

NATIONAL AGRICULTURAL INSURANCE SCHEME: PROSPECTS, PERFORMANCE, AND PROBLEMS

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ABSTRACT

In India, agriculture production and farm income have always been highly dependent on weather conditions beyond farmers' control. At the time of independence, about 70 percent of the total population was directly or indirectly dependent on agriculture for livelihoods, while the figure currently stands at more than 40 percent (ILOSTAT database). Therefore, agricultural insurance has been an imperative mechanism to control the damages and uncertainties in the income and livelihoods of a larger proportion of India's population. There have been many crop insurance schemes 1972-73 afterward; besides a brief discussion of those schemes, this paper's main aim is to critically examine the performance of the National Agricultural Insurance Scheme (NAIS) implemented in rabi 1999-00. This paper is a study of NAIS from rabi 1999-00 to rabi 2009-10, after which the NAIS was modified. This study finds that although the NAIS was a far better scheme than its predecessors in its features and coverage, it did not meet its purpose very well. The number of farmers, area covered, the sum insured, and awareness about the scheme were not satisfactory. On the one hand, several states did not participate at all throughout the period of the study; on the other hand, a very limited number of states benefitted more from the scheme. The scheme performed far better in kharif seasons in comparison to rabi seasons. A considerable loss to the insurance company or subsidy burden on the government was also inflicted as the claim ratios were higher than unity in most of the study years.

Keywords: Indian Agriculture, Crop Insurance Scheme, General Insurance Corporation of India, Indian States

1. Introduction

Indian agriculture has always been prone to several risks and uncertainties as it highly depends on weather conditions, which are generally unpredictable and beyond the control of farmers. These risks and uncertainties are also related to natural events, epidemics, and humanmade disasters. In India, where more than half of its population has been dependent, directly or

indirectly, on agriculture for livelihoods, agricultural insurance becomes a vital mechanism to manage income and livelihoods risks of a larger section of the population in India. It becomes more important with the commercialization of agriculture and the climatic changes which have increased the degree of risks to farmers with more extensive exposure to adverse contingencies. Farm incomes are highly unstable on the grounds of wobbly agricultural output prices as well. Minimum Support Price (MSP) is provided by the government to control this uncertainty in farmers' income. Still, it is limited to a very small number of crops and a small fraction of India's total farmers. Minimum Support Price (MSP) had not been implemented in many states during the study period.

There is already an immense deficiency of credits to the farmers, and the unpredictability of produce aggravates this problem. The available lenders do not want to lend to farmers since the probability of default is high (Miranda and Vedenov 2001). These unfavourable events sometimes become one of the factors leading farmers to conduct suicides, which has gained some serious attention in recent years (Raju and Chand 2007). There have been some other progress like 'contract farming' and 'future trading' to trim down risks from the agricultural output price fluctuations, but crop insurance is believed to be the only mechanism available for the protection against production risks in agriculture (Raju and Chand 2008a).

In this situation, agricultural insurance becomes an imperative medium to stabilize farmers' income, guard against the disastrous effects of natural and human made disasters, and protect farmers' income from price fluctuations. A crop insurance provides the aforementioned benefits to farmers and helps farmers to farm after an adverse season, provides them the minimum amount of protection to sustenance, motivates farmers for more investment in agriculture, and helps them maintain their creditworthiness as well. A properly designed and implemented crop insurance program safeguards several vulnerable small and marginal farmers from adversity, brings stability in the farmers' income, and increases farm production (Bhende 2002). Moreover, a crop insurance does not benefit the farmer only but also the country because it has both micro-level and macro-level effects.

Crop insurances are based on two basic approaches, namely area approach, and individual approach. Area approach defines an area which can be a district, a taluk, a block or a mandal, and a village. It is very important for developing countries which consist a large number of small and marginal farmers. The Individual approach uses a plot or a farm as a unit to be insured. This approach is suitable for high valued crops which are grown under standard practices. Nevertheless, this approach involves high administrative costs.

