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Review Paper

Comparative Analysis of Performance of National Agriculture Insurance scheme (NAIS) within Major Contributing States and Madhya Pradesh

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Abstract

Agriculture is main source of livelihood for many and is also associated with risk and to improve the condition and status of farmers it is equally important to minimize risk and optimize the benefit of farming by adoption of crop insurance : National agriculture insurance scheme which many states have adopted and is showing positive results, states like Andhra Pradesh, Maharashtra, Madhya Pradesh, Gujrat and Rajasthan account for 65% cases and 69 % area is insured under National agriculture insurance scheme(NAIS). Among these Madhya Pradesh has shown best results in Area insured and less loss ratio also in comparision to other states. Overall development is possible in agriculture only when all the states start adopting crop insurance and adopt the model worked by other states, government intervention is majorily required in this area along with other measured suggested in the paper to make the scheme a success.

Keywords: State wise position, Area insured, Loss ratio, Farmers benefitted, Government intervention.

Introduction

Agriculture is one of the most primitive and traditional method of livelihood in the world. In earlier days people were soley dependent on farming for subsistence and also as a source of income. In rural India, households that depend on income from agriculture (either self employed or as agricultural labour), accounted for nearly 70 per cent of the population. Seventy five percent of all rural poor are in households that are dependent on agriculture, in some way or other. Households that were self-employed in agriculture, account for 28 per cent of all rural poor, while households that were primarily dependent on agriculture as labour, account for 47 per cent of all rural poor. All this facts shows the need for the development of agricultural sector in India. 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[1].

Agriculture Risk

Agricultural risk can be categorized as production risk, price risk, income risk and marker risk which are all interconnected and has adverse effect on both the government policies and majorily on human resource through price and income effect. The technological and institutional efforts taken so far has not prove to be up to the mark to enhance the risk bearing capacity of farmers.

It infact makes the farmers to wait in anticipation for some relief when there is a loss. 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.

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. 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 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[2].The cases of committing suicides by farmers in the event of crop failure or crash in market prices are not uncommon in recent years.

Agricultural insurance is one method by which farmers can stabilize farm income and investment from the disastrous effect of crop losses due to natural hazards or low market prices. Crop

insurance not only stabilizes the farm income but also helps the farmers to initiate production activity after the bad agricultural year.

Status of Agriculture in Madhya Pradesh

Madhya Pradesh is the second largest state in country and has total geographic area of 308 lakh hectares which is 9% of the total geographic area of country, it holds sixth position in terms of population which 72 million, 72 % of Madhya Pradesh population resides in rural area. (census 2011). According to Census 2011, 69.8% of total workforce and 85.6% of rural workforce is dependent on agriculture for sustenance in Madhya Pradesh. The primary sector contributes 24.9% to State's GDP at constant prices (2004-05 prices) and 33.6% at current prices.

Achievements of agriculture in M.P

At national level agriculture sectors contribution to GDP has shown a declining trend and a shift towards secondary and tertiary sector but Madhya Pradesh has a different story.

Agriculture growth rate in Madhya Pradesh is 9.04% in 11th fiver year plan when the national annual target growth rate was 5% and national average was 2.48%. In comparision to other states in country its contribution to states GSDP is on much higher side.

In comparison to all India level Madhya Pradesh has shown better result in terms of agriculture share in GSDP from 2004-05 to 2012-13. This shows that in Madhya Pradesh agriculture is performing better than all India level on average.

In Madhya Pradesh, marginal farmers have the highest landholdings which is 44% and small farmers hold 27% of land and they together cultivate only 34% of total operational area. This shows that number of marginal farmers(less than1 ha)have increased overtime leaving the small farmers as constant and the area has increased from 25% to 34%.

Theses landholdings of small and marginal farmers hampers them in becoming economically strong, thereby effecting their financial capacity also to further invest in agriculture, thus lowering production and decreasing returns.

