

**AN ASSESSMENT OF PRADHAN MANTRI FASAL BIMA YOJANA:
A CROSS-STATE COMPARATIVE ANALYSIS**

by

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1. Introduction:

The Pradhan Mantri Fasal Bima Yojana (PMFBY) provides a social safety net to the Indian farmers by insuring the risks and addressing the agricultural challenges they face. A significant number of people in India rely on farming as their primary source of income. However, they often face crop failures, low yields, and unsatisfactory prices. Further, agriculture in India is vulnerable to erratic weather patterns such as droughts and floods.

With an aim to address such problems, PMFBY was launched by the Government of India in 2016. This scheme promotes the use of modern farming techniques by Indian farmers, assures a consistent credit flow, and supports production recovery after a farming-related failure (MoAFW, n.d.). Farmers can buy necessary inputs such as seeds, fertilizers, and insecticides, for their upcoming crop cycle using the financial aid provided by PMFBY. This aid covers the losses incurred throughout a crop cycle. Such an aid breaks the debt cycle by preventing farmers from defaulting on their existing loans or searching for new loans from unofficial sources. PMFBY aims to provide increased transparency, precise yield loss estimation, and accessible real-time data (MoAFW, n.d.). Farmers, including loanees, tenants, and sharecroppers, pay a “flat premium of 1.5% for Rabi crops and 2% for Kharif crops”, with government subsidies with “no upper limit” (Rai, 2019). The scheme operates on an area-based premium payment and claims collection system, using a cluster approach for insurance companies.

Despite its transformational potential, PMFBY faces challenges such as limited inclusivity, with certain farmer categories and crops excluded, limited awareness among farmers, compulsory credit-linked criteria, unreliable crop yield estimation through crop-cutting experiments (CCEs), and the monopoly of insurance companies charging high premiums while failing to compensate poor farmers (Kumar & Bhushan, 2017). While PMFBY is a national policy, state governments can choose to implement it voluntarily (PIB, 2023). This may result in varying levels of success in different states.

This paper aims to comprehensively assess the performance of PMFBY by conducting a cross-state comparative analysis in three states in India (**Uttar Pradesh (North), Karnataka**

(South), and West Bengal (East)), selected based on representing a wide spectrum of India's geography and agricultural regions.

This comparative analysis evaluates PMFBY's performance in terms of its features, implementation strategies, and overall impact. The **cross-state comparative analysis** studies specific parameters such as coverage of farmers (loanee/non-loanee), i.e. enrolment, increase in the number of farmers insured over a specific period, awareness levels among farmers regarding the scheme, the crops under "notified crops" eligible for insurance claims; actuarial premium to be paid by farmer, premium subsidy status paid by the state, crop-cutting experiment process for crop-yield estimation, and claims paid to farmers.

Such an analysis will lead to understanding the gaps in implementation strategies/choices of different states and their best practices, which would help further in suggesting recommendations for improving PMFBY's performance.

The paper employs **Evolutionary Theory in Comparative Policy Analysis** as the *theoretical framework* and **Qualitative Comparative Analysis** as *policy evaluation methodology* to do a cross-state comparative analysis to assess the performance of PMFBY, discussed further in detail.

2. Methodology:

Using the Evolutionary Theory in Comparative Policy Analysis as the *theoretical framework* and Qualitative Comparative Analysis (QCA) as the *policy evaluation methodology*, the paper conducts a cross-state comparative analysis to assess the performance of PMFBY in selected states in India based on key parameters (mentioned in the previous section), chosen strategically to represent major agricultural regions across India. These states include Karnataka, West Bengal, and Uttar Pradesh.

