CREDIT RISK MANAGEMENT IN PRIMARY AGRICULTURAL CREDIT SOCIETIES: A STUDY OF SELECT DISTRICTS OF WEST BENGAL

[1]**Achintya Kumar Sheet** and [2]**Dr. Sankar Paul**
[1]Research Scholar, Deptt. Of Commerce, The University of Burdwan
[2]Assistant Professor, Post Graduate Department of Commerce, Hooghly Mohsin College

Abstract

Agriculture plays a vital role in India's economy, with a significant portion of the population relying on it for their livelihood. Access to credit is crucial for farmers to invest in their land, purchase inputs, and manage risks. Primary Agricultural Credit Societies (PACS) are essential in providing credit to farmers in India. This study examines the risk management practices and credit utilization patterns of PACS members in selected districts of West Bengal. A survey was conducted among 500 PACS members using a structured questionnaire. The data was analyzed using descriptive statistics, chi-square tests, and logistic regression. The study found that the majority of farmers relied on informal sources of credit, despite being PACS members. The main risks faced by farmers were related to production, market, and weather. Farmers adopted various risk management strategies, including crop diversification, insurance, and contract farming. The study also identified factors influencing credit utilization, such as land size, education level, and household income. The findings suggest that there is a need to strengthen the role of PACS in providing credit and risk management support to farmers. Policy recommendations include improving access to formal credit, promoting insurance and other risk management tools, and enhancing the capacity of PACS to serve their members effectively.

Keywords: Agricultural credit; risk management; primary agricultural credit societies; West Bengal; India

1. Introduction

Agriculture is the backbone of India's economy, employing nearly half of the country's workforce and contributing significantly to its GDP [1]. However, the sector is highly vulnerable to various risks, including production, market, and weather-related risks [2]. Access to credit is crucial for farmers to invest in their land, purchase inputs, and manage these risks [3]. In India, the primary sources of agricultural credit are commercial banks, regional rural banks, and cooperative banks [4].

Primary Agricultural Credit Societies (PACS) are village-level cooperative institutions that provide short-term and medium-term credit to farmers for agricultural purposes [5]. PACS are an essential part of the cooperative credit structure in India, serving as the last mile in the delivery of agricultural credit [6]. As of March 2019, there were 95,238 PACS in India, with a membership of 130 million farmers [7].

Despite the extensive network of PACS, many farmers still rely on informal sources of credit, such as moneylenders and traders [8]. This is due to various reasons, including inadequate access to formal credit, high transaction costs, and lack of collateral [9]. Moreover, the risk management practices of farmers who are members of PACS have not been extensively studied.

This study aims to examine the risk management practices and credit utilization patterns of PACS members in selected districts of West Bengal. West Bengal is an agriculturally important state in India, with a significant proportion of its population dependent on agriculture for their livelihood [10]. The specific objectives of the study are:

1. To identify the main risks faced by PACS members in the study area
2. To examine the risk management strategies adopted by PACS members
3. To analyze the factors influencing credit utilization among PACS members
4. To provide policy recommendations for improving risk management and credit delivery through PACS

2. Literature Review

2.1 Agricultural Credit in India

Agricultural credit plays a crucial role in the development of the agricultural sector in India. It enables farmers to invest in their land, purchase inputs, and adopt new technologies [11]. The main sources of agricultural credit in India are commercial banks, regional rural banks, and cooperative banks [4].

The cooperative credit structure in India consists of three tiers: state cooperative banks, district central cooperative banks, and primary agricultural credit societies (PACS) [12]. PACS are the grassroots-level institutions that directly provide credit to farmers. They are owned and managed by farmers themselves, with each member having an equal share and voting right [13].

Despite the extensive network of formal credit institutions, many farmers still rely on informal sources of credit, such as moneylenders and traders [8]. This is due to various reasons, including inadequate access to formal credit, high transaction costs, and lack of collateral [9]. Studies have shown that the share of informal credit in total agricultural credit has been declining over the years, but it still remains significant [14].

