



Analysis of the Pradhan Mantri Fasal Bima Yojana in Barabanki District, Uttar Pradesh

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Abstract

The Pradhan Mantri Fasal Bima Yojana (PMFBY), launched in 2016, aims to provide financial protection to farmers against crop losses due to natural calamities. This study presents an empirical analysis of PMFBY in Barabanki district of Uttar Pradesh over the period 2017-2025, using secondary data obtained from official government sources.

The study examines key performance indicators such as the number of insured farmers, area covered, premium collected, claims paid, and claim settlement ratio. After the scheme was launched in 2016, the Pradhan Mantri Fasal Bima Yojana performed very well in all sectors. Although fluctuation occurs between districts. In this paper, we analyse the performance of PMFBY in Barabanki district.

The claim settlement ratio was almost in good condition during the study period, but there was moderate efficiency in claim disbursement. These are the main challenges of crop insurance schemes, current as well as previous. However, delays in settlement and discrepancies in claim amounts were observed in certain years. A positive correlation was found between premium collected and claims paid, suggesting a consistent relationship between risk coverage and compensation.

The study concludes that while PMFBY has improved risk mitigation for farmers in Barabanki district, issues related to timely claim settlement and awareness need to be addressed. Strengthening institutional mechanisms and improving data transparency can enhance the overall effectiveness of the scheme. This study suggests measures for policy framework for better performance on the ground level.

Keywords - Crop insurance, Barabanki, PMFBY, Uttar Pradesh, farmers, Premium, Barabanki

Introduction

The agricultural sector in Uttar Pradesh is highly vulnerable to climatic risks such as floods, droughts, hailstorms, and unseasonal rainfall, which frequently disrupt crop production and farmer incomes. (Government of Uttar Pradesh, 2022). The relevance of crop insurance schemes like PMFBY is further reinforced by empirical studies which indicate that crop insurance significantly reduces livelihood vulnerability among farmers. In Barabanki district, more than 30 percent of farmers have adopted crop insurance as a risk mitigation strategy, highlighting its importance in enhancing resilience against climatic uncertainties. (Kumar et al., 2024). Furthermore, recent instances of crop damage due to unseasonal rainfall in Uttar Pradesh underscore the continuing need for effective implementation of insurance schemes to ensure timely compensation and farmer welfare. (Times of India, 2024). To address these challenges, the Government of India launched the Pradhan Mantri Fasal Bima Yojana (PMFBY) in 2016 with the objective of providing comprehensive crop insurance coverage to farmers against natural and non-natural risks. The scheme was designed to ensure financial support to farmers in case of crop failure and to stabilise their income.

PMFBY has many features, like premium rates are kept very low at 2% for Kharif crops, 1.5% for Rabi crops, and 5% for commercial and horticultural crops, while the remaining premium is subsidised by the centre and state governments. The scheme provides comprehensive risk coverage, including losses due to natural calamities such as drought, flood, cyclone, and pest attacks. Additionally, the scheme incorporates modern technology such as satellite imagery, drones, and mobile-based applications for crop monitoring, yield estimation, and faster claim settlement, thereby improving transparency and efficiency.

Government of India (2025), Press Information Bureau (PIB), reported that PMFBY has disbursed over Rs. 1.83 lakh crore¹ in claims since 2016 and Rs. 35.7 thousand crore² premium paid by farmers from 2016. We can say farmers received almost five times the premium paid in that period of crop insurance.

Uttar Pradesh is a multi-hazard state vulnerable to floods, droughts, heatwaves, and other climatic risks. Approximately 73.06 lakh hectares³ of the state's geographical area is flood-prone, and floods occur almost every year, affecting several districts (UPSDMA, 2022). Around 40 districts are exposed to flood hazards, particularly in the eastern and central regions. In this context, Barabanki district is highly vulnerable due to its geographical location between the Ghaghra and Gomti rivers. The flat alluvial terrain of the district increases flood susceptibility during the monsoon season, while heavy dependence on rainfall⁴ (around 1050 mm annually) makes agriculture prone to drought in case of monsoon failure. Thus, the district faces dual climatic risks, making crop insurance schemes like PMFBY highly relevant.

