

Evaluating the Performance of Crop Insurance Schemes in Wardha District: An Empirical Analysis

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Abstract

This paper assesses the effectiveness of crop insurance programs realized in Wardha District in the state of Maharashtra between the year 2011 and 2021 in terms of reach, effectiveness, and ability to improve the financial stability of farmers. In the study, several important schemes like the National Agricultural Insurance Scheme (NAIS), the Modified National Agricultural Insurance Scheme (MNAIS), and Pradhan Mantri Fasal Bima Yojana (PMFBY) are analyzed based on their coverage, settlement rate of claims, and frequency in which farmers joined the schemes over the ten-year period. Through a mixed method approach, secondary data in the form of government reports, agricultural department records and insurance agencies were supplemented with primary survey data that was conducted with a representative sample of farmers in the entire district. It has been found that since the introduction of PMFBY, there have been major inroads in insurance coverage, but issues pertaining to timely settlements of claims, awareness levels and affordability of premiums remain. The statistical evidence supports the argument that there is a positive link between the participation in the insurance program and the resilience of the farmers in case of crop loss; however, the improvements in operation that would aim to increase transparency and accessibility cannot be overlooked. The research takes a stance by concluding that crop insurance plans have also played a role in the risk-elimination of the agriculture industry in Wardha; however, it still has yet to realize its full potential because of structural and execution constraints. Suggestions to fix the problems include simplifying the procedures to register the claim, running more awareness campaigns, and incorporating technology-based monitoring tools to enhance the issuing efficiency and the trust of the farmers.

Keywords: Crop insurance, Wardha District, PMFBY, agricultural risk management, farmer resilience, claim settlement.

INTRODUCTION

The rural economy in India depends heavily on agriculture wherein a sizeable percentage of the population earns its livelihood and forms a major component of the GDP in the country. Nonetheless, it is a very susceptible sector to many risks like unpredictable monsoons, drought, floods, the attack of pests, and fluctuation in the price of the sector. Such uncertainties are especially egregious in areas of rain-fed agriculture like Wardha District in Maharashtra where agriculture is largely under rational rainfall and whose farmers are mainly smallholder farmers. Failure of crops, caused by climatic variability can result in dire economic strains, debt, and even in the ultimate gross end of farmer suicides, a factor which is by all means fatal and has reported extensively on the Vidarbha region which includes Wardha. In this sense, farm risk management tools like crop insurance are essential in protecting the lives of farmers and maintaining stability in their income through risk insurances. Crop insurance programs serve as core mechanisms in which the farmer receives financial support in form of compensation in case of crop loss or the damage of crops through natural calamities, pests, or diseases. In the last ten years, several schemes have been introduced by the Government of India—first being the National Agricultural Insurance Scheme (NAIS), then the Modified National Agricultural Insurance Scheme (MNAIS), and more recently the Pradhan Mantri Fasal Bima Yojana (PMFBY) to cover risks and encourage farmer participation. The further schemes were intended to overcome the weaknesses of the previous one, increase the list of insured risks, enhance the speed at which the claims would be paid, and make farmer-payable premiums more affordable via governmental subsidies.

Agro-climatic profile and socio-economic conditions occurring in Wardha District make it a very relevant case of studying the performance of crop insurance schemes. Most of the economy of the district is agrarian with its major crops being cotton, soybean, pigeon pea, and wheat. Consecutive erratic rainfalls, dry spells, and floods were experienced between 2011 and 2021, and this was a great factor in poor crop production, and income earned by farmers. It is in this context that crop insurance was supposed to act as a safety net, which arose to ensure that farmers got healed after incurring losses and to continue to

practice farming. Questions have however been asked concerning the effectiveness of these schemes in the real sense in terms of coverage, accessibility, efficiency in settling claims and general satisfaction of the beneficiaries. Although the government figures might show an increase in the number of insured farmers who are covered, the actual situation on the ground is what likely to give a different picture: in particular, difficulties in processing the claims, low awareness levels among farmers of the covers provided by such policies, and even frustrations about the compensation levels provided. Besides, there was a shift in premium structures, sum insured, and implementation mechanism, both of which impacted farmer participation and trust in the system with mixed results due to the transition of NAIS and MNAIS to PMFBY.

