

Performance of Pradhan Mantri Fasal Bima Yojana in Maharashtra State

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ABSTRACT

India is an agrarian country. According to World Bank report 2023-24, nearly 47% of population depends on agriculture and allied sectors. Maharashtra is a main state in agrarian production and is highly susceptible to natural disasters. This research paper presents a statistical analysis of the performance of PMFBY, implemented in Maharashtra state since 2016. In this study, researcher used statistical ratios such as financial performance ratios (i.e. loss ratio, payer-specific claim ration, and benefit pay-out ratio), enrollment and coverage ratios (i.e. Non-loanee penetration and average insured area), and efficiency and subsidy ratios. The result of the study shows that the scheme has provided effective financial protection to farmers through high value of Payer-specific claim Ratio. this scheme has verified to be an outstanding and crucial financial safety net for farmers. during natural disasters. The high level of the loss ratio has confirmed that the scheme works effectively. Also, the scheme is successfully working as a voluntary basis and reach to small and marginal farmers. It concludes that, the scheme was successfully in enrollment and penetration. On the point of view of the farmers, this scheme has become a safety net but it needs to overcome major administrative and financial challenges such as instability in Benefit pay-out ratio, low coverage among non-loanee farmers and the growing subsidy burden on the government of Maharashtra after launching One Rupee Crop Insurance Scheme. This study provides crucial visions for policy perfections of PMFBY in Maharashtra state.

(Keywords: Crop Insurance, Agriculture Insurance, PMFBY, Efficiency of PMFBY Performance of PMFBY, agriculture, PMFBY etc.)

1. INTRODUCTION

Agrarian areas are a backbone of the Indian Economy. According to World Bank report 2023-24, nearly 47% of population depends on agriculture and allied sectors in India. This sector contributes 18.4% to India's GDP. According to the Maharashtra Economic survey Report -2021-22, more than half, or over 50%, of states population depends upon the agriculture as their primary source of livelihood. This clearly indicates that Maharashtra is an important state prompting the Indian economy.

The Geographic condition of Maharashtra are vastly diverse, which directly impacts on the agriculture sector. The Maharashtra state are divided into five major regions with Vidarbha cover 31.6% of the total area of Maharashtra, Western Maharashtra 29.2%, Marathwada 21%, Konkan 10% of and Khandesh 8%. Seeing these geographical regions, Western Maharashtra and Konkan have the highest rainfall regions, while the Marathwada and the rain-shadow regions of western Maharashtra have the droughts area due to low rainfall. Konkan and Khandesh have the more rainfall area in Maharashtra. Due to the irregularity of monsoon and changing climate, farmers in Maharashtra have to face many natural calamities and disasters such as droughts, floods, hailstorms etc. This indicates the Maharashtra farmers face the lot of problems in agriculture sector because of rainfall variability or other natural disasters in the state. During 1972-1978, first individual approach crop insurance scheme launched by India's General Insurance corporation for manage these risks and provide financial stability to the farmers. After that, based on the recommendation of Prof. V. M. Dandekar, the pilot crop insurance scheme was implemented nationwide by the Govt. of India from 1979 to 1984. During 1985, the Govt. of India launched the Comprehensive crop insurance scheme to provide financial support to farmers for crop losses due to droughts, floods, heavy rainfall etc. Then, during 1999, the National Agriculture Insurance scheme was introduced as a replacement of CCIS. Along with this, the Weather Based Crop Insurance scheme was launched in 2007, the Modified National Agriculture Insurance Scheme in 2010. Now in 2016, addressing the limitations of MNAIS, the Pradhan Mantri Fasal Bima Yojana was launched as a comprehensive, simple and affordable crop insurance scheme to farmers.

The focus of mine study is to evaluate the performance of PMFBY in Maharashtra state during the period from 2020 to 2024. With the help of statistical ratios such as Financial Performance Ratios, Enrollment and Penetration Ratios, Efficiency and Subsidy Ratios etc. the data is being analyzed and interpreted to archive the purpose of the study.

