Rural households' use of coping strategies to manage farming risks in Saki agricultural zone of Oyo state, Nigeria

Yekinni, O. T. and Ladigbolu, T. A.

Department of Agricultural Extension and Rural Development, University of Ibadan, Ibadan, Nigeria

E mail: taofeeq_yekinni@yahoo.com, +234 803 5905 311

ABSTRACT

Need for agricultural risk management in developing countries cannot be over emphasised because the activities are risk prone. This study analysed risk management strategies in farming activities among rural households in Saki agricultural zone of Oyo state. Multistage procedure was used to select 120 farmers and structured questionnaire was used to collect data for the astudy. Descriptive (mean and percentages) and inferential (PPMC) statistical tools were used for analysis. More (55.0%) of the farmers experienced high level of risks such as lesser yield than expected (183.3), illness (168.4) and increased indebtedness (166.7) among others. More (57.5%) of them used coping strategies substantially while 55.0% experienced lower level of constraints to use coping strategies. Significant relationship existed between respondents' age (r=-0.194), household size (r=0.057) and farm size (r=-0.103) and use of coping strategies. Risks associated with farming activities are serious and farmers should be educated on use of appropriate strategies.

Keywords: Coping strategies, Farming activities, Risks management, Rural households

INTRODUCTION

The performance and dynamics of rural households' livelihood have been identified as being sub-optimal in developing countries, Nigeria inclusive. They have been constrained in their activities due to substantial exposure to various kinds of risks in their farming activities. The exposures to risks impair the growth and potentials of their enterprises and hence vulnerability to their livelihood (Salimonu, 2007). Risk involves the the possibility losing something of value such as physical health, social status, emotional well being or financial wealth, which can be gained or lost. Risk is basically an interaction with uncertainty.

Risks play important role in farmers' decision making processes and therefore affect agricultural productivity and thus growth and development. Agricultural sector faces various types of risks challenges that manifest in terms of income risk, climatic risks, economic fluctuations, labour problems (illness or deaths), harvest failure (due to drought, flooding, etc). Individual-specific shocks make rural people vulnerable to serious hardship; for instance, obligations to extended family and lack of credit facilities affect the ability of individuals to invest. Risk is thus a central issue that affects different aspects of people's welfare in the developing world. Nature of risks can be assessed in terms of the frequency and intensity of shocks and the persistence of their impact (Morduch, 1999). Relatively small but frequent shocks are more easily to deal with than large, infrequent negative shocks. Shocks can be idiosyncratic or common. These are issues that cause hardship or exacerbate the effect of shocks on income.

Vulnerability to livelihood refers to exposure to livelihood contingencies, stress and difficulty in coping with them in a defenceless manner i.e. lack of means to cope without damaging loss (Chambers, 2006). Coping with vulnerability will be possible when the capacity to cope with livelihood risks and shocks (i.e. resilience) are imbued in individuals, societies and relevant institutions. Adger (2000) refers to social resilience as the 'ability of human communities to withstand external shocks …and recover from such perturbations'.

In rural areas, risks are present in all management decisions; as a result of price fluctuations, yield and resource uncertainty. The existence of such risks has been found to alter household behaviour in ways that entrench decisions that lead to sub-optimal performance. Households in risky environments are expected to have developed strategies to cope with and manage various kinds of risks. Coping strategies are the unplanned short-term reactions to unanticipated farming failure; while risk management or adaptive strategies involve planned attempts to spread risks and reduce 'risk covariance' between different livelihood components (Ellis, 2000). While the distinction between risk management and risk coping strategies is useful from theoretical perspective, its importance is less crucial from a practical point of view. On daily basis, farmers experience "the fear and the fate" at the same time (Dercon, 2007). Despite these strategies, vulnerability to poverty linked to risks remains high. These risks and

uncertainties easily trigger food shortages, deterioration in nutritional status and destitution (Pinstrup-Anderson et al., 2001).

Many researchers (Adebusuyi, 2004; Alderman, 2008) have documented that risks made farmers to be less willing to undertake activities and investments that have substantial financial outcomes, which thereby limit the opportunities to use assets as collaterals and/or insurance. Therefore constraints that limit access to loans continuously impede the potential to grow their livelihood activities.

Many small-scale farmers in the developing countries face significant income uncertainty, and rural dwellers/farmers that live from harvest to harvest do not have much room for error. Variables such as fluctuating crop prices can make a significant difference in how much a rural family earns in a year. Farmers may be unwilling to take on additional risks by borrowing and making long-term investments due to these uncertainties. This reluctance is thought to contribute to the decision of many farmers not to invest in improved technologies such as hybrid seeds, fertiliser or irrigation that could potentially improve crop yields.