2.1. Theoretical framework:

Evolutionary Theory in Comparative Policy Analysis is a theoretical framework that applies principles of evolutionary biology to the study policy processes and outcomes which can be understood as the result of evolutionary dynamics, including variation, selection, retention, and adaptation. It posits that policies can be seen as "organisms" that undergo variation through different policy choices, selection through political competition and societal needs, and

adaptation/replication through policy diffusion and learning (Kay, 2020). In a similar manner, the Evolutionary Theory in Comparative Policy Analysis can be applied to analyse the performance of PMFBY using the parameters mentioned above in the introduction:

2.1.1. Variation: Certain parameters, including awareness levels among farmers, farmer coverage (loanee vs. non-loanee), increase in number of farmers insured, claims paid to farmers, local panchayat involvement, and technology in CCEs, reveal variations when comparing the selected states. These variations shed light on the differences in outcomes due to their implementation choices and strategies.

2.1.2. Selection: States have the discretion to determine key PMFBY parameters based on their regional agricultural risks, leading to the selection of certain options such as the crops under "notified crops" eligible for insurance claims, e.g., states notify crops grown by the majority of farmers in its region. The selection process reflects states' efforts to adapt PMFBY to their specific agricultural landscapes and priorities.

2.1.3. Retention: There are certain parameters/choices that the state makes at its discretion *as incentives* to ensure more coverage/enrolment and retention of farmers to the scheme, such as the actuarial premium rate paid by the farmer and premium subsidy borne by the state to lessen farmers burden. A simple, hassle-free process that ensures timely compensation for crop losses is crucial for the sustained acceptance of the policy by farmers. It also aids in comprehending why some farmers (or even states) remain with PMFBY while others opt out.

2.1.4. Adaptation/Replication: Policies under PMFBY can be adapted and replicated based on the experiences of different states. It involves examining the best practices/efforts taken by states to ensure the success of the scheme, which can be replicated in other states with low performance on the implementation of PMFBY. A *comparative table with justification* using the parameters mentioned above, highlighting the best practices of each state, is proposed in the analysis.

2.2. Policy Evaluation Method:

Qualitative Comparative Analysis (QCA) is a method used to analyze and explore the complex relationships between multiple variables, comparing different cases or scenarios to identify patterns and configurations of variables that lead to a particular policy outcome. It combines qualitative data, such as case studies or interviews, with a systematic analysis to identify causal relationships (Thomann, 2020).

Using the QCA methodology, the paper does an in-depth and systematic study of the case studies of the performance of PMFBY in the above-mentioned selected states based on key parameters (mentioned in the introduction). The paper then compares different selected states based on the performance of those parameters, use cases, and scenarios to identify recurring patterns, configurations of variables, and causal relationships that lead to particular policy outcomes. Such an analysis would provide valuable insights into the performance of the PMFBY in different states, facilitating a deeper understanding of how these states fare in terms of agricultural insurance policy implementation, what the gaps in implementation are, and recommendations to improve PMFBY's performance.

3. Comparative Analysis of the Performance of PMFBY in Different States:

Below are the three states, **Uttar Pradesh, West Bengal, and Karnataka**, with case studies that discuss the implementation and performance of PMFBY in the respective states based on the parameters mentioned above.

3.1. Uttar Pradesh:

Under the PFMBY scheme, the total loanee farmers (Kharif and Rabi) covered is 99.73% (Ghosh, 2018). However, non-loanee farmers covered were poor, only 0.27% (Ghosh, 2018). Also, tenants and shared croppers were not enrolled under PMFBY. There was an increase in the number of farmers insured by 100.1% in the fiscal period 2016-2017 (Kumar & Bhushan, 2017). The majority of loanee farmers were unaware of PMFBY despite being insured under the scheme by default (Ghosh, 2018). The crop-cutting experiments (CCEs), a crucial element of PMFBY that estimates crop loss to determine claim amount, were either not conducted at all or were conducted erratically (Ghosh, 2018). The insufficiency or unavailability of personnel within insurance companies to carry out CCEs resulted in the initiation of legal actions against numerous claims, which further prolonged and added complexity to the already intricate process of settling claims (Ghosh, 2018). Also, the CCEs were not digitized during the period (2016-17) (Ghosh, 2018). The actuarial premium rate defined for the farmers is 4.9% (in Kharif 2016). Premium subsidy payment status by the state (as in 2017 for Kharif 2016) was "fully paid" (Kumar & Bhushan, 2017). Only 97.93% of the claims were paid to farmers (Kumar & Bhushan, 2017). There have been instances when premiums were deducted from loanee farmers by banks without their consent or information, leading to farmers' frustrations (Ghosh, 2018). Below are the notified crops for insurance in (Lok Sabha Secretariat, 2021).