2. REVIEW OF LITERATURE

1. Singh P, Agrawal G (2020), He conducted study on Development, present status and performance analysis of agriculture insurance scheme in India: Review of evidence. The purpose of the study is to explore current policy interventions in the area of agriculture insurance in India. The findings of the study are agriculture insurance is an important risk management policy, but this policy is not reachable to the majority of farmers in India. The main reason for this limited reach of agriculture insurance are farmers dissatisfaction with the scheme and issues with relief payments.
2. Ranjan Kumar Ghosh (2018), the studied-on Performance of PMFBY, he conducted a cast study on five state i.e. Utter Pradesh, West Bengal, Madhya Pradesh, Himachal Pradesh and Karnataka. The main objective of this study, to analysis the process of implementation at the state level was comprehensively mapped with assistance of nine states. This study suggested that the government should need to create a separate crop insurance fund and collect it though the 50:50 or 60:40 shares of Central and State government. This fund used when the loss- making years of insurance companies and collected when super profit through insurance companies.
3. Asha Priyanka Paularaj and Nandakumar Easwaran, 2020, led a study on Evaluation of 'Revamped' Crop insurance; Pradhan Mantri Fasal Bima Yojana among Paddy Farmers in Tamil Nadu, India. They focused on how crop insurance in India has changed as per the need. In this study, the researcher evaluated the proposed changes in the reforms in the context of the problems faced by various stokeholds of crop insurance. Among insurance farmers, non-approval of claims and delays in claim settlement were the major problems faced under the scheme. The findings suggest that the recent reforms are realistic and well-planned to make an impact in crop insurance sector.
4. Mr. Rudramuni P. B. & Prof. S. Venkatesh (2025), studied on Performance of Crop Insurance Scheme- A Case Study of PMFBY. The primary objective of the present study is to evaluate the performance of PMFBY and secondary objectives were to analyze the trends and evaluate the financial and operational efficiency of PMFBY. This study suggests that, the proper implementation of PMFBY requires seamless coordination among stakeholders i.e. farmers, banks, insurance companies and Government.
5. Mrs. P. Kiruthika & Dr. V. Kasthuri (2025), they conducted the study on Evaluating the effectiveness of PMFBY: A seasonal Analysis of Financial sustainability and Farmer Income stability. The study tells that the PMFBY provides a critical & play the important

role for social safety net, its effectiveness in ensuring farmer income stability is limited by financial issues.

3. OBJECTIVES OF THE STUDY:

The main objectives of the study are as follows:

1. To evaluate the financial performance of PMFBY in Maharashtra state.
2. To Examine the scope and inclusiveness of the PMFBY in Maharashtra State.
3. Analysing the subsidy management of PMFBY in Maharashtra state.
4. To provide policy recommendations for improving the implementation of PMFBY in Maharashtra state.

4. RESEARCH METHODOLOGY

The present study is based on descriptive and analytical research methods.

Data Collection: The study is based on only secondary data. The secondary data has collected from Agriculture Ministry Report, Indian Government, Report of Maharashtra Agriculture Department Crop Insurance Companies and the other published research paper. In this study, the data has been collected and analyze from Kharif & Rabi Season 2020 to Kharif & Rabi Season 2024.

Tools of Data Analysis: To achieving the purpose of the study, following statistical ratios has been used to analyze the data. Each ratio has been examined year wise and season wise.

a) Financial Performance Ratio:	Measures
1. Loss Ratio (LR)= (Total Claim Amount) / (Total Premium Amount) X 100	Financial Viability
2. Payer-Specific Claim Ratio (PSCR)= (Total Claim Amount) / (Premium Paid by Farmers) X 100	Return on Investment specifically for the farmer
3. Benefit Pay-out Ratio (BPR)= (Actual Value of Claims paid) / (Value of Claims Approved) X 100	Financial Efficiency
b) Enrollment & Penetration Ratio	Measures
1. Non-Loanee Penetration Ratio= (Total Number of Non-loanee farmers Insured) / (Total Number of Farmers in the Target Region) X 100	Scheme's Enrollment & Coverage
2. Average Insured Area = (Total Area Insured in Hectares) / (Total Number of Farmers Insured)	Average size of the insured land area
c) Efficiency & Subsidy Ratio:	Measures

1. Government Subsidy to Claim Ratio (GSCR)= (Total Claims Paid to Farmers) / (Total Govt. Subsidy Paid to Insurance Companies) X 100	Burden of claims on government subsidies
2. Government Subsidy Burden (GSB)= (Total Government Subsidy (Central + State)) / Total Actuarial Premium Collected) X 100	Financial burden placed on the government treasury
3. Premium Subsidy Split (PSS)= (Central Government Subsidy share) / (State Government Subsidy share)	Distribution of premium costs
4. Efficiency (Claim- to-Premium) Ratio = (Total Claims Paid) / (Total Premium Collected)	Scheme Efficiency

5. RESULT & DISCUSSION

The results are classified on the basis of Financial performance, Enrollment & Penetration and Efficiency & Subsidy of PMFBY in Maharashtra state are as Follows:

5.1. Analysis of Financial Performance of PMFBY

This analysis examines the financial performance of PMFBY in Maharashtra state, by using Loss ratio, Payer-specific claim ratio and Benefit pay-out Ratio during the period of 2020 to 2024 covering Kharif and Rabi season. Table 01 shows the financial performance ratios of PMFBY of last five years in Maharashtra state.

