

Household Access to Institutional Agricultural Credit: Performance and Key Determinants

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ABSTRACT

The study explores the factors influencing access to institutional agricultural credit and evaluates the performance of credit distribution to agriculture in India. Using household-level data from the All-India Debt and Investment Survey (AIDIS) for 2018-19, the study employs a multinomial probit model to analyze household credit source choices. The results indicate that household characteristics such as age, gender, education level, social group, household size, and agroecological region significantly affect the likelihood of accessing institutional credit. Despite significant policy initiatives by the Government of India to increase the availability of institutional credit - such as the nationalization of banks and the introduction of Kisan Credit Cards (KCCs) - a large proportion of farmers still rely on non-institutional credit sources. The share of institutional credit in total agricultural loans has stagnated at around 67 per cent, leaving a substantial gap filled by high-interest non-institutional lenders. The findings reveal that older, male-headed households with larger landholdings and higher education levels are more likely to access institutional credit. Additionally, regional factors play a crucial role, with households in coastal, irrigated, and rainfed regions having better access to institutional credit than those in arid areas. The study highlights the ongoing need to address the barriers limiting access to institutional credit for marginalized and disadvantaged households

Keywords: Agricultural credit, multinomial probit, determinants

JEL codes : Q10, Q12, Q14, O13

I

INTRODUCTION

Smallholder farms dominate Indian agriculture as 86 per cent of the operational holdings in the country are smaller than 2 hectares, with roughly 47 per cent of the total operating area (GOI, 2020). Since these smallholders have minimal savings, accessing agricultural credit becomes crucial for enhancing productivity (Das et al., 2009). Therefore, enhancing production from agriculture and farm incomes requires timely, sufficient credit at an affordable price (Gulati & Juneja, 2019; Manoharan & Varkey, 2020). Farmers receive loans from various institutional and non-institutional sources for short- and long-term requirements (Gulati & Juneja, 2019).

Institutional credit plays a crucial role in agriculture by influencing outcomes through three main channels: facilitating the purchase of inputs during the cropping season, supporting investments in capital stock, and reducing reliance on informal credit, which often comes with high interest rates (Narayanan, 2016). The government has implemented several policy measures to expand access to institutional credit in the agriculture sector. Key initiatives include the nationalization of major commercial

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banks in 1969 and 1980, the establishment of Regional Rural Banks (RRBs) in 1975, the creation of the National Bank for Agriculture and Rural Development (NABARD) in 1982, the launch of Kisan Credit Cards (KCCs) in 1998-99, the doubling of the Agricultural Credit Plan in 2004, and the introduction of the Agricultural Debt Waiver and Debt Relief Scheme in 2008. These efforts have increased the share of direct agricultural credit (outstanding loans) in agricultural GDP from 10 per cent in FY1971 to 63 per cent in FY2022.

Despite these advancements, non-institutional sources still account for a significant 33 per cent of the total outstanding credit for agricultural households, according to the National Sample Survey Office's (NSSO) All-India Debt and Investment Survey (AIDIS) for 2018-19 (National Statistical Office, 2021). The continued dependence on high-interest non-institutional credit reflects the shortfall in the institutional credit system's ability to fully meet the financial needs of agricultural households, despite various policy measures aimed at improving the situation.

From the demand-side perspective, several socioeconomic factors influence access to institutional credit among rural agricultural households. Studies have identified factors such as age, education, gender, social group, farm size, household size, agroclimatic conditions, and occupation as key determinants of credit source choices for agricultural households (Kumar et al., 2007; Kumar et al., 2010; Aditya et al., 2019).

In light of this, the current study evaluates the performance of institutional credit flow in agriculture and investigates the factors influencing rural households' access to such credit. The analysis is based on nationally representative cross-sectional data from 44,247 rural cultivator households. While previous studies have examined similar issues, this study stands out for its use of large and recent sample data.

The study is structured into five sections. Following the introduction, Section II outlines the data and methodology used in the research. Section III assesses the performance of institutional credit in agriculture. Section IV examines the factors that affect access to institutional agricultural credit, and the final section presents the conclusions of the study.