UTTAR PRADESH	PMFBY	Black Gram (urd Bean), Green Gram (moong Bean/Moong), Groundnut (pea Nut/mung Phalli), Maize (makka), Paddy (dhan), Pearl Millet (bajra/bulrush Millet/spiked Millet), Pigeon Pea (red Gram/arhar/tur), Sesame (gingelly/til)/sesamum, Sorghum (jowar/great Millet), Soybean (bhat)
	PMFBY/ RABI	Bengal Gram (gram/chick Pea/kabuli/chana), Lentil (masur), Mustard, Pea, Potato, Wheat

Notified crops for Uttar Pradesh, Source: (Lok Sabha Secretariat, 2021)

3.2. West Bengal:

Under the PFMBY scheme, the total loanee farmers (Kharif and Rabi) covered is 67.43% (Ghosh, 2018). The non-loanee farmers' coverage was better, only 32.57 % (Ghosh, 2018). Special initiatives were taken by Gram Panchayats (GPs) for mass enrolment. Also, tenants and shared croppers were not enrolled under PMFBY (Ghosh, 2018). There was an increase in the number of farmers insured by 202.7% in the period 2016-2017. In West Bengal, a substantial number of farmers were excluded from PMFBY/BFBY due to a lack of awareness, with nearly 70% of uninsured farmers not even recognizing the name of PMFBY (Ghosh, 2018). Accessing accurate online information about PMFBY in West Bengal is challenging (Ghosh, 2018). West Bengal has made poor progress and failed to use smart technologies for CCEs to estimate yield (Ghosh, 2018). Premium subsidy payment status by the state (as in 2017 for Kharif 2016) was “fully paid” (Kumar & Bhushan, 2017). The actuarial premium rate was 3.3 % (in Kharif 2016) (Kumar & Bhushan, 2017). Most of the premium cost to be paid by farmers is borne by the state via premium subsidy to farmers in PMFBY (Ghosh, 2018). Only 0.03% of the farmers' claims were paid for by insurance companies (Kumar & Bhushan, 2017). The performance of PMFBY/BFBY in West Bengal is notably poor in terms of timely claim settlement, and insurance claims were delayed by 6 to 12 months, leaving farmers without prompt compensation for crop loss (Ghosh, 2018). Below are the notified crops for insurance in West Bengal (Lok Sabha Secretariat, 2021).

WEST BENGAL	PMFBY/ KHARIF	Jute, Maize (makka), Paddy (aman), Paddy (aus)
	PMFBY/ RABI	Bengal Gram (chana) -irri, Green Gram (moong Bean/ Moong), Groundnut (summer), Lentil (masur), Maize (makka), Mustard, Paddy (boro), Potato, Sesame (gingelly/til)/sesamum, Sugarcane (noble Cane), Wheat

Notified crops for West Bengal, Source: (Lok Sabha Secretariat, 2021)

