Volume 20 Issue 31
Originally issued as B8

Global Journal of Management and Business Research: B
Economics and Commerce
Volume 20 Issue 8 Version 1.0 Year 2020
Type: Double Blind Peer Reviewed International Research Journal
Publisher: Global Journals
Online ISSN: 2249-4588 & Print ISSN: 0975-5853

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GJMBR-B Classification: JEL Code: F43



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Economic Analysis of Factors Responsible for Non Adoption of Agriculture Insurance Scheme in a Some District of Madhya Pradesh

Richa Khanna [α] & Sadhana Srivastava [σ]

Abstract- Agricultural vagaries are many and to be deal with them Agriculture insurance was looked upon as the solution to this problem, National agriculture insurance is a part of the solution and it covers factors responsible for farmers to take insurance which are economic and environmental factors; risk factor, Sum insured, farmers benefited, claims received, premium paid, subsidy, Area insured, weather situation and natural calamity .Certain social factors are also looked upon like ; not aware , not interested , unable to pay premium, complex procedure, delay in claim payment , banks available at a distance, no need of agriculture insurance, not satisfied with terms and conditions, not aware about facility. For Agriculture insurance to be effective and highly adaptable it is important to look upon the social factors too, this has been analysed and verified in this paper Season wise to make the policy more effective and adoptable to farmers.

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I. Introduction

Agriculture plays an important role in the economic life of India. From time immemorial, agriculture has occupied a pivotal position in India's economic development and it has been regarded as a major economic powerhouse that has a bearing on the whole economy. It has been realized that the success of economic planning in India largely depends on the growth of agricultural sector.

This was achieved through a favourable interplay of infrastructure, technology, extension, and policy support backed by strong political will. The main source of long-run growth was technological augmentation of yields per unit of cropped area. The occupational structure in India comprise of primary or agriculture sector, secondary or industrial sector and tertiary or service sector, interlinked with each other. Agriculture is the base of development for other sectors as it provide raw materials to all other sectors therefore its growth is very essential. Therefore it is neccessary that it should have minimum negative effect and steps should be taken to reduce the risk arising in this sector.

The enterprise of agriculture is subject to lot many uncertainties. Still, more people in India earn their livelihood from this sector, than from all other economic sectors put together. Agricultural associated with several risks which include adverse changes in both input and output prices, Agricultural risk can be categorized as production risk, price or market, financial or credit, and institutional risks, on the policies as well as on the resources of the government. Therefore, though these measures guarantee some security in a situation of uncertainity, it in fact makes the farmers to wait in anticipation for some relief when there is a loss. Farmers on the other hand have sought to reduce those risks by utilizing modern technology, diversifying the agricultural operations, through intercropping or through the flexible use of fertilizers, pesticides, etc.

These risk leads to another risk of permanent income due to fluctuations in farm income as result to variability in crop yield and from commodity price fluctuation. Agricultural production is unstable because of its dependence on weather and inherent biological uncertainties in managing crops. In India, more than half of the farming is practised as rain-fed agriculture and is at the mercy of the weather. Instability in the agricultural sector cannot be completely eliminated, but its adverse effects can be minimized through various measures. Different strategies have been evolved by the government to combat these risks and uncertainties. Some of them include providing tax remissions, waiving off loans and interest on loans, drought or flood relief measures, etc.

But again, one major impediment here is that by and large financial facilities are utterly inadequate amongst the Indian farmers. Thus, because of these drawbacks, the policy makers of the country have sought to insurance of crops as a feasible measure to combat against the risks and hazards and provide protection to the farmers.

This will encourage them to carry on with their productive efforts, which not only improves the well being of the farmers but also ultimately helps in stabilizing the agricultural output (Mallikrjun S. Hasanbadi, 2005).

Indian agriculture is overwhelmingly a small farmers (operating 2 or less than 2 hectares) enterprise. The small and marginal farmers account for three fourth of the total holdings. The impact of droughts and crop

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failure may be disastrous for these resource poor small and marginal farmers.

