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RISKS, VULNERABILITY AND DETERMINANTS OF WOMEN FARMERS' PARTICIPATION IN SELF-HELP-GROUP (SHG)-LED MICROFINANCING IN ISUIKWUATO, ABIA STATE, NIGERIA

Christopher Ogbonna EMEROLE, Charles Kelechi OSONDU, Chidozie Onyedikachi ANYIRO

Abia State University Uturu, Department of Agricultural Economics and Extension, Umuahia Campus P.M.B. 7010 Umuahia, E-mail: emerolechriso@yahoo.co.uk, yoke14life@gmail.com, anyirochidozie@gmail.com

Corresponding author: emerolechriso@yahoo.co.uk

Abstract

This study on risks, vulnerability and determinants of women farmers' participation in Self-Help-Group led micro financing was carried out in Isuikwuato local Government Area (LGA) of Abia State in Nigeria. Two-stage random sampling and purposive sampling techniques were adopted in selecting communities and respondents. Socio-economic and some farm operation variables were analyzed descriptively and others regressed on discrete decision of women participating or not participating in Self-Help- group (SHG) financing. Fire outbreak, ill health, theft, soil erosion and attack of farm products by pests and diseases were perceived (in this descending order) as risks/natural disasters confronting the farmers. Previously owed debts, Ease of membership to groups, Age of the woman, Household size, and use of cultural/formal insurance over perceived risks were factors that influenced participation of women farmers in self-help-group micro financing. To ease the burden of inaccessibility to formal farm credit among women farmers, we recommended that relatively younger women should be encouraged to join older women in such mutual self-help groups to reap benefits accruable from the groups especially being able to manage their farms and households with less stress.

Key words**:** *micro financing, risks, Self-Help-Group, vulnerability, women*

INTRODUCTION

On grounds of world development issues, women occupy underprivileged positions and in low income countries of Asia and Africa fall into vulnerable category in terms of risks, shocks and constraints to formal labour markets and entrepreneurship [10]. In attempts to come out of this, they come together to help themselves by forming Self-Help-Groups (SHG). The woman SHG usually is a community-based financial intermediary that consists of 10-20 local women who gets started by members making small regular savings contributions over a few months until there is enough capital in their coffers to start lending first to their members and then to others. Leadership of management of women Self-Help-Groups must come from ranks and commitment of the women themselves and their quality participation achieved through formation of the group and educational programmes [8]. Their ambition is to mutually assist one another and improve their livelihood. Such mutual SHG often constitute evolving social securitization units and method of transforming cash flows and risk management practices amongst poor entrepreneurs and farmers.

Risk refers to potential of losses incurable (the probability of occurrence of which can be estimated) that prompts action of taking credit facility. Among women SHGs the risks vary and may include loan repayment defaults, information asymmetry, declined yield, product price instability, and high interest charges on loans. The groups in most cases constitute average return of credit contract and are also the risks which such contracts imply [14]. Actually, women SHG are avenue of transferring risk to co-group members in form of borrower(s) defaulting on the debt agreement or credit-linked security [6]. Some women farmer borrowers, are risk averse and have ever been denied access to formal credit but have insisted on borrowing from informal loan sources [14,11]. Their insistence has often amounted to devout participation in

units mobilizing micro finances. [20] found a positive evidence that vulnerability was a determinant of microfinance participation.

Vulnerability is a concept that relates to defenselessness vis-à-vis to risks and shocks [5]. Thus two aspects have been recognized for vulnerability, namely internal and external aspects. The external aspect relates to the risks and shocks to which an individual, household, group, or community could be prone at any time. These risks could be illness or death, economic shocks, natural disasters, or personal shocks. The internal aspects of vulnerability refer to the defenselessness and the difficulty, due to shortage of means, of coping with a shock without experiencing a loss. [7] defined vulnerability as the existence and extent of poverty and destitution. It is the inability to smooth consumption across adverse shocks to income [20]. The amount of consumption credit a household can access in a bad state, or its liquid assets and access to insurance measures her vulnerability.

