International Journal of Research in Social Sciences
Vol. 14 Issue 10, Oct 2024,
ISSN: 2249-2496 Impact Factor: 7.081 UGC Approved Journal Number: 48887
Journal Homepage: http://www.ijmra.us, Email: editorijmie@gmail.com
Double-Blind Peer Reviewed Refereed Open Access International Journal - Included in the International Serial Directories Indexed & Listed at: Ulrich's Periodicals Directory ©, U.S.A., Open J-Gate as well as in Cabell's Directories of Publishing Opportunities, U.S.A

"The Increasing Participation of the Private Sector in Crop Insurance: Implications for Farmers' Financial Security, Claims Settlement Efficiency, and Scheme Profitability"

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Abstract:

This study examines the impact of increased private sector participation in India's crop insurance schemes, comparing pre-2016 public schemes (NAIS/MNAIS/WBCIS) with post-2016 private-sector-driven schemes (PMFBY & RWBCIS). The analysis focuses on farmer financial security, claims settlement efficiency, and scheme profitability. The findings show that private-sector involvement has led to greater farmer participation, expanded coverage, and improved profitability. However, challenges remain with outstanding claims, indicating a need for better claims settlement efficiency. Overall, private sector participation has enhanced the financial sustainability of crop insurance, but requires further improvements in claims processing

Keywords: **Private Sector Participation, Crop Insurance, Farmer Financial Security, Claims Settlement Efficiency, Scheme Profitability, Insurance Premiums, Government Subsidies, Risk Management, Insurance Accessibility, Technological Innovation**

1. Introduction:

The private sector's involvement in crop insurance has been increasingly prioritized as a strategy to enhance the efficiency and sustainability of agricultural insurance schemes. In India, the transition from the National Agricultural Insurance Scheme (NAIS) to the Pradhan Mantri Fasal Bima Yojana (PMFBY) introduced greater participation by private insurers. This shift has raised important questions regarding its impact on farmer financial security, claims settlement efficiency, and scheme profitability.

2. Review of Literature:

The increasing participation of private sector insurers in crop insurance schemes offers both advantages and challenges. On the positive side, private insurers provide innovative, customized products that enhance financial security for farmers by offering better coverage and higher payouts than public schemes. Wipf et al. (2020) argue that private insurers, due to their

competitive nature, tend to develop more flexible and comprehensive insurance products, which can improve farmers' financial resilience. However, this often comes with higher premiums, which could make insurance unaffordable for smallholder farmers, especially those with limited resources (Chowdhury, 2018). Sharma and Gupta (2020) highlight that the higher operational costs of private insurers, such as marketing and administrative expenses, are often passed on to farmers, potentially reducing the accessibility of crop insurance for marginalized farmers.

Claims settlement efficiency improves with private sector involvement, as private insurers tend to offer faster processing, aided by advanced technologies like satellite imagery and data analytics (Pande & Malik, 2019). Bhagat and Kumar (2021) argue that private insurers are perceived to provide more efficient claims settlement due to their emphasis on customer service. However, concerns regarding fairness and transparency in claims settlements persist. Kumar and Pandey (2022) suggest that private insurers may prioritize cost-effectiveness, leading to underpayment of claims or disputes over compensation. Singh and Yadav (2020) found that although private sector involvement under PMFBY resulted in quicker claims processing, transparency issues sometimes led to farmer dissatisfaction and a loss of trust in the system. Moreover, the complexity of some private insurance products can create confusion for farmers, making the claims process more cumbersome (Patel & Soni, 2021).

Regarding scheme profitability, private insurers employ sophisticated risk management strategies and pricing models to maintain profitability. Jha and Kumar (2019) argue that the use of advanced analytics by private insurers helps optimize pricing and minimize adverse selection, ensuring financial viability. However, the increased involvement of private insurers may result in higher premiums, which could reduce the number of farmers willing to participate, particularly those in low-income groups (Patel & Soni, 2021). Furthermore, the focus on high-value crops could exclude smaller farmers or those cultivating low-value crops, reducing the overall coverage of the scheme (Sharma & Bansal, 2022). Choudhury and Agarwal (2021) suggest that private insurers may engage in "cherry-picking," targeting low-risk areas or crops, which improves profitability but limits the scope of the insurance scheme. The government's involvement in premium subsidies, especially under PMFBY, could mitigate these challenges and ensure broader participation among low-income farmers (Chowdhury & Ghosh, 2019).
while private insurers can improve innovation, efficiency, and profitability in crop insurance, their involvement must balance affordability, inclusivity, and fairness.