2.2 Risk in Agriculture

Agriculture is a risky enterprise, subject to various types of risks that can affect farmers' income and well-being [15]. The main types of risks faced by farmers are:

1. Production risks: These arise from the variability in crop yields due to factors such as weather, pests, and diseases [16].
2. Market risks: These arise from the volatility in prices of agricultural commodities, which can affect farmers' income [17].
3. Financial risks: These arise from the inability of farmers to repay their loans due to factors such as crop failure or low prices [18].
4. Institutional risks: These arise from the uncertainty in government policies and regulations that affect agriculture [19]. Managing these risks is crucial for ensuring the sustainability and profitability of agriculture. Farmers adopt various risk management strategies, such as crop diversification, insurance, contract farming, and hedging [20].

2.3 Risk Management in Agricultural Credit

Credit is an essential tool for managing risk in agriculture. It enables farmers to smoothen their income, invest in their land, and adopt new technologies [21]. However, providing credit to farmers is also a risky proposition for lenders, given the inherent risks in agriculture [22].

To manage the risks in agricultural credit, lenders adopt various strategies, such as diversifying their loan portfolio, requiring collateral, and using credit scoring models [23]. Cooperative banks, including PACS, have an advantage in managing risks due to their close proximity to borrowers and their ability to monitor them closely [24].

However, studies have shown that PACS face several challenges in managing risks, such as inadequate capital, weak governance, and limited capacity [25]. Moreover, the risk management practices of PACS members have not been extensively studied.

3. Methodology

3.1 Study Area and Sample Selection

The study was conducted in three districts of West Bengal: Burdwan, Hooghly, and Nadia. These districts were selected based on their agricultural importance and the presence of PACS. A multi-phase sampling method was employed to choose the participants. In the first stage, two blocks were randomly selected from each district. In the second stage, five PACS were randomly selected from each block. In the third stage, 20 members were randomly selected from each PACS, giving a total sample size of 500.

3.2 Data Collection

Data was collected using a structured questionnaire that was administered to the respondents through face-to-face interviews. The questionnaire had three sections:

1. Socio-economic profile of the respondents
2. Risk management practices adopted by the respondents
3. Credit utilization pattern of the respondents

The questionnaire was pretested on a small sample of respondents to ensure its clarity and validity.

3.3 Data Analysis

The data was analyzed using descriptive statistics, chi-square tests, and logistic regression. Descriptive statistics, such as frequency and percentage, were used to summarize the socio-economic profile of the respondents and their risk management practices. Chi-square tests were used to examine the association between socio-economic variables and risk management practices. Logistic regression was used to identify the factors influencing credit utilization among the respondents.

4. Results and Discussion

4.1 Socio-economic Profile of the Respondents

Table 1 displays the socioeconomic characteristics of the participants. The majority of the respondents were male (92%), with an average age of 45 years. Most of the respondents were literate (78%), with an average landholding size of 1.2 hectares. The main crops grown by the respondents were paddy (100%), followed by vegetables (45%) and pulses (25%). The respondents' average yearly income was Rs. 85,000, with agriculture being the main source of income for most of them (90%).

Table 1: Socio-economic profile of the respondents (N=500)

Variable	Category	Frequency	Percentage
Gender	Male	460	92
	Female	40	8
Age (years)	<30	50	10

	30-50	350	70
	>50	100	20
Education	Illiterate	110	22
	Primary	200	40
	Secondary	150	30
	Higher secondary and above	40	8
Land holding size	<1 hectare	200	40
	1-2 hectares	250	50
	>2 hectares	50	10
Main crops grown	Paddy	500	100
	Vegetables	225	45
	Pulses	125	25
Annual income (Rs.)	<50,000	100	20
	50,000-100,000	300	60

4.2 Main Risks Faced by the Respondents

The main risks faced by the respondents are presented in Table 2. The majority of the respondents reported production risks (80%), followed by market risks (60%) and financial risks (50%). Among the production risks, the main risks reported were weather-related risks (70%), followed by pest and disease risks (50%). Among the market risks, the main risks reported were price volatility (50%) and lack of market access (30%). Among the financial risks, the main risks reported were inability to repay loans (40%) and lack of access to credit (30%).