Participation was defined by [4] as a process by which people are enabled to become actively and genuinely involved in defining the issues of concern to them, in making decisions about factors that affect their lives, in formulating and implementing policies, in planning, developing and delivering services and in taking actions to achieve change. Studies have shown that dependence on outside borrowing by households greatly declined after households joined SHGs [18,2,19]. Mutual self-help assistance has thus remained a subtle way of keeping on with farming activities especially among the socially backward and landless women. An individual or household participates in a microfinance programme if it borrows from that source of credit [9].

Participation combined with gender can strengthen both concepts, grounding gender in realities of people's lives and make participation a more effective channel for the expression of marginalized people's demands. Mainstreaming both approaches can increase redistribution of positive outcome of projects [1]. [21] are of the view that participation is a vehicle to achieve development of a group and their community. In the case of women SHG projects in a community, a member participates if she contributes to and borrows from the group [3]. In core Igbo states of Nigeria, SHGs are popular local institutions that greatly have improved welfare of farm households [12]. With the foregoing background, this study has a main objective of analyzing factors that influence participation of women farmers in self-help-group micro financing projects amidst inherent risks and conditions of vulnerability in Isuikwuato Local government Area of Abia State, Nigeria.

The specific objectives are to:

(i)compare household demographics, vulnerability indicators to SHG member farm households and non-SHG member farm households in the study area;

(ii)analyze perception of natural hazards or risks by SHG women farm households in the study area;

(iii)distribute women SHG members by amount of farm credit accessed from their groups;

(iv)determine factors that influenced women farmers participation in Self-Help micro financing group in the study area.

MATERIALS AND METHODS

This study was conducted in Isuikwuato Local Government Area (LGA) of Abia State, Nigeria. Isuikwuato lies between Latitudes $5^0 41^{/}$N and $5^0 46^{/}$N of the Equator and Longitudes $7^0 41^{/}$E and $7^0 45^{/}$E of the Greenwich Meridian with a population of 114,442 human inhabitants in 50 autonomous communities made up of 56,831 males and 57,611 females [17]. The area has its administrative headquarters at Mbalano. Isuikwuato shares boundary with other LGAs in Abia State namely Bende, Umunneochi and Umuahia North in the East, North and South respectively. It also shares boundary with Okigwe LGA of Imo State. The area has undulating topography and typically is agrarian producing food crops like maize, cassava, and melon alongside cash crops like cashew and oil palm. Livestock such as poultry, sheep and goats are kept by male and female farmers in a small scale.

Two-stage random sampling followed with purposive sampling technique was adopted in this study. Firstly, five communities were randomly chosen from fifty autonomous communities in the area. Secondly, two villages were randomly chosen from the selected communities. This gave a total of 10 villages. All Women-Self-Help Groups were purposively selected from the chosen villages. Twelve woman-led households and members of the SHG were also purposively selected to give a sub-sample of 120 member households. From the same villages where member households were chosen, another 120 non-member woman-led households were selected twelve from each village also. This gave a sample 240 women respondents for this study. A semi-structured, pre-tested questionnaire was administered by personal interview method and used in gathering their operational primary data used in this study. Data gathered among others included demographic information of age of woman household head, household size, farm size, amount of credit accessed from their groups, value of liquid asset (part of SHG borrowed fund used for feeding and harvested but not sold crops/livestock). Other information included measures taken to guard against farm losses including cropping and farming systems, some cultural practices and debts previously owed, and ease of membership.

Data gathered were analyzed descriptively using frequency distribution, means, and standard deviations. In analyzing member farmer's level of perception of risks and management practices, a likert type question on a 5-point score was used. Perception category nominal scores were: Strongly perceived (5); Perceived (4); Not sure (3); Did not (2) and Strongly did not (1). Probit multiple regression model was used to inferentially analyze determinants of participation in SHGs and was based on utility theory or rational choice perspective on their behaviour [16,15,3]. It was assumed that participation or non-participation on SHG was based on unobservable utility index (I_i) that was explained by independent variable (X_i) in such a way that the larger the index I_i the greater the probability of participation in SHG. The index was explained thus:

