ECONOMIC ANALYSIS OF CROP INSURANCE: A CRITICAL REVIEW

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Abstract

The paper examines the economic analysis of crop insurance. Crop insurance cushions the shock of crop loss by assuring farmers protection against natural hazards beyond their control. The Central Government and the State Governments in India have constituted in recent years several crop insurance schemes. From the above reviews, the studies demonstrate the informal method used by farmers in handling risk, effectiveness Government policy and crop insurance. Besides, it is essential to evaluate the performance of crop insurance scheme in India and point out problems in its implementation. Given this gap, there is a need for studying the issues related to crop insurance. Since the agriculture activity is uncertain, the problem faced by the farmers in India is continuous for long periods. Thus, it is important for the researchers to analyse the issues related to crop insurance thereby for improving the crop insurance for securing the agrarian livelihood in India.

Keywords: *Insurance, risk, natural calamities, pest problem*

Introduction

The paper examines the economic analysis of crop insurance. Crop insurance is recognised to be a basic instrument for maintaining stability in farm income, through promoting technology, encouraging investment, and increasing credit flow in the agricultural sector. It contributes to self-reliance and self-respect among farmers, since in cases of crop loss they can claim compensation as a matter of right. Thus, crop insurance cushions the shock of crop loss by assuring farmers protection against natural hazards beyond their control. The Central Government and the State Governments in India have constituted in recent years several crop insurance schemes.

Agriculture Insurance in India

Credit for pioneering work on crop insurance in India goes to S. Chakravarti, who in 1920, proposed an agricultural insurance scheme based mainly on the rainfall approach. The data on which the scheme was based pertained to the then Mysore state, though the scheme had an all-India perspective. This scheme consisted of a package that included insurance of buildings, granaries and agricultural implements; cattle insurance and insurance of crops (Vyas and Singh, 2006). The issue of introduction of a crop insurance scheme was taken up soon after the Indian independence in 1947. During 1997, a new scheme, namely, Experimental Crop Insurance Scheme (ECIS) was introduced in 1997-98 season and implemented in 14 districts of five states. This scheme was similar to CCIS, except that it was meant only for all small / marginal farmers with 100 per cent subsidy in premium. The Central and State Government shared the premium subsidy and claims in 4:1 ratio. The scheme was discontinued after one season due to its many administrative and financial difficulties. It covered 4,54,555 farmers for a sum insured of Rs. 168.11 crores and claims paid were Rs. 37.80 crores against a premium of

Rs. 2.84 crores. The CCIS scheme was subsequently replaced by the National Agricultural Insurance Scheme (NAIS) with effect from 1999-2000.

Performance of NAIS in India

Agriculture Insurance Company of India (AIC) Limited has been formed by the Government of India to sub serve the needs of farmers better and to move towards a sustainable actuarial regime. AIC has taken over the implementation of NAIS which until financial year 2003 was implemented by General Insurance Corporation of India (GIC). Its authorized share capital was Rs. 1500 crores and the public insurance companies and NABARD are the shareholding agencies. The AIC aims to provide financial security to persons engaged in agriculture and allied activities through insurance products. The main aim of the NAIS is to protect the farmers against losses suffered by them due to crop failure on account of natural calamities, such as droughts, flood, hailstorm, cyclone, fire, pest diseases etc.

The NAIS scheme envisages coverage of all the food crops, oilseeds and annual commercial and horticultural crops of which past yield data is available for adequate number of years. The scheme is being implemented by the 21 States and 2 Union Territories. The data on the performance of NAIS at all-India level for thirteen seasons cumulative totals (Rabi 1999-2000 to Rabi 2005-06). A study by Sinha covering seven seasons' cumulative totals had shown that the claim to premium ratio was 1:4.27. It means that the ratio has declined for a longer period. The claims to premium ratio has been very high in case of Jharkhand (12.59), Bihar (11.49), Tamil Nadu (6.22), Karnataka (4.86) and Himachal Pradesh (4.21). It was below one in the states of Assam, Goa, Haryana, Jammu and Kashmir, Meghalaya, Sikkim, Tripura, Uttaranchal and Andaman and Nicobar islands. It is also seen that Gujarat accounts for 26.89 per cent of total claims, followed by Andhra Pradesh (16.35 per cent), Karnataka (13.45 per cent) and Maharashtra (10.58 per cent). There are five states with a loss-cost ratio of 10 per cent or more.