The crop failure due to natural calamities like drought, floods or attack by pests and diseases may lead to great hardship. Farmers sell productive assets to meet their regular and contingent consumption needs and this impinge upon the future production (T.S. Walker and N.S. Jodha, 1982). The cases of committing suicides by farmers in the event of crop failure or crash in market prices are not uncommon in recent years.

In order to cope with various risks, farmers and rural societies have developed number of risk management strategies. These can be grouped as risk-reducing and risk-coping strategies .Risk reducing strategies are Ex-Ante measures adopted i.e, to find solutions within farming like crop diversification, mixed farming/inter-cropping etc.

Risk coping strategy involves Ex-post measures such as sale of assets, stored stock, loan from relatives and formal institution. Agriculture insurance is different from other general insurance as the natural disaster severly damage crops to large area and thereby the law of large number breaks down which helps in calculating premium and indeminity. The major role played by insurance programmes is the indemnification of risk-averse individuals who might be adversely affected by natural probabilistic phenomenon. Agricultural risk is associated with negative outcomes that stem from imperfectly predictable biological, climatic, and price variables. They also include adverse changes in both input and output prices. Production, price or market, financial or credit, and in situational risks are the different categories under which agricultural risks can be classified. Taking steps to overcome these risks associated with agriculture will be the major step in the agriculture.

(Hazell, Pomareda and Valdes, 1986) indicated that risk and uncertainty pose a serious impediment to agriculture development. Risk effect both crop area and yield, with growing commercialization and climate changes the degree of risk due to eventualities is increasing , fluctuation in price causes variability in farm income in such a case Minimum support price (MSP) is a means of overcoming price risk.

Another type of risk is production risk and crop insurance is believed to overcome this problem. One method of setting risk to farmers is through crop insurance. He also suggested that if the crop insurance programme is to be useful in agricultural development, it must be carefully implemented to maximize their efficiency for both farmers and governments. Indian agriculture is dependent on monsoons to large extent and the irregulatrity in its occurance raises the risk attribute of the farmer. In this scenario of high risk and uncertainty of rain fed agriculture, allocating risk is an important aspect of decision making to farmers. No economic activity can be disassociated with risk.

But risk in agricultural activity is different from other economic activity as the farmer cannot predict the quantative outcome as it on external factors (weather, pest attack disease etc). Though varying crop yields is the main risk faced by farmers and the poor economic condition of farmers due to which there capacity to face the disastrous consequence of crop failure is very less.

National agriculture insurance scheme (Nais) (Rashtriya Krishi Bima Yojana-Rkby) (Agriculture insurance corporation)

Meaning and working structure of NAIS: A Central Sector Scheme namely, National Agricultural Insurance Scheme(NAIS) is being implemented in the country since Rabi 1999-2000, as a part of risk management in agriculture with the intention of providing financial support to the farmers in the event of failure of crops as a result of natural calamities, pests and diseases. The scheme is available to all the farmers – loanee and nonloanee - irrespective of their size of holding. Loanee farmers are covered on compulsory basis in a notified area for notified crops whereas for non-loanee farmers scheme is voluntary.

Table 1: Data for Jabalpur Division of NAIS from 1999-2013 for Rabi season

Year	number of farmers covered	Area insured	sum insured	gross premium	subsidy	claim amount	benefitted farmers
Total	493522	1116576.008	3255831255	104463915.8	3788173	24090174.4	76487

Source: Agriculture insurance corporation (AIC) office, 2015

Table 2: Data for Jabalpur Division of NAIS from 2000-2014 for Kharif season

Year	Number of farmer covered	Area insured	sum insured	gross premium	Subsidy	claim amount	benefitted farmers
Total	2322926	3924919.85	9903705348	625836920.6	34536259	1525096679	365563

Source: A IC office, 2015

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II. Research Methodology Adopted

Sample area: Jabalpur Division which under which 8 districts were taken and data has been collected on the basis of developed and underdeveloped cities.

