

PDF - ANALYSIS OF RISK PREFERENCE AND INSURANCE PURCHASE BY RICE FARMERS IN ENUGU STATE, NIGERIA - researchcub.info

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### **ABSTRACT**

This study analyzed the risk preference and insurance purchase by rice farmers in Enugu State, Nigeria. This research is as a result of concentration of many studies on agricultural insurance purchase, which centres on the analysis of risk preference, awareness of insurance purchase by rice farmers with little emphasis on the specific issues such as the different mechanisms and risk preference of rice farmers especially in the study area. The aim of the study was to analyse risk preferences and insurance purchase by rice farmers in Enugu State, Nigeria. The specific objectives were to: examine the socio-economic characteristics of rice farmers in the study area, examine the rice farmers' awareness and perception of insurance and risk, identify the different insurance mechanisms and products used by rice farmers, ascertain the willingness of the rice farmers to pay for agricultural insurance and factors that influence willingness to pay for insurance, and identify the constraints encountered by rice farmers in participating in agricultural insurance in the study area. The study used survey design which covered the three agricultural zones of Enugu state. A three stage random sampling techniques was used to select 140 rice farmers in Enugu State. The selection was based on prior information from Enugu State Agricultural Development Project and national agricultural insurance company. First, four (4) Local Government Areas involved in rice productions was purposively offive (5) farm communicates from each of the four (4) Local Government Areas, Third, Seven (7) rice farmers were randomly selected from each Community making a total of one hundred and forty (140) respondents. Primary and Secondary data were used for this study. Primary and secondary Data were analyzed using descriptive statistics and Binomial logit regression analysis. It was shown that Majority (61.43%) of the rice farmers were male and many (42.14%) of them fell within the age bracket of 31-40 years. About 56 percent of them married while many (34.29%) of them had secondary education. Also, majority (61.43%) were aware of the insurance scheme but did not subscribe to it. The major source of information was fellow farmers. Rice farmers perceived agricultural insurance as essential

risk management tools, but awareness of the scheme was poor, generation about the scheme is poor. However, farmers risk perception shows that the price of fertilizer (2.84%), output price (2.09%), access to credit (2.87%), pest and diseases (2.59%) and unpredictable weather (3.00%) were ranked high. The major strategies adopted by farmers are formal and informal insurance mechanism which were borrowing from members (28.03%), savings and sales (27.57%) while crop diversification (40.08%), inter-cropping (26.29%) and farm fragmentation (20.68%) were the strategies adopted by rice farmers to minimize risk shock in their crop production. Age and education qualification had positive signs and were statistically significant ( $p < 0.05$ ) while farm size, annual income, access to extension education and premium rate showed negative signs but were statistically significant ( $p < 0.01$  and  $0.05$ ) effect on the farmers willingness to purchase for agricultural insurance. The result of factor analysis showed that remoteness of rice farmers from the service provider (0.911), lack of good access road network (0.610), high cost of transportation (0.480), institutional policies include limited knowledge of insurance scheme (0.783), corruption and fraudulent attitude of insurance providers (0.742), and financial constraints include low income level (0.557), high rate of premium (0.638) and poor returns from the sales of rice output (0.580) were the major constraints to rice farmers participation in agricultural insurance in the study area.

## **CHAPTER ONE INTRODUCTION**

### **BACKGROUND OF THE STUDY**

Nigerian farmers are increasingly faced with risk and uncertainty factors such as droughts, floods, diseases, pests, accidents, fire, theft, damage and several other unplanned events whose occurrence cannot be readily predicted and therefore, pose serious danger to the progress of farming enterprise in Nigeria (Eleri et al, 2012). Risk affects production choices – with implications for the overall economic efficiency of agricultural production (Cafiero et al, 2007). Risk is believed to play an important role in the investment decisions of individual farmers (Isik and Khanna, 2003). Risk in production is a strong characteristic of agricultural production (Knight et al., 2003). Although definitions of risks in agriculture arise due to uncertainty over factors determining returns to agricultural production (OECD, 2008). Uncertainty in agriculture reflects the nature of most farm production systems, which is influenced by ever-changing economic and biophysical conditions. The natural lag between when production decisions are made and when returns to farming can be realised exposes agricultural enterprises to the variability, in the intervening period, of a range of factors that determine the value of production. Variability in these factors results in uncertainty over key determinants of farm income like output price, yield, and input costs – with implications for farmers' economic welfare and effects on the economic (allocate) and technical efficiency of farm production (Mathews, 2010).

Agricultural risks are prevalent throughout the world and they are particularly burdensome to small scale farmers in developing countries. The realisation of the risk leads to fall in farm incomes; they can adversely affect the economic welfare of those working in agriculture, with the potential to constrain future investment and growth of farm businesses Bielza and Diaz-Caneja (2009). Agricultural enterprises still constitute the most risky business in Nigeria (Nmadu & Peter, 2010). This is because the production environment is fraught with imperfect knowledge and the vagaries of nature. The complex nature of weather and climate as well as other factors make agricultural enterprises more difficult to manage.

