

RESEARCH PAPER

Socio-economic Profile and Determinants of Repayment Patterns of Kisan Credit Card Loans: Evidence from West Bengal

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Received: 16-03-2026

Revised: 17-06-2026

Accepted: 23-06-2026

ABSTRACT

India, being an agrarian economy, is highly dependent of the development of the rural and agricultural sector for the overall development of the economy. This makes it the proper credit provision to these sectors the need of the hour. Kisan Credit Card scheme was brought as a need based credit delivery system which was modified many times by the RBO. Some of the major modifications include the addition of SHGs, JLGs, etc under this scheme, allowing credit disbursement to allied fields of agriculture such as dairy farming and so on. This study examines the socio-economic and financial impacts of Self-help Group (SHG) membership among farmers in the Nadia and East Burdwan districts of West Bengal. The socio-economic profile revealed that even though majority farmers were of small and marginal categories, SHG members did fare better than non-members. Repayment patterns and factors affecting were also examined and seen that SHG member farmers were on a better footing with timely repayments. Regression analysis identified SHG membership and total annual income as highly significant factors (at the 1% level) influencing timely repayment, while education and land ownership were significant at the 5% level. These findings highlight the critical role of SHGs in enhancing financial discipline and socio-economic resilience. Policy recommendations include strengthening SHG networks, promoting livestock farming, improving market access, and expanding financial literacy programs, especially for marginal and small farmers. SHGs, through collective farming and sustainable practices, can serve as a transformative force in rural agricultural development.

HIGHLIGHTS

- ① SHG-member farmers demonstrated superior socio-economic outcomes and stronger KCC loan repayment behaviour than non-members.
- ② SHG membership and annual income were highly significant (1%) determinants; education and land ownership significant (5%) influencers of timely repayment.
- ③ Policy recommendations include strengthening SHG networks, promoting livestock farming, improving market access, and expanding financial literacy among marginal farmers.

Keywords: Kisan Credit Card (KCC), Self-help Groups (SHGs), Credit Repayment, Socio-economic Impact, Rural Agricultural Finance

The Indian economy being a developing economy, is still highly dependent on the agricultural sector. This implies that it is more than imperative for proper focus and developmental policies aimed for this sector. On these lines, credit also plays

How to cite this article: Bhattacharya, D. and Kumari, T. (2026). Socio-economic Profile and Determinants of Repayment Patterns of Kisan Credit Card Loans: Evidence from West Bengal. *Econ. Aff.*, 71(02): 243-249.

Source of Support: None; **Conflict of Interest:** None



quite a major role and serves as an important tool for rural development. The establishment of co-operative credit societies in 1904 brought in the era of institutional framework for agricultural credit. The recommendations of the All India Rural Credit Survey Committee laid the groundwork for creating a strong institutional credit system to support agriculture and allied activities. Over time, a wide range of agencies—co-operative banks, Regional Rural Banks (RRBs), commercial banks, non-banking financial institutions, microfinance institutions, and Self-help Groups (SHGs)—have become part of the rural credit delivery structure in India. A central objective of these institutional credit policies has been to reduce farmers' dependence on moneylenders and other informal sources of credit.

The introduction and implementation of the Kisan Credit Card (KCC) policy was supposed to become a cornerstone of agricultural finance in India. The scheme was basically a need-based credit delivery system which was flexible and provided credit to farmers for their short term production needs including input procurement, and other allied agricultural activities. In fact due to its high popularity and better success rate, RBI brings about many modifications in the scheme periodically for making it even more accessible and inclusive. Some of the modifications were incorporating the Personal Accident Insurance Scheme (2001–02) and enabling investment credit (2004), to the inclusion of allied sectors such as animal husbandry and fisheries (2019), and the introduction of the Modified Interest Subvention Scheme (MISS) in 2020. One of the major reforms in the scheme that was brought in 2012 was the expansion of the eligibility criteria from individuals to Self-help Groups (SHGs), Joint Liability Groups (JLGs), tenant farmers, and sharecroppers (RBI, 2020).

However, even with all these efforts, the agricultural sector still faces challenges in accessing institutional finance and credit reached the marginal and small farmers unevenly. Moneylenders continue to play a dominant role, leading to significant struggle to obtain formal credit. Significant variations exist across states in terms of KCC adoption (Kumar *et al.* 2007; 2010). In the eastern states of India, particularly West Bengal, there is significant scope for integrating SHGs with agricultural credit, as agriculture remains a primary source of livelihood.