II

DATA AND METHODOLOGY

Data

The data for this study were collected from various secondary sources. Information on direct agricultural credit at the national level was compiled from the Reserve Bank of India's (RBI) time series publication *Handbook of Statistics on the Indian Economy* and the Ministry of Agriculture and Farmers Welfare's publication *Agriculture Statistics at a Glance (2022)*. Data on agricultural GDP and credit provided by Scheduled Commercial Banks (SCBs) to the agriculture sector at the state level were

sourced from the RBI's *Handbook of Statistics on Indian States*. Household-level data were drawn from the *All-India Debt and Investment Survey (AIDIS)*, conducted in 2019 (77th round) by the National Sample Survey Organisation (NSSO) under the Ministry of Statistics and Programme Implementation (MOSPI), Government of India. This survey covered 69,455 households from 5,940 rural villages and 47,006 households from 3,995 urban blocks (National Statistical Office, 2021). This study specifically focuses on rural cultivator households. For the purpose of this analysis, cultivator households were defined as those operating an area of 0.002 hectares or more of land.

Multinomial Probit Model

In rural areas, cultivators had various sources from which they could take credit. Rural cultivator households were classified into three categories based on the amount of loans taken from different sources. A multinomial probit model was chosen to analyse the factors influencing household credit source choices because the dependent variable had more than two categories, precisely a three-class response. The three categories of the dependent variable were those who did not borrow any amount, those who borrowed from an institutional source, and those who borrowed from a non-institutional source. Several socioeconomic factors affect the cultivator's choice of credit source. The age, gender, and educational attainment of the household's head were considered explanatory variables in the study. In addition to that, the household's social category, size, type, and the agroecological region where it was located were also considered explanatory variables. The classification of the agroecological region was based on Saxena et al. (2001). The general form of the multinomial probit model used in the study was:

$$C_i = \alpha_i Z_i + u_i$$

Here, C_i represents a categorical variable, where 0 indicates no access to credit, 1 indicates access to institutional credit, and 2 indicates access to non-institutional credit. Sets of variables that influence access to credit are denoted as Z_i , and u_i is the error term. In this model, households with no borrowing served as the reference category.

III

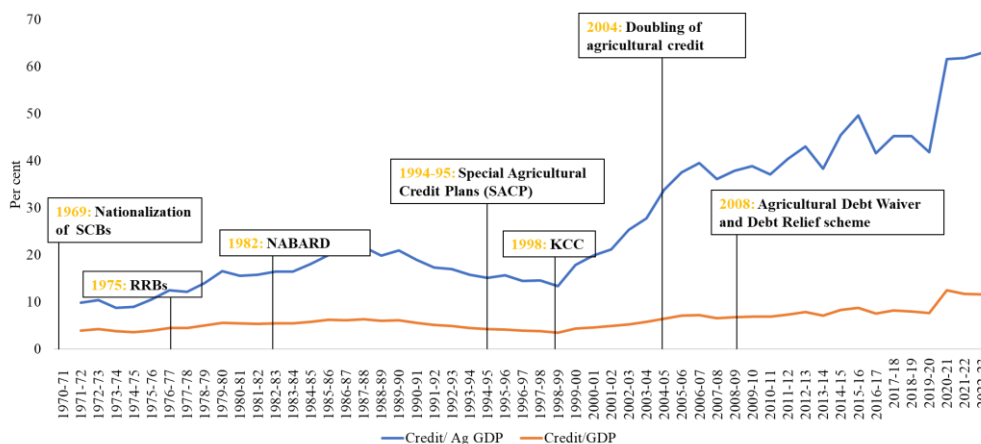
PERFORMANCE OF THE INSTITUTIONAL CREDIT IN AGRICULTURE

Trends in the share of direct agricultural credit relative to agricultural GDP

Figure 1 represents how the share of direct agricultural credit, compared to overall GDP and agricultural GDP (AgGDP), has changed since 1971. Despite a brief decline in the mid-1990s, this share has steadily increased since the 1970s and has since increased once again. Measuring the trend of institutional credit to agriculture by the

proportion of direct credit to AgGDP is more accurate, as the agricultural sector's contribution to total GDP has declined. Therefore, comparing credit availability relative to its contribution share is better.