The importance of looking at crop insurance schemes in Wardha involves the need to not only know that these schemes are effective in terms of how they work but also to determine that these schemes are socio-economically beneficial to the farming households. Since agricultural distress in Vidarbha has been a recurrent problem, success of such the schemes might be an influential factor to prevent distress migration and indebtedness. Besides, the ten year period between 2011 and 2021 enables an examination of how the policies evolve, the way the schemes have been adopted, and how institutional processes have played the roles to either enable or hinder a successful implementation. The research on crop insurance in India has historically concentrated at macro-level and empirical studies that capture regional realities are intensely needed to fill these rather big gaps. The current research tries to fill that gap in the sense of a blend of both secondary and primary research using historical records and surveys conducted on farmers at various blocks of Wardha District. Key performance indicators in the analysis would include rates of enrolment, claim ratios, settlement timelines as well as the satisfaction levels of farmers in addition to qualitative information about the issues of concern to the farmers and the implementing agencies.

Moreover, the literature finds crop insurance in the context of “agricultural risk management and rural development as a whole”. Insurance may not be the silver bullet to all tomatoes in agriculture, but can add considerable strength to resilience through integration with complementary interventions including well-built irrigation systems, use of drought tolerant crop varieties and good extension systems. The study also acknowledges the presence of interactions between governmental policy, private insurance companies and farmer cooperatives towards forming the performance of the crop insurance schemes. This paper helps in filling the gaps in current policy debate on effectiveness of agricultural insurance, clarity and friendliness on the part of farmers and economic viability through evaluating the strengths and weaknesses of operation of NAIS, MNAIS and PMFBY in the Wardha setting critically.

The overall purpose of this study is to present the current research findings to the policymakers, insurance firms, and farmer groups regarding the realities of crop insurance provision in Wardha District. The research aims to assist in the elaboration of more inclusive and efficient insurance mechanisms by discovering the coverage gaps, exemplifying the best practices, and suggesting recommendations, which are more specific. Through this, it hopes to help address the bigger objective of growing livelihoods of farmers, minimizing climate-induced vulnerability, and ensuring sustainable growth in the agriculture sector in the area. The given time frame of the current research- 2011-2021 is an opportune period that will allow not only examine the statistical data regarding the level of insurance acquisition and claim payments, but also the changing perceptions and trust rates among farmers towards these programs. It is an all-out assessment that is relevant especially as blue skies continue to give way to the ever changing climatic variability and imperative need to have a sound agricultural risk management strategy in place capable of saving the financial backbone to the rural India.

LITERATURE REVIEW

Crop insurance has been acknowledged as the critical instrument against eliminating the financial risk of the farmers in the event of a crop failure because of various natural disasters, pests and diseases. Different scholars over the past decades have shed different light concerning conceptual and operations of the crop insurance in India. In another research by Narayanan (2006), a comprehensive profile of the Indian insurance industry was outlined with special reference to the contribution of an agricultural insurance that would establish security to the farming community. His piece marking change, dilemmas, and policy aspects of crop insurance provides a complete learning of the institutional setup of India.

Sinha (2004) considered the extent of the involvement of the private sector in agricultural insurance, found weaknesses in agricultural insurance operating through the public programs, the nature of the competition, possibly leading to better coverage and efficiency. He made it clear that in order to enhance service delivery and claims payment, the entry of the private insurers would enhance such activities. Likewise, Sinha (2005) has discussed the prospects and issues of the private players in the Indian scenario with an emphasis on innovative methods of risk sharing.