Against this background, after a brief discussion of the past crop insurances, this study mainly aims to critically examine the National Agriculture Insurance Scheme's performance for 21 crop

seasons, i.e., from its implementation in rabi 1999-00 to rabi 2009-10. It points out the shortcomings of NAIS. A comparative analysis has been done across the crop season levels, year levels, and inter-state levels in India.

2. Agricultural Insurances in India

Although there was a lot of curiosity for the provision of the agricultural insurance scheme just after the independence, the first agricultural insurance program could be implemented as late as in 1972. The General Insurance Corporation (GIC) of India started a Crop Insurance Scheme (CIS) for H-4 cotton in 1972-73. It was based on the individual approach. The program lasted till 1978-79 by covering only 3110 farmers for a premium of Rs. 4.54 lakh against claims of Rs. 37.88 lakh (Raju and Chand 2008b). On the basis of the experience of the CIS and the recommendations of a committee headed by Prof. V. M. Dandekar, the GIC launched a Pilot Crop Insurance Scheme in 1979, which was based on area approach. It was available on a voluntary basis only to loanee farmers, who took loans from institutional sources. This scheme was broader than the Crop Insurance Scheme as it covered a larger area, more farmers, and provided subsidy on the premium charged to small and marginal farmers. Till 1984-85 this scheme collected a cumulative amount of premium of Rs. 195.01 lakh against a cumulative amount of claims of Rs. 155.68 lakh (Raju and Chand 2008b). There were some serious shortcomings of the scheme, like inaccessibility by the small and marginal farmers, lack of awareness about the scheme, limited coverage of crops, and a large unit of insurance. Due to these shortcomings, this program was closed down by 1984.

The Comprehensive Crop Insurance Scheme (CCIS) was implemented in 1985-86. Fifteen states and two union territories adopted the scheme until kharif 1999. Like PCIS, CCIS was also confined to the loanee farmers only. But unlike PCIS, the CCIS was on a compulsory basis for the loanee farmers in the participating states and union territories. This scheme covered 763 lakh farmers. This scheme, too, had many shortcomings like area approach, skewed indemnity payments to a particular state or crop, uniform premium rate for all farmers and regions, restricted coverage to loanee farmers and compulsory participation by them, coverage to a small number of crops and regions, and lagged indemnity payments (Jain 2004).

2.1. National Agricultural Insurance Scheme (NAIS) and its Main Features

National Agricultural Insurance Scheme (NAIS) was launched by the Central Government of India in rabi season 1999-2000 with the objective of providing an inclusive insurance solution to the farmers in the event of failure or damage to any of the notified crops as a result of natural disaster or calamities or widespread incidence of diseases and pests. The scheme also had the objectives of encouraging farmers to adopt progressive farming practices, high-value inputs,

better technology in agriculture, and help stabilize the farm income, especially in adverse times. The scheme was based on both the ‘area approach’ and ‘individual approach.’ It was accessible to both borrower and non-borrower farmers. It covered a variety of crops like all food grains, oilseeds, and annual commercial or horticulture crops provided the data on past yield was available for an adequate number of years. By 2009-10, 35 different crops were covered in each of kharif and rabi seasons (AICIL Annual Report 2009-10).

A farmer could insure a sum (Sum Insured) of a notified crop to its Threshold Yield Value. However, to get his crop insured beyond the Threshold Yield Value, upto 150 percent of the Average Yield of the notified crop and area, the farmers were needed to pay a premium at commercial rate¹. The premium rates for the different crops are given in table 1. Small and marginal farmers were entitled to get a 50 percent subsidy in premium. The burden of the subsidy was equally shared by the central government and the state/UT government. Some of the State and UT Governments had extended some additional premium subsidy for some select areas and crops.

Table 1: Premium Rates for Various Crops during the two Seasons

S. No.	Season	Crops	Premium Rate
1	Kharif	Bajra and Oilseeds	3.5 % of SI or Actuarial Rates*
		Other crops (cereal, other millets & pulses)	2.5 % of SI or Actuarial Rates*
2	Rabi	Wheat	1.5 % of SI or Actuarial Rates*
		Other crops (cereal, other millets & pulses)	2.0 % of SI or Actuarial Rates*
3	Kharif & Rabi	Annual Commercial/Horticultural Crops	Actuarial Rates

* Whichever is low is applicable.