3.3. Karnataka:

Under the PFMBY scheme, the total loanee farmers (Kharif and Rabi) covered is 48.61% (Ghosh, 2018). The non-loanee farmers' coverage was better, only 51.39 % (Ghosh, 2018). There was an increase in the number of farmers insured by 99.2% in the fiscal period 2016-2017 (Kumar & Bhushan, 2017). There was a significant fourfold increase in farmer participation during (the Rabi Season (2016-17)) compared to the previous year period, which can be attributed to the expanded coverage of crops and regions under the PMFBY and due to intensified enrolment initiatives by the Department of Agriculture (DoA) to ensure farmer participation, especially in the aftermath of the challenges posed by demonetization (Maruthi, n.d.). The DoA, along with local officials, facilitated the collection and submission of application forms, even extending the application deadline to ensure more farmers were included in the program. Almost all enrolled/loanee farmers have reported that they are aware of the scheme, while less number of non-loanee/non-enrolled farmers, as low as 50%, were aware of it (Kumar & Bhushan, 2017). Premium subsidy payment status by the state (as in 2017 for Kharif 2016) was “fully paid” (Kumar & Bhushan, 2017). The actuarial premium rate defined for the farmers is 14.2% (in Kharif 2016) (Kumar & Bhushan, 2017). Karnataka uses mobile-based technology, geocoding, and data sampling techniques to assess crop yields in CCEs (Ghosh, 2018). The state has also been a pioneer in leveraging technology to digitize land records and interfacing with the online crop insurance platform ‘Samrakshane’, ensuring better facilitation of identification of farmers, enhancing enrolment and robust claim settlement process (Maruthi, n.d.). Thus, Karnataka is the only state with 100.0% of the claims paid to farmers (Kumar & Bhushan, 2017). Also, Karnataka has a relatively higher number of crops covered under PMFBY(below) (Lok Sabha Secretariat, 2021).

Bajra, Brinjal, Castor, Green Gram, Groundnut, Horse Gram, Maize, Mochai, Paddy (RF), Pigeon Pea (RF & Irri.), Ragi, Shorgum, Soybean, Sunflower, Tomato, Turmeric, cotton, Navane, Sesame, Frenchbean, Onion, Cowpea
Groundnut (Irri. & Un-Irri.), Paddy (Irri. & Un-irri.), Sunflower (Irri. & Un-irri.), Green Gram (Un-Irri.), Horsegram (Un-Irri.), Jowar (Irri. & Uniri), Linsed (Un-Irri.), Maize (Irri. & Un-Irri), Onion (Irri.), Potato (Irri.), Ragi (Irri. & Un-Irri.), Safflower (Irri. & Un-Irr.), Tomato, Wheat (Irri. & Un-Irri.), Bengal Gram (Irri. & Un-Irri.), Black Gram (Un-irri.), Green Gram (Un-irri.), Paddy (Irri.)

Notified crops for Karnataka, Source: (Lok Sabha Secretariat, 2021)

4. Comparative Analysis Table Analysis Based on Parameters selected as rubric:

The three states are compared and assessed in the table below, with **ratings ranging from 1 to 3**. The ratings **indicate the relative performance of the scheme**, with 1. *best performance*, 2. *medium performance*, and 3. *poorest performance*, based on various parameters with justification.

Parameters to Assess the Implementation/Performance of PMFBY in Different States	Karnataka (KN)	West Bengal (WB)	Uttar Pradesh (UP)	Justification (with Analysis) ADAPTATION/REPLICATION
VARIATION				
1. Farmer Coverage under PMFBY <i>(ideally, all farmers must be enrolled)</i>				
a. Loanee farmers	3	2	1	99.73% of loanee farmers were covered in UP, while KN covered less than half.
b. Non-loanee farmers	1	2	3	51.39% of non-loanee farmers are covered in KN due to the expanded coverage of crops and regions under the PMFBY and intensified enrolment initiatives by the Department of Agriculture (DoA) to ensure farmer participation. The DoA, along with local officials, facilitated the collection and submission of application forms, even extending the application deadline to ensure more farmers were included in the program.