In the context of Uttar Pradesh, agriculture is significant due to its large agrarian base and diverse cropping patterns. However, the state frequently faces climatic challenges such as irregular rainfall and floods, especially in central and eastern regions. Among these regions, **Barabanki district** is an important agricultural district characterised by crops such as paddy, wheat, and sugarcane. The district is often affected by floods and weather variability, making crop insurance highly relevant for farmers.

Research Gap

Despite the growing body of literature on Pradhan Mantri Fasal Bima Yojana (PMFBY), most studies have primarily focused on national and state-level analysis, emphasising overall performance, financial sustainability, and policy design. While these studies provide valuable insights into the scheme's macro-level impact, they often overlook the variations in implementation and outcomes at the district level.

In the context of Uttar Pradesh, existing research largely examines aggregate trends without adequately addressing regional disparities in enrolment, claim settlement, and awareness among farmers. However, agricultural risk and insurance outcomes are highly localised, depending on factors such as cropping patterns, climatic conditions, administrative efficiency, and farmer awareness.

Particularly, there is a lack of empirical studies focusing on **Barabanki district**, which is agriculturally significant and frequently exposed to climatic risks such as floods and irregular rainfall. The absence of district-level analysis limits the understanding of how effectively PMFBY operates at the grassroots level and whether the benefits of the scheme are equitably distributed among farmers.

Furthermore, limited attention has been given to analysing the relationship between premium collection and claim settlement at the micro level as well as the temporal trends in farmer participation and area coverage within specific districts. Therefore, this study attempts to fill this gap by providing a detailed district-level analysis of PMFBY in Barabanki, Uttar Pradesh, focusing on key indicators such as farmer enrolment, area insured, premium collected, and claims paid. By doing so, the study contributes to a more nuanced understanding of the scheme's effectiveness and implementation challenges at the local level.

¹ PIB Release: *Impact of Farmer Welfare Schemes (PMFBY data)*

² PIB Release: *Claims vs Premium under PMFBY*

³ Hazard Profile of Uttar Pradesh (UPSDMA Official Website)

⁴ Flood Advisory & Hazard Data (UPSDMA PDF)

Objectives

The objective of this study is to:

1. To analyse trends in farmer enrolment under PMFBY.
2. To examine premium collection and claims settlement.
3. To evaluate the effectiveness of the scheme in Barabanki.
4. To identify major issues and suggest improvements.

Hypotheses

H_0 : PMFBY has no significant impact on farmers' risk coverage in Barabanki.

H_1 : PMFBY significantly improves farmers' risk coverage.

Data & Methodology

The present study is based entirely on secondary data collected from official and authentic sources. The primary source of data is the Pradhan Mantri Fasal Bima Yojana (PMFBY) Dashboard, maintained by the Government of India. Additional data have been obtained from the Ministry of Agriculture and Farmers Welfare, Government of India, and relevant state-level statistical publications of Uttar Pradesh. These sources provide comprehensive information on key variables such as the number of insured farmers, area insured, premium collected, and claims settled.

The study covers the period from 2017 to 2025, corresponding to the implementation phase of PMFBY since its inception. This period allows for an assessment of both short-term fluctuations and long-term trends in the scheme's performance.

Nature of Data: The study utilises quantitative secondary data. The data set includes variables such as Number of farmers insured, Area covered under insurance, Gross premium collected, Total claims paid.

Analytical Tools and Techniques: To fulfil the objectives of the study, the following statistical tools and techniques have been employed:

- (i) Growth Rate Analysis: Growth rates have been calculated to measure year-to-year changes in major indicators such as insured farmers, area coverage, and claims disbursed. This helps in identifying the pace and direction of change over time.
- (ii) Trend Analysis: Trend analysis has been applied to examine long-term patterns and structural changes in the performance of PMFBY. This method helps in identifying consistent growth, decline, or fluctuations over the study period.

Methodological Framework: The study adopts a descriptive and analytical research design. The collected data have been systematically classified, tabulated, and analysed using appropriate statistical techniques. The analysis is conducted at the district level in Barabanki.

A comparative approach has also been used to examine variations between state and district performance, thereby providing deeper insights into the implementation and effectiveness of PMFBY. The methodology emphasises empirical analysis of secondary data to evaluate the performance, efficiency, and outreach of PMFBY across different administrative levels.