Source: Available at the Agriculture Insurance Company of India Limited website.

2.2. Progress and Performance of NAIS at National Level

In the first season of NAIS, rabi 1999-00, only nine states/union territories participated. The scheme covered 5.81 lakh farmers, while only 56.25 thousand farmers were benefitted (Table 2). The coverage of NAIS increased drastically in kharif 2000. The number of states/UTs participating rose from 9 to 17. All other heads – area insured, the sum insured, gross premium, premium subsidy, claims, and no. of farmers benefitted- showed momentous increments (Table 3).

¹This information has been taken from the Agriculture Insurance Company of India Limited. Available at http://www.aicofindia.com/AICEng/Pages/Product_Profile/Present_NAIS.aspx

Table 2: The National Level Performance of NAIS in Rabi Seasons (Since Inception to Rabi 2009-10)

S. No.	Rabi Season	No. of Covered State/UTs	No. of Farmers Covered (in '000')	Area Insured (in '000' Hectares)	Sum Insured (in Crore)	Gross Premium (in Crore)	Premium Subsidy (In Crore)	Claims (in Crore)	No. of Farmers Benefited (in '000')
1	1999-00	9	581.04	780.90	355.85	4.75	1.66	7.43	56.25
2	2000-01	18	2091.21	3111.10	1603.78	27.81	7.58	60.82	527.51
3	2001-02	20	1955.72	3144.39	1498.27	30.28	7.88	63.19	457.05
4	2002-03	21	2324.31	4033.84	1833.94	38.90	7.02	186.42	930.53
5	2003-04	22	4421.66	6468.58	3048.23	63.54	6.44	497.07	2095.33
6	2004-05	23	3530.80	5342.71	3774.40	76.42	3.94	160.32	771.99
7	2005-06	23	4046.48	7220.07	5072.80	104.39	4.60	338.20	979.90
8	2006-07	23	4979.30	7631.97	6540.68	143.08	11.46	515.54	1392.08
9	2007-08	24	5043.45	7388.10	7467.41	158.93	17.20	810.13	1578.51
10	2008-09	23	6210.89	8858.03	11148.94	294.58	73.44	1503.55	1973.44
11	2009-10	23	5680.48	7896.99	11007.49	292.19	75.66	566.80	1042.29
Total			40865.33	61876.68	53351.79	1234.89	216.88	4709.48	11804.87

Source: Calculations are based on the data taken from Agricultural Insurance Company's website².

If we consider NAIS's performance in rabi seasons only, we find that rabi 2003-04 shows the second significant spurt in the coverage. Afterward, although there is a marginal fall in rabi 2004-05, the performance of NAIS in rabi seasons improved since its inception. In Rabi 2009-10, 56.8 lakh farmers were covered, which was almost ten times of that of in rabi 1999-00. Similarly, all other heads in table 2 show multiple times increase during 1999-00 and 2009-10. It can be claimed that this multiple times increase was due to a very small coverage of NAIS in its first rabi Season. But even if we compare the values under various heads in rabi 2000-01 and rabi 2009-10, we find the same kind of results. During this period, rabi 1999-00 to 2009-10, eleven rabi seasons, a total of 41 million farmers were covered while 12 million farmers were benefitted by NAIS.

NAIS performed better in kharif seasons in comparison to the rabi Seasons. The number of farmers covered had always been far greater in the kharif seasons than in the rabi seasons during the period of this study. Similarly, the number of farmers benefitted had been greater in the kharif Seasons, except only in kharif 2003, where the reverse is true. The performance of

²Data sets are available at http://www.aicofindia.com/AICEng/Pages/MapOfIndia_BusinessPerf.aspx

NAIS in kharif seasons improved over time. In kharif 2003, all the variables – no. of farmers covered, areas insured, the sum insured, gross premiums, claims, and no. of farmers benefitted – show small decreases, but overall NAIS performance in kharif seasons was remarkable.