Sample size: 500 farmers were taken according to different land sizes and according to different season.

Sampling technique: questionnaire method was taken and convinent sampling method was adopted.

Reasons of Non-adoption of Agriculture insurance under NAIS – season wise-

Table 3: Number of farmers not availing insurance due to different reasons according to land sizes for Kharif season

Size of land holdings	1	2	3	4	5	6	7	8	9	10	Number of farmers insuring the crop	Total
Marginal	85 (54.14)	47 (54.02)	22 (39.28)	9 (42.85)	5 (31.25)	2 (28.57)	0 (0)	0 (0)	3 (25)	0 (0)	87	260
Small	43 (27.38)	22 (25.29)	15 (26.28)	4 (19.04)	7 (43.75)	2 (28.57)	3 (60)	1 (50)	5 (41.67)	2 (66.67)	40	120
Medium	24 (15.28)	15 (17.24)	17 (30.35)	7 (33.33)	4 (25)	3 (42.85)	2 (40)	1 (50)	3 (25)	1 (33.33)	37	110
Large	4(3.18)	2 (3.45)	1 (3.57)	1 (4.76)	0 (0)	0 (0)	0 (0)	0 (0)	1 (8.33)	0 (0)	2	10
Total	156	86	55	21	16	7	5	2	12	3	166	500

Values in brackets shows percentages.
Source: According to primary data collection.

Social reasons of non-adoption:

1. Not aware
2. Not aware about availability of facitity.
3. Not interested
4. No need
5. Insurance facility not available
6. Lack of resources for premium payment
7. Not satisfied with terms and conditions.
8. Nearest bank at a long distance
9. Complex procedures
10. Delay in claim payment.

Statistical interpretation:

Null Hypothesis: H0: β=0, among different land sizes changes do not occur due to these reasons.

Alternative hypotheis: H0: β≠0, among different land sizes changes do occur due to these reasons.

It is 5x3 table, Chi square =12.695 at degree of freedom: (5-1)(3-1) = 8

The above is the calculated value and the tabulated value of Chi square distribution at 10%, 5% significance is 13.362 and 15.507 respectively, which is more than the calculated hence we accept the null hypothesis i.e, β=0 , changes among the different land holdings for not taking insurance is not due to these above factors, this can be interpretated in way that farmers in Kharif season take insurance and these above factors do not interrupt their decision for not taking insurance, rather if farmers are not taking insurance in this season then it could be due other weather related issues. Statistically these variables has been insignificant.

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Table 4: Number of farmers not availing insurance due to different reasons according to land sizes for Rabi season

Size of land holdings	1	2	3	4	5	6	7	8	9	10	Number of farmers insuring the crop	Total
Marginal	134 (56.54)	23 (38.33)	11 (33.33)	0(0)	26 (74.28)	7 (43.75)	22 (73.33)	0(0)	0(0)	0(0)	36	259
Small	51 (21.52)	24(40)	10 (30.30)	6 (42.85)	2 (5.17)	6 (37.5)	3(10)	0(0)	5 (41.67)	1 (33.33)	17	120
Medium	48 (20.25)	12(20)	11 (33.33)	7(50)	5 (14.28)	3 (18.75)	5 (16.67)	0(0)	6(50)	2 (66.67)	15	110
Large	4 (1.68)	1 (1.67)	1 (3.03)	1 (7.14)	2 (5.17)	0(0)	0(0)	1 (100)	1 (8.33)	0(0)	2	13

values in brackets shows percentages.
Source : According to primary data collection

* In a 6x3 table calculated chi square: 23.763 at degree of freedom : (6-1)(3-1)= 10.

The above is the calculated value and the tabulated value of Chi square distribution at 10%, 5% significance is 15.987 and 18.307 respectively, which is less than the calculated hence we reject the null hypothesis i.e, β=0, and accept the alternative hypothesis i.e, changes among the different land holdings for not taking insurance is due to these above factors, this can be interpretated in way that farmers in Rabi season do not take insurance and these above factors interrupt their decision for not taking insurance.