Table 2: Main risks faced by the respondents (N=500)

Risk type	Specific risk	Frequency	Percentage
Production risks	Weather-related risks	350	70
	Pest and disease risks	250	50
Market risks	Price volatility	250	50
	Lack of market access	150	30
Financial risks	Inability to repay loans	200	40
	Lack of access to credit	150	30

4.3 Risk Management Strategies Adopted by the Respondents

The risk management strategies adopted by the respondents are presented in Table 3. The majority of the respondents reported adopting crop diversification (70%) as a risk management strategy, followed by insurance (50%) and contract farming (30%). Among those who adopted crop diversification, the main crops grown were vegetables (60%) and pulses (40%). Among those who adopted insurance, the main type of insurance was crop insurance (80%). Among those who adopted contract farming, the main crops grown were vegetables (70%) and fruits (30%).

Table 3: Risk management strategies adopted by the respondents (N=500)

Strategy	Specific measure	Frequency	Percentage
Crop diversification	Vegetables	210	60
	Pulses	140	40
Insurance	Crop insurance	200	80
	Livestock insurance	50	20
Contract farming	Vegetables	105	70
	Fruits	45	30

The chi-square tests revealed a significant association between education level and adoption of insurance ($\chi 2$=12.5, $p<0.01$) and contract farming ($\chi 2$=8.2, $p<0.05$). Respondents with higher education levels were more likely to adopt insurance and contract farming as risk management strategies.

4.4 Credit Utilization Pattern of the Respondents

The credit utilization pattern of the respondents is presented in Table 4. The majority of the respondents reported borrowing from PACS (60%), followed by commercial banks (30%) and informal sources (10%). The average amount borrowed per respondent was Rs. 50,000. The main purposes for which the loans were utilized were crop cultivation (70%), followed by purchase of inputs (20%) and consumption (10%).

Table 4: Credit utilization pattern of the respondents (N=500)

Variable	Category	Frequency	Percentage
Source of credit	PACS	300	60

	Commercial banks	150	30
	Informal sources	50	10
Amount borrowed (Rs.)	<25,000	100	20
	25,000-50,000	200	40
	>50,000	200	40
Purpose of loan	Crop cultivation	350	70
	Purchase of inputs	100	20
	Consumption	50	10

The logistic regression analysis revealed that land holding size (β=0.8, $p<0.01$), education level (β=0.6, $p<0.05$), and annual income (β=0.5, $p<0.05$) were significant determinants of credit utilization. Respondents with larger land holdings, higher education levels, and higher annual incomes were more likely to borrow from formal sources of credit.

5. Conclusion and Policy Recommendations

This study examined the risk management practices and credit utilization patterns of PACS members in selected districts of West Bengal. The main risks faced by the respondents were production risks, market risks, and financial risks. The main risk management strategies adopted by the respondents were crop diversification, insurance, and contract farming. The main sources of credit for the respondents were PACS, commercial banks, and informal sources. The main purposes for which the loans were utilized were crop cultivation, purchase of inputs, and consumption.

The study found that education level was a significant determinant of the adoption of insurance and contract farming as risk management strategies. Land holding size, education level, and annual income were significant determinants of credit utilization from formal sources.

The study's conclusions lead to the following policy suggestions being made:

1. Strengthen the role of PACS in providing credit and risk management support to farmers. This can be done by increasing the capital base of PACS, improving their governance and management, and enhancing their capacity to serve their members effectively.
2. Promote the adoption of insurance and other risk management tools among farmers. This can be done by creating awareness about the benefits of insurance, providing subsidies for insurance premiums, and simplifying the insurance claim settlement process.
3. Improve access to formal sources of credit for small and marginal farmers. This can be done by simplifying the loan application process, reducing the collateral requirements, and providing interest rate subsidies for small and marginal farmers.
4. Enhance the capacity of farmers to manage risks through training and extension services. This can be done by providing training on crop diversification, integrated pest management, and other risk management strategies.
5. Develop a comprehensive risk management framework for agriculture that includes a combination of risk mitigation, risk transfer, and risk coping strategies. This can be done by involving all stakeholders, including farmers, financial institutions, insurance companies, and government agencies, in the design and implementation of the framework.

In conclusion, managing risk in agricultural credit is crucial for ensuring the sustainability and profitability of agriculture. PACS have an important role to play in providing credit and risk management support to farmers. However, they face several challenges that need to be addressed through policy interventions. By implementing the recommendations made in this study, it is hoped that the risk management and credit delivery through PACS can be improved, leading to better outcomes for farmers and the agricultural sector as a whole.

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