Dandekar (1985) reviewed critically on crop insurance in India giving history of crop insurance and telling its effectiveness. The factors that showed low penetration, poor compensation mechanisms, and implementation difficulties were pointed out in his analysis. Rustogi (1988) discussed several models of crop insurance and emphasized regional specificity of the policies development principles and customization concerning specifications of the needs of the farmers.

The option of Varsha Bonds and variations of this instrument raising market solutions to crippled crop insurance problems which were developed by Parchure were indicative of the emerging financial instruments which might be used in tandem with the traditional insurance schemes. His solution was to connect the sphere of agricultural risk management with the financial market means, thus, potentially improving sustainability of crop insurance programs.

The Government of India (1999) has implemented the National Agricultural Insurance Scheme (NAIS) which was envisaged to cover all risks by the farmers. Such a plan represented a major policy change as it was a protection against a variety of climatic and biological dangers. Rao and Kulkarni (2001), the authors of this two article work offered an in-depth analysis of agricultural insurance in India with considerations of both institutional framework and the field level complications.

Raju and Chand (2009) looked at the issues and developments of agricultural insurance in India where they put as major hindrance; administrative inefficiency, slow claim settlement and farmer ill-awareness. They recommended changes in policy devising, awareness creation, and claim settlement. In India, Nair (2011) carried out a performance analysis of crop insurance, wherein this analysis revealed that though the awareness and coverage had been increasing, concerns related to basis risk, its low transparency, and low farmer contentment continued to exist.

Sommer, Trieschmann and Hoyat helped in the further discovery of concepts of risk management and insurance, giving theoretical insights on issues affecting agricultural insurance. The notions contribute to putting the crop-insurance notion in context as part of overall risk mitigation efforts being undertaken at the global scale.

Empirical studies are available through statistical data of Agricultural Statistics at a Glance and the Economic Survey of India in different years reflecting upon the trend, rate of adoptions and fiscal implication of the crop insurance schemes. These government publications are key sources of analyzing the performance and the outreach of the insurance schemes in rural India.

On the whole, literature days indicate that despite some major evolvments in the Indian context of crop insurance specifically, the introduction of NAIS and the resulting schemes, some fundamental issues including poor levels of farmer awareness, delays in procedures, lesser involvement of the private sector and actuarial pricing problems among others have driven a wedge in the effectiveness of crop insurance in India. This literature forms the basis of evaluating the crop insurance schemes in particular areas such as Wardha district where farming activities are the main source of livelihood and their vulnerability to climatic related risks is also higher.

Objectives of the Study

1. To assess the coverage and reach of crop insurance schemes in Wardha District during the period 2011–2021.
2. To evaluate the performance of crop insurance schemes in terms of claim settlement, timeliness, and farmer satisfaction.

3. To analyze the trends and patterns in premium collection, claims paid, and area insured over the study period.

Hypothesis

H₀ (Null Hypothesis): There is no significant relationship between the performance of crop insurance schemes and factors such as claim settlement, timeliness, and farmer satisfaction in Wardha District.

H₁ (Alternative Hypothesis): There is a significant relationship between the performance of crop insurance schemes and factors such as claim settlement, timeliness, and farmer satisfaction in Wardha District.

RESEARCH METHODOLOGY

The analysis of this paper is analytical and empirical research design taken to analyse performance of crop insurance schemes in Wardha District between 2011 and 2021. The secondary data were also used. A structured questionnaire that included primary data was completed by a representative sample of farmers in various talukas within the district by stratified random sampling method so as to give the proportional representation to different crops and insurance covers. The interview contained aspects like claim settlement, promptness and satisfaction of the farmer. Secondary data were derived by using government reports, records of insurance companies, publications of ministry of agriculture and statistical handbooks. To summarise the data, descriptive statistics, (mean, standard deviation and percentage analysis) were applied whereas inferential statistical methods, (chi-square tests and correlation analysis) were performed to test the hypothesis and direction of relations between variables. The duration of the study spanning ten-years allowed identifying trends, the effects of policy, and the gaps in the operations of crop insurance schemes. The data analysis was done through the use of SPSS software in order to achieve accuracy and reliability of data.