The share of direct agricultural credit compared to AgGDP has increased significantly over the year. It was just 0.6 per cent in 1950-51 but rose to 9.81 per cent in 1971-72, and continued to rise after that. The share increased by 6.78 and 3.35 per cent in the 1970s and 1980s, respectively, primarily because of the nationalisation of banks and the establishment of RRBs. The following decade saw a negative growth rate of -0.67 per cent. However, the ratio increased substantially with the launch of Kisan Credit Cards (1998). In the 2000s, the ratio grew at an annual rate of 7.73 per cent, but in recent years, in the 2010s, it decelerated to a yearly rate of 1.35 per cent. In 2022-23, the ratio stood at 62.91 per cent, indicating that the credit outstanding is more than half of the agricultural GDP for the year.



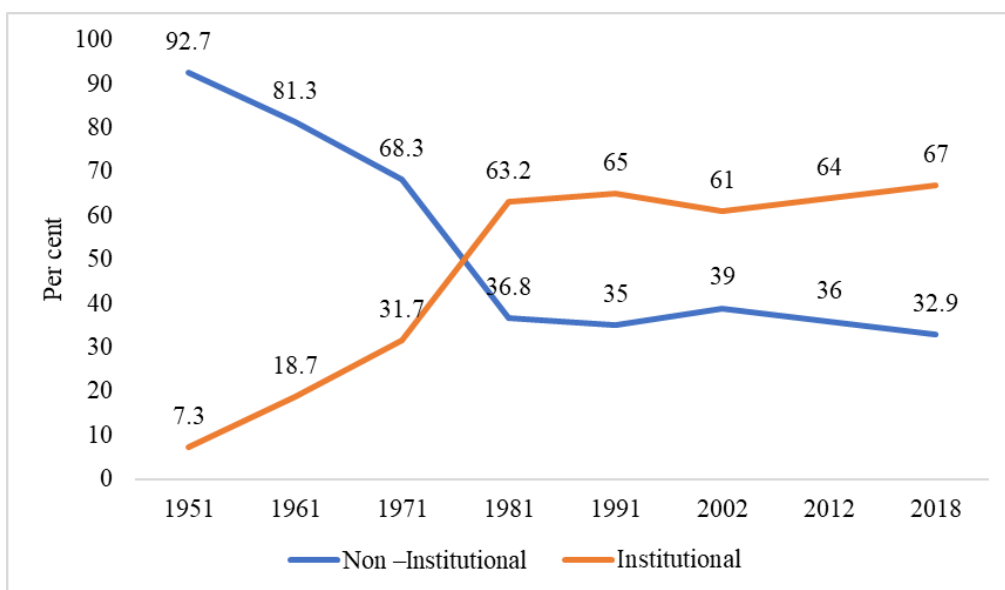
Source: RBI

Figure 1 Outstanding Direct Credit to Agriculture Sector as a Proportion of GDP and Ag-GDP

Relative Share of Borrowing of Households from Institutional and Non-Institutional Sources

Figure 2 illustrates the proportion of household borrowing from institutional and non-institutional sources between 1951 and 2018. According to data from AIDIS, the percentage of farmer households' outstanding debt from institutional sources rose from 7 per cent in 1951 to 32 per cent in 1971. Due mainly to the nationalization of major commercial banks in 1969, the implementation of priority sector lending policies, and the expansion of bank branches in rural areas as mandated by the RBI, this percentage increased rapidly to 63 per cent in 1981 (Gulati & Juneja, 2019). However, farmers' share of institutional credit has remained relatively stagnant since then. By 2018, institutional sources accounted for 67 per cent of the borrowing, while

non-institutional sources comprised 33 per cent. Despite the Government of India's policy measures, a significant portion of agricultural household loans (33 per cent) still come from non-institutional sources.



