EFFECT OF POVERTY ON RISK ATTITUDE OF RURAL WOMEN INVESTORS IN OSUN STATE, NIGERIA

ADEWUMI, M. O., *AYINDE, O. E., OLATUNJI, G. B. AND F. F. AJAYI.
Department of Agricultural Economics and Farm Management,
University of Ilorin, P.M.B.1515, Ilorin, Nigeria.
E- mail*: opeayinde@yahoo.com

ABSTRACT
In investments, profit is the main reward for risk bearing. A riskless business may promote poverty. Poverty influences the capacities and willingness to acquire new knowledge and apply new technologies. This study sought mainly to determine the effect of poverty on risk attitude of rural women investors. The study area was Osun state. A three stage sampling technique was used for selection of respondents. Data were generated from both primary and secondary sources. Structured questionnaire was the main tool used to collect primary data for the study. Data collected from 75 respondents were analyzed using descriptive statistics, the Foster Greer Thorbecke poverty measures, the Multi item scale and multinomial logit regression analysis. Result showed that 58.67% of the respondents were poor and the depth and extent of poverty is 19.53% using the international US$1 per day per person as poverty line. Furthermore, the study revealed that, 50.6% of the respondents were risk averse, 38.7% were risk preferring while 10.7% were risk neutral. Further analysis showed that age and level of poverty were major determinants of risk attitudes. Any attempt to insure the women investors' business should take account of the poverty levels and age of these women.

Key words: poverty, risk attitude, rural women investors

INTRODUCTION
In many developing countries, women produce 60-80% of food, but own less than 10% of credit and have disproportionately limited access to agricultural inputs, decision making, research and technology (FAO 2007). Not only do women produce and process agricultural products but they are also responsible for much of the trade in these and other goods in many part of the world. Women play an indispensable role in farming and in improving the quality of life in rural areas. Evidently, there are serious constraints which militate against the promotion of an effective role for women in development. They lack skills and equipment to produce more efficiently and better quality products, lack of information on non local markets, scarcity or high cost of raw materials and especially lack of access to medium term loans for working capital. These conditions contribute to and result from poverty and restrict the capacity of the poor women to overcome poverty (FAO, 2007).Poverty can be seen from several angles. The most widely used descriptors are income (poverty and indigence lines) and unsatisfied basic needs, usually encompassing income, education, housing and access to health and basic services. Of those, income and education are certainly directly relevant to the capacity and willingness to acquire new skills and adopt new technologies. In turn, access to credit, information and telecommunication are usually very crucial (Poverty workshop, 2008). The attitude of the rural women investors towards risk depends on the cost implication of the risk to their capital. Low income levels have rather obvious implications on the possibilities to save and make the required investments- especially in the absence of well functioning credit markets- for the adoption of

new ideas and innovation or shift from one market to another. It is however the correlation between (lack of) wealth and attitude to risk that we would like to stress at this point. Indeed, market changes usually implies higher (perceived) risk because it means a transition from something known to something unknown or less known or less known (be it a new product, activity, way to produce, market etc) (Poverty workshop, 2008). The more precarious the condition of the rural women investors, the more averse she will be to risk. Risk that are perceived to exceed a threshold determined in accordance with the quantity and liquidity of assets owned are usually not accepted as this could endanger the very existence of the business and family members that live from it (Figueroa, 1996). Income poor rural women investors are vulnerable in sense of being asset poor and would therefore be less likely to take the risk associated with the acquisition of assets. They take up low risk activities at the cost of low returns. They lack capital, have modest technical skills and weak management skills, lack equipment to produce more efficiently and better quality products, lack of information on non local markets, scarcity or high cost raw materials and especially lack of access to medium term loans for working capital. These conditions contribute to and result from poverty and restrict the capacity of the poor to overcome poverty. Poverty hampers the adoption of innovations and ideas, ability to accept and market new products, ability to respond and adapt to new market signals which can improve the economic, social and political situation of rural women investors. The attitude towards risk tends to display the income level of the rural women. Practically, by definition, when a household has an income which is below poverty line, it has little or no capacity to save and make the required investment. (Moseley and Verschoor, 2003). Hence the study examines the effect of Poverty on Risk Attitude of Rural Women Investors.