3. **Research Objective:**

- To analyze how private sector participation influences the financial protection offered to farmers against agricultural risks, specifically in terms of farmer application, area insured, and sum insured.
- To investigate the efficiency of the scheme under private sector involvement, focusing on the timeliness, transparency, and fairness of claim settlements, as well as the Claim-Premium Ratio.
- To evaluate the financial sustainability of the insurance scheme, examine the impact of private sector participation on premiums, subsidies, and the overall profitability of the scheme.

4. **Research Hypothesis/Question:**

1. H_0 (Null Hypothesis): There is no significant difference in the average number of applications, average area insured, and average of sum insured. between the crop insurance schemes before 2016 and after 2016 due to the increased participation of private companies.
2. H_0 (Null Hypothesis): There is no significant difference in the Claim-Premium Ratio between the crop insurance schemes before 2016 and after 2016
3. H_0 (Null Hypothesis): There is no significant difference in the annual outstanding payment of claims between the crop insurance schemes before 2016 and after 2016.
4. H_0 (Null Hypothesis): The profitability of the crop insurance scheme has not increased after the increased participation of private companies post-2016.

5. **Research Methodology:**

This study employs a comparative research design to analyze the impact of private sector participation in crop insurance schemes, specifically the shift from NAIS/MNAIS/WBCIS (Group A) to PMFBY & RWBCIS (Group B). The research focuses on understanding the effects on farmer financial security, claims settlement efficiency, and scheme profitability. The design compares key variables such as farmer applications, area insured, sum insured, claim-premium ratio, outstanding claims, and scheme profitability before and after the private sector's increased involvement.

6. **Sample Selection:**

The study focuses on two distinct groups:

- Group A: Crop insurance schemes before 2016 (NAIS, MNAIS, WBCIS).
- Group B: Crop insurance schemes post-2016 (PMFBY & RWBCIS). The temporal scope of the study spans from 2008-09 to 2023-24, with data from Group A (before 2016) and Group B (after 2016).

- Independent Variable: Private sector participation (transition from public schemes like NAIS/MNAIS/WBCIS to private-sector-driven schemes, PMFBY & RWBCIS).
- Dependent Variables:
    1. Farmer Financial Protection (number of farmers applying, area insured, sum insured).
    2. Claims Settlement Efficiency (claim-to-premium ratio, outstanding claims).
    3. Scheme Profitability (profitability of the scheme).

7. **Data Collection:**

The data for this study is obtained from secondary sources, including: Government reports such as the PMFBY Dashboard. Agricultural statistics at a glance 2023-24, Publicly available data on insurance claims, premiums, and farmer participation in crop insurance schemes.

8. **Data Analysis:**

To analyze the collected data, the following statistical tests were applied:

1. Descriptive Statistics: To summarize the characteristics of the data, including the mean, median, standard deviation, and standard error for the key variables.
2. The year 2016 is used as the year of increased private insurance company participation with the launch of PMFBY
3. Shapiro-Wilk Test for Normality: To assess the normality of the data. Variables such as farmers' applications and outstanding claims did not follow a normal distribution, while other variables (e.g., area insured, sum insured, profitability) were normally distributed.
4. Levene's Test for Homogeneity of Variances: To check if the variances of the two groups (Group A and Group B) are equal. Non-parametric tests were recommended for variables violating the assumption of equal variances (e.g., farmers' applications and claim-premium ratio).
5. Mann-Whitney U Test: Applied for non-normally distributed variables such as farmers' application and outstanding claims.
6. Independent Samples t-test (Student's t-test): Applied for normally distributed variables (e.g., area insured, sum insured, profitability) to compare the means between Group A and Group B.
7. Effect Size: Cohen's d was used to measure the magnitude of the differences between the groups. A large effect size indicated significant practical differences, while a small effect size suggested minimal practical impact.

