing and caring for the household." The male head of the household answered all questions during the survey, while both spouses separately answered a subset of questions that included personal information, attitudes toward farming and risk, and perceptions of decision-making.

To reduce response bias, primarily originating from cultural norms or expectations, spouses were interviewed separately, and individually. The reported allocation of household decision-making authority is assessed through a total of thirteen (13) questions about household and farm activity areas. Each respondent was asked to allocate ten between (1) to (10) scales between the husband and wife to reflect each individual's relative bargaining power (decision-making authority) over a given decision.

Questions include the following:

Thinking yourself and your spouse, how is household decision-making shared between the two? I am giving you ten scales, and I want you to share them between yourself and your spouse according to the power each has in making the decision.

(a) Crop and Live stocks decisions

_ What crops to cultivate on the farm?

_ Where to sell crops?

When to sell off livestock?

How to spend cash from the sale of crops?

How to spend cash from the sale of livestock?

(b) Decisions about children

What foods to feed the family?

Whether to send children to school?

(c) Innovation decisions

Whether to buy a new high-yield seed variety or use the ordinary seeds?

Whether to buy new farm equipment or stay with the old tools?

What types of information or training the household needs?

Whom to attend farm training?

(d) Broad decision-making authority: livelihood versus overall

What happens in the farm generally?

What is the overall decision-making for the household?

Husbands and wives were interviewed separately to ensure that spouses did not influence each other's allocations. Each respondent was also required to allocate all ten scales between him or herself and the spouse. For example, if a husband assigned himself seven scale for authority over what happens on the farm generally, he had to assign the remaining three scale to his wife. Third-party decision-makers, such as in-laws, brothers were not eligible for consideration. Alternately, the respondent could state that the decision did not apply to their household at all (for example, for households with no livestock, individual livestock-related decisions might not apply). It resulted in a code of N/A for both husband and wife decision-making authority.

Comparing spousal reports of decision-making authority. Reported authority is measured on a scale (0–10), according to the number of scales allocated by each spouse to themselves and their spouse. Descriptive statistics for vital explanatory variables are summarized in Table 1.

The wife's age measures Wife-specific characteristics and assets, years of education, health (1 = very poor, 5 = very good), and the number of labour hours she reports spending working on the farm, in the market, and at home in a typical day.

According to the number of scales allocated by men to their spouse, Decision-Making Index (DMI) was used to measure women bargaining power. The whole scale for each household (husband and wife) was being calculated.

However, the study focuses on women

bargaining power. The total number of scale allocated to the wife divided by the total number of scale (10). The result gotten is the respondent's score on the women decision-making index. The closer the value of the index is to 1, the more the women bargaining power.

Decision Making Index

$$= \frac{\text{Number of scales Allocated to each Respondent (Husband or Wife)}}{\text{Total Number of scales}} \quad (1)$$

Women Decision Making Index

$$= \frac{\text{Number of scales Allocated to Women}}{\text{Total Number of scales}} \quad (2)$$

Household food security status was analysed measure by the U.S. Households Food Security Survey Measure, developed by the U.S. Department of Agriculture (USDA). The model consists of 18 questions intended to measure the prevalence of food insecurity in households and the severity of hunger (Kennedy, 2002). Household's food security levels were classified based on the responses to the Household Food Security Survey Module (HFSSM) scale of 18 questions to households with children and ten questions to households without children. The scale is intended to demonstrate food-related behaviours of households and households experience difficulties in access to food (Rafiei *et al.*, 2009). The number of positive responses in the food security survey was used to determine the level of food security based on the scoring of the food security scale (Radimer and Katty, 2002). It provides a continuous, graduated measure of the severity of the food deprivation. Households were then classified into food security status categories as food secure, food insecure without hunger (Marginal food secure), food insecure with moderate hunger (Low food secure), food insecure with severe hunger (very low food secure).

Based on the survey, households fall into one of four categories:

High food security - Households have no problems, or anxiety about, consistently accessing adequate food.

Marginal food security - Households had problems at times, or anxiety about, accessing adequate food, but the quality, variety, and

This indicator was adapted based on measuring women's empowerment, as stated below:

quantity of their food intake were not substantially reduced.

Low food security - Households reduced the quality, variety, and desirability of their diets, but the quantity of food intake and standard eating patterns were not substantially disrupted.

Very low food security - At times during the year, eating patterns of one or more household members were disrupted, and food intake reduced because the household lacked money and other resources for food.

Often, researchers simplify these categories by classifying households or individuals into two categories of "food secure" or "food insecure." In this case, if a household or individual falls into one of the first two categories (High food security and Marginal food security), they are referred to as "food secure." If a household or individual falls into one of the last two categories (Low food security and very low food security), they are referred to as "food insecure."