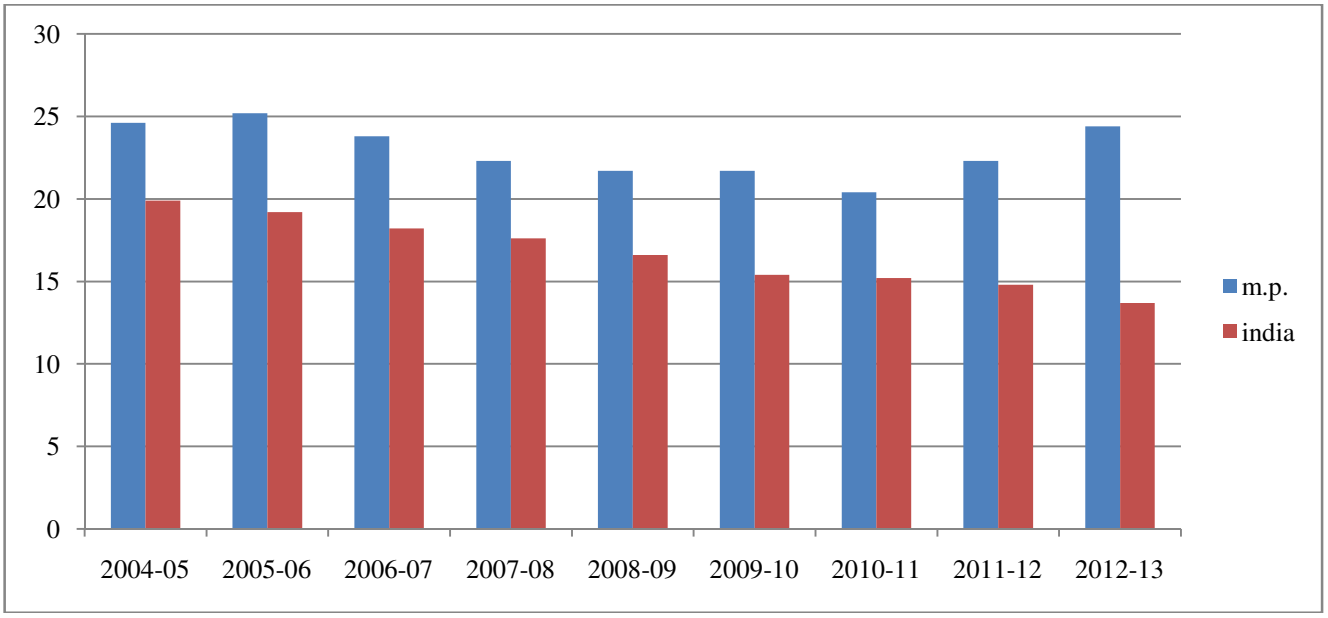
The government should intervene to make changes in the conditions of small and marginal farmers and make them more competent by bringing them together as they constitute two third of state's farmers.

Therefore it is equally important to stabalise and increase the income earning capacity of farmers by practicing risk averse techniques.

Agriculture insurance

The 11th plan document has noted that severity of risk has increased in India then what it was in past majorily due to global warming effects and due to fluctuations in world prices.

To meet the problem of price variability coordination between minimum support price (MSP) and trade policies are required.



Source: 1. For Madhya Pradesh- Directorate of Economics and Statistics, GoMP, Bhopal, 2. For India- Central Statistical Organization, GSDP updates and Data Book by Planning Commission of India, 10th March 2014.

Figure-1
Proportionate share of agriculture and allied activities in GSDP in M.P. in comparision to all India level constant price (base year: 2004-05)

The principle evidence of the second risk ie, climate variability has been rising temperature, erratic rainfall pattern and increase in the severity of droughts, floods and cyclones which have caused huge losses in agriculture production and livestock population. However a tertiary mechanism has been developed in which climate forecasting, climate information system, mapping of agriculture losses is done through remote sensing technology .In such a mechanism it is important to include insurance mechanism as also provision of bankruptcy legislation for the farmers.

Hazell, Pomareda and Valdes[3] indicated that risk and uncertainty pose a serious impediment to agriculture development. Risk effects crop production and income of farmers mainly due to change in climatic conditions globally and also due to market variability, 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 government. Indian agriculture is dependent on monsoons to large extent and the irregulatrity in its occurance raises the risk attribute of the farmer. In this era when farmers are facing high risk due to uncertainty in weather conditions it is equally important that farmers should take measures of minimizing risk effect. 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.

Skees Jerry, Hazell P. and Miranda Mario[4] Natural disasters can be extremely disruptive to farmers and to others whose incomes depend on a successful crop. Society can gain from more efficient sharing of crop and natural disaster risks. However, the costs associated with traditional agricultural risk programs have historically exceeded the gains from improved risk sharing. Hazell quantifies the condition for sustainable insurance as follows:

$(A + I)/ P < 1$

where A = average administrative costs, = average indemnities paid, P = average premiums paid

Accordingly these can be achieved by adopting Area based yield index, The essential principle of area-based index insurance is that contracts are written against specific perils or events (e.g. area yield loss, drought, or flood) defined and recorded at a regional level (e.g. at a local weather station). Insurance is sold in standard units (e.g. $10 or $100), with a standard contract (certificate) for each unit purchased called a Standard Unit Contract (SUC). This paper explores government intervention in agricultural risk markets and discusses new approaches to risk sharing with limited government involvement.