Generally, there is a growing consensus in the scientific literature that in the coming decades the world will witness higher temperatures and changing precipitation levels. The effects of this will lead to low/poor agricultural products. Evidence has shown that climate change has already affecting crop yields in many countries (IPCC, 2007; Deressa et al, 2008; BNRCC, 2008). This is particularly true in low-income countries, where climate is the primary determinant of agricultural productivity and adaptive capacities are low (SPORE, 2008). Many African countries, which have their economies largely based on weather sensitive agricultural production systems like Nigeria, are particularly vulnerable to climate change

(Dinar et al,2012). This vulnerability has been demonstrated by the devastating effects of recent flooding in Nigeria and the various prolonged droughts that are currently witnessed in some parts of Northern region. Patrick (2010), stated that since farmers cannot assume the probability of occurrence of any of these and cannot bear these risks and uncertainties alone, they are faced with the option of transferring or sharing the risks involved in the day-to-day management of their farms with one or more individuals.

Therefore, the issue of agricultural risk cannot be effectively handled without effective crop insurance programs (Ajakaiye, 2001). Agricultural insurance programs could be seen as an effective mechanism for reducing the losses farmers suffer due to natural calamities such as floods, droughts, and outbreaks of pests and diseases. It enables farmers to obtain credit and financing for investment in new technologies, tools, and equipment to enhance and sustain their productive capacity. Ray (2001) concluded that no sustained and steady development of the developing countries is possible without some forms of crop-agricultural insurance to underwrite risks of crop-agricultural failure. He further explained that agricultural insurance is one of the notable methods by which farmers can share or transfer the risks and uncertainties associated with their farming enterprise as it encourages them to make greater investment in Agricultural production, promotes their confidence in venturing into adoption of new and improved farming practices, which ensures continuity of their farming enterprise,.

Agricultural insurance is mainly constituted of three basic types of agricultural coverage, which include: macro-level coverage, multi-peril coverage and micro insurance. The macro-level coverage is employing a relatively new instrument called parametric or weather index. The multi-peril coverage provides protection against crop losses to specific farms and micro insurance coverage provides protection for the individual farmers (David, 2008).

The first factor to be considered when deciding on an insurance policy is the need for risk protection (Isik & Khanna, 2003). Every individual has a different attitude towards exposure to unknown events or risks. This basic attitude towards risk is known as a risk preference. Many things, including the financial position of the farmer and exposure to other risks, may influence a person's risk preference. A more strongly risk averse farmer would tend to be more comfortable with a higher level of crop insurance protection, while a less risk averse farmer would be inclined to purchase a lower level of protection (Knight et al, 2005). Moreover, the existence of such risks has been found to alter households' behaviour in line with their level of risk aversion. In the empirical literature, many researchers have found that risks cause risk averse farmers to be less willing to undertake activities and investments that have higher expected outcomes, but carry with them risks of failure (Adebusuyi, 2004). For example, it is not uncommon to observe farm households in developing countries being reluctant to adopt new technologies even when those technologies provide higher returns to land and labour than traditional technologies. The extent of this reluctance being a reaction to their risk preferences

In general, insurance purchase is a form of risk management used to hedge against a contingent loss (Iturrioz, 2009). The conventional definition is the equitable transfer of a risk of loss from one entity to another in exchange for a premium or a guaranteed and quantifiable small loss to prevent a large and possibly devastating loss. Agricultural insurance is a special line of property insurance applied to agricultural firms. In recognition of the specialized nature of this type of insurance, insurance companies operating in the market either have dedicated agribusiness units or outsource the underwriting to agencies that specialize in it. Basically, agricultural insurance is designed to provide covers for financial losses incurred due to reduction in expected outputs from agricultural products. Agricultural investments unfortunately are among the most risky economic ventures one can embark upon. The absolute dependence on unpredictable weather conditions like hailstorm, flood, drought and other natural hazards, make income from rice production to be very unstable. Other agricultural products like livestock, poultry and dairies are exposed to the risks of which occur in catastrophic proportions. The recent cases of flooding, bird flu and pig swine in Nigeria

comes readily to mind. Agricultural insurance purchases protect the farmer against these unforeseen circumstances by way of indemnification. It also serves as securities for banks as indemnification for financial losses suffered by farmers from damages to their products and will provide funds for servicing such loans.

Insurance purchase has major limitations in that, it is a low priority for many poor farmers in the face of competing demands for scarce cash surpluses from agriculture. Most poor farmers would rather manage their production risk through diversified farming systems, low input utilization strategies and off-farm income. Farmers' priorities are first to ensure that they have timely access to inputs of seeds, fertilizers, and often, credit with which to buy these inputs. Only then can they consider purchasing insurance. Success of agricultural insurance is dependent on other basic agricultural services such as extension services, timely availability of inputs, agricultural credit and efficient marketing channels for agricultural outputs. Where these related services are absent, the benefit from agricultural insurance is likely to be minimal and this tends to be the case in developing economies (Albert, 2000). Nigeria's agricultural sector falls into this category. Sadati et al (2010), suggest that in developing countries, the markets for formal insurance and reinsurance are either under-developed or non-existent. Majority of the farmers use their informal mechanisms to cope, manage and prevent their crop. Also, there is lack of effective legal systems to enforce insurance contracts. These factors contribute to an inefficient agricultural insurance purchase performance.