Source: Mohan (2006) and AIDIS reports 2002,2012,2018

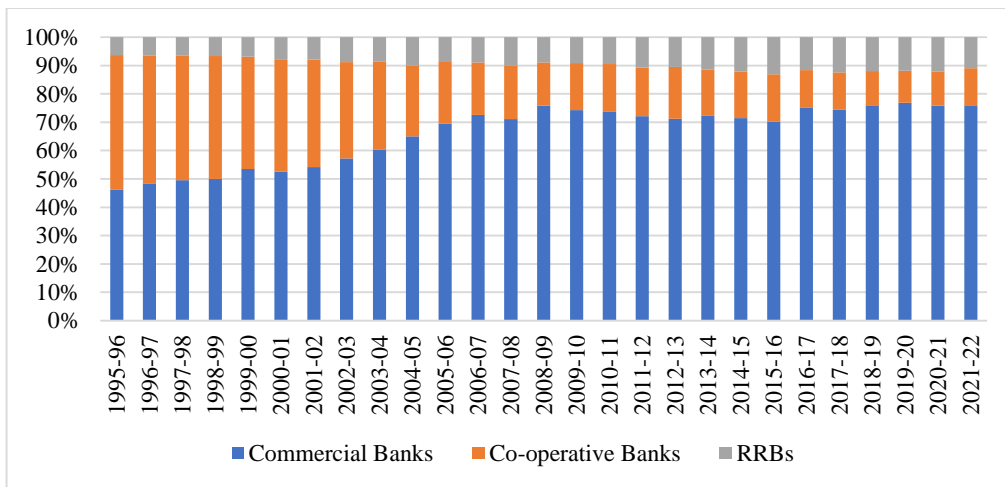
Figure 2 Relative Share of Borrowing of Cultivator Households from Different Sources

Institutional Performance in Providing Direct Agricultural Credit

The changing distribution of formal institutions, including Scheduled Commercial Banks (SCBs), cooperative banks, and Regional Rural Banks (RRBs), in total institutional lending to agriculture is shown in Figure 3. Over time, SCBs have become the leading providers of direct institutional credit to farmers, surpassing cooperative banks. This shift can be attributed to key developments such as the nationalization of commercial banks in 1969, the economic reforms of 1991, the introduction of Kisan Credit Cards (KCC) in 1998, and the doubling of agricultural credit in 2004. These initiatives aimed to improve credit access and strengthen the institutional framework in rural areas (Mohan, 2004).

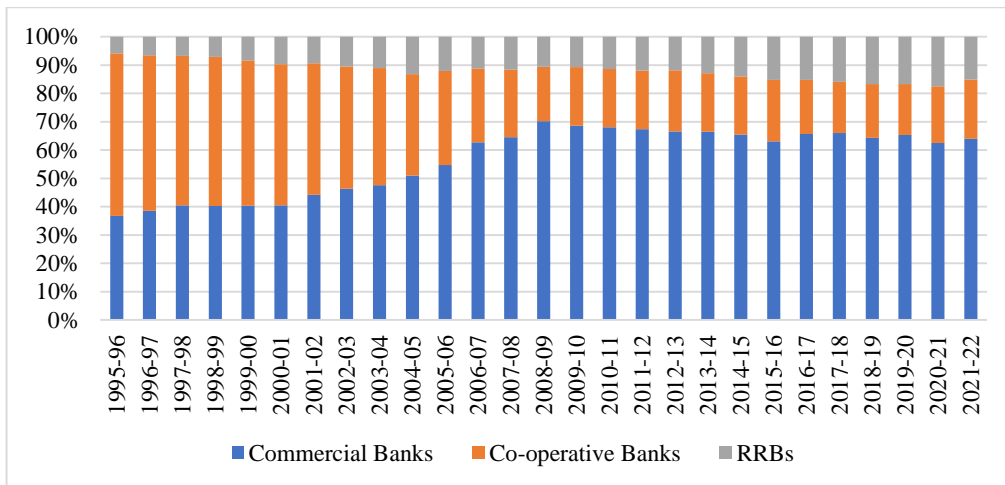
Between 1995–1996 and 2021–2022, the share of cooperative banks in total direct institutional lending to agriculture decreased significantly, from 48 per cent to 13 per cent. In contrast, the share of SCBs increased dramatically during the same period, rising from 46 per cent to 76 per cent. The portion of short-term credit provided by SCBs also grew from 37 per cent in 1995-96 to 64 per cent in 2021-22, while cooperatives' share declined. However, cooperative banks still play an important role, providing 21 per cent of direct institutional credit to farmers. SCBs have taken the lead

in long-term lending, which is critical for agricultural investment and capital formation. Their share in total direct credit increased from 64 per cent in 1995-96 to 93 per cent in 2021-22.