Raju S.S and Chand Ramesh[5] National Agricultural Insurance Scheme (NAIS) has not fulfilled the purpose so far. The coverage of area insured, number of farmers covered and benefitted are not up to the mark , payment of indeminity amount is based on area approach method which keep many farmers away from the compensation amount. If the crop insurance is to be made an effective tool for minimizing risk then certain important changes need to be incorporated. The crop insurance cover should improve 3-4 fold so that risk management can be effectively met.

This requires increased government efforts along with increased financial support to agriculture insurance programme and also involving private players which will further help in improving insurance coverage and viability of insurance scheme.

With improved integration of rural areas and communication network, the unit area of insurance could be brought down to 'village panchayat level'. Insurance producs should be simple in design and should be easily understood by the farmer. private sector is keen on investing more in general insurance business hence their targets to cover agriculture insurance should be increased.

Raju S.S. and Chand Ramesh[6] As stated earlier, only nine states participated in NAIS during 1999 *rabi* season. In 2006-07, the NAIS is being implemented by all the states except Punjab and Arunachal Pradesh, Manipur, Mizoram, and Nagaland. Since the beginning of the scheme till the r*abi* season of 2006-07, 97.08 million cases were extended the insurance cover. Out of these, 19.5 per cent were in Maharashtra, 15.4 per cent in Andhra Pradesh, 13.2 per cent in Madhya Pradesh and 8.4 per cent each in Gujarat and Uttar Pradesh. Thus, these five states accounted for 65 per cent of the total cases and 69 per cent of area insured under NAIS. It is important to mention that share of these states in all-India holdings and all-India cropped area is 8.5 per cent and 9.2 per cent, respectively . . The percentage of insured cases who got claims was the highest in Himachal Pradesh (60%), followed by Karnataka (47%), Bihar (42%), Tamil Nadu (36%), Gujarat (35%), Maharashtra (30%) and Chattisgarh (28%). 67.3 per cent of the total 21.34 million beneficiaries (recipient of claims) who have claimed indeminity belong to Andhra Pradesh, Gujarat, Karnataka, Madhya Pradesh and Maharashtra. If claim – premium ratio is less than unity then no loss is incurred by the government and premium has been received , this has been observed in Assam, Goa, Haryana, Jammu and Kashmir, Meghalaya, Tripura, Uttaranchal and

Andaman and Nicobar Islands. Bihar, Jharkhand has shown very high claim to premium ratio which is more than 10 similarly Tamil nadu and Karnataka has shown 6.4 and 4.9 ratio respectively against premium received.

National Agriculture insurance scheme (NAIS): The central sector scheme namely, NAIS started in Rabi 1999-2000 for managing risk in agriculture and providing financial support for crop failure due to natural calamilites , pests and diseases.The scheme is available to all non loanee and loanee farmers , irrespective of the size of land holding . Loanee farmers are covered compulasorily for notified crops for notified area whereas for non loanee the scheme is voluntary.

Table-1
Status of National agriculture insurance scheme of all India from 1999 to 2014-15