9. **Scope and Limitations:**

The scope of the study is geographically limited to India and covers data from 2008-09 to 2023-24. The analysis includes only the major insurance schemes before and after 2016, specifically NAIS, MNAIS, WBCIS for the pre-2016 period, and PMFBY and RWBCIS for the post-2016 period. This study excludes minor schemes to avoid complexity. The primary limitation of the study is the reliance on secondary data, which may not capture all nuanced factors impacting the insurance schemes. Moreover, the research does not account for external factors such as climate change or government policies that could also influence the outcomes of the insurance schemes.

10. **Results and Discussion:**

Descriptive Statistics:

The analysis of the Group Descriptive Statistics in Table 1 for Group A (NAIS/MNAIS/WBCIS) and Group B (PMFBY & RWBCIS) reveals several key differences between the two crop insurance schemes. Group B generally shows higher values across various metrics, including farmer applications, area insured, sum insured, and profitability. For example, Group B has significantly more farmer applications (7.83e+7) compared to Group A (3.19e+7), indicating higher participation in the private-sector schemes. Similarly, Group B ensures a larger area (5.24e+7) and provides a larger sum insured (2.14e+7) than Group A (4.07e+7 and 6.64e+6, respectively). These differences suggest that the private-sector schemes have a larger scale of operation and offer more financial protection to farmers.

A critical difference is observed in the claim-to-premium ratio, where Group A has a much higher mean (2.32) compared to Group B (0.704), signaling that Group A is more likely to pay out claims relative to premiums collected, which may pose financial sustainability issues for the public schemes. This aligns with the profitability data, where Group A shows a loss (-400,417.50), while Group B demonstrates positive profitability (859,805.88), indicating that the private-sector schemes are more financially sustainable.

However, Group B also has higher outstanding amounts (30,515.50) compared to Group A (14,532.13), indicating that while private-sector schemes may have higher coverage and profitability, they also face larger outstanding claims. The variability in both outstanding amounts and profitability is relatively high in both groups, suggesting differences in individual farmer experiences within each scheme.

In summary, Group B (PMFBY & RWBCIS) outperforms Group A (NAIS/MNAIS/WBCIS) in terms of farmer participation, coverage, and profitability, demonstrating the positive impact of private sector involvement. However, challenges like

higher outstanding amounts in Group B should be further examined for comprehensive insights into the scheme's efficiency.

Tablw 1. Group Descriptives

	Group	N	Mean	Median	SD	SE
farmers_application	**NAIS/MNAIS/WBCIS - Group A**	8	3.19e+7	3.15e+7	8.48e+6	3.00e+6
	PMFBY& RWBCIS - Group B	8	7.83e+7	6.20e+7	3.06e+7	1.08e+7
area_insured	**NAIS/MNAIS/WBCIS - Group A**	8	4.07e+7	4.16e+7	7.16e+6	2.53e+6
	PMFBY& RWBCIS - Group B	8	5.24e+7	5.22e+7	4.58e+6	1.62e+6
sum_insured	**NAIS/MNAIS/WBCIS - Group A**	8	6.64e+6	6.59e+6	2.71e+6	956710.747
	PMFBY& RWBCIS - Group B	8	2.14e+7	2.08e+7	2.43e+6	858308.5517
claim_premium_ratio	**NAIS/MNAIS/WBCIS - Group A**	8	2.32	1.64	1.23	0.435
	PMFBY& RWBCIS - Group B	8	0.704	0.730	0.249	0.0881
outstanding_amount	**NAIS/MNAIS/WBCIS - Group A**	8	14532.13	7170.00	20286.57	7172.387
	PMFBY& RWBCIS - Group B	8	30515.500	22306.500	41817.259	14784.6337
profitability_of_scheme	**NAIS/MNAIS/WBCIS - Group A**	8	-400417.50	-288741.00	481360.69	170186.703
	PMFBY& RWBCIS - Group B	8	859805.875	717494.500	734013.541	259512.9760

Analysis of the Visualized Data:

Prior to 2016-17, the growth in the number of farmers covered, area insured, and sum insured was slow, showing steady but moderate increases over the years. This indicated that the public sector schemes were expanding, albeit at a gradual pace. After 2016-17, however, there was a noticeable acceleration in these metrics, particularly after the private sector became more involved. The sharp rise in coverage, insured area, and sum insured, especially in the year 2023-

24, reflects the significant growth in outreach and protection provided by the private-sector schemes, such as PMFBY & RWBCIS.