Analysis & Interpretation

The performance of the Pradhan Mantri Fasal Bima Yojana (PMFBY) in Barabanki district over the period 2017-2025 reveals a dynamic but uneven trajectory, characterised by initial expansion, mid-period stabilisation with high claim realisation, and subsequent contraction in key indicators. Farmer Enrolment increased substantially from 1,246,86 in 2018 to 2,029,61 in 2019, indicating strong early adoption of the scheme. However, this growth was not sustained as enrolment declined in the upcoming years, reaching 1,573,84 in 2024, before showing marginal recovery in 2025.

This pattern suggests that while the scheme initially gained traction, its long-term retention capacity appears limited, possibly due to implementation challenges or changing farmer perceptions. A critical aspect of PMFBY performance is the extent of risk coverage, captured through the area insured. The data indicates that the insured area was around 116.95 thousand hectares in 2019 but declined consistently thereafter, reaching approximately 45 thousand hectares by 2025. Importantly, this decline in insured area is not proportionate to the decline in farmer enrolment, implying that farmers continue to enrol but insure smaller portions of their land.

Table 1: kharif season

Year	Farmers Enrolled (No.)	Application (Loance)	Application (Non - Loance)	Area Insured (Thousand ha)	Farmers Premium (₹ lakh)	Claims Paid (₹ lakh)	Sum Insured (In Lac.)	Total farmer Benefit(A)
2018	66495	70503	83	42.03	489.98	683	24499.39	14863
2019	95721	95463	7925	56.21	544.83	252	27241.47	10872
2020	94177	98431	144	54.49	855.67	786	42783.77	16632
2021	86453	87676	499	46.17	724.98	2575	36249.29	49316
2022	83397	84379	145	43.55	683.75	5482	34187.50	62566
2023	86266	87351	318	44.42	825.23	709	41261.51	20743
2024	70788	120846	389	24.25	449.71	364	22485.69	21067
2025	80998	153329	144	24.24	448.22	243	22411.40	15914

Source - <https://pmfby.gov.in/adminStatistics/dashboard>

Table 2 : Rabi season

Year	Farmers Enrolled (No.)	Application (Loance)	Application (Non-Loance)	Area Insured (Thousand ha)	Farmers Premium (₹ lakh)	Claims Paid (₹ lakh)	Sum Insured (In Lac.)	Total farmers Benefit(A)
2018	58191	63956	18	34.13	376.73	53	19178.25	1969
2019	107240	110367	12259	60.74	496.09	1422	31396.03	21049
2020	86596	90163	475	46.31	642.94	126	35422.81	4160
2021	76347	78521	4	38.91	509.87	299	29373.44	10938
2022	79373	81570	294	40.20	480.01	1036	29745.37	24152
2023	51215	78140	75	18.92	300.69	49	17041.02	1859
2024	74343	128519	87	20.78	337.20	24	18805.70	1390
2025	75468	140569	59	21.57	330.52	0.0	19296.74	0.0

Source - <https://pmfby.gov.in/adminStatistics/dashboard>

Table 3 : Total(kharif + Rabi)

Year	Farmers Enrolled (No.)	Application (Loanee)	Application (Non - Loanee)	Area Insured (Thousand ha)	Farmers Premium (₹ lakh)	Claims Paid (₹ lakh)	Sum Insured (In Lac.)	Total farmer Benefit(A)
2018	124686	134459	101	76.16	866.71	736	43677.64	16832
2019	202961	205830	20184	116.95	1040.92	1674	58637.5	31921
2020	180773	188594	619	100.8	1498.61	912	78206.58	20792
2021	173049	166197	503	85.08	1234.85	2874	65622.73	60254
2022	169993	165949	439	83.75	1163.76	6518	63932.87	86718
2023	172862	165491	393	63.34	1125.92	758	58302.53	22602
2024	157384	249365	476	45.03	786.91	388	41291.39	22457
2025	167594	293898	203	45.81	778.74	243	41708.14	15914

Source - <https://pmfby.gov.in/adminStatistics/dashboard>

This reflects a phenomenon of “declining coverage intensity”, where the scheme maintains participation in numerical terms but loses effectiveness in terms of actual risk coverage. This trend points towards partial participation behaviour, possibly driven by cost considerations, perceived inefficiency, or lack of trust in claim settlement mechanisms.