The region has one of the highest penetrations of microfinance through SHGs, with over 10 lakh SHGs in operation, yet only 19.8% of farm families hold an active KCC (NABARD, 2013). This gap is particularly striking given that the 2012 reform was explicitly intended to route SHG members into KCC access. Combined with high rural population density, small and fragmented landholdings, and reliance on both crop and allied farming activities, West Bengal becomes a particularly relevant setting to examine this gap more closely. This disparity, underscores the importance of examining whether SHG membership can improve farmers' access to KCCs, their effective utilization, and repayment performance. However, little empirical work has examined whether SHG membership actually translates into this improved KCC access, the outcome the 2012 reform anticipated. This study addresses that gap by examining the credit repayment behaviour and SHG participation dynamics of farm households in West Bengal. Specifically, it aims to: (i) characterize the socio-economic profile of SHG-member and non-member farm households in the study area, and (ii) examine patterns of KCC credit repayment and identify the factors that influence repayment performance, with particular attention to the role of SHG membership.

METHODS

The study was conducted in two purposively selected districts in West Bengal, i.e. Nadia and east Burdwan. The districts were selected on the basis that they represent two contrasting yet agriculturally significant profiles within the state. Nadia for its heavy (70%) dependence on agriculture and allied activities, extensive institutional banking presence, and access to an agricultural and veterinary university, and Burdwan for its status as one of the state's largest agricultural districts with a well-developed banking network alongside strong industrial growth. The districts were further divided into 2 villages each. From these 4 villages, using a structured interview schedule 120 farmers were surveyed. 30 farmers each from the 4 different villages were interviewed and divided into 2 categories i.e. one group who were members of SHG and had an active KCC and the other who only had access to KCC. This helped us to find whether being SHG member increased the KCC

use efficiency. Primary data was collected with an emphasis on the socio-economic characteristics, farmers' credit availability, use, and repayment patterns under the KCC scheme.

The social and economic features of the respondents have been analysed using tabular analysis. The factors such as age, social category, educational qualifications, size of the land holdings, main occupation, number of family members, and annual income of the farmers have been analysed using formulae such as averages, frequency, percentage etc. to derive meaningful and rational conclusions. For analysing what factors affect the repayment behaviour of the respondents and by how much, the dummy variable regression model was used. This approach enabled the inclusion of categorical data, specifically SHG membership, by encoding it as a binary variable:

$$Y_i = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \varepsilon$$

Where, X_1 = Age, X_2 = Total Income, X_3 = Land Holding, X_4 = Educational status, X_5 = SHG membership

A Pearson correlation matrix and a heat map were additionally generated to examine the intervariable associations and validate the regression findings statistical significance was assessed at both the 1% and the 5% levels. The heat map representation made it easier to visually flag any variable pairs with unusually high correlation coefficients. Taken together, this correlation analysis complements the regression findings by providing an independent, distribution-free check on the relationships being modelled, lending greater credibility to the conclusions.

RESULTS

Socio-economic comparison between members and non- members of SHG

The comparison between members and non-members of SHG revealed that there were significant differences observed between the two groups which also gave an idea about the driving force behind the farmers' decision-making process. The socio-economic factors under consideration were age, social category, educational status, land holdings, occupation.

Table 1: Age-wise distribution of respondents

Age Group (in years)	Nadia		East Burdwan	
	Members	Non-Members	Members	Non-Members
Young (< 35)	43.33	53.33	36.66	43.33
Middle Aged (36-55)	40.00	33.33	50.00	33.33
Old (> 55)	16.66	13.33	13.33	23.33

* Figures show percentage.

In Nadia district, nearly half of the farmer-respondents were young (48.3%), followed by 36.67% middle-aged and 15% older farmers, while in East Burdwan, the majority were middle-aged (41.67%) with the young (40%) and old (18.33%) groups following closely. Among SHG members in Nadia, younger farmers (43.33%) slightly outnumbered the middle-aged (40%), with only a small proportion in the older category, a pattern also seen among non-members. In East Burdwan, however, half of the SHG members were middle-aged, followed by 36.66% young members, whereas non-members were dominated by younger farmers (43.33%), followed by middle-aged (33.33%) and older (23.33%). Overall, the distribution of members and non-members across age groups was relatively balanced, with younger farmers generally showing greater willingness to adopt new practices and is consistent with the standard explanation for SHG uptake due to their motivation and higher risk-taking ability compared to the older generation. They are more willing to absorb the initial coordination and monitoring demands of group-based lending in exchange for future access to formal credit.