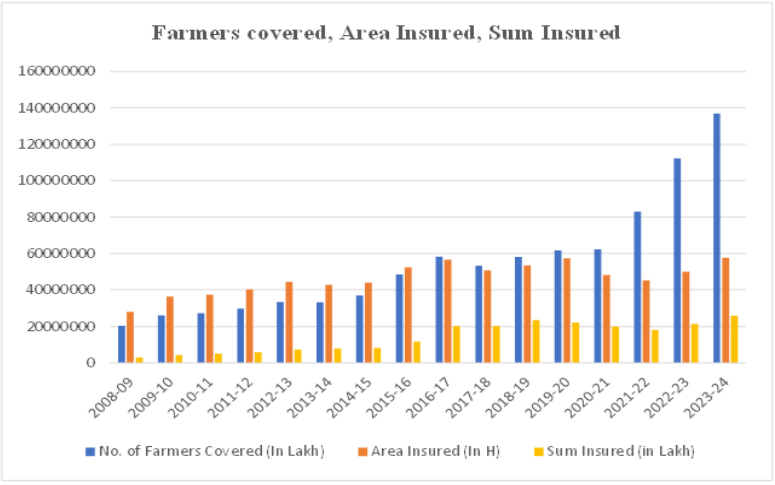
Before 2016-17, the crop insurance schemes were largely unprofitable, with major losses recorded in 2014-15 and 2015-16. This suggested that the public sector struggled with financial sustainability during these years. However, from 2017-18 onwards, the private-sector participation helped turn the tide, leading to a substantial improvement in profitability. By 2022-23 and especially in 2023-24, the profitability of the schemes shifted to positive values, signifying better financial health. The increased private sector involvement led to improved risk management and overall financial performance of crop insurance.

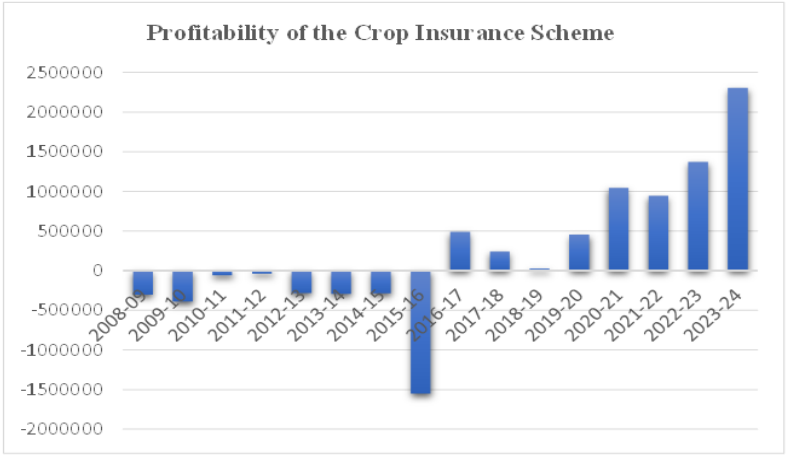
In the years before 2016-17, outstanding claims showed a gradual increase, with notable surges in 2014-15 and 2015-16, indicating rising claims. However, after 2016-17, the outstanding claim amounts grew sharply, particularly in 2023-24, indicating that while the private sector expanded coverage, there were issues with timely claims settlement. This sharp rise in outstanding claims suggests that the increased participation of private companies may not have significantly improved the speed and efficiency of claims settlement, which could potentially strain the financial stability of the schemes.