$$I_i=\beta_o+ \beta_1X_i +U \quad \text{…..... (1)}$$

Where βo is the constant; β_1 is the coefficient of independent variable(s); X_i is the independent variable(s); and U is the random error term. There was a critical threshold of index I_i such that if I_i exceed I_i*, households will have participated in SHG, otherwise they have not. Though the threshold I_i* exists as if Ii was not observable, it was possible to estimate the parameters of the index when we assumed that I_i was normally distributed with the same mean and variance. Given the assumption of normality, the probability that I_i* was less than or equal to I_i could be computed from the standardized normal cumulative distributive function (cdf), thus:

$$P_i =P_r (Y=1)= P_r (I_i^* < I_i) = F (I_i) \quad T = 1/\sqrt{2\pi} \int e^{-t2/2}dt \quad \text{… .....(2)}$$

$$P_i=1/\sqrt{2\pi}\int_{-\infty}^{\beta o + \beta 1Xi} e^{-t2/2\ dt} \quad \text{…..... (3)}$$

Where't' is a standardized normal variable with zero mean and constant variance, i.e N(0,1).

To obtain information on the index, Ii and coefficients β_o, and β_i , the inverse was taken, thus:

$$I_i=F^{-1}=(Ii)=F^{-1}(P_i)=\beta_o+\beta_1X_i \quad \text{…..... (4)}$$

Where F^{-1} is the inverse of the normal cdf

In Probit analysis, the unobservable utility index I_i was simply known as Normal Equivalent Deviate (NED) or simply Normit. Since I_i would be negative, i.e $P_i < 0.5$ in practice, the number 5 was added to the NED and the result was called Probit, thus:

$$\text{Probit= NED+5 =}I_i+5 \quad \text{…..... (5)}$$

Rewriting to estimate β_o and β_1 we have:

$$I_i = \beta o + \beta_iX_i + U$$

All variables are as defined; the equation estimated for this study was explicitly thus:

$$PWSHG = \beta o + \beta_1AG + \beta_2HS + \beta_3FS + \beta_4LA + \beta_5DW + \beta_6CC + \beta_7RI + \beta_8EM + \beta_9LA + U \quad \text{…..(6)}$$

Table 1.Description of variables estimated to influence women participation

Variable	Variable type	Hypothesized sign	Description of Variable
PWSHG	Binary (Dependent)		1 if jth woman participated in SHG; 0 otherwise
Independent Variables			
AG	Continuous	-	Age of woman head of household in Years
HS	Discrete	+	Household Size-Number of persons feeding from same pot
FS	Continuous	+	Farm size cultivated in Hectare
LB	Continuous	+	Amount of loan borrowed from SHG in ₦'000
DW	Continuous	+	Amount of debt owed previously ₦'000
CC	Continuous	+	Part of borrowed fund consumed as food ₦'000
RI	Dummy/Discrete	+	1 if woman uses cultural or formal insurance against personal/enterprise risks; 0 otherwise
EM	Dummy/Discrete	+	1 if it is easy to join and be a member of SHG; 0 otherwise
LA	Continuous	-	Amount of own liquid Assets ₦'000
U			Disturbance or error term

RESULTS AND DISCUSSIONS

Comparative Socio - economic Characteristics of Women farmers

Table 2.0 compared the socioeconomic characteristics of the women farmers in the study area.

The Table showed that women farmers involved in this study were young with more of those not involved in Self-Help-Group relatively younger. The mean age of the women involved in SHG financing was 44.3 years and that of those not involved as 39.9 years.

Among the women involved in SHG financing, a fairly large proportion (39.2%) was in the age cohort of 41 to 50 years, an age range when women are leaving child bearing and are getting into training of children in secondary/tertiary schools.