Eight out of 25 states / UTS had a loss-cost ratio of below 2 per cent and another 2 states had a ratio of 2 to 4 per cent. A recent NSSO report (2005) reports coverage of 4 per cent of the farmers under the crop insurance scheme. Further, only in three states, Andhra Pradesh, Madhya Pradesh and Maharashtra, 10 per cent or more of the farmers had the benefit of crop insurance over the whole period. The top five states that availed the bulk of the subsidy are Andhra Pradesh, Maharashtra, Gujarat, Orissa and Uttar Pradesh. The dominating crops covered under this scheme were summer paddy, wheat and groundnut and recently gram.

Literature Review

Based on the above issues, the following section brings the literature review in the area of crop insurance. Gurudev Singh (2010) examined the crop insurance in India and the dependence of Indian agriculture on uncertain risk. In addition the farmer's experience of other production and marketing risks relate to different cropping patterns and for different agro climatic and areas. It also analysed the need for crop insurance as an alternative to manage production risk. It discussed the presently available crop insurance products for a particular crop and regions and also it discussed the two important products namely National Agricultural Insurance Scheme and Weather Based Insurance Schemes. The study conclude identifying some difficulties in the two major insurance products.

Suresh Kumar et al (2010) analysed the farmer's perception and awareness towards crop insurance as a tool for risk management in Tamilnadu. The study critically examined how the farmers perceive about the risk mitigation measures provided by the Government and about their awareness. The study employed on Probit and Tobit model to analyse the awareness on crop insurance schemes. This study also observed the loss assessment, which is totally unacceptable and unpleasant to the farmers. The loss due to natural calamities is taken into account at Firkah level and the individual losses are not at all considered. It concluded that the factors such as gross cropped area, income other than agricultural source, presence of risk in farming number of workers in the farm family, satisfaction with the premium rate and the affordability of the insurance premium amount fount to be significantly and positively influence the adoption of insurance and premium paid by the farmers.

Nair, Rshmy (2010) studied an evaluation of the crop insurance programme in India through the multi-peril yield based National Agricultural Insurance Scheme. The coverage and indemnity payments are biased towards a few regions and crops, and there are delays in settlement of claims and while the emergence of weather-based insurance as an alternative has addressed several limitations of traditional insurance, it is faced by challenges of a different kind. Both these forms of insurance must thus be looked upon as complementary to each other in order to evolve an efficient mechanism for dealing with natural disaster risks in agriculture.

Woodard, Joshua D. et al (2010) developed a multi-crop insurance model to evaluate crop insurance decisions when several crops are produced. The results suggest that the diversification effects derived from producing multiple crops can substantially alter the risk-reduction impacts of crop insurance versus in the decision is vowed from the perspective of a single crop. Further, the relatedness of crop production and price responses among crops differs considerably across insurance products and strategies. As a result insurance strategies that might provide the maximum risk reduction for an individual crop do not necessarily carryover to the multi-crop case.

Heenkenda (2011) studied the demand for agricultural micro insurance at Ampara district in Sri Lanka. This study analysis the willingness to pay and willingness to join among the Sri Lankan farmers. The study employed Probit Regression model for this analysis. It also observed production expenditure and the age of the farmers play a significant role in the determining the decision of farmers to join the scheme of micro insurance and also observed younger and more educated farmers could likely to pay for the insurance product. The study suggests that a strong support to launching Index Based Micro Insurance in Sri Lanka.