Table 2: Social Category of the Respondents

Category	Nadia		East Burdwan	
	Members	Non-Members	Members	Non-Members
General	60.00	56.66	50.00	46.66
SC	40.00	30.00	33.33	20.00
ST	0.00	3.33	6.66	10.00
OBC	0.00	10.00	10.00	23.33
Total	60		60	

OBC- Other Backward Caste, SC- Scheduled Caste, ST- Scheduled Tribe

* Figures show percentage.

The analysis revealed that in both Nadia and East Burdwan districts, the majority of farmers belong to the general category, followed by 35% SC in Nadia and 26.67% SC in East Burdwan. Among the 60 surveyed farmers, notable is the near-total absence of ST and OBC farmers among Nadia's SHG members despite their presence among non-members which points to unequal awareness or outreach of SHG programs along caste lines in Nadia specifically, rather than a district-wide absence of these groups from agriculture. Whereas in East Burdwan, a few respondents from these groups participated in SHG activities. A similar caste-wise trend was observed among non-members, where the general category dominated, followed by SC, OBC, and ST. This pattern can largely be attributed to the higher concentration of general category farmers in the study area.

Table 3: Educational Qualification of the Respondents

Education Level	Nadia		E. Burdwan	
	Members	Non-Members	Members	Non-Members
Can read and write	16.66	16.66	0.00	20.00
Primary School	23.33	10.00	0.00	23.33
Middle School	26.66	16.66	6.66	33.33
High School	10.00	33.33	46.66	13.33
Higher-Secondary school	6.66	16.66	13.33	10.00
Graduate and above	16.66	6.66	33.33	0.00

* Figures show percentage.

In Nadia district, most farmers (26.67%) had studied up to high school, followed by 23.33% who completed middle school, while 6.67% had no formal education but were literate in their local language. About 10% had completed higher secondary education, and only 7 out of 60 respondents had attained graduation. A similar trend was seen in East Burdwan, where the largest share of farmers were high school graduates, followed by 20% with middle school education. Around 10% were only literate without formal schooling, while 11.67% had cleared higher secondary and 16.67% had completed graduation. When comparing SHG members and non-members, members in both districts generally

displayed a higher educational attainment, with East Burdwan showing that all SHG members had at least middle school education, and a greater proportion of them were graduates compared to non-members. Overall, this reflects a reasonably satisfactory educational status among farmers in both districts. These results suggest that better-educated farmers self-select into SHGs (likely because they can navigate documentation, meetings, and group financial norms more easily).

Table 4: Land Holding Size of the Respondents

Farm Size Category (in acres)	Nadia		E. Burdwan	
	Members	Non-Members	Members	Non-Members
Marginal (< 2.5)	20.00	43.44	26.66	26.66
Small (2.5-5.0)	56.66	53.33	56.66	70.00
Medium (5-10)	23.33	3.33	16.66	3.33
Average Area (acre)	3.62		3.28	

* Figures show percentage.

In Nadia, 31.67% of farmers were marginal, holding less than 2.5 acres with an average of 2.12 acres, while the majority (35%) were small farmers with an average holding of 4.03 acres. Only 8 respondents (13.33%) fell into the medium category with an average of 5.51 acres, and none qualified as large farmers (above 10 acres). A similar pattern was found in East Burdwan, where small farmers dominated with an average holding of 3.59 acres, followed by marginal farmers (26.67%) averaging 1.76 acres. Just 10% of farmers were medium holders, averaging 5.32 acres, and like Nadia, no large farmers were recorded. Notably, SHG members in both districts tended to hold relatively larger (medium-sized) land compared to non-members. In Nadia, most non-members were marginal farmers, whereas among SHG members as well as non-members in both districts, the overall trend was concentrated in marginal and small categories.