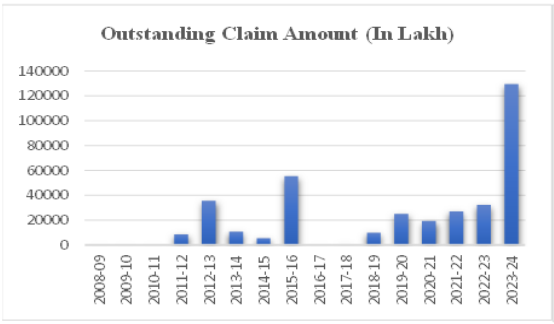
Before 2016-17, the claim-to-premium ratio was relatively high, with significant peaks in 2014-15 and 2015-16, showing that claims paid out were much higher than the premiums collected, pointing to financial instability in the public sector schemes. After the introduction of private sector involvement in 2016-17, the claim-to-premium ratio notably decreased in Group B (PMFBY & RWBCIS), signaling more efficient claims management and improved financial sustainability. The lower claim-to-premium ratio in these schemes reflects a better balance between premiums and claims, thanks to more streamlined operations under private sector management.

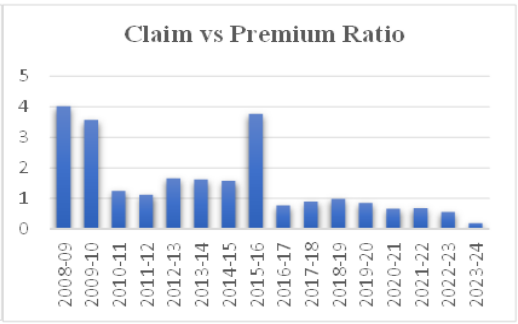
The increased private sector participation in crop insurance schemes after 2016-17 led to improved coverage and profitability, although challenges remain, particularly in the timely settlement of claims. The claim-to-premium ratio showed positive changes, but the rise in outstanding claims points to a need for further improvement in claims processing to fully capitalize on the private sector's efficiency.

Figure 1. Farmers coverage, Area Insured, Sum Insured, Profitability of the Crop insurance Scheme, Claim-premium Ratio, outstanding claim amount.









Source: Agricultural Statistics at a Glance 2023-24 https://desagri.gov.in/wp-content/uploads/2025/01/%E0%A4%95%E0%A5%83%E0%A4%B7%E0%A4%BF-%E0%A4%B8%E0%A4%BE%E0%A4%82%E0%A4%96%E0%A5%8D%E0%A4%AF%E0%A4%BF%E0%A4%95%E0%A5%80-%E0%A4%8F%E0%A4%95-%E0%A4%9D%E0%A4%B2%E0%A4%95-2023_Agricultural-Statistics-at-a-Glance-2023.pdf

Assumptions check:

Shapiro-Wilk Tests of Normality

The Shapiro-Wilk normality test was conducted for each variable to assess whether the data followed a normal distribution results are in Table 2. For farmers' application and outstanding amount, the p-values were 0.024 and <0.001, respectively, indicating violations of

the assumption of normality ($p < 0.05$). This suggests that these variables do not follow a normal distribution, and therefore, non-parametric tests like the Mann-Whitney U test should be used for further analysis. In contrast, the area insured, sum insured, claim-premium ratio, and profitability of the scheme variables showed p-values greater than 0.05 (0.940, 0.575, 0.189, and 0.251, respectively), indicating that these variables follow a normal distribution. Consequently, parametric tests such as the student's t-test are appropriate for analyzing these variables. In summary, non-parametric tests are recommended for farmers' application and outstanding amount, while parametric tests are suitable for the remaining variables, as they meet the assumption of normality.

Table 2. Normality Test (Shapiro-Wilk)

	W	p
farmers_application	0.866	0.024
area_insured	0.977	0.940
sum_insured	0.955	0.575
claim_premium_ratio	0.923	0.189
outstanding_amount	0.737	<.001
profitability_of_scheme	0.931	0.251