Table 01: Financial Performance Ratios

Ratio	2020	2021	2022	2023	2024
Kharif Season					
Loss Ratio	19.68	63.61	91.18	101.65	60.17
Payer-Specific claim Ratio	193.46	852.71	613.31	468220.48	280607.67
Benefit Pay-out Ratio	926.62	727.55	819.71	742.37	813.27
Rabi Season					
Loss Ratio	7.97	15.62	94.78	32.76	9.92
Payer-Specific claim Ratio	110.80	217.10	795.66	95380.93	30027.75
Benefit Pay-out Ratio	1087.59	582.57	488.22	835.44	546.98

The table 01, shows financial performance ratios from 2020 to 2024 in the Kharif & Rabi Season. It shows that;

- **Loss Ratio:** A low ratio (below 80%) indicates that the season was fairly risk-free, and insurance companies are in a surplus. On the contrary, a high ratio (more than 80%) shows the season was challenged more risk and insurance companies are in a loss due to natural disasters.

In Maharashtra, the loss Ratio has above 80%, in the year 2020 & 2021 in Kharif season and 2020 in Rabi season. This indicates that, during natural disasters, insurance companies paid out more in claims than the total premiums collected, which proved to be an effective financial safety net for farmers. Also, it indicates that, the Kharif Season has a more risk as compared to Rabi Season.

- **Payer-Specific claim Ratio:** The PSCR measures the Return on Investment specifically for the farmer. If the farmer invested some amount in crop insurance then he gets return on it.

In Maharashtra state, during 2020-2022, in Kharif season, the PSCR was between 193 and 852 mean farmers received roughly 193 to 852 for every Rs. 1 they paid. Similarly, in Rabi Season farmers get 110 to 795 for every Rs. 1. After that, in the 2023 to 2024, the PSCR jump to 468220.48 and 280607.67 in Kharif and 95380.93 & 30027.75 in Rabi respectively. It shows that massive increase in government subsidies and this subsidy covers almost the entire risk cost.

- **Benefit Pay-out Ratio:** The BPR measures the size of claims received by farmers comparatively to actual premium they paid out of their own pockets. The data shows a consistently high BPR, fluctuating between 727 and 926 in Kharif Season and 488 and 1087 in Rabi season during 2020 to 2024.

It indicates that, the scheme is a financial success. It offers a high return on risk. The scheme is financially efficient but expensive for the government, requiring massive annual budget allocations to maintain the high benefit to cost ratio for the farmers.

5.2. Analysis of Enrollment & Penetration:

This analysis measures the enrollment & penetration of PMFBY in Maharashtra state, by using non-loanee penetration ratio and average insured area per farmer during the period of 2020 to 2024 covering Kharif and Rabi season. Table 02 shows the enrollment & penetration ratios.

Table 02: Enrollment & Penetration Ratios

Ratio	2020	2021	2022	2023	2024	Average
Kharif Season						
Non-Loanee Penetration Ratio	87	88	92	96	96	91.8
Average Insured Area per Farmer	1.35	1.35	1.32	1.4	1.39	1.36
Rabi Season						
Non-Loanee Penetration Ratio	91	92	89	99	98	93.8
Average Insured Area per Farmer	1.3	1.27	1.32	1.37	1.39	1.33

- **Non-Loanee Penetration Ratio:** it shows that, the farmers voluntary (non-loanee) participation in PMFBY in Maharashtra. The data indicates that, a massive 91.8% & 93.8 (average of Kharif as well as in Rabi) of application were from voluntary farmers, showing extremely high trust in the PMFBY in Maharashtra.
- **Average Insured Area per Farmer:** it indicates that, the average landholding size insured is small (1.36 & 1.33 average hectares in Kharif & Rabi Season), confirming the schemes reach to small and marginal farmers.

The overall data indicates that, the PMFBY in Maharashtra state are successfully working as a voluntary basis and this scheme reach to small and marginal farmers. it concludes that, the scheme was successfully in enrollment and penetration.

5.3. Analysis of Efficiency & Subsidy of PMFBY in Maharashtra state

This analysis examines the efficiency & subsidy, by using various types of ratios during the period of 2020 to 2024 covering Kharif and Rabi season of the PMFBY in Maharashtra state. Table 03 shows the efficiency & subsidy ratios.