The logit model was used when the dependent variable has two categories. The dependent variable is the household food security status, and it is categorized into two outcomes (1 = Food Secure and 0 = Food Insecure). Since the dependent variable food security status is qualitative means dichotomous, it can only take two values either the presence of something or absence, so by pursuing the conventional method of binary response; it will either take the value of 1 or zero. This value of 1 means that household is food secure and zero means otherwise because of this measure of food

security in binary manner yields results which have more policy implications (Coleman-Jensen *et al.*, 2011). Logit regression technique can be used to model the relationship between the dichotomous dependent variable and set of independent variables that are hypothesized to affect the outcome. The logistic regression model characterizing the adoption of household food security is given by Wooldridge (2010).

a numeric value one if food secure and 0 if otherwise), b_0 is the vector of unknown parameters (intercept). The subscript 'i' shows the ith observation in the data. $X_1, X_2, X_3, \dots, X_n$ is the explanatory variables.

$$\ln \left[\frac{P_i}{1 - P_i} \right] = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \dots + \beta_n X_{ni} \quad (3)$$

This is the ratio of the probability that the household is food secure to the probability that it is not food secure. Where represents the household food security status (assigned

M_i = is the disturbance term (which has a standard logistic distribution)

X_1 = Years of schooling of women

X_2 = Household size

X_3 = Farm size (hectares)

X_4 = Farming experience (years)

X_5 = Access to credit (Yes =1, No =0)

X_6 = Main occupation of the household head (Farming =1, others =0)

X_7 = Membership of Farmers association of the household head (Yes =1, No =0)

X_8 = Age of household head (years)

X_9 = Age Differential between spouse

X_{10} = Household income of household head (₦)

X_{11} = Proportion of Women's Income in Household Total Income

X_{12} = Women Bargaining power (DMI)

X_{13} = Land ownership (Yes =1, No =0)

Results and Discussion

The socio-demographic characteristics of the respondents, covered in this study include age, level of education, household size and main occupation. Results, as presented in Table 1, show that the dominant age group for women in the study area was less than 30 years (19-30 years) which comprises 46.67% of female respondents and for men was 31-50 years which comprises 60.00% of male respondents. It is within the productive age group which lies between 30 and 50 years, although with men it is slightly above the productive age group. On average, the husband is eight years older than the wife. It is expected with early marriage being common in rural Nigeria. Table 1 shows further that 52.5% of men had attained primary

education, and 54.58% of women had no formal education.

On the other hand, 26.67% of women had primary education. It shows that literacy rates was higher among men than women (62% for men versus 30% for women). The mean household size of the respondents was five persons, the smallest household had two members, while the largest had 12 members. Also, 10% of the female respondents owns land as against 35.85% of men, while 15% of the women have access to credit facilities as against 34.17% of men. It signifies that the male respondents own more land and have access to credit facilities than the female respondents.

Table 1: Socioeconomic Characteristics of Farming Households by Gender

Characteristics	Frequency (Women)	Percent (Women)	Frequency (Men)	Percent (Men)	
Age					
Less than 31	112	46.67	36	15.00	
31-50	84	35.00	144	60.00	
51-70	37	15.42	49	20.42	
71 and above	07	2.92	11	4.58	
Mean Age	34		52		
Age Difference (years)					7.73
Education					
No Formal education	131	54.58	67	27.92	
Primary	64	26.67	126	52.50	
Secondary	35	14.58	30	12.50	
Tertiary	10	4.17	17	7.08	
Education Difference (years)					4.65
Household size					
2-5 persons	83	34.6		34.6	
6 – 9 persons	132	55.2		55.2	
Ten and above	25	10.2		10.2	
Mean Household size					5
Years of farming Experience					
1-5	88	36.67	19	7.92	
6-10	57	23.75	21	8.75	
11-15	43	17.92	66	27.50	
16 and above	52	21.67	134	55.83	
Mean	6	3.33	12	5.00	
Land ownership					
Owns land	24	10.00	86	35.83	
Access to credit	36	15.00	82	34.17	
Monthly Income					
Less than ₦50,000	171	71.25	93	38.75	
₦51,000–₦100,000	56	23.33	124	51.67	
₦101,000 and above	13	5.42	23	9.58	
Mean	₦38,200		₦58,000		₦42,000
Decision making*					
The main contributor to household income	65	27.00	176	73.50	
Decides for expenditures on education	189	79.00	115	48.00	
Decides for expenditures on health	130	54.00	107	44.50	
Decides for expenditures on food	170	71.00	79	32.85	
Decides for expenditures on clothing	136	57.00	96	40.00	
Decides for expenditures on shelter	53	22.00	211	88.00	
Decides for expenditures on land use	58	24.00	173	72.00	
Decides for expenditures on crop sales	74	31.00	163	68.00	

Source: Field Survey, 2019 *-multiple responses

Patterns of Women Bargaining Power

Table 2 shows that 63.33% of women in the study area have low bargaining power, while 26.25% have moderate bargaining power and

10.42% have high bargaining power. It implies that women did not participate in most important decisions in their households.