Note. A low p-value suggests a violation of the assumption of normality

The Levene's test for homogeneity of variances was conducted to assess whether the assumption of equal variances between the two groups (Group A and Group B) holds in Table 3. For farmers' application, the p-value of 0.009 is less than 0.05, indicating a violation of the assumption of equal variances. This suggests that the variability in farmers' applications is significantly different between the two groups, and non-parametric tests should be used for this variable. For area insured, sum insured, outstanding amount, and profitability of the scheme, the p-values are 0.452, 0.697, 0.433, and 0.201, respectively, all of which are greater than 0.05. These results suggest that the assumption of equal variances holds for these variables, meaning that the Student's t-test can be appropriately used for analysis. However, for the claim-premium ratio, the p-value of <0.001 indicates a violation of the assumption of equal variances, suggesting that the variances in this variable differ significantly between the two groups, and non-parametric methods would be more appropriate for this analysis.In summary, farmers' application and claim-premium ratio violate the assumption of equal variances, suggesting the use of non-parametric tests for these variables. For the remaining variables (area insured, sum insured, outstanding amount, and profitability of the scheme), the assumption of equal variances holds, and parametric tests like the student's t-test can be used.

Table 3. Homogeneity of Variances Test (Levene's)

	F	df	df2	p
farmers_application	9.156	1	14	0.009
area_insured	0.598	1	14	0.452
sum_insured	0.158	1	14	0.697
claim_premium_ratio	40.862	1	14	<.001
outstanding_amount	0.653	1	14	0.433
profitability_of_scheme	1.804	1	14	0.201

Note. A low p-value suggests a violation of the assumption of equal variances

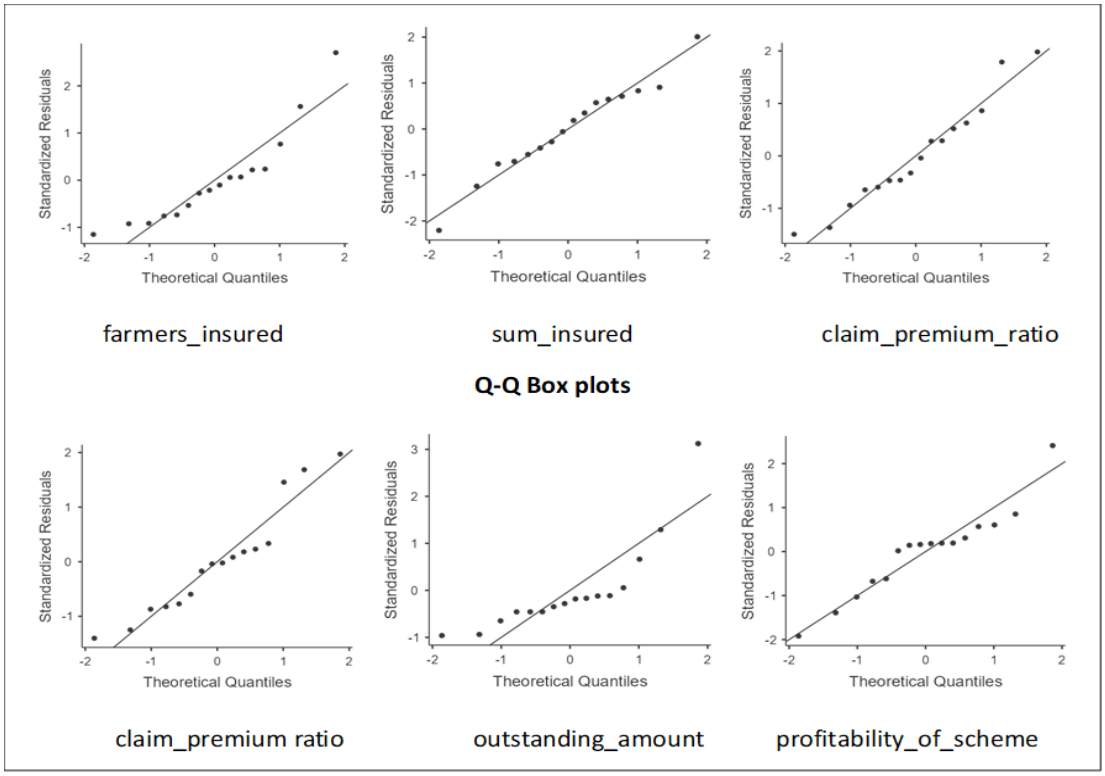


Figure 2. Q-Q Plots

The Q-Q (Quantile-Quantile) plots, Figure 2, display the standardized residuals for each variable, comparing the actual data distribution with the theoretical normal distribution. For the variables farmers insured, sum insured, and claim premium ratio, the points generally follow a straight line, suggesting that the data for these variables approximately follows a normal distribution. However, any deviations from the line (such as points farther from the line) indicate areas where the data deviates from normality. The plots suggest that the farmers' insured, sum insured, and claim premium ratio data are close to normal, while other variables like outstanding amount and profitability of the scheme may show some minor deviations, suggesting they are closer to normal but might require further attention to confirm normality.