States/ Union territory	Number of farmers covered (in 000)	Area insured (in 000 hect.)	Sum insured (in cr.)	Gross premium (in cr.)	Subsidy (in cr.)	Claims (in cr.)	Number of farmers benefitted (in 000)	loss ratio (in percent)
Andhra Pradesh	29952 (13.06)	45583.16 (13.42)	62181.36 (17.78)	1768.16 (16.68)	157.37 (11.30)	4649.11 (13.95)	6730 (11.38)	262.9349
Assam	396(0.17)	291.13 (0.09)	807.21 (0.23)	22.54 (0.21)	2.34 (0.17)	16.53 (0.05)	65 (0.11)	73.33629
A&N island	4 (0.001)	5.77 (0.002)	16.66 (0.004)	0.44 (0.00)	0.40 (0.03)	1.15 (0.00)	1 (0.00)	759.0264
Bihar	6037(2.63)	7377.70 (2.17)	11904.02 (3.40)	303.83 (2.87)	27.10 (1.95)	2306.15 (6.92)	2431 (4.11)	135.3654
Chattisgarh	10425(4.55)	20991.14 (6.18)	11511.43 (3.29)	294.44 (2.78)	19.46 (1.39)	398.57 (1.19)	1706 (2.88)	33.333
Goa	8 (0.003)	13.44 (0.003)	3.18 (0.00)	0.06 (0.00)	0.01 (0)	0.02 (0.00)	1 (0.00)	363.6047
Gujarat	14870(6.48)	33886.59 (9.98)	44953.82 (12.85)	1788.61 (16.88)	160.52 (11.53)	6503.47 (19.51)	4946 (8.36)	179.6189
Haryana	636 (0.28)	769.04 (0.23)	834.96 (0.24)	24.14 (0.23)	0.68 (0.05)	43.36 (0.13)	129 (0.22)	152.263
Himachal Pradesh	321 (0.14)	248.84 (0.07)	543.77 (0.15)	11.71 (0.11)	5.15 (0.37)	17.83 (0.05)	108 (0.18)	620.0237
Jammu& Kashmir	49 (0.02)	68.99 (0.02)	109.02 (0.03)	2.14 (0.02)	0.16 (0.011)	1.23 (0.00)	4 (0.001)	402.7852
Jharkhand	6277 (2.74)	3767.77 (1.11)	3401.53 (0.97)	84.35 (0.79)	4.51 (0.32)	522.99 (1.57)	2183 (3.69)	162.752
Karnataka	13150 (5.73)	20872.42 (6.14)	16418.06 (4.69)	483.98 (4.57)	24.01 (1.72)	1949.40 (5.85)	5223 (8.83)	252.3192
Kerela	461 (0.20)	414.74 (0.12)	871.66 (0.25)	18.82 (0.18)	2.52 (0.18)	30.63 (0.09)	85 (0.14)	244.8304
Madhya Pradesh	32332 (14.09)	78058.92 (22.98)	58205.85 (16.64)	1678.16 (15.83)	48.44 (3.47)	4234.32 (12.70)	6459 (10.92)	330.9013
Maharashtra	39190 (17.09)	32619.85 (9.60)	27084.63 (7.75)	1192.54 (11.25)	315.06 (22.62)	2919.70 (8.76)	10790 (18.24)	17.68707
Manipur	26 (0.01)	37.22 (0.01)	94.02 (0.03)	2.33 (0.02)	0.16 (0.011)	7.71 (0.02)	19 (0.032)	1100

States/ Union territory	Number of farmers covered (in 000)	Area insured (in 000 hect.)	Sum insured (in cr.)	Gross premium (in cr.)	Subsidy (in cr.)	Claims (in cr.)	Number of farmers benefitted (in 000)	loss ratio (in percent)
Meghalaya	34 (0.02)	34.44 (0.01)	65.53 (0.02)	2.94 (0.03)	0.40 (0.028)	0.52 (0.001)	3 (0.005)	267.5774
Mizoram	0 (0)	0.13 (0)	0.23 (0)	0.01 (0)	0.00 (0)	0.11 (0.00)	0 (0)	572.9903
Odisha	17313 (7.55)	17018.22 (5.01)	27259.92 (7.79)	684.03 (6.45)	71.63 (5.144)	1830.31 (5.49)	3047 (5.15)	25
Puducherry	40 (0.02)	56.63 (0.02)	103.63 (0.03)	2 (0.02)	0.68 (0.05)	3.15 (0.009)	7 (0.01 0	618.6642
Rajasthan	15059 (6.57)	31379.98 (9.24)	16203.09 (4.63)	457.54 (4.32)	233.78 (16.79)	2937.17 (8.81)	2633 (4.45)	0
Sikkim	2 (0.00)	3 (0.00)	11.26 (0.00)	0.31 (0.00)	0.02 (0.00)	0 (0)	0 (0)	71.60494
Tamil nadu	6556 (2.86)	8495.08 (2.50)	18461.54 (5.27)	474.76 (4.49)	233.78 (16.79)	2937.17 (8.81)	2633 (4.45)	170.7573
Tripura	19 (0.00)	12.64 (0.003)	29.08 (0.00)	0.81 (0.00)	0.09 (0.00)	0.58 (0.00)	3 (0.005)	211.729
Uttar Pradesh	23426 (10.21)	31070.39 (9.15)	33537.82 (9.59)	684.82 (6.46)	52.19 (3.74)	1169.38 (3.51)	4518 (7.64)	188.4914
Uttarakhand	399 (0.17)	372.51 (0.11)	870.98 (0.25)	19.78 (0.19)	1.79 (0.13)	41.88 (0.13)	119 (0.20)	261.3636
West Bengal	12364 (5.39)	6223.12 (1.83)	14179.98 (4.06)	595.47 (5.61)	256.49 (18.42)	1122.41 (3.37)	2742 (4.63)	157.5
Grand total	**229349**	**339674.20**	**349666.78**	**10598.75**	**1392.35**	**33329.38**	**59154**	57.47664

Source: www.aicindia.org, *Fig in brackets represents percentages.

