ORIGINAL RESEARCH PAPER

Commerce

EXPLORING FARMERS' PARTICIPATION IN CROP INSURANCE SCHEMES: A COMPARATIVE ANALYSIS OF SMALL AND MARGINAL FARMERS

KEY WORDS: Crop Insurance, Participation, Agriculture, Khari and Rabi

Mr. Rudramuni P B Research Scholar, Department Of PG Studies And Research In Commerce, Kuvempu University, Jnana Sahyadri, Shankaraghatta.

Prof. S. Venkatesh Research Supervisor, Professor And Chairman, Department Of Pg Studies And Research In Commerce, Kuvempu University, Jnana Sahyadri, Shankaraghatta.

ABSTRACT

Crop insurance schemes play a critical role in mitigating agricultural risks, yet the participation of small and marginal farmers remains disproportionately low. This research paper investigates the participation patterns of small, marginal, and other farmers in crop insurance schemes, focusing on the Pradhan Mantri Fasal Bima Yojana (PMFBY) in India. Using data spanning six years from 2018 to 2023, collected from the PMFBY website, the study employs descriptive statistics and Compound Annual Growth Rate (CAGR) analysis to explore participation trends, variability, and distribution among different categories of farmers during both Kharif and Rabi seasons. Findings reveal a troubling trend of declining participation across all farmer categories, accompanied by notable variability and skewed distribution in participation levels. Recommendations include targeted interventions to incentivize marginal farmers, address declining participation among small farmers and others, manage variability and distribution, empower small farmers through capacity building, and implement consistent monitoring and evaluation practices. The study underscores the need for comprehensive policy measures to achieve inclusive and sustainable agricultural development by addressing participation disparities among farmers in crop insurance schemes.

INTRODUCTION

In recent years, the agricultural sector has encountered numerous challenges, ranging from unpredictable weather patterns to market fluctuations, jeopardizing the livelihoods of farmers worldwide. Among the tools devised to mitigate such risks, crop insurance schemes stand out as a pivotal mechanism aimed at safeguarding farmers against losses incurred due to crop failures, pests, or adverse weather events. However, the effectiveness and inclusivity of these schemes are often debated, particularly concerning the participation of small and marginal farmers, who constitute a significant proportion of the agricultural workforce in many countries.

The importance of crop insurance cannot be overstated, especially in regions where agriculture serves as the primary source of income for millions of households. While large-scale farmers might have the financial means to withstand occasional losses, small and marginal farmers often lack such resilience, making them particularly vulnerable to agricultural risks. Consequently, understanding the factors influencing their participation in crop insurance schemes is crucial for designing policies that cater to their needs effectively.

This research paper aims to delve into the dynamics of farmers' participation in crop insurance schemes, specifically focusing on small and marginal farmers. By conducting a comparative analysis, we seek to identify the disparities in participation rates between different categories of farmers and explore the underlying reasons behind such discrepancies.

The comparative analysis will draw upon empirical evidence gathered from diverse agricultural contexts encompassing developed and developing regions. By juxtaposing experiences from different settings, we aim to extract valuable insights that can inform policy interventions tailored to enhance the inclusivity and efficacy of crop insurance schemes for small and marginal farmers globally.

Ultimately, this research endeavor aspires to contribute to the ongoing discourse on agricultural risk management and rural development by shedding light on the nuances of farmers' participation in crop insurance schemes.

Statement of the Problem

Small and marginal farmers play a crucial role in agricultural production and food security, yet their participation in crop insurance schemes remains disproportionately low compared to larger farmers. Despite the importance of crop insurance in mitigating agricultural risks and enhancing farmers' resilience, there is limited understanding of the underlying factors contributing to the participation disparities between small and marginal farmers in such schemes. Therefore, the problem statement for this research is to investigate the participation pattern of small and marginal farmers in crop insurance schemes.

Research Gap

In the vast landscape of agricultural research, scholars have delved into numerous aspects of crop insurance schemes, seeking to illuminate their complexities and impacts. Yet, amidst this academic exploration, one crucial dimension remained largely uncharted: the Small and Marginal farmer's participation in Indian crop insurance schemes. Recognizing this glaring gap in the literature, the current investigation embarks on a pioneering journey to bridge this research chasm. While previous studies have shed light on various facets of crop insurance, none have made an effort to unravel the intricate tapestry of types of farmer's trends and dynamics within these schemes.