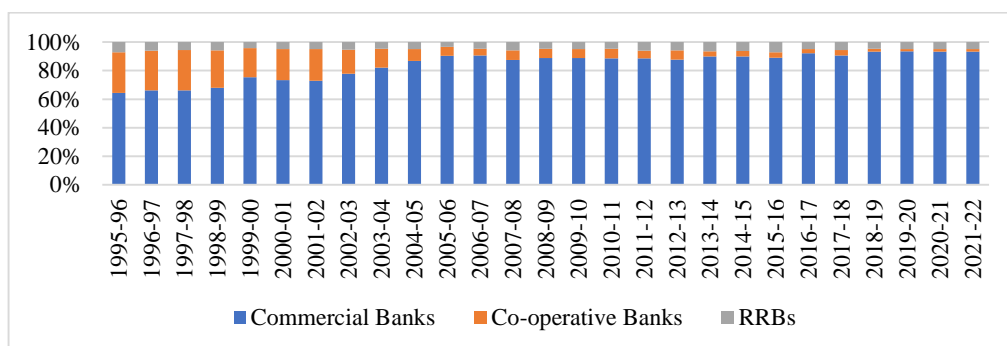
Source: Directorate of Economics & Statistics (2022)

Figure 3.a. Share of various agencies in total direct agricultural credit-Total



Source: Directorate of Economics & Statistics (2022)

Figure 3b. Share of Various Agencies in Total Direct Agricultural Credit-Short Term

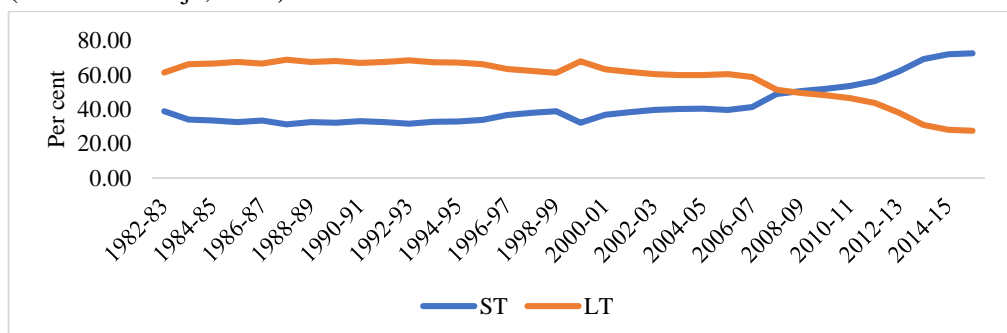


Source: Directorate of Economics & Statistics (2022)

Figure 3c. Share of various agencies in total direct agricultural credit-Long-term

The Proportion of Short-Term And Long-Term Credit Relative To Total Direct Agricultural Credit

The percentage of short-term and long-term credit in total direct agricultural credit outstanding is illustrated in Figure 4. This distribution has undergone significant changes over time. From 1982-83 to 2015-16, the proportion of short-term credit increased substantially, rising from 39 per cent to 72.5 per cent. Conversely, the share of long-term credit declined from 61.25 per cent in 1982-83 to 27.50 per cent in 2015-16. This reduction in long-term credit is concerning, as such credit is vital for investments and capital formation in agriculture. Without adequate long-term credit, the potential for sustained growth in the agricultural sector and improvements in farm productivity may be negatively affected. Several reasons have been suggested for this trend, including increasing land fragmentation, decreasing average farm sizes, and government policies that prioritize short-term credit by offering interest subsidies (Gulati & Juneja, 2019).