The Table-1 is showing the share of each state in respective parameters such as farmers insured, area insured and farmers benefitted.

Looking at the above data its has been observed that Maharashtra (17.09%), Madhya Pradesh (14.09%) and Andhra Pradesh (13.05%) has maximum number of farmers insured.

Similarly in terms of Area insured it has been obsereved that Madhya Pradesh (22.98%), Andhra Pradesh (13.41%), Maharashtra (9.60%), Rajasthan (9.24%) and Uttar pradesh (9.15%) has done feasibily good in this parameter, Covering approximately 50 % of the area.

In terms of farmers benefitted Maharsthtra (18.24%) has shown the best results followed by Andhra Pradesh (11.38%), Madhya Pradesh (10.92%), karanataka (8.83%) and Rajasthan (4.45%).

According to the Table-1
Farmers insured: In the above table it can be seen that the highest number of farmers insured is in Andhra Pradesh (29952), Chattisgarh (10425), Gujrat (14870), Jharkhand (6277), Karnataka (13150), Madhya Pradesh (32332), Maharashtra (39190), Orissa (17313), Rajasthan (15059), Tamil Nadu (6556), Uttar Pradesh (23426), West Bengal (12364). Out of 28 states 12 states have shown results of farmers insured in thousands.

Area insured: In terms of area insured the similar 12 states are as follows Andhra Pradesh (45583) ,Bihar (7377), Chattisgarh (20991), Gujrat (33886), Jharkhand (3767), Karnataka (20872), Madhya Pradesh (78058), Maharashtra (32619),Orissa (17018), Rajasthan(31379), Tamil Nadu (8495), Uttar Pradesh (31070), West Bengal (6223).

Farmers benefitted: The number of farmers benefitted is the most important aspect of the programme with the highest number of farmers benefitted in Maharasthra (10790), Andhra Pradesh (6730), Madhya Pradesh (6459), Karnataka (5223), Rajasthan (5201), Gujrat (4946), Uttar Pradesh (4518), Orrisa (3047), West Bengal (2742), Tamil Nadu (2633), Bihar (2431), Jharkhand (2183) and Chattisgarh (1706)

The Figure-2 shows the number of farmers insured which is highest in Maharashtra followed by Madhya pradesh, Andhra Pradesh, Uttar Pradesh and the lowest farmers insured is in Jharkhand among the 12 selected states showing better results.

The Figure-3 shows that the maximum area insured is in Madhya pradesh followed by Andhra pradesh, Gujrat, Mahrasthtra, Rajasthan, Uttar Pradesh showing feasibly better results as compared to the lowest insured states among the top 12 which is Jharkhnad.