It is very clearly observed from the figure below that farmers who were not members of SHGs, are more involved in the crop farming i.e. 67 per cent and 33 per cent were dairy farmers. When this was compared to the members of SHGs, it was seen that there was a bit more people who were more invested in the livestock farming i.e. up to 42 per cent which

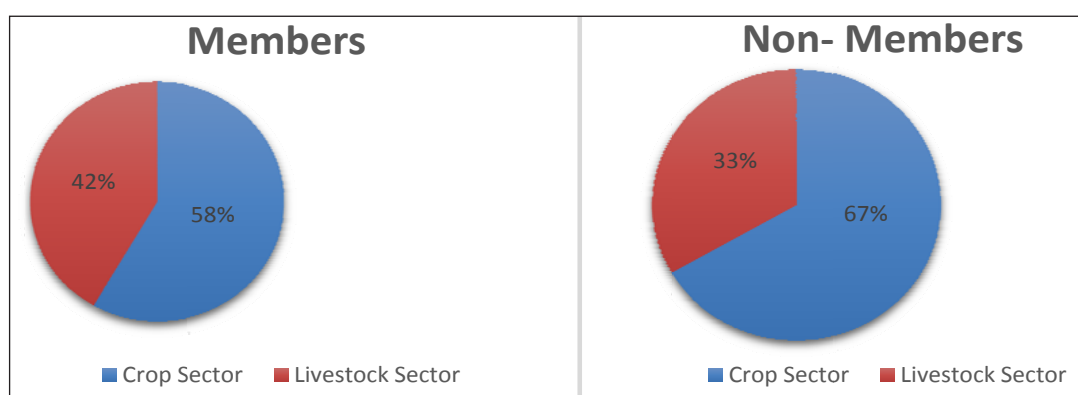


Fig. 1: Percentage of members and non-members in the crop and livestock farming

indicates that SHGs in this sample have had greater success drawing in farmers with diversified income sources. The majority of the SHG members were still involved in crop farming. The major crops grown in the districts included paddy, oil seeds such as sesame, lentils and seasonal vegetables. Among dairy farmers, the type of livestock they reared was cows, buffaloes, goats, etc.

Repayment Behaviour and Factors affecting the Repayment Patterns

The second objective of the study focused on the repayment patterns and factors affecting repayment patterns for the 2 groups of farmers. The repayment pattern provided an understanding of the borrower's financial behaviour, their creditworthiness and the overall sustainability of the lending institute as well as the operation. It was seen from the analysis that majority of the SHG members had a good repayment behaviour, often paying back the loans before due date. On the flip side, the majority of non-members had tried to pay back their loans within the stipulated periods. However, there were a few marginal farmers with land less than 2.5 acres who were late and could not repay in the given time period. This pattern is best interpreted through the joint liability and peer-monitoring mechanisms characteristic of SHG lending as SHG members are collectively accountable for group loan performance, social pressure and mutual monitoring within the group likely compress the distribution of repayment outcomes toward the "early" end, effectively eliminating the late-repayment category that persists among individually-liable non-members. The complete absence of default in both groups is also notable and suggests that, in this sample, informal social sanctions (for non-members, likely

community or moneylender-based) are similarly effective at preventing outright default.

Table 5: Repayment Patterns of Members and Non-Members

Particulars	Members	Non-Members
Early	50	0
On Due Date	10	41
Late	0	19
Could Not Repay	0	0

With the help of dummy regression model, the factors that could influence the repayment behaviour of the farmers were analysed. Using the SPSS software, it was revealed that the income and the being a member of SHG were highly significant at 1% level of significance, and educational status and land holding owned were also significant at 5% level of significance.

Table 6: Factors influencing Repayment Patterns

	Coefficient	Standard Error	t - stat	P -value
Intercept	46.652	3.909	11.934	0.000
Total Income	0.000***	0.000	2.784	0.006
SHG Membership	19.159***	2.202	8.699	0.000
Age	-0.025	0.064	-0.388	0.698
Educational Status	1.128**	0.547	2.060	0.041
Total Land	2.734**	1.164	2.348	0.020

** Significant at 5 % level; *** Significant at 1 % level.

This is the study's central finding, SHG membership does not merely correlate with better repayment, it does so with a magnitude that dwarfs the other significant predictors (income, education, and

land), reinforcing the case that group-based lending mechanisms are doing meaningful work in shaping repayment outcomes. This was also observed from the correlation matrix which served as a validation check on these regression results, the pairwise associations between SHG membership, income, education, and land with the repayment variable were consistent in direction and relative strength with the regression coefficients