Choices of strategies to manage risks and shocks vary among people due to so many factors. Informal risk-sharing strategies such as assistance from family members, friends, local savings among others like these, provide limited protection and their sustainability is in doubt. Public safety nets like government intervention, provisions from non-governmental organisations might be beneficial, but the impacts are at times limited and they may have negative externalities on households not covered by the safety net. This research therefore deemed it important to study the use of coping strategies in the management risks among rural households in Saki agricultural zone of Oyo state. Specifically, the study considered the following objectives:

1. ascertained the socioeconomic characteristics of the respondents in the study area

2. identified the risks respondents encountered in their farming activities

3. determined how the respondents perceived the use of coping strategies to manage the risks encountered

4. determined the extent to which risks encountered are resolved by the use of coping strategies

The study hypothesised that there was no significant relationship between the respondents' socioeconomic characteristics and the risks encountered.

METHODOLOGY

This study was carried out in Saki agricultural zone of Oyo state, Nigeria. It is located within the geographical coordinates of latitudes 8°17' and $9^0$03' North and longitudes $2^0$47' and 3°57' East. The zone covered eight local government areas viz. Olorunsogo, Irepo, Oorelope, Iwajowa, Saki-East, Kajola, Atisbo and Saki-West. Most of the inhabitants of the area are involved in agricultural enterprises. The area is often referred to as the food basket of Oyo State because of its agricultural activities.

Multistage sampling procedure was used to select the respondents for the study. There was a random selection of 50% of the 8 blocks in the agricultural zone to give Saki West, Saki East, Atisbo and Iwajowa blocks. Three ADP cells were selected from each of the selected blocks, resulting in 12 cells. At the third stage, systematic sampling technique was used to select 10 households from each of the selected cells to give a total of 120 respondents. Data was collected from the respondents using a structured questionnaire, which was administered as interview schedule. The descriptive statistics such as frequencies and percentages and inferential statistics; Pearson Product Moment Correlation (PPMC) were used to analyse the data at p=0.05.

RESULT DISCUSSION

Socioeconomic characteristics

Result in Table 1 shows that most (90.0%) of the respondents were male. This is expected as male are more conspicuous in agricultural enterprises. The finding is in consonance with earlier study by Azarian et al (2012), who found similar trend in gender involvement in agriculture. It was also found that most of the respondents were between 40 and 61 years of age. With the mean age at 50 years, it implies that the farming population is still in relatively active ages. The result also reveals that most (84.2%) of the respondents were married. This is an indication of the fact that marriage is held as a very serious institution especially in rural areas; as no adult would be deemed responsible without it (Yekinni and Ajayi, 2011). Mean household size of 9 persons indicated that the respondents had fairly large households, which is a normal trend in rural areas (Yekinni, 2011). Respondents had 7 years as the mean years of formal education, which implies that they were fairly educated in the study area. Most (90.8%) of

the respondents were involved in agriculture as primary occupation. The finding is expected because most inhabitants of rural areas depend on agricultural activities (Ghanem, 2015). A mean monthly income of ₦16,751 ($88.16) is an indication of appreciably low income from the respondents in the study area.

Table 1: Distribution of respondents by socioeconomic characteristics

Variable	Frequency	Percentage	Mean
Sex			
Male	108	90	
Female	12	10	
Age			
18-39	19	13.4	
40-50	45	37.5	50
51-61	47	39.2	
62-75	12	10	
Religion			
Christianity	54	35.0	
Islam	57	64.2	
Traditional	9	0.8	
Marital status			
Single	7	5.8	
Married	101	84.2	
Widowed	12	10	
Household Size			
1-4	12	10.0	
5-8	52	43.3	9
9-13	50	41.7	
14-17	4	3.3	
>17	2	1.7	
Years of Formal Education			
No formal education	22	18.3	
1 to 6 years	54	45.0	
7 to 12 years	40	33.3	7
> 12 years	4	3.3	
Primary occupation			
Farming	109	90.8	
Trading	3	2.5	
Civil service	8	6.7	
Secondary occupation			
None	4	3.4	
Farming	11	9.2	
Trading	68	56.7	
Artisans	21	17.5	
Driving	18	15.0	
Monthly income (Naira)			
1660-18680	96	80	
18681-35700	9	7.5	
35701-52720	8	6.7	16,751
52721-69720	4	3.3	
67721-85000	3	2.5	

Risks encountered in farming activities

Result in Table 2 shows that the risks mostly encountered by the respondents, in order of prevalence were; having lesser yield than expected (183.3), personal illness (168.4), increased debt burden (166.7), farm injury (124.9), lack of market to sell produce (110.0) and loss of crop (108.3).

This implies that the risks experienced by most farmers in the study area concerned issues of health and economy. The finding suggests that the risks farmers encountered are critical and expose them to substantial uncertainties about their livelihood enterprises. This is in line with the finding of Donye and Ani (2012), who found similar situation with farmers and their enterprises.