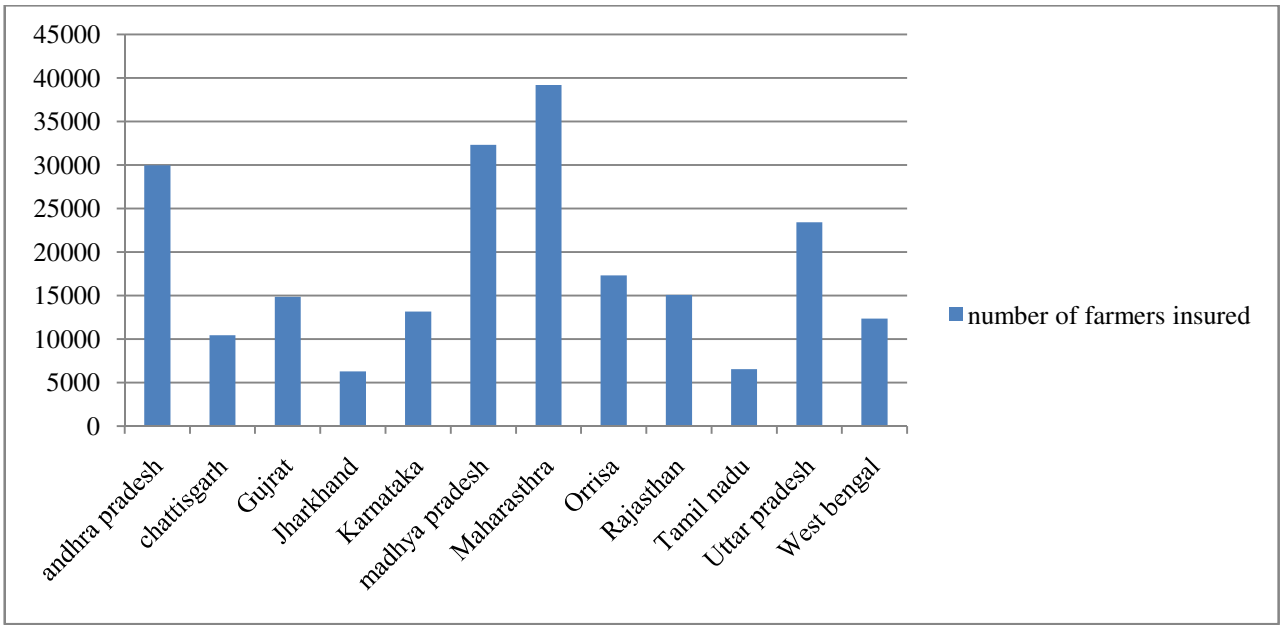


Figure-2
Performance of Number of farmers insured in respective states for NAIS till 2014

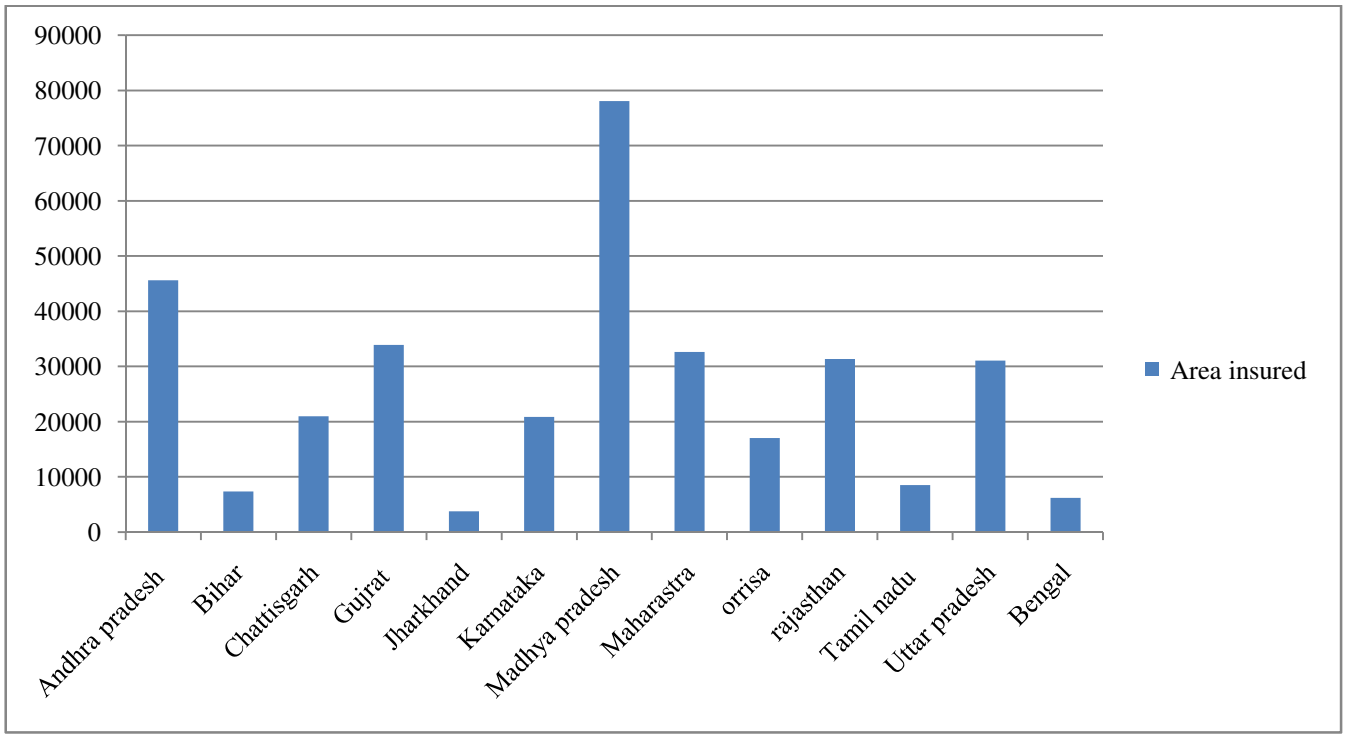


Figure-3
Performance of Area insured in respective states for NAIS till 2014

Loss ratio of various states for NAIS: Among the states showing better results in terms of farmers insured and area insured the 12 states choosen shows the following results being represented in Figure-4.

The Figure-4 shows the loss ratio of all the major states.