In summary, the data appears mostly normally distributed for the key variables, though there are some minor deviations, which should be considered when selecting statistical tests.

Tests of Significance:

Table-4: Independent Samples T-Test

		Statistic	df	p		Effect Size
farmers_application	**Student's t**	-4.12[a]	14.0	<.001	Cohen's d	-2.06
area_insured	**Student's t**	-3.89	14.0	<.001	Cohen's d	-1.95
sum_insured	**Student's t**	-11.51	14.0	<.001	Cohen's d	-5.75
profitability_of_scheme	**Student's t**	-4.06	14.0	<.001	Cohen's d	-2.03

Note. H_a $\mu_{NAIS/MNAIS/WBCIS - Group A} < \mu_{PMFBY\& RWBCIS - Group B}$

[a] Levene's test is significant ($p < .05$), suggesting a violation of the assumption of equal variances

Hypothesis 1: The results of the hypothesis tests highlight significant improvements in various aspects of crop insurance schemes following the increased participation of private companies. In terms of farmer participation, the student's t-test for farmers' application revealed a statistically significant difference between Group A (NAIS/MNAIS/WBCIS) and Group B (PMFBY & RWBCIS), with a p-value of <0.001 and an effect size of Cohen's d = -2.06, indicating a large effect. This suggests that private-sector schemes significantly increased the number of farmers applying for insurance, confirming the positive impact of private sector involvement on farmer participation. When examining the area insured, the student's t-test for this variable also showed a significant difference, with a t-statistic of -3.89 and a p-value of <0.001, supported by a large effect size (Cohen's d = -1.95). This indicates that the private-sector schemes (PMFBY & RWBCIS) insured significantly larger areas compared to the public schemes, demonstrating the expanded coverage offered by private companies. Similarly, the sum insured was found to be significantly higher in Group B compared to Group A, as shown by the student's t-test with a t-statistic of -11.51, p-value of <0.001, and a very large effect size (Cohen's d = -5.75). This highlights the substantial increase in financial coverage and protection offered under the private-sector schemes. (See Table 4)

Hypothesis 3: The student's t-test for profitability of the scheme shows a statistically significant difference between Group A (NAIS/MNAIS/WBCIS) and Group B (PMFBY & RWBCIS), with a t-statistic of -4.06 and a p-value of <0.001, indicating that the private-sector schemes are more profitable. The negative t-statistic means Group A has a negative average profitability of -400,417.50, while Group B shows a positive average profitability of 859,805.88. The effect size of Cohen's d = -2.03 indicates a large effect, suggesting that private sector involvement has significantly improved the financial sustainability of the crop insurance schemes. Thus, the findings support the

hypothesis that private sector participation increases profitability, highlighting the greater financial success of the private-sector schemes. (See Table 4)

Hypothesis 2:

In analyzing the outstanding amount, two hypotheses were tested: the first assumed that Group A (NAIS/MNAIS/WBCIS) would have a lower outstanding amount than Group B (PMFBY & RWBCIS), and the Mann-Whitney U test produced a p-value of 0.191, which is not statistically significant. The second reversed hypothesis, suggesting Group A would have a higher outstanding amount, yielded a p-value of 0.836, which is even more insignificant. This shows that there is no meaningful difference in the outstanding claims between the two groups. Both hypotheses resulted in insignificant findings, indicating that there is no statistically significant difference in outstanding amounts between Group A and Group B. While we can suggest that Group A has a slightly lower outstanding amount than Group B, this difference is not significant. Therefore, the hypothesis that Group A has a lower outstanding amount than Group B holds, but is not statistically significant. The results are presented in Table 5.