Table 5: Ratio between Insured and non-insured farmers according to land sizes in Jabalpur Division

Size of land holdings	Total number of insured farmers		Total number of non-insured farmers		Ratio between insured and non- insured	
	Kharif	Rabi	Kharif	Rabi	Kharif	Rabi
Marginal	87	36	173	223	1:2	1:6.2
Small	40	17	80	103	1:2	1:6
Medium	37	15	73	95	1:1.97	1:6.3
Large	3	2	12	11	1:4	1:5.5
Total	167	70	338	432	1: 2.02	1:6.17
Source:	On the basis of primary data collection					

Among the two seasons Kharif has shown better results as compared to Rabi season. In kharif season 1 farmer is insured against 2 farmers non insured and in Rabi season 1 farmer is insured against 6 farmers non insured. Risk factor is very low in Rabi season as per farmers perception therefore they take less crop insurance and due to risk factor being high in Kharif season farmers take more crop insurance. But there is a need to change farmers perception as due to global warming weather in all seasons is becoming non reliable.

III. Findings of Study

Findings has been discussed on the basis of viewpoint of the following:

a) Findings from farmers point of view

1. In kharif season farmers do get effected due to economic and environmental factors; like weather fluctuations, local calamities or other local problems, many of which have not been covered under this insurance scheme i.e, price risk, market risk, Subsidy rate, rate of farmers benefitted in previous years etc.
2. In Rabi season farmers do get effected due to social factors i.e, not taking insurance they are mainly unawareness, not aware about the availability of facility, not interested, insurance facility not available, lack of resources for premium payment and not satisfied with terms and conditions. These are the main reasons in Rabi season which do effects farmers decision statistically too i.e among different land size changes do occur in number of farmers insured due to these reasons.

b) Findings from Government point of view

1. Through primary data analysis it has been found that unawareness is still a major factor contributing to changes in farmers decision for not taking insurance.
2. Among the total sample size of farmers, the main reason for taking crop insurance is due to loan taken from banks and due to financial security against risk, this shows changes in farmers perception by developing trust in policy.

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c) *Findings of scheme season wise*

More number of farmers take agriculture insurance in Kharif season as compared to Rabi season depending on seasonal variation.

IV. Conclusion

The results of primary analysis of Madhya Pradesh according to data being taken of Jabalpur Division, it shows that the reasons of farmers for not taking insurance again varies according to season. In Kharif season it is not the other social factors(unawareness, no need, no navailability of insurance, premium bearing capacity is not there, banks available at distance etc) which effect the farmers decision of not taking insurance rather it is the economic and environmental factors which effects farmers decision of taking insurance (i.e, weather conditions and other natural calamity which can be extended further to include price risk and market failure also and not according to land sizes. In rabi season it is the social factor which is effecting farmers decision i.e, unawareness, no need for insurance facility, no need, not satisfied with terms and conditions and lack of premium paying capacity according to land sizes. Hence these factors should be kept in mind for making the scheme more effective in all seasons, by dealing with each condition separately.

V. Suggestions

In kharif season farmers decision of adopting crop insurance is effected due to economic and environmental factors whereas in Rabi season the effect is due to social factor. It has been found that farmers due to high environmental risk take insurance in Kharif season as compared to Rabi season. If changes are being made in the policy they should be made according to seasons, research results shows that in kharif season farmers decision of not taking crop insurance is not effected due to social factors like: unawareness, not aware of insurance facility available, not interested, no need, insurance facility not available, lack of resources of premium payment, not satisfied with terms and conditions, rather it is according to the economic and environmental factor i. e, Sum insured, subsidy, premium rate, price risk, market failures, weather conditions and natural calamity. Hence decision or changes in making policy effective should be worked according to seasons, so that more and more farmers take insurance in Rabi season also along with Kharif season as there are changes according to farmers perception also.

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