Loss ratio percent $= \frac{Total\ Caims}{Total\ premium} * 100$

Bihar has shown the maximum Loss Ratio with 750% followed by Jharkhand, Tamil Nadu, Rajasthan, Karnataka, Gujrat, Madhya Pradesh and Andhra-Pradesh among these Chattisgarh has shown the lowest loss ratio of 135%. If the loss ratio percent is less than 100 than the particular programme is efficiently providing the benefits but if it is more than 100 than it shows that claims are more than premium collected showing high loss for the government programme of National agriculture insurance scheme (NAIS).

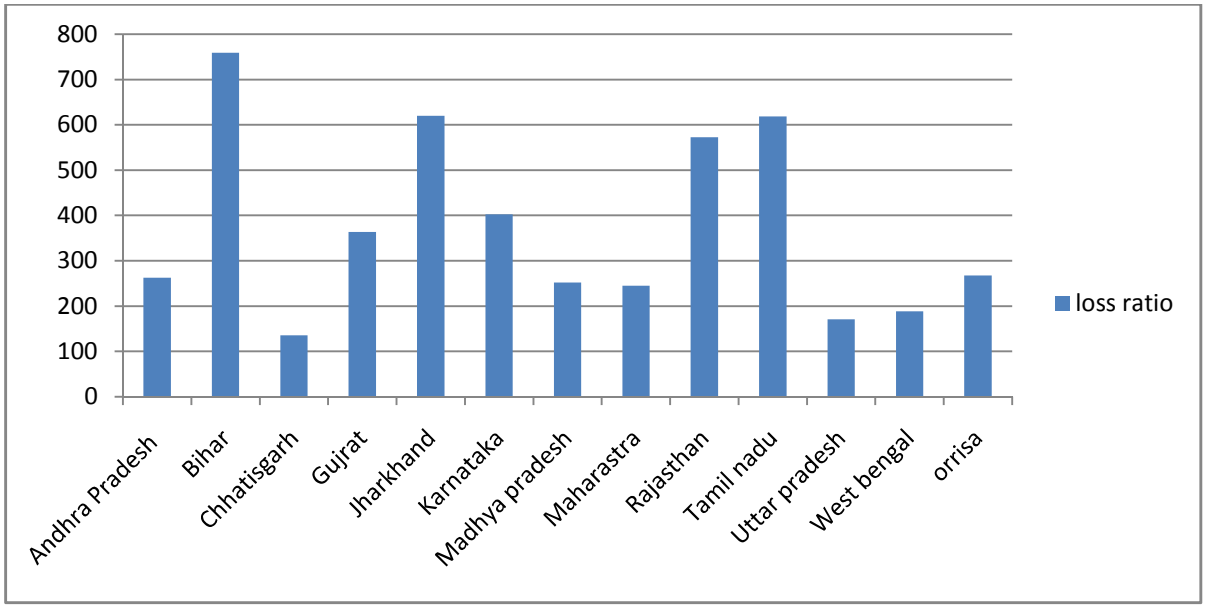


Figure-4
Performance of NAIS by analyzing Loss ratio of states

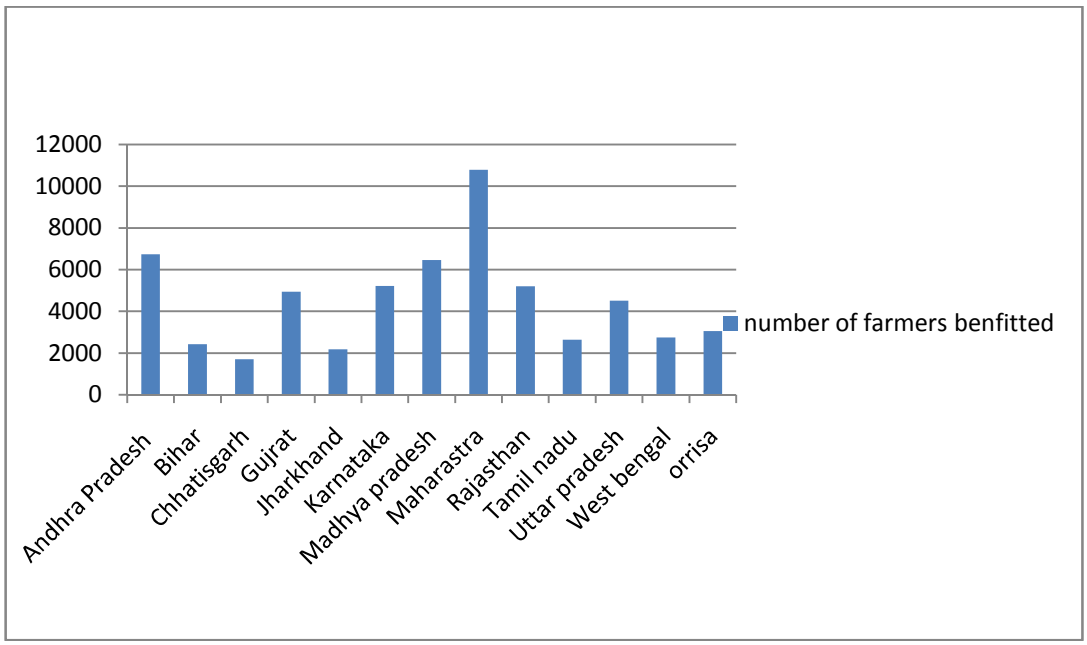


Figure-5
Performance of NAIS by analyzing farmers benefitted

The number of farmers benefitted is maximum in Maharashtra followed by Andhra Pradesh, Madhya Pradesh, Karnataka, Rajasthan, Gujrat and the lowest among the 13 selected states is in Chattisgarh. These results shows the actual status of the National agriculture insurance scheme (NAIS) as the end result is how effectively the scheme is reaching the poor and providing its benefit to them.

Findings: i. The above data shows that nearly 25 % farmers have been benefitted on all India basis as a percentage of farmers insured which has shown stable results from 2011-12 to 2013-14 Despite the hardships arising in agriculture sector like unlikely rainfall, hail, storm the benefits taken by farmer from the scheme has been stable due to the actual benefits realized by farmers. ii. Till date (from Rabi 1999-2000 to Rabi 2014-15) 229349 farmers have been insured over an area of 339674 lakh hectare insured covering the sum insured of 349666.78 crore and subsidy in premium has been amounted to 1392 crore, indeminity claimed has amounted to 33329 crore benefitting 59154 lakh farmers. iii. Comparatively the two data period of 2013-14 and 2014-15 shows that National agriculture insurance scheme has shown stable results as in terms of farmers insured there has been 5% rise, in terms of area insured there has been a rise of 3.12%, loss ratio has declined from 342% in 2013 -14 to 314% in 2014-15 this shows that the burden of claim in respect of premium collected has reduced, in terms of number of farmers benefitted the number has shown an increase of 1%. iv. loss ratio represents the analysis of premium received over claims ; Claims are always greater than premium received thereby representing loss. Though the major contributing states like Andhra Pradesh, Maharashtra, Madhya Pradesh, Rajasthan, Gujrat have comparatively shown lesser loss ratio than other