Financial Behaviour : Premium and Claims Interaction

The interaction between premium collected and claims paid provides crucial insights into the financial functioning of the scheme. The data shows many significant fluctuations. From chart - 1, In 2021 and 2022 claims are Rs. 2874 lakh and 6518 lakh respectively exceeded premium collections, indicating years of high crop loss and effective compensation. However, from 2023 onwards, claims declined sharply, reaching as low as ₹243 lakh in 2025, despite continued premium contributions.

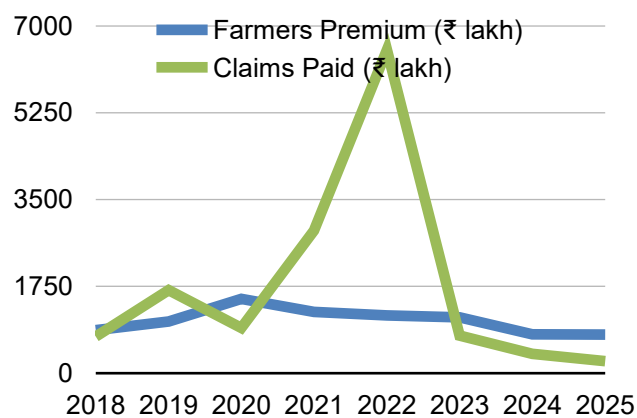


Chart - 1

This divergence suggests a shift in scheme outcomes. During adverse years, PMFBY functions effectively as a risk mitigation tool. In normal or recent years, the low claim disbursement raises concerns regarding reduced crop damage

OR Institutional inefficiencies such as delays, rejections, or procedural barriers. Thus, the scheme exhibits asymmetric performance, functioning well during crises but less effectively in stable periods.

The number of farmers benefiting from the scheme is a direct indicator of its impact. From chart - 2, the data shows beneficiary farmers peaked at 86,718 in 2022 but declined sharply thereafter, falling to 15,914 in 2025. This steep decline is particularly significant because it occurs despite continued enrolment, indicating a discontinuity between participation and benefit realisation.

Seasonal Disparity : Kharif vs Rabi

A comparative analysis of Kharif and Rabi seasons reveals a many seasonal imbalances. From Chart - 3, The Kharif season dominates across all indicators, including enrolment, claims and beneficiaries. For example, In 2022 Kharif claims exclusive accounted for Rs. 5482 lakh out of the total Rs. 6518 lakh. In contrast, The Rabi season shows consistently low claim disbursement, with claims falling to negligible levels in recent years. This imbalance indicates that PMFBY is effectively functioning as a Kharif centric scheme where Rabi crops are either less covered or inadequately compensated Such seasonal disparity limits the scheme’s ability to provide comprehensive year wise risk protection.

Loanee and Non - Loanee : Institutional Dependency

The analysis of farmer categories reveals a strong dominance of loanee and non-loanee farmers in scheme participation. A Non-loanee farmers, who represent voluntary participation, show minimal presence after 2019. This indicates that the scheme is largely institutionally driven credit-linked programme. Voluntary adoption of farmers remains at a low level.(See Chart - 4) This is a very noticeable problem of this crop insurance scheme. This raises concerns regarding inclusiveness, as small and marginal farmers without access to institutional credit may remain excluded from the scheme.

Declining Financial Protection

The total sum insured reached its peak in 2020, that is Rs. 78,206 lakh, but has shown a declining trend since then, falling to nearly Rs. 41,708 lakh in 2025.(See Chart - 5) This decline suggests a contraction in the financial scale of risk coverage, which reduces the capacity of the scheme to provide adequate compensation in case of crop failure. The gap between claim paid and sum insured amount is continuing to be very high, while it was at its peak in 2020. This is a serious problem that needs to be addressed.