Source: Handbook of Statistics on Indian Economy, RBI

Figure 4. Proportion of Short-Term and Long-Term Credit Relative to Total Direct Agricultural Credit

State-wise Share of Direct Agricultural Credit to State Agricultural GVA

The percentage of direct agricultural credit (from Scheduled Commercial Banks) to the state's agricultural Gross Value Added (GVA) is presented in Figure 5. This proportion is computed by averaging the shares over three years, from 2018-19 to 2020-21. Additionally, the growth in this ratio is assessed over a broader period spanning ten years, from 2011-12 to 2020-21. The findings reveal that several states receive more credit than their GDP from agriculture, which may indicate that credit is being diverted for non-agricultural uses. On the other hand, states in the country's eastern, north-eastern, and central regions have especially low credit-to-GDP ratios. In states such as Kerala and Tamil Nadu, located in the southern region, the proportion of credit allocated to the agricultural Gross Value Added (GVA) exceeds 200 per cent. At the same time, in Andhra Pradesh, it surpasses 100 per cent. The states were classified based on the value of the ratio and presented in the appendix (Table A1). Regarding changes in this ratio over time, Jammu and Kashmir (J&K) experienced the highest growth rate between 2011-12 and 2020-21, with Kerala following behind.

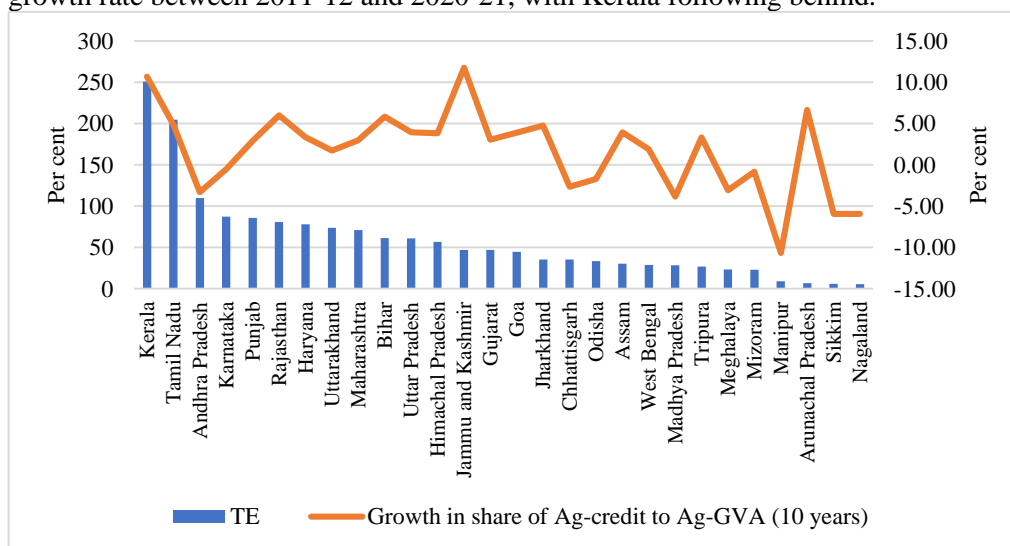


Figure 5 Share of Agri-credit to state Agri-GVA (TE average between 2018-19 to 2020-21 and growth between 2011-12 and 2020-21)

IV

DETERMINANTS OF INSTITUTIONAL AGRICULTURAL CREDIT ACCESS

Results of Multinomial Probit Model

The factors influencing access to institutional and non-institutional credit sources were analyzed using a multinomial probit regression model. Households that did not borrow from sources were used as the base category, and the results for the

other two categories were compared against this base. Table 1 presents the descriptive statistics of the variables used in the analysis, while estimates from the multinomial probit regression can be found in Table 2.

TABLE 1. DESCRIPTIVE STATISTICS OF THE VARIABLES USED IN THE STUDY

Variables	Mean	Standard deviation
(1)	(2)	(3)
Access to credit		
No access to credit	0.355	0.479
Access to non-institutional credit	0.253	0.435
Access to institutional credit	0.392	0.488
Household size	4.659	2.26
Household head's age (years)	49.953	13.259
Gender of the household head		
Female	0.096	0.295
Male	0.904	0.295
Area operated by households (acres)	2.352	3.66
Social group		
Scheduled Tribe (ST)	0.222	0.416
Scheduled Caste (SC)	0.134	0.34
Other Backward Class (OBC)	0.394	0.489
Others	0.251	0.433
Household head's education level		
Illiterate	0.329	0.47
Primary	0.243	0.429
Secondary	0.295	0.456
Higher Secondary	0.072	0.259
Graduation and above	0.061	0.239
Type of household		
Self-employed (agriculture)	0.693	0.461
Self-employed (non-agriculture)	0.064	0.245
Regular wage/salary earning	0.073	0.261
Casual labour (agriculture)	0.061	0.24
Casual labour (non-agriculture)	0.079	0.269
Others	0.029	0.168
Agro-ecological regions		
Arid region	0.028	0.164
Coastal region	0.084	0.278
Hill and mountain	0.139	0.346
Irrigated	0.26	0.439
Rainfed	0.488	0.5
Number of observations	44247	