Objectives of the Study

1. To identify the trends and dynamics of participation among small, marginal, and other farmers in crop insurance schemes over time.
2. To Examine the magnitude of participation among small, marginal, and other farmers and explore any disparities in their engagement with crop insurance schemes.

Research Methodology

The required statistics for the study have been collected from the Pradhan Mantri Fasal Bima Yojana website for six years from 2018 to 2023. For analyzing data few descriptive statistics like mean, Standard Deviation (SD), coefficient of variation (CV), and Skewness were employed. Besides Compound Annual Growth Rate (CAGR) has been used to determine the growth rate of farmers' participation.

Analysis and Interpretation of Data

In this section, we delve into the various type of farmers data from the Pradhan Mantri Fasal Bima Yojana (PMFBY) website for both the Kharif and Rabi seasons, spanning six years from

2018 to 2023. This data provides valuable insights into the dynamics of participation in Indian crop insurance schemes, particularly concerning Small, Marginal, and other farmers.

Table – 1: The Type Of Farmers Who Participated During The Kharif Period

Year	No. Farmers	Marginal farmers	%	Small Farmers	%	Others	%
2018	2,16,63,839	39,14,655	18.07	1,40,51,165	64.86	36,98,019	17.07
2019	2,00,50,883	33,02,380	16.47	1,35,58,407	67.62	31,90,096	15.91
2020	1,68,70,111	27,90,316	16.54	1,14,10,943	67.64	26,68,852	15.82
2021	1,50,95,011	27,21,630	18.03	93,86,077	62.18	29,87,304	19.79
2022	1,79,55,622	27,11,298	15.10	1,18,56,097	66.03	33,88,227	18.87
2023	2,00,41,532	32,46,728	16.20	1,32,17,390	65.95	35,77,414	17.81

Source: *The Researcher Compiled Data from the PMFBY website*

Table – 2: A few Descriptive statistics and CAGR

Particulars	Sum	Mean	SD	CV	Skewness	CAGR
Marginal Farmers	18687007.00	3114501.1667	472238.31229	15.16	1.028	-0.031
Small Farmers	73480079.00	12246679.8333	1729342.80457	14.12	-.870	-0.010
Others	19509912.00	3251652.0000	384016.13409	11.81	-.480	-0.006

Source: *SPSS Output*

The provided table presents descriptive statistics and Compound Annual Growth Rates (CAGR) for the participation of different categories of farmers: Marginal Farmers, Small Farmers, and Others, in Rabi season farming.

Marginal Farmers: Participation among marginal farmers ranges from 2,711,298 to 3,914,655 farmers, with a mean participation of approximately 3,114,501. The standard deviation and coefficient of variation suggest moderate variability in participation among marginal farmers. The skewness is slightly negative (-0.031), indicating a minor left-leaning distribution. The CAGR value is negative (-0.031), suggesting a slight decline in participation among marginal farmers over the given period.

Small Farmers: Participation among small farmers ranges from 9,386,077 to 14,051,165 farmers, with a mean participation of approximately 12,246,680. The standard deviation and coefficient of variation suggest moderate variability in participation among small farmers. The skewness is negative (-0.010), indicating a slight left-leaning distribution. The CAGR value is also negative (-0.010), suggesting a slight decline in participation among small farmers over time.

Others: Participation among farmers categorized as "Others" ranges from 2,668,852 to 3,698,019 farmers, with a mean participation of approximately 3,251,652. The standard deviation and coefficient of variation suggest moderate variability in participation among this group. The skewness is negative (-0.006), indicating a slight left-leaning distribution. The CAGR value is also negative (-0.006), suggesting a slight decline in participation among this category of farmers over the given period.

Table 3: Type Of Farmers Who Participated During The Rabi Season

Year	No. Farmers	Marginal farmers	%	Small Farmers	%	Others	%
2018	1,46,85,635	28,16,635	19.18	92,53,190	63.01	26,15,448	17.81
2019	96,60,447	17,77,522	18.40	58,79,348	60.86	20,03,577	20.74
2020	1,00,07,561	17,40,314	17.39	64,58,879	64.54	18,08,368	18.08
2021	98,09,873	17,85,396	18.20	59,60,478	60.76	20,63,999	21.04
2022	1,08,81,229	17,21,410	15.82	69,75,955	64.11	21,83,864	20.07
2023	76,66,061	11,19,244	14.60	52,45,118	68.42	13,01,699	16.98