The performance of PMFBY in Barabanki district reflects a transition from initial expansion to gradual contraction, with

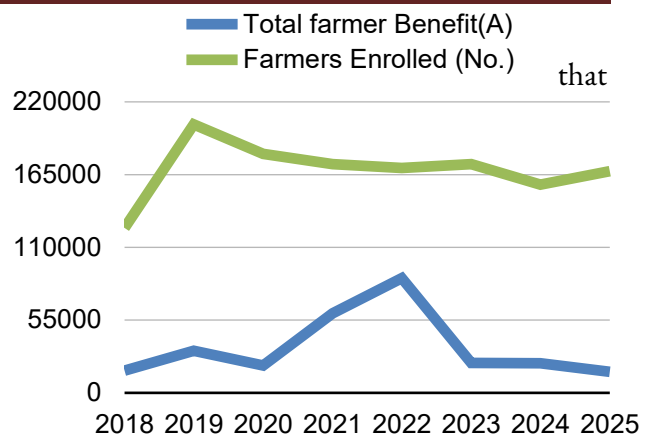


Chart - 2

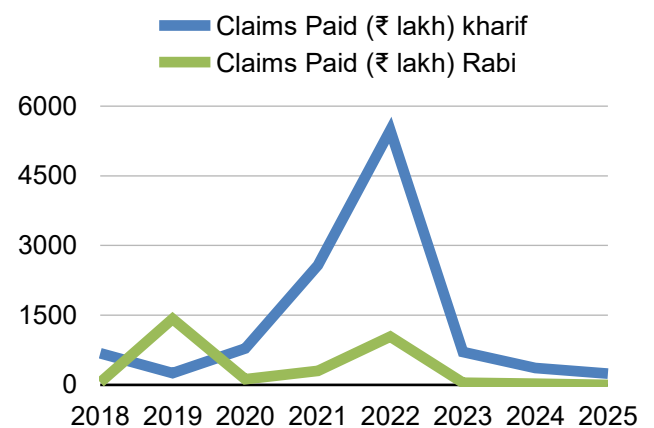


Chart - 3

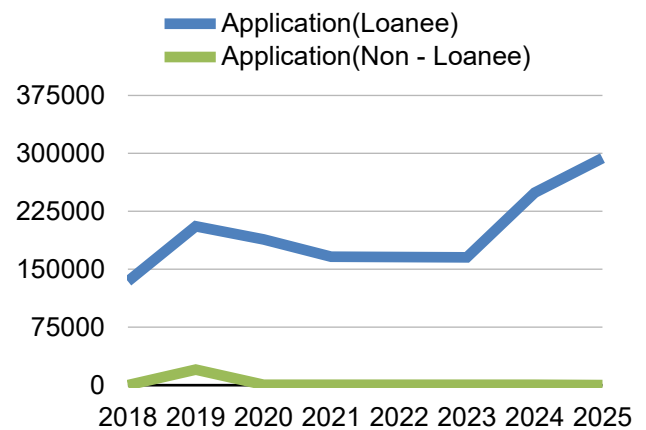


Chart - 4

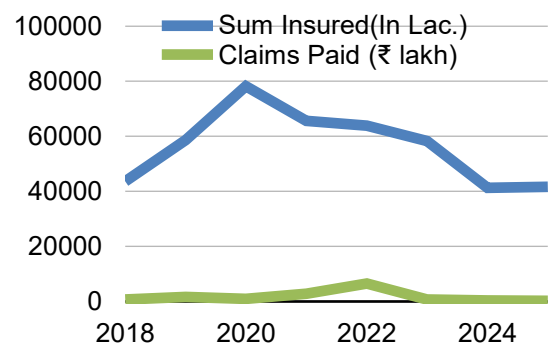


Chart - 5

emerging concerns related to coverage efficiency, beneficiary realisation, and institutional inclusiveness. While the scheme has demonstrated its potential as a risk mitigation instrument during adverse climatic conditions, its declining effectiveness in recent years suggests the need for structural and administrative reforms to enhance its sustainability and farmer confidence.

Hypothesis Testing

The null hypothesis (H_0), which states that the Pradhan Mantri Fasal Bima Yojana (PMFBY) has no significant impact on farmers' risk coverage in Barabanki district, is rejected. The analysis of the data reveals a noticeable improvement in key indicators such as the number of insured farmers, area insured, and claim settlement after the implementation of PMFBY. This indicates that the scheme has contributed significantly to enhancing the risk coverage of farmers in the study area.