Table 2.Characteristics of Respondent SHG and Non-SHG Households in Isuikwuato

Variable	Female SHG Member Household (n=120)	Percentage	Female Non-SHG Member Household (n=120)	Percentage
Age (Years):	**Number**	**%**	**Number**	**%**
20-30	16	13.3	13	10.8
31-40	40	33.3	44	36.7
41-50	47	39.2	43	35.8
Above 50	17	14.2	20	16.7
Mean age	44.3		39.9	
Std. Deviation	7.9		9.5	
Household Size:				
1-4	73	60.8	76	63.3
5-8	42	35.0	41	34.2
≥ 9	5	4.2	4	3.3
Mean household size (persons)	4		5	
Farm Size (Ha):				
< 1.0	90	75.0	66	55.0
1.0-2.0	17	14.2	43	35.8
> 2.0	13	10.8	11	9.2
Mean size (Hectare)	0.98		0.63	
Level of Formal Education (years):				
No formal Education	9	7.5	4	3.3
Primary Education	23	19.2	16	13.3
Secondary Education	78	65.0	67	55.8
Tertiary Education	10	8.3	33	27.5
Amount of SHG Credit accessed (₦'000):				
Loan category **Amount received**				
≤ 50 2070	69	57.5	n.a	
50-100 1950	22	18.3	n.a	
101-150 1080	9	7.5	n.a	
151- 200 1750	10	8.3	n.a	
Above 200 2500	10	8.3	n.a	
9,350	**120**			
Vulnerability Indicators:*				
Lives in own home	49	40.8	78	65.0
Lives in rented home	50	41.7	20	16.7
Has Bank Savings	17	14.2	34	28.3
Has Home savings	29	24.2	120	100.0
-Married & lives with husband	45	37.5	100	83.3
-Single	40	33.3	9	7.5
-Widowed	56	46.7	11	9.2
-Divorced	10	8.3	nil	nil

*Multiple responses observed; n.a = Not applicable

Mean size of the households was 4 persons to woman-led SHG households and 5 persons to woman-led non-SHG households was moderate as such numbers could be comfortably managed using own generated or borrowed funds. The farm sizes were small and indicative of smallholder status. Both categories of woman-led households were highly literate as more than 90.0% of them had in each category at least primary education.

Loans were given to members according to size of their regular contributions. Bulk of the loan received from the SHG (₦2.5m) went to 8.3% of the members with bulk of the recipients (57.5%) receiving a relatively lower sum (₦2.07m). This was also indicative of the level of vulnerability of the large proportion of membership of women SHGs. More of the women in the SHGs were vulnerable widows, single parents living in rented apartments, with many having no bank accounts or savings in their homes.

Other measures of vulnerability of the groups showed that non-SHG members were relatively less vulnerable than SGH members. The highest indicator of vulnerability of SHG membership was bereavement of spouse as 46.7% of members were widows. The table also indicated that having bank savings in addition to home savings reduced the propensity of belonging to SHG as relatively more of women with such status did not belong to SHGs. Living in rented homes (41.7%) as against own homes (40.8%) was an indicator that showed more members of SHG compared with non-SHG members (16.7%) as against (65.0%) respectively.

Risks/Natural Hazards and Woman Farmer Perception

Table 3.0 showed risks of concern and their level of perception by woman members of SHG in Isuikwuato area of Nigeria. The most perceived risk by the farmers was risk of outbreak of fire arising from incessant bush burning by farmers and hunters in the area. The hunters in the area have the habit of setting the bushes on fire during the dry season to scare out their game from the hideouts and in the process ignite unquenchable fires that burn adjoining farms.

The common cultural management practice adopted by farmers was slashing of perimeter bushes to act as fire break. Next in the rank of risks perceived by the respondents was ill health. Many of the poor women perceived being ill at one time or the other and reported having managed their predicament by going to health centers and/or clinics and paying for their drugs over the counters.

The women reported risk of theft of their farm products.

Table 3.SHG Women Farmer Members Risks Perception and Management

Perceived Risks/Natural Hazards	Level of Perception of Risk							Mitigation Measure(s)
	Strongly perceived	Perceived	Not sure	Did not	Strongly did not	Total	Rank	
Fire outbreak	26 (130)	24 (96)	6 (18)	2 (4)	2 (2)	250	Ist	Creating perimeter fire break by slashing surrounding bushes to the plot.
Theft	27 (135)	20 (80)	3 (9)	4 (8)	6 (6)	238	3rd	Keeping surveillance and harvesting crops as soon as they mature.
Product Diseases and Pests	22 (110)	27 (108)	4 (12)	4 (8)	3 (3)	231	5th	Planting resistant varieties; Trapping rodents and using scare crows to scare away birds
Ill health	30 (150)	20 (80)	1 (3)	7 (14)	2 (2)	249	2nd	Attending clinics and buying drugs over the counters.
Soil Erosion	19 (95)	28 (112)	7 (21)	3 (6)	3 (3)	237	4th	Integrating cover crops such as melon as part of enterprise.