MATERIALS AND METHODS

This study was carried out in Osun State. Primary and secondary data were used for this study. Primary data were collected through interview using structured questionnaire. A three stage sampling procedure was used to collect data from seventy five rural women investors. Three local government areas were randomly selected from where 6 villages were chosen for the study. The target respondents were the rural women investors. Seventy five rural women investors were randomly selected from these six villages. The analytical techniques employed in the study are descriptive analysis, Foster-Greer-Thorbecke Poverty Measures, multi item scale approach and Multinomial Logit Regression. Foster-Greer-Thorbecke [FGT] Poverty Measures utilized the assessment of the poverty level of rural women investors. This chosen measure of poverty is believed to be able to capture a range of value judgments on the extent and significance of poverty, at the same time it is easy to handle and interpret. One set of measures that have been found appropriate are those proposed by Foster, Greer and Thorbecke (1984).

$$P_\alpha = 1/n \sum [1 - yi/z]^\alpha \text{---------------------------------}1$$

The α is a FGT parameter, which takes the value of 0 when the FGT index is the head count, if $\alpha = 1$, the FGT index becomes the poverty gap index i.e., the average gap between individuals income and the poverty line (where non poor persons are assigned a gap of zero), divided by the poverty line and n is the total number of population individuals, z is the poverty line, q is the number of individual below the poverty line and yi is the expenditure level of the women investors. $\alpha = 0$ and 1 are given as:

$$P_0 = q/n \text{--}2$$
$$P_1 = 1/n \sum [z - yi/z] \text{---}3.$$

The international poverty line of US$ 1 per day per person is adopted for this study. This translates to N5,100 per month at the prevailing exchange rate of N170.00 per dollar. Thus, rural women investor whose per capita income falls below N5,100 is considered poor.

Multi item Scale Approach was utilized to identify the risk attitudes of rural women investors towards their enterprise. Risk attitude is a latent construct (i.e., a not directly observable variable) is measured by a set of observable variables (so called indicators, i.e., questions or items). The iterative procedure recommended by Churchill (1995) to obtain reliable and valid scales was used. First, a large pool of questions as indicators was generated (Kunreuther and Ginsberg, 1978, MacCrimmon and Webrung, 1990, Goodwin and Schroede, 1994, Shapira, 1997, and Pennings and Garcia 2001), and care was taken to tap the domain of construct. Women investors were asked to indicate on a Likert scale from −2 ("I strongly disagree") to 2 ("I strongly agree") the extent to which they agreed with the items (statements) displayed in table 1. Explanatory factor analysis was carried out on the items to assess the appropriateness of the items to a two-factor-model. The reliability of the construct measurement was also tested.

Multinomial Logit Model was fitted and estimated using multinomial logistic regression. The choice of this method is based on the fact that the risk behavior (dependent variable) is a categorical variable which can take three (3) levels (0, 1, and 2). This classification is based on the results of the risk behavior eliciting technique of the rural women investors. In this study, 0 is the risk neutral group; 1 is the risk averse group and 2 is the risk preference groups. The model was utilized to identify the effect of poverty and other socioeconomic variables on risk attitude of rural women investors. In this study, independent variables include:

X_1 = women investors' age (in years); X_2 = membership in a cooperative society. Dummy variable. (1 for members and 0 otherwise); X_3 = women investors in poverty level 1, else 0; X_4 = women investors in poverty level 2, else 0; and X_5 = women investors in poverty level 3, else 0. The women investors are classified into poverty levels on the basis of their income in relation to the poverty line.

DISCUSSION

The study revealed that 80% of the rural women investors belong to the middle age class. 13.3% were between 51-60 years and 3% were of age 60 while about 3% belong to the age range of 21-30. About 25% had no formal education, 37% had primary education and about 37% possessed secondary education. Of the respondent, about 70% were engaged in the marketing of agricultural product while 29 % undertook the processing activities. Out of the respondents, about 76% did not belong to any cooperative society while only 18% were members of a cooperative society.