Table 3: The Performance of NAIS in Kharif Seasons (from inception to Kharif 2009)

S. No.	Kharif Season	No. of Covered State/UTs	No. of Farmers Covered (in '000')	Area Insured (in '000' Hectares)	Sum Insured (in Crore)	Gross Premium (in Crore)	Premium Subsidy (In Crore)	Claims (In Crore)	No. of Farmers Benefitted (in '000')
1	2000	17	8408.0	13219.8	6904.4	208.2	47.3	1221.3	3636.1
2	2001	19	8697.0	12888.9	7502.3	261.7	47.1	493.5	1742.3
3	2002	21	9769.4	15531.7	9431.7	326.7	44.3	1824.4	4297.7
4	2003	23	7969.8	12355.7	8113.8	284.6	24.0	652.7	1711.5
5	2004	25	12686.8	24273.1	13170.5	458.1	19.4	1037.4	2675.8
6	2005	25	12674.2	20530.4	13519.5	449.4	20.5	1061.3	2666.1
7	2006	24	12933.9	19673.2	14756.4	467.2	26.3	1776.1	3131.3
8	2007	24	13400.0	20756.5	17006.7	523.9	27.6	912.6	1589.1
9	2008	24	12991.9	17635.1	15663.1	511.1	32.8	2375.0	4217.8
10	2009	27	18254.1	25770.9	27616.8	863.1	54.7	4614.6	7944.3
Total			117785.1	182635.2	133685.2	4353.9	344.0	15969.0	33612.0

Source: Calculations are based on the data taken from Agricultural Insurance Company's website

During the ten kharif Seasons, kharif 2000 to kharif 2009, the scheme covered 118 million farmers while 34 million farmers benefitted. Both values are almost thrice their counterparts in rabi season (see Table 2 and Table 3). The total area insured over the period was 183 million hectares in the kharif seasons while it was 62 million hectares in the rabi Seasons. For kharif Seasons, the total sum insured was Rs. 1.34 lakh crore while it was only Rs. 53.35 thousand crores for the rabi Seasons. Amounts of claim were always higher in kharif seasons in comparison to rabi Seasons. Nevertheless, we also note that the claims in rabi seasons, over the years, show more or less an increasing trend while the same shows an oscillation trend for the kharif seasons.

Table 4: The National Level Year-wise Performance of NAIS (since inception to 2009-10)