states. v. Analysing the above factors ,area insured is very high in Madhya Pradesh and farmers insured is also comparatively higher in Madhya Pradesh and stands at second position, loss ratio is also lower in Madhya Pradesh as compared to other states, farmers benefitted is also higher in Madhya Pradesh . This shows a positive correlation between area insured and farmers insured as both are rising in same direction and positive correlation can be observed between loss ratio and farmers benefitted as this is a paradoxical situation which shows that farmers benefitted are increasing with increase in claims and fall in premium therefore loss ratio is also increasing.

Suggestions: i. Farmers benefit from the scheme should always be an increasing trend with overcoming of the loopholes occasionally and manipulating policy according to the needs of the farmers. ii. Centre and state government should function hand in hand to attain full efficiency of the scheme. Central government should help the other state government not functioning properly by adopting lessons and model from states showing better results which are Andhra Pradesh, Maharashtra, Madhya Pradesh. iii. Farmers have shown responsive change with time in Area insured, if area insured increases for farmers at a lesser premium, farmers will take more crop insurance as with time farmers have shown positive changes in it. iv. Premium is the price of taking insurance by farmers . Hence if premium rate will be kept low it will effect the government. Understanding this concept from Demand supply point of view will make it work i.e, if premium rate is low more farmers demand for crop insurance hence the opportunity cost of slashing premium rate will be less if more farmers are taking insurance and thereby also increasing premium collected as it matches with the farmers paying capacity. Therefore the loss will be covered with increase in number of farmers who are actually paying the premium.

Conclusion

India growth in terms of farmers taking insurance has shown improvement but comparing all the states the result is not the same. Among all Madhya Pradesh stands at third position and has shown tremendous improvement overtime. There are still many states which need lesson from other progressive states about how to function to make the policy effective and benefitting farmers at the end and they should also take measures to minimize risk and maximize returns of better agriculture production and improve income of farmers so that they benefit from farming with improvement in standard of living and reduction in poverty level.

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