Table 5. Independent Samples T-Test

		Statistic	**p**			**Effect Size**
outstanding_amount	**Mann-Whitney U**	23.0	0.191	Rank correlation	biserial	0.281
Note. H_a $\mu_{NAIS/MNAIS/WBCIS - Group A} < \mu_{PMFBY\& RWBCIS - Group B}$						
outstanding_amount	**Mann-Whitney U**	23.0	0.836	Rank correlation	biserial	0.281
Note. H_a $\mu_{NAIS/MNAIS/WBCIS - Group A} > \mu_{PMFBY\& RWBCIS - Group B}$						

Table 6. Independent Samples T-Test

		Statistic	**df**	**p**		**Effect Size**
claim_premium_ratio	**Welch's t**	3.65	7.57	0.004	Cohen's d	1.82
Note. H_a $\mu_{NAIS/MNAIS/WBCIS - Group A} > \mu_{PMFBY\& RWBCIS - Group B}$						
claim_premium_ratio	**Welch's t**	3.65	7.57	0.996	Cohen's d	1.82
Note. H_a $\mu_{NAIS/MNAIS/WBCIS - Group A} < \mu_{PMFBY\& RWBCIS - Group B}$						

For the claim-premium ratio, the initial hypothesis suggested that Group A (NAIS/MNAIS/WBCIS) would have a higher claim-to-premium ratio than Group B (PMFBY & RWBCIS). The Welch's t-test yielded a p-value of 0.004, which is statistically significant, with a large effect size (Cohen's d = 1.82), indicating that Group A has a higher claim-to-premium ratio. This suggests that the older public schemes (Group A) paid out more claims relative to premiums compared to the private-sector schemes (Group B). When the hypothesis was reversed, suggesting that Group A would have a lower claim-to-premium ratio than Group B, the p-value of 0.996 indicated no significant difference between the groups. Despite the large effect size, the reversal of the hypothesis showed no statistical significance, confirming that the significant difference only holds when Group A is expected to have the higher ratio. In conclusion, the claim-to-premium ratio is significantly higher in Group A compared to Group B, but the reversal of the hypothesis does not show a significant difference, reinforcing that private sector involvement has led to more efficient claims management in Group B. (See Table No. 6)

11. **Findings & Conclusion:**

Farmer Financial Protection: The increased private sector participation significantly boosted farmer applications, with a p-value of <0.001 and a large effect size (Cohen's d = -2.06), indicating higher farmer engagement in Group B (PMFBY & RWBCIS) compared to Group A (NAIS/MNAIS/WBCIS). Private-sector schemes also insured larger areas and provided higher sums insured (p-values < 0.001, Cohen's d = -1.95 for area insured and -5.75 for sum insured), enhancing financial protection for farmers.

Claims Settlement Efficiency: The claim-to-premium ratio was significantly lower in Group B (PMFBY & RWBCIS), with a p-value of 0.004 and a large effect size (Cohen's d = 1.82), reflecting improved claims management efficiency under private-sector schemes. However, outstanding claims were higher in Group B (30,515.50 compared to 14,532.13 in Group A), indicating challenges in timely claims settlement despite greater coverage.

Scheme Profitability: Private sector involvement improved profitability, with Group B showing positive average profitability (859,805.88) compared to a loss in Group A (-400,417.50). The Student's t-test showed a p-value of <0.001 and Cohen's d = -2.03, confirming that private sector schemes are more financially sustainable than public schemes.

The results confirm that private sector participation in crop insurance schemes has led to improvements in farmer participation, coverage expansion, and profitability. Group B

(PMFBY & RWBCIS) outperformed Group A (NAIS/MNAIS/WBCIS) in key areas such as area insured, sum insured, and profitability, demonstrating the benefits of increased private sector involvement in crop insurance. However, outstanding claims remain a concern, with Group B showing a higher outstanding amount, which suggests that, while private-sector schemes have expanded coverage, they have not necessarily improved the speed or efficiency of claims settlement. Additionally, the claim-to-premium ratio for Group B indicates more efficient claims management. These findings highlight that while private-sector involvement has enhanced the financial stability and coverage of crop insurance schemes, further attention is needed to address claims settlement delays to ensure the overall effectiveness of the scheme.

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