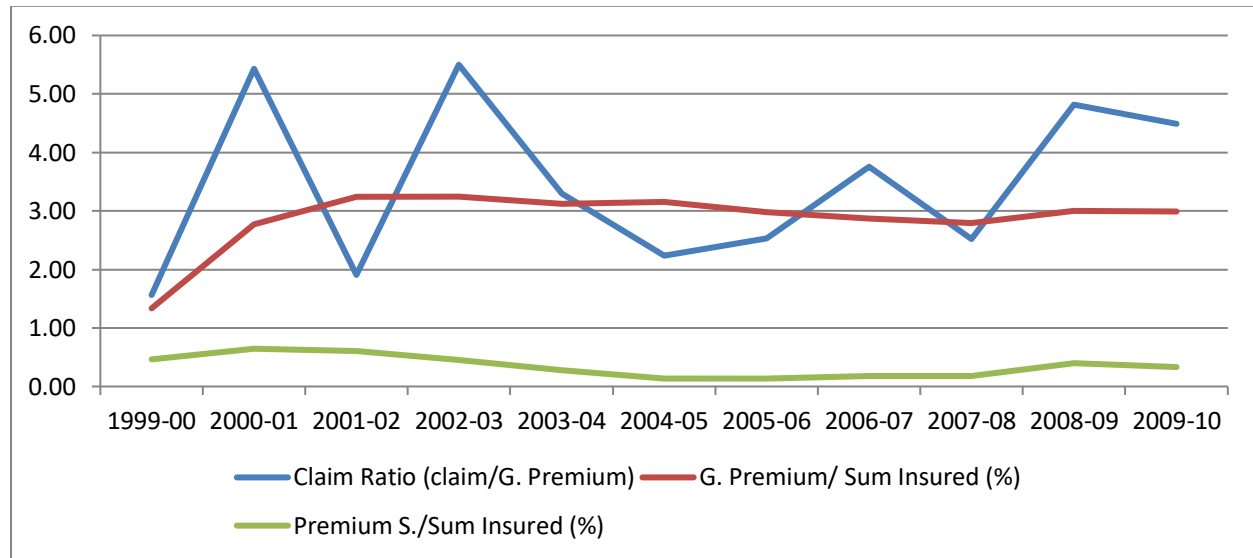
S. No.	Season	No. of Covered State/UTs	No. of Farmers Covered (in '000')	Area Insured (in '000' Hectares)	Sum Insured (in Crore)	Gross Premium (in Crore)	Premium Subsidy (In Crore)	Claims (in Crore)	No. of Farmers Benefited (in '000')
1	1999-00	9	581.0	780.9	355.9	4.8	1.7	7.4	56.3
2	2000-01	18	10499.2	16330.9	8508.1	236.0	54.9	1282.1	4163.6
3	2001-02	20	10652.7	16033.3	9000.6	292.0	55.0	556.7	2199.3
4	2002-03	21	12093.7	19565.6	11265.7	365.6	51.3	2010.9	5228.2
5	2003-04	23	12391.4	18824.3	11162.1	348.2	30.4	1149.8	3806.8
6	2004-05	25	16217.6	29615.8	16944.9	534.5	23.3	1197.8	3447.8
7	2005-06	25	16720.7	27750.4	18592.3	553.8	25.1	1399.5	3646.0
8	2006-07	24	17913.2	27305.2	21297.1	610.3	37.7	2291.6	4523.4
9	2007-08	24	18443.5	28144.6	24474.2	682.8	44.8	1722.7	3167.6
10	2008-09	24	19202.8	26493.1	26812.0	805.6	106.2	3878.5	6191.3
11	2009-10	27	23934.6	33667.9	38624.3	1155.3	130.4	5181.4	8986.6
Total			158650.4	244511.9	187037.0	5588.8	560.9	20678.5	45416.8

Source: Calculations are based on the data taken from Agricultural Insurance Company's website

Table 4 presents the statistics required to analyze the year-wise performance of the NAIS. To get these statistics, the rabi and kharif statistics have been added year-wise, e.g., statistics of kharif 2000 have been added with rabi 2000-01 to get the NAIS statistics for the year 2000-01. The number of participating States/UTs increased from 9 in 1999-00 to 27 in 2009-10³. The total number of farmers covered increased from 5.8 lakh in 1999-00 to 24 million in 2009-10, while 159 million farmers were covered in this period. A total area of about 244 million hectares had been covered. A total gross premium of Rs. 5.6 thousand crores was collected against a total premium subsidy of Rs. 561 hundred crores, which is about 10 percent of the gross premium. Similarly, only 11 percent of the total sum insured was claimed, and 29 percent of the farmers covered were benefitted during the study period.

³Sikkim did not participate in Kharif 2006, 2007, and 2008 so there is a unit decrease in the number of State/UTs participating column in the period of 2006-07 to 2008-09.

Figure 1: Trends of Claim Ratio, Gross Premium to Sum Insured and Premium Subsidy to Sum Insured (in %)