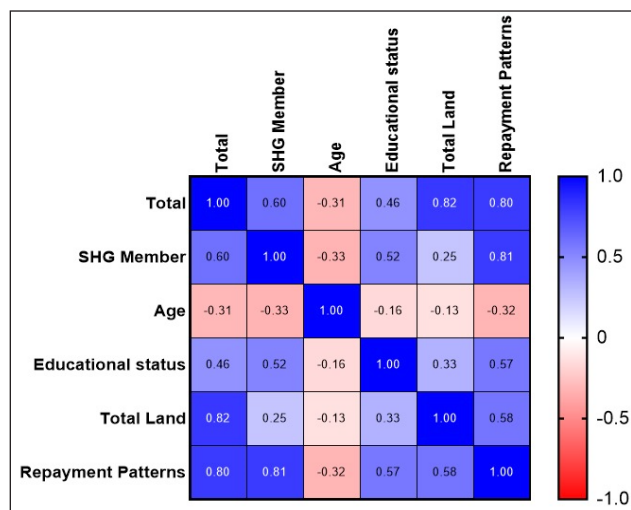


Fig. 2: Correlation heat map among different factors

DISCUSSION

The overwhelming difference in repayment timeliness between SHG members and non-members observed in this study with members clustering entirely in the “early” and “on-time” categories while non-members showed a meaningful late-repayment tail suggests that SHG integration significantly improves credit discipline and financial literacy among farmers, which directly translates into enhanced KCC repayment rates compared to non-member counterparts (Hasan, Bano, & Meena, 2026). The collective liability model inherent in SHGs fosters peer monitoring mechanisms that effectively mitigate moral hazard and ensure timely debt servicing (Das & Patnaik, 2020). Because SHG members are collectively answerable for the group’s loan performance, social pressure operates as an informal enforcement mechanism that compresses the distribution of repayment outcomes toward earlier settlement. The significance of income, education, and landholding as repayment determinants situates this study’s findings within a well-established strand of literature on institutional

credit access and repayment capacity in Indian agriculture; determinants of loan repayment such as age, education, and land size have similarly been shown to shape KCC adoption and credit discipline (Das & Patnaik, 2020), while persistent institutional and structural barriers including limited financial literacy, cumbersome procedures, and restricted outreach continue to constrain the effectiveness of KCC, PM-KISAN, and SHG credit models among marginalized farmers (Murty & Rao, 2024). Policy interventions should therefore prioritize the formal convergence of SHG networks with KCC delivery channels to address these persistent, multidimensional constraints on institutional credit accessibility (Deepika, Reddy, & Thirumal, 2026). The consistency between this study’s correlation heat map and its regression coefficients strengthens confidence that the observed relationships are not artifacts of a single estimation method. This convergence is particularly important given that farm credit and repayment studies more broadly often report only bivariate or descriptive statistics without a validating multivariate check. By contrast, this study’s dual approach descriptive comparison, correlation validation, and dummy regression provides a more defensible basis for attributing repayment outcomes to SHG membership, income, education, and land specifically, while still leaving open, as noted above, the question of causal direction versus selection.

CONCLUSION

This study highlighted the positive impact of Self-Help Group (SHG) membership on the socio-economic and financial outcomes of farmers in Nadia and East Burdwan districts. Across both Nadia and East Burdwan districts, the majority of farmers belonged to the small and marginal categories, with average holdings ranging from 1.76 to 4.03 acres, while only a small proportion were medium farmers, and none held large farms above 10 acres. In Nadia, most non-members were marginal farmers, whereas SHG members generally possessed relatively larger holdings, particularly in the medium category. Overall, both members and non-members predominantly owned marginal and small farms, but SHG members showed a tendency toward comparatively better landholding status. The analysis of repayment patterns revealed that SHG

members largely repaid their loans either before or on the due date, with none facing delays, while among non-members, most repaid on time but a few defaulted and had to repay at a 7% interest rate. Notably, farmers who failed to repay on time were marginal farmers with landholdings below 2.5 acres. Further, factors significantly influencing repayment behaviour included total annual income and SHG membership (both highly significant at the 1% level), along with education and land ownership, which were also statistically significant at the 5% level. These findings underscore the need for policies that promote SHG formation, incentivize livestock farming, enhance market access, and expand financial literacy and training, particularly for marginal and small farmers. Encouraging collective farming and sustainable practices through SHGs can play a pivotal role in improving income stability and credit discipline in rural agricultural communities.

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