<p>2. Increase in The Number of Farmers Insured</p> <p>(in the fiscal period 2016-2017)</p>	3	1	2	<p>WB witnessed a twofold (202.7%) increase in no. of farmers insured due to a large no. of non-loanee farmer enrolment and extensive efforts by gram panchayat for mass enrolment. Also, the premium rate offered was very low (3%), and most of the premium cost was borne by State itself.</p>
<p>3. Awareness in farmers about PMFBY (<i>all farmers must be aware of PMFBY esp. the loanee farmer since they are mandatorily enrolled by default</i>)</p>	1	2	2	<p>In KN, almost all enrolled/loanee farmers have reported that they were aware of PMFBY. Coverage of a high number of non-loanee farmers shows the effective and extensive dissemination efforts by DOA on the benefits of PMFBY, which have already been discussed in the KN case study. Also, an active, informative online portal, “Samrakshane”.</p> <p>Notably, WB, though rated 2nd in the rubric, saw Gram Panchayat make extensive efforts in dissemination about the benefits of PMFBY.</p>
<p>4. Crop Cutting Experiments (<i>CCEs must be conducted in an organized manner with the use of advanced technology to estimate yield</i>)</p>	1	2	3	<p>KN uses mobile-based technology, geocoding, and data sampling techniques to assess crop yields in CCEs</p>

5. Claims Paid to Farmers (There must be zero pending claims i.e. 100% claim paid to farmers)	1	2	3	KN is the only state with 100% of claims paid to farmers after WB (97.93%), while UP is the worst (0.03%). Reasons for KN: <ol style="list-style-type: none"> 1. Fully paid premium subsidy by the State to banks 2. Accuracy yield estimation for claim settlement in CCEs ensures correct claims to farmers and prevents unfair/unnecessary legal action against the claims by farmers by insurance companies 3. The state has also been a pioneer in leveraging technology to digitize land records and interfacing with the online crop insurance platform 'Samrakshane', ensuring better facilitation of identification of farmers enhancing enrolment and robust claim settlement process.
SELECTION				
6. Number of Notified Crops (Must cover all crops)	1	3	2	KN has a higher number of crops notified under PMFBY which covers more risk of crop failure and provides more protection to farmers garnering more enrollment.

RETENTION				
7. Actuarial Premium Rate (must be low)	3	1	2	WB charges a minimal actuarial premium rate from farmers since the state pays most of the premium subsidy. KN has the highest premium rate of 14.2% among the 3 states and, therefore, saw the lowest increase in farmers insured, while WB saw a twofold increase.
8. Premium subsidy payment status by State Government (Must be fully paid)	1	1	1	Fully paid premium subsidy by all 3 States to banks (which transfer total premium (paid by farmer+ subsidy by state) to insurance companies) which prevents any delay in payment of claims to the farmer by the insurance company.

Sources: (Kumar & Bhushan, 2017; Ghosh, 2018; Lok Sabha, 2021; Maruthi, n.d.)

5. Discussion:

In any crop insurance, a farmer would prefer **low premium areas, more risk coverage (crops and damage categories), and fast, hassle-free claim settlement**. From the above rubric, it can be understood that all states are not perfect and are lacking in certain parameters based on their implementation choices leading to variation in the outcome and hence different enrolment of farmers among states. The increase in enrolment of farmers to be able to reap the benefits of the objectives/vision of PMFBY is a result of best practices of different states mentioned below:

- Low actuarial premium rate for farmers supplemented by higher support from the state via premium subsidy and extensive involvement of gram panchayat in the dissemination of benefits of PMFBY and its processes (West Bengal).

- High-risk coverage (expanded notified crops) and extensive efforts by DOA in the dissemination of information and simplifying the enrollment process are supplemented by advanced technology-based yield estimation in CCEs (Karnataka).
- 100% of claims paid to farmers (reasons in rubric table) garner credibility and retention of farmers to the scheme (Karnataka).

6. Limitations:

1. The paper is based on evaluation reports of each state on PMFBY, which were last done between 2016 and 2017. Hence, the findings/conclusions of this study may not fully reflect the current status or developments in the PMFBY scheme beyond 2016-2017.
2. Limited primary data and high reliance on secondary sources limit direct farmer and other stakeholders' insights.
3. Secondary sources may have inherent biases affecting objectivity.
4. Other external factors influencing the study may have not been considered in the scope of the study.