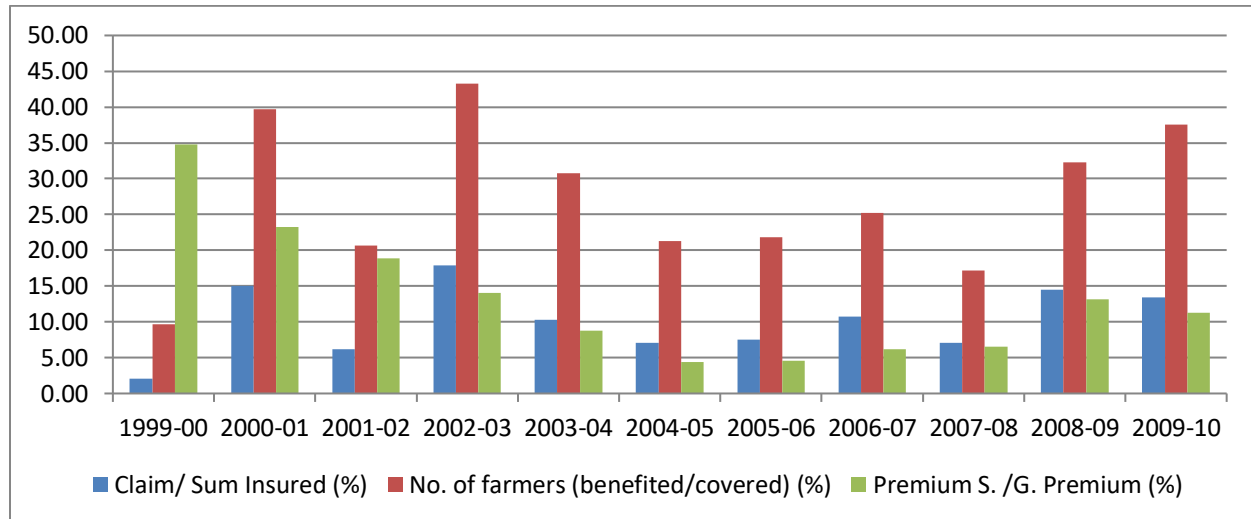


Source: Drawn on the basis of the data taken from Agricultural Insurance Company’s website

The claim ratio is given by the ratio of the amount of claim divided by the amount of gross premium. A claim ratio if greater than unity puts an absolute burden on the government for funding. We find that the claim ratio was always greater than one. In fact, it had a spurt from 1.56 in 1999-00 to 5.43 in 2000-01 and remained more than two 2001-02 afterward (Figure 1). The claim ratio shows an oscillating trend around 3. Figure 1 also shows the trends of the ratio of gross premium to sum insured and premium subsidy to sum insured, in percentage point terms. The gross premium increased from 1.34 percent of the sum insured in 1999-00 to 2.77 percent in 2000-01 and stabilized around 3 percent 2001-02 afterward. The premium subsidy has always been less than 0.66 percent of the sum insured throughout the entire period.

Figure 2 shows the ratio of claim to the sum insured, no. of farmers benefitted to that of covered and premium subsidy to gross subsidy, all in percentage point terms. We see that in 1999-00 only 2.09 percent of sum insured were claimed while the figure stood at 13.41 in 2009-10. It reached its highest point at 17.85 percent in 2002-03. In 1999-00 only 9.7 percent of the farmers covered were benefitted. In 2009-10 this figure stood at 37.55 percent. There are only two years, 1999-00 and 2007-08, in which the percentage of farmers benefitted out of covered were less than 20 percent.

Figure 2: Trends of Ratios of Claim to Sum Insured, No. of Farmers Benefited to No. of Farmers Covered, and Premium Subsidy to Gross Premium (all in percent terms)



Source: Drawn on the basis of data taken from Agricultural Insurance Company's website