Madhurima Lall, et al (2011) studied the farmer's knowledge on climate and natural risk in agriculture and the role and functions of agriculture insurance as a risk management tool. The study reviewed the emerging opportunities for agribusiness enterprises with the ongoing market development and find out the problems and prospects of agricultural insurance. Agricultural insurance is a risk management tool and as a risk transfer device that farmers can depend on as instrument of indemnity in the event of crop failure. Risks like the price for the agricultural products and monsoon are the two major factors on which the agriculturalist has absolutely no control. These agricultural insurance policies cannot create success story in India. Therefore, it recommended to introduce a separate Agricultural Insurance Development

Authority in India as the existing authority is incapable of dealing with the various issues and emerging problem in the agribusiness.

Reshmy Nair (2011) analysed the risk mitigation and crop insurance in India. The study examined the nature and scope of crop insurance as a 'specialty insurance' and carries out a performance analysis of the area yield and weather-based crop insurance schemes presently being implemented in the country. The study found that despite its covered drawbacks and continuing failure to make a major headway in the penetration of insurance, the multi-peril area yield programme is favourably placed in terms of equity. The technical and infrastructural challenges confronting the weather-based crop insurance products, hailed as a promising financial innovation in the recent times. The study points out that though the role of crop insurance as a critical risk mitigation tool has been widely appreciated, there has been inadequate policy intervention to overcome its inherent shortcomings. The study points out that these shortcomings need to be successfully addressed so as to make crop insurance is an effective risk mitigation tool for farmers in different parts of the country.

Roa (2011) studied the agricultural sector facing several risks viz. financial, institutional and production related risks and also studied the progress of Weather Index Insurance in India. He pointed out that India is in the front position in practicing different models of weather index insurance progress of the Pilot Weather Based Crop Insurance Scheme (WBCIS) implemented since 2007 in five states, but Index insurance are covered in 17 states, 172 districts and the sum insured amount of Rs.21909 crore. Weather index parameters includes rainfall, temperature, relative humidity, wind speed and disease proxy. It also studied different types of basic risks in weather insurance i.e. geographical basis risks, product basis risks and product design basis risks. The author concluded that the maximum number of respondents was not satisfied with this weather index based insurance.

Shirantha Heenkenda (2011) analysed the farmers' willingness to pay for an Index Based Micro Insurance Scheme (IBMS) for paddy crops to protect against productions loss caused by natural disasters in Sri Lanka and assess products preference for this IBMS. The Contingent Valuation Methods (CVM) is used to elicit the willingness to pay for the hypothetical IBMS. For product preference, a conjoint analysis was conducted to study their relative importance and to discover the relationship between different attributes and the characteristics of the respondents. The results of the analysis showed that the interest in joining Index Based Micro-insurance scheme is 88 per cent of overall respondents. When willingness to pay is assessed, it is found that most potential purchaser would prefer a higher level is offered by the existing conventional insurance plan. The study concludes that preference analysis demonstrate that for IBMS products can be adopted for specific location in order to maintain demand. These findings provide strong support for launching IBMS in Sri Lanka.

Arun Kumar Deshmukh et al (2012) analysed the evolution of agricultural insurance in India and its critical appraisal. A comparative study is exhibiting the performance of agricultural insurance schemes run by Government of India till now. The study observed agricultural insurance market has showed a tremendous potential. However, in past forty years of its inception it could not gain strong hold in the farming community. More efforts are required in this direction to ensure deep penetration. The study suggested to be the

categorization of the farmers based on loan sanction, where major chunk of non-loan farmers is left behind and it calls for proper training and counseling to farmers to apply for the crop insurance and the risk mitigation techniques. The study concluded many experiments in this regards have borne fruits and proved to be replicable yet there are certain constraints such as farmers' acceptance, Government policies, improper infrastructure, which inhibit the implementation of the scheme.