7. Recommendations:

The comparative analysis of three states based on the implementation or performance of PMFBY enables us to understand the various shortcomings of the scheme, which need to be acknowledged and addressed for the scheme to be successful in its vision. They are:

1. Expanding Farmer Inclusion: It is essential that all farmers must be covered under PMFBY such as non-loanees, tenants, and sharecroppers. The state governments must provide incentives to the non-loanee farmers to enrol in PMFBY. To include coverage of tenant/sharecropper farmers, it is essential for state governments to make provisions for tenant farmers that are less burdensome and legalize sharecropping. Legislation governing land leases in some states must be amended if required to increase farmer coverage.
2. Awareness of the scheme: Expanding the reach of crop insurance is crucial. Mandatory awareness campaigns should be developed and conveyed to farmers through various means such as discussions, radio broadcasts, and farmer gatherings to educate them about the benefits of crop insurance and the active involvement of various stakeholders such as village panchayat, insurance companies, government officials, etc. Specific

amounts of funds must be allocated by state governments for the cost of such campaigns. This would improve mass enrolment among non-loanee farmers as was seen in the case of West Bengal.

3. Risk coverage: Must be inclusive in terms of crops and damage eligible for crop insurance:
 - Crop Cover: Crop insurance must cover all the crops. This would prevent the exclusion of farmers who may be growing non-notified crops, e.g. sugarcane not notified in Karnataka for crop insurance, but a significant number of a farmer takes a loan to grow them and face distress in case of crop failure. The state governments must encourage crop diversification. This would prevent farmers from losses in case of a glut in the market price for certain crops.
 - Damage Cover: Damage incurred by crops due to wild animals, frost, cold waves, and fire incidents should be individually accounted for. Additionally, losses resulting from hailstorms and similar events should be categorized as part of post-harvest losses.
4. Transparency and well-informed farmers: To ensure increased enrolment and retention of farmers, state governments must also ensure:
 - Farmers should receive a legitimate document of insurance policy that includes all essential information with details, e.g. premium rate, crops/damage eligible for insurance claims, procedures for claim settlement, insurance company name, etc.
 - All PMFBY information relevant to farmers, documentation, and data should be publicly available freely and shared with them to ensure transparency and efficiency.
 - Farmers' consent should be sought before deducting their crop insurance premiums.
5. The Crop Cutting Experiments (CCEs) must be conducted in an organized manner and the farmer must be informed and made aware of the schedule in advance and the process. Also, advanced technology (remote sensing, imagery, drones, mobile-based, etc) must be used to assess crop yield in CCE. The insurance companies must be responsible for ensuring adequate staff to be able to conduct CCEs in different places simultaneously on the same schedule. In case of any discrepancy in conducting CCEs, insurance companies should be liable to release claim compensation or face penalty. Gram Panchayats' active involvement in the CCE process is imperative.

6. Adequate and timely compensation for farmers is the most essential incentive/aspect for farmers to retain in PMFBY, and hence, rigorous adherence to deadlines for claim settlement is required. E.g. *The insurance company must be made liable to pay 12% interest rate per year to farmers if claims are not settled within 10 days of a specific deadline. Similarly, a 12 %interest rate per year must be paid to farmers if the State government does not release its share of subsidies within 3 months of the insurance companies' specified deadline of requisition.*
7. Coordination in the implementation of the scheme among stakeholders such as banks, insurance companies, Gram Panchayat, and the state agricultural department (government body/officials) is essential for the scheme to be successful.
8. A robust monitoring system should be established to oversee the program and handle grievances by the state government with the active involvement of the gram panchayat. This will aid farmers in distress by addressing their issues related to the scheme, claim disbursements, and insurance regulations.
9. Active role of involvement Gram Panchayat: in the dissemination of information on the process of enrolment, process of CCEs, premium payment, deduction, claim settlement (most importantly), benefits of the scheme, monitoring of the scheme, grievance redressal must be ensured.

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