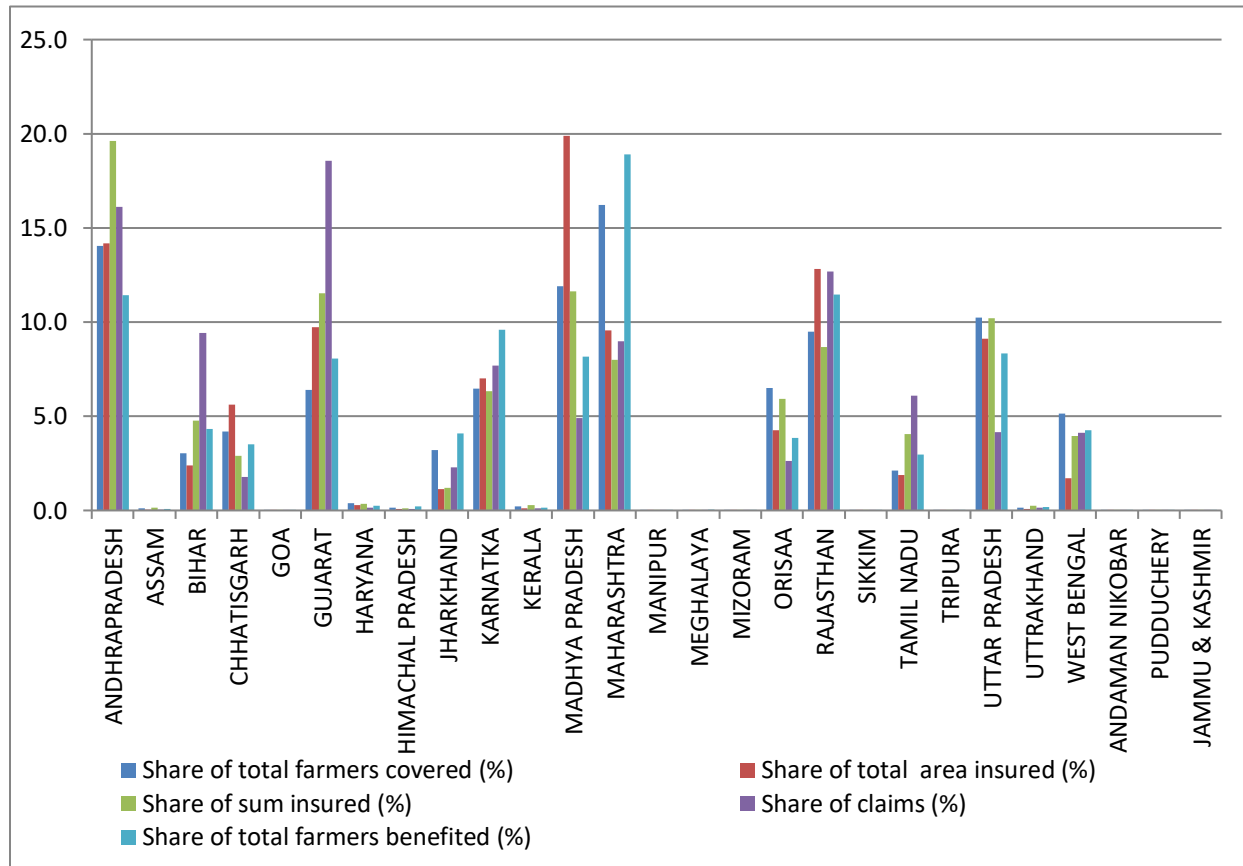
2.3. States/Union Territories Participation in NAIS

There has been a massive disparity in participation by states/UTs in NAIS. According to the data set, Assam, Goa, Gujarat, Himachal Pradesh, Kerala, Madhya Pradesh, Maharashtra, Orissa, and Puducherry are the only states who implemented the scheme from the rabi 1999-00. Andhra Pradesh, Bihar, Chhattisgarh, Karnataka, Meghalaya, Tamil Nadu, Uttar Pradesh, and AndamanNicobar Islands followed from kharif 2000. Some states/UTs implemented it very late; for example, Haryana and Jammu Kashmir implemented it from kharif 2004 while Manipur and Mizoram from kharif 2009. During the study period, some States/UTs did not participate in the scheme; they are Arunachal Pradesh, Punjab, and Nagaland. Andhra Pradesh, Gujarat, Karnataka, Madhya Pradesh, Maharashtra, Rajasthan, and Uttar Pradesh showed significant participation (Figure 3). Assam, Goa, Haryana, Himachal Pradesh, Kerala, Manipur, Meghalaya, Mizoram, Sikkim, Tripura, Uttarakhand, Andaman & Nicobar Islands, Puducherry, and Jammu & Kashmir are not satisfactory performers.

Since the beginning of the scheme to rabi 2009-10, about 159 million farmers were covered, of which five states – Andhra Pradesh (14.1%), Madhya Pradesh (12.3%), Maharashtra (15.8%), Rajasthan (8.5%), and Uttar Pradesh (10.6%) – comprised 61.4 percent. A total area of 245 million hectares has been insured, of which these five states comprised about 65 percent. Andhra Pradesh (14.4%), Madhya Pradesh (20.5%), and Rajasthan (11.7%) comprised 46.35 percent of the total area insured. Andhra Pradesh had the maximum share of total sum insured, the total gross premium paid, and total claims while Maharashtra had the maximum share of total farmers

covered and total farmers benefitted, Madhya Pradesh had the maximum share of total area insured, and West Bengal had gotten the maximum share of total premium subsidy. So, there were huge disparities across the states.