Source: *The Researcher Compiled Data from the PMFBY website*

Table 4: A few Descriptive statistics and CAGR

Particulars	Sum	Mean	SD	CV	Skewness	CAGR
Marginal Farmers	10960521.00	1826753.5000	548295.23073	30.01	1.117	-0.143
Small Farmers	39772968.00	6628828.0000	1411362.53888	21.29	1.573	-0.090
Other farmers	11976955.00	1996159.1667	433808.59285	21.73	-.357	-0.110

Source: *SPSS Output*

The participation of marginal farmers spans from a minimum level of 1,119,244 to a maximum of 2,816,635, with a cumulative participation sum of 10,960,521. On average, each marginal farmer contributes approximately 1,826,753.50 units, with a standard deviation of 548,295.23, indicating notable variability in their participation levels. This variability is further emphasized by the coefficient of variation (CV) of 30.01%. The distribution of participation among marginal farmers skews positively (Skewness = 1.117), implying that there is a greater proportion of farmers with lower participation levels compared to those with higher levels. Over time, the participation of marginal farmers experiences a declining trend, as indicated by a Compound Annual Growth Rate (CAGR) of -0.143.

Small farmers' participation ranges more widely, from 5,245,118 to 9,253,190, with a total participation sum of 39,772,968. On average, each small farmer contributes approximately 6,628,828 units, with a higher standard deviation of 1,411,362.54 compared to marginal farmers. Nonetheless, the coefficient of variation (CV) for small farmers' participation is lower at 21.29%, suggesting relatively less variability compared to marginal farmers. Despite this, the distribution of participation among small farmers skews highly positively (Skewness = 1.573), indicating a notable proportion with lower participation levels. The Compound Annual Growth Rate (CAGR) for small farmers' participation reflects a declining trend, albeit less steep than that of marginal farmers, with a value of -0.090.

Additionally, participants categorized as "Others" represent individuals beyond the marginal and small farmer categories. Their participation ranges from 1,301,699 to 2,615,448, with a total participation sum of 11,976,955. On average, each participant contributes approximately 1,996,159.17 units, with a standard deviation of 433,808.59. The coefficient of variation (CV) for others' participation is 21.73%, indicating moderate variability compared to the mean. The distribution of participation among others skews negatively (Skewness = -0.357), suggesting a relatively larger proportion of participants with higher participation levels compared to those with lower levels. Similar to small farmers, the Compound Annual Growth Rate (CAGR) for others' participation indicates a declining trend over time, with a value of -0.110.

Findings of the Study

Participation Trend Overtime

- **Marginal Farmers**: Participation fluctuates over the years with a slight decline, indicated by negative Compound Annual Growth Rate (CAGR) values ranging from -0.031 to -0.143.
- **Small Farmers:** A similar declining trend was observed with CAGR values ranging from -0.010 to -0.090.
- **Others:** Participation also declines over time, with CAGR values ranging from -0.006 to -0.110.

Variability and Distribution

- **Marginal Farmers:** Notable variability in participation levels, positively skewed distribution.
- **Small Farmers:** Exhibits variability, highly positively skewed distribution.
- **Others:** Moderate variability, negatively skewed distribution.

Magnitude of Farmers

- Small farmers consistently have the highest participation levels among the three categories, followed by marginal farmers and then others.

Comparison Between Kharif and Rabi Seasons

- General trends of declining participation and variability characteristics were observed across both seasons for all categories of farmers.

Suggestions of the Study

1. **Encouraging Participation Among Marginal Farmers**: Given the fluctuating participation and slight decline observed among marginal farmers, targeted interventions are needed to incentivize and support their involvement in agricultural activities. This could include providing access to credit, training programs, and technological assistance tailored to their needs.
2. **Addressing Declining Participation Among Small Farmers and Others**: Since both small farmers and others also exhibit declining participation trends, efforts should be made to understand the underlying reasons behind this trend. Policy measures focusing on improving market access, infrastructure development, and risk mitigation through insurance schemes could help reverse this decline.
3. **Managing Variability and Distribution**: Strategies to manage variability in participation levels and skewed distributions should be implemented. This may involve promoting cooperative farming models, where farmers pool resources and share risks, as well as ensuring equitable access to resources and support services.
4. **Empowering Small Farmers**: Recognizing their consistently high participation levels, and empowering small farmers through capacity building, access to resources, and market linkages can further enhance their contributions to agricultural productivity and rural development.
5. **Consistent Monitoring and Evaluation**: Continuous monitoring of participation trends and periodic evaluation of interventions are crucial for informed decision-making and course correction. This can help identify successful strategies and areas requiring further attention.
6. **Seasonal Dynamics**: Considering the similarity in trends across both Kharif and Rabi seasons, interventions should be designed to address year-round challenges faced by farmers, rather than focusing solely on specific cropping seasons.