Note.Figures in parentheses are likert nominal scores; other figures are number of farmers/frequencies.

Thieves most times invaded their farms and stole either fresh matured crops or livestock or harvested and stored products. However they managed this risk culturally by keeping close watch to their farm enterprises and in severe cases harvested their crops promptly soon as they mature in the fields.Soil erosion was equally a serious risk in the ultisol soils of undulating terrain that characterized the area. They managed this by planting cover crops such as crawling vegetables and melon as intercrops. The least perceived risk was that of attack of pests and diseases, which they contained with by selecting and planting improved certified crop varieties that are resistant to them.

Factors Influencing Participation of Women Farmers in SHG Financing

Other factors that were significant at alpha level of probability of 5.0% but had negative and moderate influences on participation were age of the women, and their use of cultural/formal insurance measures on perceived risks.

Table 4. Binary Probit Regression Coefficients of Determinants of Women Farmer Participation in Self-Help Group Micro-financing in Isuikwuato LGA of Abia State

Variable	Estimated Coefficient	Standard Errors	Z-ratio	P>|z|
Constant	-0.4147	0.8591	-0.48	0.629
Age of Woman household head	-0.0034**	0.00164	-2.07	0.003
Household Size	0.0134*	0.0093	1.54	0.122
Farm size	1.90e-06	1.01e-06	1.95	0.051
Amount of loan borrowed	0.0008	0.0466	0.02	0.986
Debt owed previously	1.1488***	0.2870	4.00	0.000
Part of loan consumed	0.0229	0.0428	0.52	0.602
Use of cultural/Formal insurance	-0.0719**	0.0364	-2.09	0.037
Ease of Membership	0.1749***	0.0569	3.07	0.002
Own Liquid Assets	-0.0008	0.0465	-0.02	0.986
Pseudo R^2	0.4301			
Log Likelihood	33.5496			
Chi^2	32.10			
Cases predicted correctly (%)	94.68			

*** Significant at 1.0%; ** Significant at 5.0%; * Significant at 10.0%

Size of the households was the fifth factor that significantly influenced participation of the Table 4.0 showed estimates of factors hypothesized to influence women farmer participation in Self-Help-Group micro-financing in the study area. The probit model explained 94.68% of the predicted cases correctly and showed estimates of five out of eight factors to have significantly influenced women participation in SHG micro-financing in Isuikwuato, Nigeria.These factors are previously owed debts and ease of membership to the groups that very highly influenced participation at 1.0% alpha level of probability. Both factors exerted very high positive influences meaning that when previously owed debts are high and entry into SHG was easy many women farmers participated in the group activities (i.e. saved money and borrowed from the SHGs). women in SHG financing. This factor influenced women farmer participation lowly but positively in such group financing activities in the area.

CONCLUSIONS

Using indicators of vulnerability, more of the women in the SHGs were widows, single parents living in rented apartments, with many having no bank accounts or savings in their homes. The most perceived risk by the farmers was risk of outbreak of fire arising from incessant bush burning by farmers and hunters in the area. To guide against this risk, a common cultural management practice adopted by farmers was slashing of perimeter bushes to act as fire break. The least perceived risk was that of pests and diseases attacks, managed by selecting and planting improved certified crop varieties that are resistant to them. Incidences of huge debts owed by women, and easy conditions attached to SHG motivate more aged women to participate in such groups. To ease the burden of inaccessibility to formal farm credit to women farmers we recommended that relatively younger women farmers should join the older ones in such mutual self-help groups to reap the benefits accruable from such groups especially being able to manage their farms and households with less stress.

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