Figure 3: Relative Performance of States/UTs in NAIS (since inception to 2009-10)



Source: Drawn on the basis of data taken from Agricultural Insurance Company’s website

As previously stated, the claim ratio is the ratio of claim to gross premium. Mizoram had the highest claim ratio (19.37), Jharkhand has the second highest (8.45), and Bihar had the third-highest claim ratio (8.23) for the entire period of rabi 1999-00 to kharif 2009. So, a heavy loss had been implied to the AIC of India by these States/UTs during the period. Meghalaya had the lowest claim ratio (0.21), Sikkim had the second-lowest (0.52), and Andaman & Nicobar Islands had the third-lowest claim ratio (0.61) for the same period. Therefore, no loss in the premium was borne by NAIS in these States/UTs. Assam and Tripura were the only two states which had claims ratios close to 1.

During the 21 seasons, the average area insured per farmer (covered) ranged from 0.5 hectare in West Bengal and Jharkhand to 2.6 hectares in Madhya Pradesh. Manipur had the highest average sum insured per farmer (covered) at Rs. 27,365, while Goa had the lowest at Rs. 3,492. Goa also had the lowest average gross premium per farmer (covered) at Rs. 14.5, the lowest average claim per farmer (covered) at Rs. 29 and the lowest average claim per hectare of area insured at Rs. 17.5 while Mizoram had both the highest average claim per farmer (covered) and highest average claim per hectare of area insured at Rs. 9,281, and Rs. 8,445, respectively. Gujarat had the highest average claim at Rs. 10,496 per farmer benefitted and the highest average gross premium per farmer covered at Rs. 862. Meghalaya had the lowest average claim at Rs. 190 per farmer benefitted.

3. Main Problems with NAIS

In NAIS, generally, the area of the insurance unit was Mandal/Taluk/Block. Each of them is a large administrative unit. There could have been considerable variation in yields within a unit. For the scheme to be more effective, the unit for claim determining should be smaller, e.g., village or Gram Panchayat level. The Threshold Yield calculation was also inappropriate. It failed to incorporate the recent past adverse seasonal effects on yields. There were problems related to indemnity levels. The farmers did not get the crops covered during the entire process of cultivation. The NAIS covered the risks only from the sowing to harvesting. The pre-sowing and post-harvesting losses were uninsured. There was a large time lag between the loss of crops and the payment of the claims. Further, despite all efforts of AIC, there was very limited awareness about the scheme, especially among the non-loanee farmers. The credit institutions were situated in the states' developed regions, which was also a reason for limited access to the farmers (Planning Commission 2007). A smaller fraction of farmers benefitted more from the scheme, and there have been huge variations in the scheme's performance between the two crop seasons and across the states in India.

4. Conclusion

Although the NAIS was a significantly improved scheme over the past schemes and its performance was more satisfactory, it served a very limited purpose. The NAIS coverage in terms of total area, the total number of farmers, and the value of the total agricultural output of the country was very small. In most of the years, the claim ratios were higher than unity, which shows a considerable loss to the insurance company or subsidy burden on the government. Also, there was a very high disparity in participation by the states and union territories. Some of the states did not participate at all in the scheme by rabi 2009-10. A smaller fraction of farmers had gotten more benefits from the scheme. There should have been extensive awareness programs in the remote rural areas so that farmers, especially small farmers, could understand the scheme

well. The scheme was modified and implemented by rabi 2010-11 under the name of Modified National Agricultural Insurance Scheme (MNAIS). The various setbacks of the NAIS have been taken into account. A further study, a comparative in nature, can be done by analyzing the performance of the National Agricultural Insurance Scheme and the Modified National Agricultural Insurance Scheme. Also, there is a need for more research and development in the field of agricultural insurance to invent new schemes that can be more viable and extensive in reach.

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