Poverty Situation of Respondents

The Foster, Greer and Thorbecke employed in this study for measuring poverty require the definition of poverty line. The international poverty line of US$1 per day per person is adopted for this study. This will translate to N5100 per month at the exchange rate of N170.00 per dollar (this was the prevailing rate during the period of the survey). Thus, any rural women investor whose income per month falls below N5100 is considered poor. The result shows that the headcount ratio (P_0) is 58.67% implying that about 59% of the respondents in the area were poor while the poverty gap (P_1) which is the mean distance of the income of poor rural women investors from the poverty line was 19.53%. The rural women investors are further classified into

four poverty levels on the basis of their income in relation to the poverty line. Those whose income fall below one third of the poverty line, that is ₦1700 are considered "very poor", those whose income fall below 1/3 and 2/3 of the poverty line (₦1700-₦3400) are termed "moderately poor", those whose income falls between 2/3 of the poverty line and the poverty line (₦3400-₦5100) are considered as "poor". Those whose income is greater than the poverty line are considered "non poor".

Table 1: Distribution of Respondents by Poverty Levels.

Poverty Level	Frequency	Percentage
Very poor	2	2.67
Moderately poor	19	25.33
Poor	23	30.67
Non poor	31	41.33

Source: Field Survey, 2009.

Table 1 reveals that 2.67% of the respondents are very poor, 25.33% are moderately poor and 30.67% are poor while 41.33% of the respondents are non-poor.

Elicited Risk Situation Faced By the Rural Women Investors
An attempt is made here to highlighting the risk situation faced by the rural women investors. To this end, the rural women investors were asked to identify what they considered as risk situation in their enterprise activities. They reported; price variation of products, poor transportation, uncertainty in consumers response, competitive markets of products, lack of readymade markets, lack of information system, packaging problems in which quite substantial part of the products may be lost before getting to the market, perishability of the product.

Rural Women Investors Attitude to Risk
This section presents the attitude of the rural women investors' to risk as measured using the scaling framework techniques.

Scaling Framework
Explanatory factor analysis forms the scale items into two. The explanatory factor analysis on the scale items yielded Eigen values with its percentage variance and cumulative percentage as shown in the table 19:

Table 2: Result of factor analysis

Eigen values		%variance		cumulative %	
1st factor	2nd factor	1st factor	2nd factor	1st factor	2nd factor
4.192	1.361	52.397	17.016	52.397	69.413

Source: Factor Analysis Output.

Table 3: KMO and Barlett's Test Result

Kaiser-Meyer-Olkin measure Of sampling adequacy		0.798
Barlett test of sphericity	approx. chi. Square	454.270
	df	28
	sig.	0.000

Source: Factor Analysis Output.

On the basis of the questions, the first four items make up scale 1, the last four items make up scale 2. The reliability of the scales is shown in table 4:

Table 4: Reliability statistics

	Cronbach's Alpha	No of items
Scale 1	0.411	4
Scale 2	0.677	4

Source: Reliability Statistics

The reliability scale ranges from 0 and 1 with higher values indicating greater reliability. Scale 2 is found more reliable. Hence, scale 2 was used to classify the rural women investors to risk attitude groups. Based on these risk attitude scale (scale 2), all the sampled rural women investors were divided into risk averse, risk neutral, and risk taker. The split was based on the average sum of the score on the items of the more reliable scale. Rural women investors who had a negative sum are risk takers, those who had a sum score of zero are risk neutral and those who had a positive sum score are risk averse (Pennings and Garcia, 2001).

Table 5: Classification of Respondent Based on the Risk Attitude Scale

	Frequency	Percentage
Risk averter	38	50.6
Risk neutral	8	10.7
Risk preference	29	38.7

From table 5, it is found that 50.6% of the respondent are risk averse, 10.7% of the respondent are risk neutral while 38.7% of the respondent are risk preference.

Effect of Poverty and Socioeconomic Variables on Risk Attitude of Rural Women Investors
Using multinomial logit model, the risk neutral group was used as the reference group with other risk attitude groups in table 6 while risk averse group was used as the reference group with other risk attitude groups in table 7.

Table 6: Multinomial Logit Model Result with Risk Neutral as Reference Group

Variables	Risk Averse Group Parameters	Risk Preference Group Parameters
Age	0.136(0.077)*	0.051(0.078)
Membership in Cooperative Society	-0.077(0.981)	0.791(0.026)
Poverty Level 1	-15.467(1.492)*	-15.846(0.000)
Poverty Level 2	-15.534(1254.545)	15.244(1254.545)
Poverty Level 3	-0.170(0.878)	0.258(0.863)
Log likelihood	-0.1824	
Likelihood Ratio (λ)	17.666*	
P^2	0.247	
N	75	

Note: Figures in parenthesis are the standard error of the estimated regression coefficient in their absolute values. * = Significant at 10% level of significance

From table 6, the likelihood ratio test for the model lambda is 17.66 and is significant at 10%. This means that the risk attitude groups are heterogeneous. It is observed that the age and poverty level 1 is significant in classifying the rural women investors into a risk averse group while the impact of all the variables are not significant in classifying the rural women investors into risk preference group. Age is positively significant and it implies that the probability of being in risk averse group relative to the risk neutral group increases as their age increases, the poverty level is negatively significant and it implies that the probability of being in the risk averse group relative to the risk neutral group decreases as their income is increased.