Table 1: Descriptive Statistics of Key Variables

Variable	N	Minimum	Maximum	Mean	Standard Deviation
Claim Settlement Score (0-10)	200	2.00	10.00	6.85	1.92
Timeliness Score (0-10)	200	1.00	10.00	6.12	2.14
Farmer Satisfaction Score (0-10)	200	2.00	10.00	7.01	1.75
Overall Scheme Performance (0-10)	200	3.00	10.00	6.66	1.83

Source: Field Survey & Secondary Data Analysis (2011-2021)

Table 1 shows the descriptive statistics of performance of crop insurance schemes in Wardha District along parameters of their claim settlement and timeliness as well as satisfaction of farmers. Outcomes show that the average score of claim settlement was 6.85 which implies that, on average the farmers considered claim settlement process to be marginally efficient whereby a variance exists as evident in a deviation standard of 1.92. The most ambiguous parameter was timeliness, which had a mean score of 6.12 and returns the highest standard deviation (2.14) of the variables, which would imply that some of the farmers were paid early, whereas there were delays to other farmers. The mean of farmer satisfaction was the largest (7.01) and the SD was the smallest (SD = 1.75), which indicated that there has been a positive experience of the schemes in general among the respondents. The performance of the schemes as a whole had a mean score of 6.66 implying a relatively positive image, but, some of its elements, such as timeliness, need to be improved to increase stimulation and intake of crop insurance schemes in the district. The above trends indicate that although the schemes are currently operating to reasonable levels, mitigation of delays and the ability to keep to regular settlements of claims would raise farmer confidence and involvements further.

Statistical Test Applied:

To investigate the described hypothesis, Pearson Correlation Coefficient test was used with the help of primary data acquired on the respondents on the basis of structured questionnaire. The test has been selected as it was aimed to identify the nature and intensity of the linear relationship existing between the independent variables (claim settlement, timeliness and farmer satisfaction) and the dependent variable (overall performance of crop insurance schemes).

Level of Significance (α): The level of significance was set at 5% (0.05) to ensure a 95% confidence level in the results.

RESULTS:

Variable	Correlation Coefficient (r)	p-value	Significance ($\alpha=0.05$)	Relationship Type
Claim Settlement	0.712	0.000	Significant	Strong Positive
Timeliness	0.658	0.000	Significant	Moderate Positive
Farmer Satisfaction	0.794	0.000	Significant	Strong Positive

Interpretation:

It was evident in the correlation analysis that claim settlement ($r = 0.712$) and farmer satisfaction ($r = 0.794$) are strongly, positively, and statistically significant correlated with the performance of crop insurance schemes. A moderate positive and also significant relationship was found between timeliness ($r = 0.658$). The p-value was measured in all instances to yield less than 0.05 showing that null hypothesis (H_0) can be rejected. The results favor the alternative hypothesis (H_1), since it is evident that there exist a significant correlation between the performance of crop insurance schemes and the variables of claim settlement, timeliness and satisfaction of the farmers in Wardha District. It means that perceived effectiveness of crop insurance programs might increase when the claims go through faster and settle more fairly and satisfactorily to farmers.

DISCUSSION

This paper aimed to review the crop insurance scheme in Wardha District and analyze the current performance between 2011 and 2021, in terms of claims settlement and timeliness in terms of claim settlement and farmer satisfaction. The report presents an interesting story of how the schemes have developed and how their functional efficiency has created a perception and confidence of the system among the farmers. The descriptive statistics revealed an overall positive view of claim settlement procedures; however, variation in the experiences was identified at various crop seasons. Farmers who received timely and full settlement had a greater satisfaction which conversely, proved that farmers with delay or incomplete payout had greater concerns as to insurance reliability as a cover to utilize in reducing risk. This coincides with the existing literature on the claim process speed and equitability that have great influence on the way farmers express confidence in the crop insurance schemes they get involved into.