To deal with risks, farm households use several kinds of informal arrangements. The most common coping mechanisms used by the majority of farmers are diversification of their crops, sharing risk within social networks and/or relying on wealth that results from the past flow of precautionary savings. These mechanisms, although they help farmers in mitigating their exposure to risks, are incomplete. The literature reveals that traditional risk management measures are costly. They lead to a considerable reduction of farmers' incomes, particularly poorer farmers (Rutten and Youssef, 2007). There is therefore a necessity to make modern risk management instruments like formal insurance available to farmers.

The major risk associated with rice production today according to (Ajatomobi, 2004) included drought, flooding, pest and diseases, all of which are expected to worsen with climate change. Drastic changes in rainfall patterns and drought will introduce unfavourable growing conditions into the cropping calendars thereby modifying growing seasons which could subsequently reduce productivity. From the foregoing, there is clear evidence in parts of the rice growing regions of Nigeria that rice production is already suffering considerable setback due to risk involved.

The complex nature of weather and climate change according to Kuta (2011) is one of the most critical challenges ever to face humanity. It can cause the worst forms of economic and security problems for humanity. It determines the health of the resources on which the economy depends and this phenomenon is one of the challenges confronting West Africa among other sub-regions of the world. Since rice production in Nigeria is mostly rain-fed, it follows therefore that any change in climate is bound to impact its productivity in particular and other socio-economic activities generally, in the country. The issue of climate change has become more threatening not only to the sustainable development of socio-economic and agricultural activities of any nation but also to the totality of human existence (Adejuwon, 2004, SPORE, 2008; Apata et al, 2009). Local farmers according to Kuta (2011) are seriously concerned about weather variations because of the impact on food security, availability, stability, accessibility and utilization. The change in weather affects livestock, forestry, fishery and the decreases aquatic plant species including rice. Production of rice, which is the world's most important crop for ensuring food security and addressing poverty, will be thwarted as temperatures increase in rice-growing areas with continued climate change (Gumm, 2010). Ramirez (2010) notes that unforeseen changes associated with global warming in temperature, carbon dioxide and rainfall are expected to impact rice production. Studies have shown that increase in temperature, due to climate change,

adversely affect rice crop physiology ultimately decreasing crop yield and grain quality. Gumm (2010) re-affirms that rising temperatures during the past 25 years have already cut rice yield growth rate by 10-20 percent in several locations. He further adds that unless there is a change in the rice production methods or new rice strains that can withstand higher temperatures, are developed, there will be a loss in rice production over the next few decades as days get hotter.

Since the dangers of agricultural loss can be very devastating and crumbling, farmers have embarked on mechanisms (formal and informal insurance purchase) to prevent, manage or cope with this fearful phenomenon. In a study carried out by David (2008) explained that formal insurance is constructed to handle large covariate risks while Informal insurance purchase is apt at handling smaller idiosyncratic risks among farmers. Thus, formal insurance can be a complementary financial tool to informal insurance. According to Exelle & Verschoor (2013) in their study, they found out that formal insurance may encourage additional risk taking, creating residual idiosyncratic risks that the farmers may incur, when a formal insurance is sold to farmers. Trærup (2012) argues for the importance of maintaining both sources of insurance, and warns of the danger in farmers' erroneously "over-purchasing" formal insurance to cover risks that only informal networks can handle. Ambrus et al (2014) in their study said that informal insurance is more of a reality at the group level, where different sub-groups farmers insure one another. Very recently Mobarak & Rosenzweig (2014) show, in a large randomized control trial in India, that formal insurance is a complement to the coverage provided by informal networks, and that formal insurance even enables farmers to take larger risks that they otherwise would not have been able to.

Therefore insurance purchase is the primary risk management tool farmers use to financially recover from natural disasters and volatile market fluctuations; pay their bankers, fertilizer suppliers, equipment providers and landlords; purchase their production inputs for the next season; and give them the confidence to make longer term investments that will increase their production efficiency (Devereux, 2004). Without effective and affordable crop insurance, catastrophic production losses would sap the rural economy by setting in motion a series of harmful events: farm failures and consolidation, job losses, farm-related small business failures, financial stress on rural banks and reduced investment in Nigeria agriculture. A financially healthy rural economy requires a financially healthy farm production sector (Anderson, 2001, World Bank, 2001, Townsend, 2005). It cushions the shock of crop losses by providing farmers with a minimum amount of protection. It spreads the crop losses over space and time and helps farmers make more investments in agriculture. It forms an important component of safety-net programmes as is being experienced in many developed countries like USA and Canada as well as in the European Union. However, one needs to keep in mind that formal insurance purchase should be part of overall risk management strategies.

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