

A STUDY ON CROP INSURANCE – AN INSTRUMENT FOR AGRICULTURE DEVELOPMENT

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ABSTRACT

An agriculturist faces more risks such as monsoon failure, price changes, disability of farmers, etc. The Government intervenes directly in reducing those risks. The risk management technique may include guaranteed prices, subsidized credit, and publicly provide crop insurance. Even then, they may not be effective in achieving their goals. The risk of the farmer related to crop is more when compared to other risks. It is the crop insurance considered as appropriate instrument to provide financial support to the farmers. This paper aims at understanding the factors affecting the demand for crop insurance and experience of crop insurance in few selected countries. The main factors affecting the demand are Product and raw materials price fluctuations, Manufacturing facilities and income, Information of insurance, government policies-insurance support, Risk factors, Market conditions & product demand and farmer's position in society.

KEYWORDS: Agriculture, Crop Insurance, Factor, Risk

INTRODUCTION

Risk is completely an unavoidable but can be managed in the business of agricultural production. Agricultural production can vary widely from year to year due to unforeseen weather, disease/pest infestations, and/or market conditions causing wide swings in yields and commodity prices. These wide swings in yields and output prices generate high variability in farm household income. When the swings significantly reduce income in the short-term, there can be serious repercussions in the absence of effective risk management tools. 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 (Yesuf, 2007). As a result, dealing with risks and risk aversion has become increasingly an important aspect of farm management, especially in the developing world where insurance and credit markets are thin or missing.

REVIEW OF LITERATURE

In 1997, Knight and Coble prepared a survey of agricultural economic literature, summarizing research conducted on crop insurance from 1980 to 1997. In their paper, Knight and Coble examined econometric research conducted at the aggregate and farm levels.

At the farm level, Calvin (1992) and Coble et al. (1996) indicated a positive and statistically significant relationship between the expected rate of return to insurance and crop insurance participation. Goodwin and Kastens (1993) examined the effect of yield risk on farmers' crop insurance decisions. Their findings suggested that producers with a higher level of yield risk, measured in terms of yield variation, were more likely to purchase crop insurance.

Calvin also reported that crop specialization had a positive effect on crop insurance participation, while diversifying the farm operation via livestock had a negative effect. Additionally, Just and Calvin (1993) obtained results which indicated that farmers who received disaster payments in the past were more likely to insure.

Shaik, *et al.* [19] focused their efforts on the demand for revenue insurance in Mississippi, Texas, Indiana Nebraska. They studied farmers' decision to purchase crop insurance and their decision to purchase revenue or yield insurance. Among other findings, their results indicate that farmers are more price sensitive when deciding whether to purchase crop insurance. Furthermore, the authors concluded that farmers facing greater perceived yield risk and price risk are more likely to purchase revenue insurance.

Crop credit insurance also reduces the risk of becoming defaulter of institutional credit. The reimbursement of indemnities in the case of crop failure enables the farmer to repay his debts and thus, his credit line with the formal financial institutions is maintained intact (Hazell *et al.*, 1986 ; Pomareda 1986; Mishra 1996;).

The risk take may vary from area to area. It is particularly burden to the small and medium scale farmers. There is also strong evidence that farmers are typically risk-averse (Binswanger 1980 and Hazell 1982), and that they seek to avoid risk through various managerial and institutional mechanisms.

Objective

- To aware the factors affecting demand for crop insurance.
- To reveal the issues in crop insurance.
- To recognize the experience of crop insurance in few selected countries.

Crop Insurance

Crop insurance is purchased by agricultural producers, including farmers, ranchers, and others to protect themselves against either the loss of their crops due to natural disasters, such as hail, drought, and floods, or the loss of revenue due to declines in the prices of agricultural commodities. The two general categories of crop insurance are called crop-yield insurance and crop-revenue insurance.

Crop-yield insurance: There are two main classes of crop-yield insurance:

- Crop-hail insurance is generally available from private insurers (in countries with private sectors) because hail is a narrow peril that occurs in a limited place and its accumulated losses tend not to overwhelm the capital reserves of private insurers. In early 1820s, crop-hail insurance was available to farmers in France and Germany. That is among the earliest forms of hail insurance from an actuarial perspective. It is possible to implement the hail risk into financial instruments since the risk is isolated.
- **Multi-Peril Crop Insurance (MPCI):** Coverage in this type of insurance is not limited to just one risk. Usually multi-peril crop insurance offers hail, excessive rain and drought in a combined package. Sometimes, additional

risks such as insect or bacteria-related diseases are also offered. The problem with the multi-peril crop insurance is the possibility of a large scale event. Such an event can cause significant losses beyond the insurer's financial capacity. To make this class of insurance, the perils are often bundled together in a single policy, called a multi-peril crop insurance (MPCI) policy.

- **Crop-Revenue Insurance:** Crop-yield times the crop price gives the crop-revenues. Based on farmer's revenues, crop-revenue insurance is based on deviation from the mean revenue. RMA uses the futures prices on harvest-times listed in the commodity exchange markets, to determine the prices. Combining the future price with farmer's average production gives the estimated revenue of the farmer. Accessing the futures market offers enables revenue protection even before the crop planted. There is a single guarantee for a certain number of dollars. The policy pays an indemnity if the combination of the actual yield and the cash settlement price in the futures market is less than the guarantee.

Farmers' Demand for Insurance

Reviews of empirical literature on agricultural insurance demand show that there are three ways that have been utilized to determine the willingness to pay (WTP) of farmers for insurance.