Table 2: Patterns of Women Bargaining Power

Level of Bargaining Power	Frequency	Percentage
Low Bargaining Power (the decision is taken mainly by men) ($DMI \leq 4.0$)	152	63.33
Moderate Bargaining Power (the decision is shared) ($DMI = 4.1 - 8.0$)	63	26.25
High Bargaining Power (the decision is taken mainly by women) ($DMI \geq 8.0$)	25	10.42
Total	240	100

Source: Field Survey, 2019

Household food security status

Table 3 presents the farm household food security status. Only 42.5% of the household were food secure. However, 20.00% of the respondents were food insecure without hunger (experienced reduced or cut meal sizes). 30.00% were food insecure moderate hunger (experienced cut meal sizes and skipping of

meals especially for adults within the household) and 27.50% of the respondents were food insecure with severe hunger (experienced cutting down of meal sizes, skipping of meals for all members of the household including children). It implies that 42.50% of the farming households in the study area were food insecure, while 57.50% were food secure.

Table 3: Farm Households Food Security Status

Food Security Status	Frequency	Percent
Food Secure	54	22.50
Food insecure without hunger	48	20.00
Food insecure with moderate hunger	72	30.00
Food insecure with severe hunger	66	27.50
Total	240	100

Source: Field Survey, 2019

Logit Regression Results of the Factors Influencing Food Security Status of Farm Households

The factors influencing food security status of the farm households in the study area were analyzed using logistic regression model. The result of the model is given in Table 4. The result shows that years of education of women ($p < 0.001$), household size ($p < 0.01$), access to credit ($p < 0.001$), main occupation of the household head ($p < 0.001$), membership of farmers' association of the household head ($p < 0.001$), age of household head ($p < 0.001$), age differential between spouse ($p < 0.005$), household income of household head ($p < 0.001$),

proportion of women's income in household total income ($p < 0.005$), women bargaining power ($p < 0.005$) are the significant factors influencing the food security status of the farm household in the study area. Years of schooling of women are statistically significant and positively related to the food security status of farming households. It implies that female household with high level of education is more likely to be food secure than those with a low level of education. The same situation applies to age and farming experience of the household head, implying that food security is assured with an increase in age and farming experience. The positive coefficient for age is contrary to

expectation, and this could be as a result of additional income from adult children in the household. Income of the household head was expected to improve the status of household food security because the ability to purchase food largely relies on household income and asset (wealth) status (Jacobs, 2009; Anderson *et al.*, 2018). Access to credit was found to be positively significant to the household food security status. Credit, if acquired timely, can increase the likelihood of a household procuring seeds, agrochemicals, and fertilizer (Kuwornu,

Mensah-Bonsu and Ibrahim, 2012), and could improve productivity and, thus, the food situation (Iftikhar, Mahmood and Yildiz, 2017). Access to credit by households was therefore positively related to household food security status. Elias *et al.* (2013) pointed out that if both men and women have equal participation in agriculture, production and food security status can be enhanced. Therefore, the higher the women's bargaining power, the higher the farm households' food security status.

Table 4. Logit Regression Results of the Factors Influencing Food Security Status of Farm Households

Variable	Coefficients	Standard Error
Years of schooling of women	0.041***	0.015
Household size	-0.204*	0.111
Farm size (hectares)	0.033	0.513
Farming experience (years)	-0.223	0.584
Access to credit (Yes =1, No =0)	0.344***	0.012
Main occupation of the household head (Farming =1, others =0)	-1.232***	0.361
Membership of Farmers association of the household head (Yes =1, No =0)	2.106***	0.721
Age of household head (years)	1.102***	0.242
Age Differential between spouse	-0.076**	0.031
Household income of household head (₦)	1.758***	0.466
Proportion of Women's Income in Household Total Income	9.783**	4.071
Women Bargaining power (DMI)	0.793**	0.363
Land ownership (Yes =1, No =0)	2.113*	1.132
Constant	0.042	0.014
Number of observations = 240		
LR χ^2 (11) = 128.63		
Prob> χ^2 = 0.0000		
Pseudo R ² = 0.1692		
Log likelihood = -1036.32		

Source: Field Survey, 2019 **Note:** ***: significant at 1% level; **: significant at 5% level; *: significant at 10% level.

Conclusion

This study examined how intra-household decision making influences food security status. The influence of decision making within the household affects the distribution of resources, wealth and food security within the family. The role of women in the household is germane to changing the social and economic position and the wellbeing of household members..

Regarding the proxies for women's bargaining power, on average, women contribute 27% to total household earnings. Women are younger

than their spouses. However, there was a small gender gap in literacy level between spouses. This study indicated that women did not participate in most important household's decision making. Men participated mostly in decision-making regarding the use of productive assets such as land use, crop sales, and shelter while women participated mostly in decisions on expenditures on food, health, and education, but even in these areas, men more often than not remain the primary decision-makers. The study affirms that women's bargaining power has a

positive impact on farm households' food security. However, considerable evidence indicates that intrahousehold dynamics do affect household decisions. Thus, development

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