Table 2: Distribution of respondents by risks encountered, n = 120

Risk	Always	Rarely	Never	Weighted Score
Lesser yield than expected	85.0	13.3	1.7	183.3
Personal illness	69.2	30.0	0.8	168.4
Increase in debt load	70.0	26.7	3.3	166.7
Farm injury	25.8	73.3	0.8	124.9
Lack of market for farm produce	15.8	78.3	5.8	110.0
Loss of crop due to erosion/flood	12.5	83.3	4.2	108.3
Chemical poisoning	5.8	80.0	14.2	91.6
Weather	25.0	13.3	61.7	63.3
Animal distortion	8.3	6.7	85.0	23.3
Pest infestation	2.5	5.0	92.5	10.0

The index of risk encountered by the respondents was categorised into two; low and high levels using the mean criterion. The result reveals that 45.0% of the respondents had low level of risk, while 55.0% of them had high level of risk. This implies that farmers experienced relatively high level of risk in the study area.

Table 3: Distribution of respondents by level of risks encountered

Level of risk	Frequency	Percent
Low	54	45.0
High	66	55.0
Total	120	100.0

Use of coping strategies to manage risks

Result from the survey, in Table 4 shows that the coping strategies used by most of the respondents, in order of prevalence were; adopting improved storage facility (95.8%), borrowing money (95.0%), adjustment to farming activities (95.0%), relying on government intervention (90.8%) and reducing use of labour on the farm (81.7%) among other strategies used. The finding shows that strategies mostly adopted are not, by their nature, able to resolve risks reasonably. For instance, sale of asset, which will most probably resolve the risks was least used by most of the respondents. The finding is in consonance with that of Deressa *et al* (2009), who found that farmers used to borrow from relatives, eat less, depend on food aids and engage in off farm employment as coping strategies when they experience risks.

Table 4: Distribution of respondents by their use of coping strategies for risk management

Coping strategies	Frequency	Percentage
Use of improved or modern storage facilities	115	95.8
Borrowing money	114	95.0
Adjustment to farming activities	114	95.0
Rely on government intervention	109	90.8
Labour reduction	98	81.7
Adoption of diseases resistance varieties	92	76.7
Changing of children's school	92	76.7
Reduction in frequency, quantity and quality of meals	80	66.7
Reduction in social and ceremonial activities	78	65.0
Involvement in savings association	68	56.7
Illegal activities	65	54.2
Temporary out-migration	58	48.3
Permanent out-migration	56	46.7
Sales of assets	32	26.7

The index of coping strategies used was categorised into high and low levels based on mean criterion. The result on Table 5 shows that 57.5% of the respondents used the coping strategies substantially.

Table 5: Distribution of respondents by level of use of coping strategies

Level of use	Frequency	Percent
Low	51	42.5
High	69	57.5
Total	120	100

Level of risk resolution achieved

The study pursued the extent to which the respondents were able to have their risks resolved through the use of the various coping strategies. The result on Figure 1 shows that 74.2% of the respondents did not have their risks resolved through the use of the strategies. This finding confirms the insinuation that the coping strategies mostly used by the respondents would not inherently be able to resolve their risks.
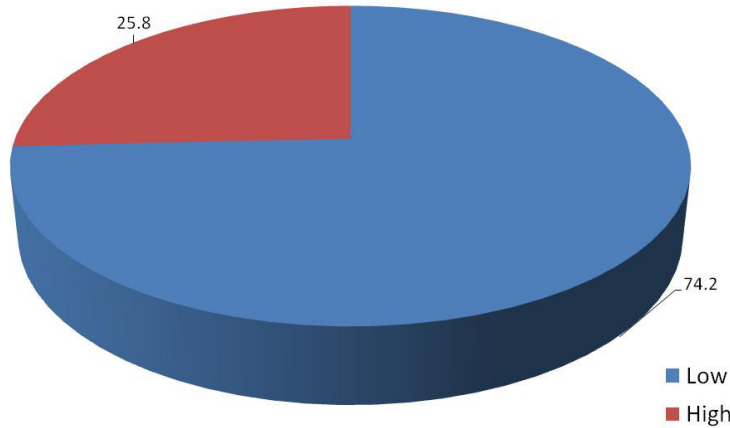

Fig 1: Distribution of respondents by levels of resolution of risks

Relationship between socioeconomic characteristics and use of coping strategies

The variables in the hypothesis were tested using the Pearson's Product Moment Correlation (PPMC). Result of the analysis in Table 7 shows that age (r=0.267) and years of formal education (-0.181) were significantly related to the use of coping strategies. The finding meant that older farming used more of the strategies and educated farmers used less of the strategies. The finding implies that age may have conferred experiences on old respondents to have known what strategies to use.. The fact that more educated respondents used less of the coping strategies may be due to the fact that their education discouraged them from using them substantially; this is due to the fact that most of the coping strategies used were not effective.

Table 7: Statistical analysis of respondents' socioeconomic characteristics and use of coping strategies

Variable	r-values	p-value	Decision
Age	0.267**	0.003	Significant
Years of education	-0.181*	0.047	Significant
Household size	0.055	0.551	Not significant
Monthly income	-0.026	0.777	Not significant

CONCLUSION

The respondents in the study area encountered substantial risks in their enterprises but mostly used methods that do not resolve their risks. There is the need for concerted efforts from the agricultural and rural development stakeholders to decipher appropriate coping strategies and recommend/promote such to the farmers as their enterprises are inherently risky.

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