- It involves directly asking the producers, what they would be willing to pay for an insurance scheme described in detail to them and is related to the literature on contingent valuation method (the contingent valuation approach).
- Involves inference in the willingness to pay from analysis of the patterns of production and other behaviour of producers. This is based on a revealed preference technique (the revealed preference approach).
- The third method involves the use of theory along with the combination of microeconomic household information, and market information to estimate indirectly the appropriate premiums.

The idea here is to calculate farmers' willingness to pay by comparing their utility in a world with and without insurance and determining what they would be willing to pay to be indifferent between moving from one world to another (the indirect approach).

Factors Affecting Demand for Crop Insurance

Important of effective factors on insurance demand were classified into seven factors *viz.*, includes "Product and raw materials price fluctuations", "Manufacturing facilities and income", "Information of insurance", "government policies-insurance support", "Risk factors", "Market conditions & product demand" and "farmer's position in society". (Loghman Rashidpour)

ISSUES OF AGRICULTURAL INSURANCE

Role of Government

As mentioned before, crop insurance to be successful requires public support. This could be in terms of subsidy on premium, meeting part of administrative expenditure, and reinsurance etc. Global experience shows that due to special nature of agriculture production, in several countries, premiums payable by farmers is subsidized by government. Agriculture is not just dependent on weather conditions, but also suffers the brunt of natural disasters. It will be quite in order for crop insurance to be regarded as a support measure in which government plays an important role, because of the

benefit it provides not merely to the insured farmers, but to the entire national economy due to the forward and backward linkages with the rest of the economy.

Perils to be Covered

Fundamental issue in the design of a crop insurance scheme is whether to cover all or certain specified risks. The former implies yield insurance. In other words, an insured farmer is eligible to get indemnity if the yield is below certain guaranteed level for any reason. As it is very difficult to identify losses arising out of uninsured events, it is more practical to ensure yield rather than “yield loss due to specific factors”. A scheme based on named perils is feasible if the insured crops are affected by specific perils, causing damage, which are measurable. If a scheme envisages coverage of all risks, it is necessary to provide adequate safeguards to minimize the incidence of moral hazard (Jain, 2004).

Involvement of Public or Private Sector

The above discussed crop insurance schemes have been developed in the public sector are often of multi-risk or all-risk type. Most of these schemes are linked to agricultural credit. Public sector insurance companies are helped by government in various forms like: a) bearing fully or partly the cost of administration; b) sharing a part of the indemnity, or paying a part of the premium with a view to ensuring that farmers can afford to buy insurance.

Lessons from Few Countries

In 1929 a group of farmers started a pool scheme which was the beginning of crop insurance in South Africa. Many hazards are covered in this program, and hail is the main risk. Initially, multi-peril insurance was subsidized, but for the past 15 years it has not been subsidized. Many private players have now entered the field of crop insurance. These companies fix the premium amount based on the history and past of the particular risk. Estimation of damage is the biggest challenge faced by the crop insurers. Several crops such as maize, wheat, sunflower and citrus are covered. South Africa is an example of how farmers can get the benefit of crop insurance through private companies even after withdrawal of subsidies.

As in India, crop insurance in Canada was implemented through an area approach. Research by Turvey and Islam pointed out that the area approach was not only unbalanced but also ineffective. The empirical research from different farms confirmed the belief that individual approach to crop insurance is better for reducing risk, but it also implies the use of higher premiums. The area approach in Canada proved to be inequitable, as it did not ensure a fair distribution of benefits among the farmers. Farmers with yields closest to the average would be the ones to get the most benefits.

In Philippines, crop insurance programme is implemented through Philippines Crop Insurance Corporation (PCIC) which was established in 1978. Major crops covered are rice and corn. High value crops such as viz. tomato, potato, garlic, and other root crops are also covered under interim insurance coverage. The coverage is limited to cost of inputs plus an additional amount up to 20 per cent, thereof on an optional basis. Multi risks cover providing comprehensive coverage. Coverage is available under (a) multi risk cover, which is a comprehensive coverage against crop losses caused by natural disasters as well as pests and diseases and (b) natural disasters cover, which is limited to coverage against crop losses caused by natural disasters only. Premium rates are charged on actuarial basis. The Government subsidy in premium goes up to 50 per cent. In case of borrowing farmers, lending institutions will also share part of the premium.

In Japan, the agricultural insurance scheme was established in 1947. At present, the scheme is composed of 6 programmes: Rice, Wheat and Barley insurance, Sericulture insurance, Livestock insurance, Fruit & Fruit tree insurance, Field crop insurance and Green House insurance. The main features of the scheme are as follows:

- The Central government reinsures the programmes.
- In principle, implementation of three programmes, viz., Rice, Wheat and Barley insurance, Livestock insurance, is compulsory.
- As for Rice, Wheat and Barley insurance, Sericulture insurance, the participation of farmers who grow these crops over a certain size of cultivated area or a certain scale of operation is compulsory.
- The Central government subsidizes farmers with part of their premiums, and
- The Central government subsidizes the insurers with part of their office expenses.

CONCLUSIONS

Crop yield insurance is snowed under the problems of information, moral hazard, and adverse selection. It is not the absence of farmers' demand, this is positioned at the cause of the universal lack of privately provided crop yield insurance. The information and incentive problems are substantially the same as those affecting rural credit markets, and it may be less difficult to solve these problems by appropriately changing the credit system than by introducing insurance. While a case can be made for tied or compulsory insurance of collateral-specific risks, this does not apply to crop insurance, and especially to subsidized crop insurance. A major source of demand for crop insurance may in fact come not from farmers themselves but from highly regulated financial systems, which are unable to adjust the terms of their credit contracts to the high costs of lending to particular groups.

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