This perception can also be clarified based on the findings of the hypothesis testing. The high positive relationship between claim settlement and the overall performance ($r = 0.712$, $p < 0.05$) emphasizes the fact that a transparent system of claim settlements that is effective is the key issue in making the scheme look successful. The delayed time was also considered a significant aspect in determining satisfaction because there was a moderate relationship between these variables ($r = 0.658$, $p < 0.05$). The fact that the claims cannot be paid up during the agricultural season but across the season has eroded the whole essence of insurance, which is financial relief within a timely response to restore and reinvest. Such delays might be related to administrative backlogs, lack of sufficient people, and complexities in the process of loss assessment, which all require systematic changes.

The most significant correlation was observed between farmer satisfaction and performance ($r = 0.794$, $p < 0.05$) which implies that, in addition to technical efficiency, the moral justness, openness and accountability of the schemes are of crucial relevance to farmers in their judgment process. This observation puts a premium on farmer-led approach with communication, resolving grievances and trust-building mechanism taking center stage. It is worthwhile that when farmers believe they are being listened to and respected they become more satisfied even when there are some delays that arise and sometimes partial payments are made.

The recent 2011 to 2021 environment has seen major transformations in crop insurance policy at the national level especially the introduction of the Pradhan Mantri Fasal Bima Yojana (PMFBY) introduced in 2016. Even though PMFBY offers improved cover and lower premiums in comparison with that of farmers, it has had mixed results in Wardha. The first few years brought the increase in the number of

enrollments and awareness and later dissatisfaction was created by delays in claim settlement and loss assessment debate. This indicates a larger difficulty of striking the balance between expansion of coverage and operational capacity.

These findings have implications to policymakers and insurance providers too. Enhancing the capacity of implementing agencies, a technology backbone (satellite imagery and mobile-based loss reporting) that buttresses the process of claim verification, and ensuring strict settlement deadlines would be enough to turn performance on its head. Also, there is merit in raising awareness among farmers regarding the terms of policy coverage, coverage limits and claim process, which will help to decrease the rate of misconception and increase their trust.

To sum up, the research can establish that the success of crop insurance policy in Wardha District is largely dependent on the efficiency and transparency with which it administers the settlement of claims, remains timely and maintains satisfactory management to farmers. Policy design is significant, yet its actual implementation at the grass roots is certainly decisive in credibility and effectiveness of the scheme. To ensure crop insurance becomes a credible risk management tool in the farming community, it will be of essence to address areas of operations shortcomings as well as place emphasis on farmer confidence.

CONCLUSION

Crop insurance scheme assessment in the Wardha District between the year 2011 and 2021 finds that the three interconnected aspects, claim settling performance, timeliness and the farmer satisfaction offer high dependency on how the crop insurance scheme will perform. This is verified by the results of the study, which show that there is a substantive correlation between these options and the perceived success of the schemes where satisfaction of the farmer has come out as the most influential yardstick of realizing good performances. Although policy reforms like the Pradhan Mantri Fasal Bima Yojana (PMFBY) have increased the coverage and lowered the premium burden, the inefficiencies of the operations, delays in receiving the money in case of claims, and disputes over assessing the losses have weakened the actual effects of the reforms.

The evidence is that crop insurance may prove to be an invaluable risk-absorbing instrument to the farmer, though its applicability is based on clear, timely and equitable treatment of the claims backed by easy redressal of grievances. The trust gap should be closed by implementing the technology-based loss assessment, capacity development of the implementing agencies and communication strategies that are farmer-focused. In fact, the validity of crop insurance is not really about the design as such but actually about the capacity to grant assistance during the time that its recipients require most. These aspects of the operation are the areas that should be strengthened in order to provide confidence to the farmers and make crop insurance an effective measure that helps address the uncertainty in the agricultural sector.

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