Table 03: Efficiency & Subsidy Ratios

Ratio	2020	2021	2022	2023	2024	Average
Kharif Season						
Government Subsidy to claim Ratio	4.56	1.08	0.93	0.98	1.66	1.842
Government subsidy Burden	89.83	90.2	85.13	99.98	99.98	93.02
Premium Subsidy Split	1.08	1.08	1	1.48	1.46	1.22
Efficiency Ratio	0.2	0.83	0.91	1.02	0.6	0.71
Rabi Season						
Government Subsidy to claim Ratio	11.64	5.94	0.93	3.05	10.08	6.33
Government subsidy Burden	92.81	92.8	88.09	99.97	99.97	94.73

Premium Subsidy Split	1.16	1.2	1	1.47	1.68	1.3
Efficiency Ratio	0.09	0.16	0.95	0.33	0.1	0.33

- **Government Subsidy to claim Ratio:** this ratio shows exactly how much the government spent to get Rs. 1 of insurance money into a farmer's pocket. A ratio is 1.0 indicates a perfect balance, where the government spends Rs. 01 on subsidy for the farmers get Rs.1 in claims. The ratio higher than 1.0, implies overpaying meaning government spend Rs. 4.56 (2020) to ensure the farmers get Rs 01 in help. Conversely, a ratio is lower than 1.0, indicates grate value as the farmer got Rs. 1 in help while the government only paid 93 pauses for it.

In the Maharashtra state, government spends overpaying during Kharif season in 2020, 2021 & 2024 and except of 2022, the government spend extra almost every year during Rabi Season between 2020 and 2024 to ensure the farmers receive at least Rs. 01. This leads to the concluded that, a lower ratio is beneficial for the governments, as it means that more of their money is reaching the farmers as help rather than staying with insurance companies.

- **Government subsidy Burden:** it shows the percentage of the total insurance premium (State + Center) paid by the government instead of the farmer.

The data indicates that, in the year 2020 to 2022, the government bore approximately 85 to 90 percent of the subsidy burden during Kharif and 88 to 92 percent during the Rabi season. But in 2023, the government of Maharashtra launched the One Rupee Crop Insurance Scheme. Since 2023, the scheme has been almost entirely funded by the government of Maharashtra. This scheme has changed form a shared-cost insurance plan into a social welfare gift. This is boundless for farmers but looks to be growing financial burden on the government treasury. There is need to keep separate fund for PMFBY to the government.

- **Premium Subsidy Split:** it shows the distribution of premium costs. The increase from 1.08 in 2020 to 1.68 in 2024 during Kharif season and almost have same during Rabi season. It indicates that the government of Maharashtra has significantly increased its financial share to cover the premium.

- **Efficiency Ratio:** its shows how effectively the insurance scheme converts premiums into actual claims for the farmers. A ratio is close to 1.0 indicate highly efficient and closer to 0 shows less efficient.

According to the data, the scheme demonstrated high efficiency during the Kharif seasons from 2021 to 2023. Conversely, during the Rabi Season from 2020 to 2024, the scheme showed low efficiency in every year except one.

6. CONCLUSION:

The analysis of the PMFBYs performance in Maharashtra state tells both positive and negative facets. The high value of Payer-specific claim Ratio shows that the scheme has proven to be an excellent and essential financial safety net for farmers. during natural disasters, the high level of the loss ratio has demonstrated that the scheme works effectively. Also, the scheme is successfully working as a voluntary basis and reach to small and marginal farmers. it concludes that, the scheme was successfully in enrollment and penetration.

The scheme has more efficient in Kharif season. After 2023, the government of Maharashtra launched the One Rupee Crop Insurance Scheme. Since 2023, the scheme has been almost entirely funded by the government of Maharashtra.

The negative aspect of the scheme shows the value of efficiency ratio during last five years of Rabi Season. It indicates that in Rabi, PMFBY in Maharashtra state are less efficient as a compare to Kharif season.

However, the following shortcomings need to be addressed for the long-term stability and effectiveness of the scheme.

1. **Claim Settlement Improvement:** The Benefit Pay-out ratio has been extremely high over the past five years. However, delays in claim settlement were observed every year during that period. This thing affects the scheme and will lead to negative perception of the scheme among farmers. Therefore, the claim settlements should be expedited by ensuring timely and appropriate availability of government subsidy funds.
2. **Increasing Coverage:** the insurance company as well as government should launch comprehensive awareness campaigns and incentive schemes to increases the non-loanee penetration ratio.
3. **Budget Allocation:** The scheme is financially efficient but expensive for the government, requiring massive annual budget allocations to maintain the high benefit to cost ratio for the farmers.

Overall, PMFBY is an effective and more efficient scheme for farmers in Maharashtra state, but improvement in administrative efficiency and stability of fund disbursement would make the schemes benefits more prevalent and timelier.

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