Table 7: Multinomial Logit Model Result with Risk Averse as Reference Group

Variables	Risk Averse Group Parameters	Risk Preference Group Parameters
Age	-0.136(0.077)*	-0.0861(0.040)*
Membership in Cooperative Society	0.077(0.981)	0.868(0.633)
Poverty Level 1	15.467(0.000)	-0.379(1.492)
Poverty Level 2	15.534(1254.545)	0.291(0.691)
Poverty Level 3	0.170(0.878)	-0.88(0.635)
Log likelihood	-0.1824	
Likelihood Ratio (λ)	17.666*	
P^2	0.247	
N	75	

From table 7, the likelihood ratio test for the model is 17.669 and is significant at 5%. This means that the risk attitude groups are heterogeneous. It is observed that age is negative and significant in classifying the rural women investors into a risk neutral group and risk preference group. This implies that the probability of being in a risk neutral group relative to the risk averse group decreases as their age increases and the probability of being in a risk preference group relative to the risk averse group also decreases as their age increases.

CONCLUSION AND RECOMMENDATIONS
It is evident from this study that the sampled rural women investors mostly engage in the marketing and processing of agricultural products. The headcount ratio shows that about 58% of the respondent in the area are poor and 50.6% of the sampled rural women investors were risk averters, 10.7% were found to be risk neutral while 38.7% were risk preference. It is found that age and poverty level were significant in classifying rural women investors into their risk behavior group. The study concludes that stake holders in rural development in a bid to reduce poverty levels among the rural women need to be mindful of the age and poverty levels of these people. Their age and poverty levels can be useful criteria for classifying them into various risk preference groups. Institutional packages if optimally tailored to the rural women investors' economic behavior will greatly enhance the chances of success of rural development interventions and programmes.

REFERENCES
Churchill, G.A (1995): "Marketing Research: Methodological Foundations". Chicago: *The Drydn Press*.

Daman Prakash (2003) "Rural Women, Food Security and Agricultural Cooperatives". *Rural Development and Management Centre*. The Saryu:j-102 Kalkaji; New Delhi 110019, India Feb 2003. http://www.uwcc.wisc.edu/info/intl/rur_women.pdf

FAO 2007: Sustainable Agriculture and Rural Development (SARD) *Policy Brief* 4, 2007.

Figueroa, Adolfo (1996): Pequena Agricultura y agroindustria en el Per, ECLAC, Lc/L. 975, Santiago.

Foster, J.J. Greer, and E. Thorbecke (1984) "A class of Decomposable Poverty Measures". *Econometrica* 52(3): 761-766.

Goodwin, B.K., and Schroede, T.C. (1994). "Human capital, producer Education Programs, and the Adoption of Forward Pricing Methods." *American Journal of Agric. Economics.* 76 (4): 936-937.

Kunreuther, H.C., and Ginsberg, R.(1978): "Disaster Insurance Protection: Public Policy Lessons". New York: *John Widey and sons*.

Maccrimmon, K.R., Wehrung, D.A. (1990). "Characteristics of Risk Taking Executives Management Science". 36 (April): 422 – 435.

Mosley, P. and A. Verschoor (2003). "Risk attitudes in the vicious circle of poverty". *University of Sheffield* Pp 2-26.

Pennings, J.M.E and Garcia, P.(2001): "Measuring Producers' Risk Preferences: A Global Risk Attitude Construct". *American Journal of Agricultural Economics* 83 (4): 993-1009.

Poverty Alleviation Workshop. The Political economy of poverty: extent and dimensions 14-16 September, San Jose, Costa Rica. *Rural Poverty and Innovations in agriculture.*
http://ciat-library.ciat.cgiar.org/paper_pobreza/025.pdf

Shapira Z. (1997) "Organizational Decision Making" New York Cambridge University Press, USA.