Concluding Remarks

The research highlights the urgent need to address the participation patterns of small, marginal, and other farmers in crop insurance schemes, which play a crucial role in mitigating agricultural risks. Despite their importance, there is a troubling trend of declining participation among all categories of farmers over the years, accompanied by notable variability and skewed distribution in participation levels. To effectively tackle these challenges, targeted interventions are necessary, especially for marginal farmers who encounter significant barriers to participation. Policies should focus on incentivizing and supporting their involvement in agricultural activities through tailored assistance such as access to credit, training programs, and technological resources. Understanding the underlying reasons behind the declining participation among small farmers and others is crucial, with policy measures required to improve market access, enhance infrastructure, and strengthen risk mitigation strategies. Prioritizing efforts to manage variability in participation levels and skewed distributions, promoting cooperative farming models, and ensuring equitable access to resources and support services are essential steps. Empowering small farmers, who consistently demonstrate high participation levels, is key to enhancing agricultural productivity and rural development, necessitating capacity building, access to resources, and market linkages. Continuous monitoring and evaluation of participation trends are vital for informed decision-making and course correction, with interventions needing to consider the seasonal dynamics of agricultural activities to address year-round challenges effectively. In conclusion, addressing participation disparities among farmers in crop insurance schemes demands a comprehensive and multifaceted approach, involving targeted policies, empowerment strategies, and ongoing monitoring and evaluation efforts to achieve inclusive and sustainable agricultural development.

REFERENCES

1. CARIAPPA, A. A., Lokesh, G. B., Amrutha, T. J., Reddy, B. S., & HULAGUR, B. (2018). Performance of Pradhan Mantri Fasal Bima Yojana (PMFBY) in Hyderabad-Karnataka (HK) region. *Journal of Farm Science*, *31*(4), 452-456.
2. Gujji, B., & Darekar, A. (2018). Prime Minister's Fasal Bima Yojana (PMFBY): A Case of Its Implementation in Datia District of Madhya Pradesh. *International Journal of Management, Technology And Engineering, ISSN*, (2249-7455).
3. Krishna, T. G., Rao, B. M., & Nagesh, H. (2022). Constraints Faced by the Beneficiaries of PMFBY and Suggestions Given by Them to Overcome the Constraints in Srikakulam District of Andhra Pradesh. *Current Journal of Applied Science and Technology*, 40-43.
4. Kumar, S., Sharma, A., & Kumar, S. (2020). Pradhan Mantri Fasal Bima Yojana (PMFBY): A Tool for Agricultural Risk Management. *INDiAN FARmER*, *455*, 467.
5. Lamba, V. (2021). Descriptive Analysis of Pradhan Mantri Fasal Bima Yojana (Pmfby) From the Year 2016–2020. *International Journal of Mechanical Engineering*, *3*, 3971-80.
6. Parthiban, J. J., & Anjugam, M. (2023). A Comparative Study on the Performance of Various Agricultural Crop Insurance Schemes of India with Special Reference to Pradhan Mantri Fasal Bima Yojana (PMFBY). *Asian Journal of Agricultural Extension, Economics & Sociology*, *41*(3), 145-153.
7. Paulraj, A. P., & Easwaran, N. (2020). Evaluation of 'Revamped 'Crop Insurance Pradhan Mantri Fasal Bima Yojana (PMFBY) among Paddy Farmers in Tamil Nadu, India. *Current Journal of Applied Science and Technology*, *39*(34), 66-77.
8. Rathore, V., & Rao, M. J. (2017). The performance of PMFBY and other crop insurance models in India. *International Journal of Advanced Research and Development*, *2*(5), 602-607.
9. Rawat, A., & Zechariah, J. (2012). Study on the impact of Pradhan Mantri Fasal Bima Yojana (PMFBY) in the Faridabad district of Haryana. *The Pharma Innovation Journal*, *11*(4), 2012-2014.
10. Vithlani, M. B. (2018). A RESEARCH PAPER ON THE EFFECTIVENESS OF PRADHAN MANTRI FASAL BIMA YOJANA (PMFBY). *NOLEGEIN-Journal of Business Risk Management*, *1*(2), 5-8.