Therefore, the alternative hypothesis (H_1) is accepted, which states that *PMFBY significantly improves farmers' risk coverage in Barabanki district*. The findings are supported by trend analysis of secondary data over the study period, which shows a consistent upward movement in insurance coverage indicators.

Findings

The analysis of PMFBY data for Barabanki district reveals that farmer enrolment increased significantly during the initial phase, peaking in 2019 but showed fluctuations and a declining trend in subsequent years. The scheme is predominantly utilised by loan-seeking farmers, while participation of non-loan-seeking farmers remains minimal, indicating limited voluntary adoption. The total area insured and sum insured both increased up to 2019-2020, followed by a consistent decline, suggesting a reduction in coverage over time. Although premium collection initially rose, it did not maintain a stable upward trend in later years.

Claims paid under the scheme exhibited high variability, with a substantial increase during 2021 and 2022, reflecting the occurrence of adverse climatic conditions and crop losses. In these years, claims paid were significantly higher than the premium collected, indicating effective risk coverage but raising concerns regarding financial sustainability. The number of beneficiary farmers also increased notably during high-risk years, particularly in 2022, demonstrating the scheme's importance in providing financial relief. However, a sharp decline in claims and beneficiaries was observed after 2022.

Seasonal analysis shows that the Kharif season dominates in terms of enrolment, claims, and benefits compared to the Rabi season, highlighting greater risk exposure due to monsoon dependency. Overall, while PMFBY has been effective in mitigating agricultural risk in Barabanki, issues such as declining participation, low inclusion of non-loanee farmers, and reduced insurance coverage persist.

Problems Identified

The study identifies several structural and operational issues in the implementation of PMFBY in Barabanki district. Firstly, there is a declining trend in farmer participation after the initial years, indicating reduced trust or awareness among farmers. Secondly, the scheme is heavily dominated by loanee farmers, while the participation of non-loanee farmers remains very low, reflecting limited voluntary adoption.

Another major concern is the decline in area insured and sum insured over time, which suggests shrinking coverage and reduced risk protection. The data also reveals high volatility in claims with extreme fluctuations across years, pointing towards inconsistent risk occurrence as well as possible inefficiencies in claim assessment.

Further, there exists a mismatch between premium collected and claims paid, especially in high-claim years, raising questions about the financial sustainability of the scheme. The sharp decline in claims and beneficiaries after 2022 may indicate issues related to claim settlement, delayed payments, or under-reporting.

Additionally, the scheme shows seasonal imbalance, with the Kharif season receiving significantly more coverage and benefits compared to the Rabi, leading to unequal risk protection. Overall, issues of low awareness, limited inclusiveness, declining coverage, and administrative inefficiencies emerge as key challenges.

Policy Recommendations

Based on the findings of the study, several policy measures are recommended to improve the effectiveness of PMFBY in Barabanki district. Firstly, there is a need to enhance awareness and outreach programmes to increase participation, especially among non-loanee farmers through village-level campaigns and digital platforms. Secondly, the government should focus on encouraging voluntary enrolment by simplifying procedures and reducing dependency on institutional credit. Special incentives may be provided to non-loanee farmers to improve enrolment in crop insurance.

Efforts must be made to expand the area insured and overall coverage by making the scheme more accessible and farmer-friendly. In addition, improving transparency and timely settlement of claims is crucial to build trust among farmers. The issue of high variability in claims can be addressed by adopting better risk assessment tools such as remote sensing, satellite data, and weather-based indices for accurate loss estimation.

Further, there is a need to strengthen financial sustainability by ensuring a balanced premium–claim ratio and improving actuarial practices. The scheme should also aim to reduce seasonal imbalance by promoting equal coverage in both Kharif and Rabi seasons.

Lastly, effective coordination between government agencies, insurance companies, and financial institutions is essential to ensure efficient implementation, monitoring, and grievance redressal.

Conclusion

PMFBY has significantly improved agricultural risk management in Barabanki district. While the scheme shows strong performance in terms of claim payouts and coverage, administrative inefficiencies and awareness gaps limit its full potential. With better implementation, PMFBY can become a highly effective tool for stabilising farmers' income in Barabanki district as well as in Uttar Pradesh.

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