Cory G. Walters et al (2012) investigated the US Government programs that help agricultural producers manage risk having environmental consequences. In recent years, premium subsidies for crop insurance have been increased substantially to encourage greater producer participation. Using detailed producer-level crop insurance contract data in four regions; the study investigate whether adverse environmental effects have resulted from these increased subsidies. The study observed that the generally positive correlation between crop insurance and environmental damage supports the policy implication. Insurance premium costs do not always reflect the full social cost or benefit of crop insurance and that the gap is location sensitive. It also found that some association between environmental effects and insurance contracts. On average, however, it finds that results are specific to local conditions and to particular environmental indicators and may be hidden in aggregate analysis. It was considered on regional perspective; environmental effects of crop acreage reallocation due to crop insurance are subtle but potentially locally important. Although often modest, the generally positive correlation between crop insurance and environmental damage supports the policy implication that insurance premium costs do not always reflect the full social cost or benefit of crop insurance and that the gap is location sensitive.

Jayakumar Varadan R and Pramod Kumar (2012) analysed the impact of crop insurance on rice farming in Tamilnadu with special reference to Nagapattinam and Ramanathapuram districts. They used the variables of crop diversification, cost and revenue for rice cultivation and constraints in adoption in crop insurance. They observed that insured farmers could realize higher return than that of non-insured farmers. Farmers have identified certain drawbacks in the performance of National Agricultural Insurance Programme and registered that the crop insurance scheme has led to the use of higher value inputs like seeds, fertilizers on plant production chemicals. The study concludes in general all major constraints are derived from the insurance service providing agencies.

Olivier Mahul, et al. (2012) studied India's crop insurance, which is the World largest programme with 25 million farmers insured. Issues such as design particularly related to delays in claim settlement have led to 954 million farmers' household not being covered, despite significant Government subsidy. They compared with the existing scheme, the new program has design that can offer more timely claims settlement, less distortion in the allocation of Government subsidies and cross- subsidies between farmer groups and reduced basic risk. The analysed area yield index approach and crop cutting experiment data for yield estimation. They concluded that political economy dimension cannot be underestimation. Reforms of the scale of the NAIS require significant political momentum from different ministries of agriculture and finance, and an enabling policy climate.

Shrikrishna S Mahajan et al (2012) point out that the growth of National Agricultural Insurance in India. The innovative scheme on crop insurance failed to meet the expected results due to the low policy implications, unawareness among farmers, unsatisfied performance of implementing agencies as well as limited by the State and Central Governments. National Agricultural Insurance Scheme has been introduced by the Government of India from Rabbi Seasons during 1999-2000. But it also failed to influence the farmers as well as work efficiency of the agencies. In India, agricultural insurance acts a catalytic tool, the main problem is that all crop are not covered under this scheme subjected to Crop Cutting Experiment, delay in the timely availability of data as many layers of administration are involved. There is a lag between crop cutting experiment and release of official figures. The study concluded that proper knowledge and implementation of crop insurance scheme can increase the food grain production in India and can reduce the risks of crop losses.

George T-M. Kwadzo1 et al (2013) studied the food crop farmers' willingness to participate in market-based crop insurance scheme in the Kintampo North Municipal of Ghana. The study employed descriptive statistical techniques to analyze the social, economic, demographic characteristics of farmers as well as their current risk management practices. The study concluded a weather index-based insurance product should be piloted especially for droughts and floods while considering the current risk-management strategies employed by farmers. It is imperative that the Government subsidizes this program in the initial stages to encourage participation in the form of providing weather station equipment that would enable insurance companies to effectively validate liability claims by farmers.

Conclusion

From the above reviews, the studies demonstrate the informal method used by farmers in handling risk, effectiveness Government policy and crop insurance. Besides, it is essential to evaluate the performance of crop insurance scheme in India and point out problems in its implementation. Given this gap, there is a need for studying the issues related to crop insurance. Since the agriculture activity is uncertain, the problem faced by the farmers in India is continuous for long periods. Thus, it is important for the researchers to analyse the issues related to crop insurance thereby for improving the crop insurance for securing the agrarian livelihood in India.

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