The likelihood of obtaining credit was positively and significantly impacted by household size, suggesting that larger households were more likely to borrow money from institutional and non-institutional sources. The age of the household head showed a positive correlation with institutional credit sources and a negative correlation with non-institutional sources, suggesting that older individuals tend to avoid non-institutional credit (Kumar et al., 2007). Male-headed households had greater access to credit than female-headed ones, with a stronger coefficient for institutional credit, indicating a higher likelihood of obtaining institutional credit.

TABLE 2. MULTINOMIAL PROBIT REGRESSION RESULT

Variables (1)	Access to non-institutional credit		Access to institutional credit	
	Coefficients (2)	Standard Error (3)	Coefficients (4)	Standard Error (5)
Household size	0.049***	0.005	0.063***	0.004
Household head's age (years)	-0.007***	0.001	0.006***	0.001
Household head's gender (female=0, male=1)	0.202***	0.034	0.212***	0.032
Area operated by households (acres)	0.013***	0.003	0.057***	0.003
Social group (base- Scheduled Tribe)				
Scheduled Caste (SC) (1/0)	0.436***	0.035	0.381***	0.033
Other Backward Class (OBC) (1/0)	0.418***	0.028	0.36***	0.026
Others (1/0)	0.246***	0.031	0.433***	0.028
Household head's education level (base- illiterate)				
Primary (1/0)	-0.108***	0.026	0.195***	0.025
Secondary (1/0)	-0.102***	0.026	0.278***	0.025
Higher Secondary (1/0)	-0.16***	0.042	0.357***	0.039
Graduation and above (1/0)	-0.336***	0.047	0.262***	0.042
Type of household [base- Self-employed (agriculture)]				
Self-employed (non- agriculture) (1/0)	0.054	0.04	0.087**	0.038
Regular wage/salary earning (1/0)	-0.193***	0.04	-0.035	0.036
Casual labour (agriculture) (1/0)	0.08**	0.04	-0.105***	0.039
Casual labour (non- agriculture) (1/0)	0.023	0.036	-0.127***	0.035
Others (1/0)	-0.349***	0.059	-0.431***	0.056
Agro-ecological regions (base-Arid region)				
Coastal region (1/0)	0.256***	0.067	0.956***	0.068
Hill and mountain (1/0)	-0.256***	0.064	0.26***	0.066
Irrigated (1/0)	-0.083	0.06	0.53***	0.063
Rainfed (1/0)	-0.064	0.058	0.762***	0.061
Constant	-0.491***	0.08	-1.903***	0.081
Chi-square		3183.020		
Number of observations		44247		

*** $p < .01$, ** $p < .05$, * $p < .1$

Additionally, the size of the operated farm was positively and significantly correlated with access to institutional credit, highlighting that larger landholding increased the probability of obtaining such credit. Regarding loan availability, social categories also differed; households belonging to Scheduled Castes, Other Backward Classes, and other castes had more access to institutional credit than households belonging to disadvantaged Scheduled Tribes. The possibility of getting credit from institutional sources was positively influenced by education level, with greater education levels being associated with a higher likelihood.

The impact of household type on institutional credit availability varies. While casual labourers in the agricultural and non-agricultural sectors were more likely to borrow from non-institutional sources than self-employed in agriculture, self-employed households in non-agricultural sectors were more likely to borrow from

institutional sources. Agroecological regions also had significant implications for borrowing from institutional sources, with households in coastal, hill and mountain, irrigated, and rainfed regions having a higher probability of borrowing from institutional sources than those in arid regions.

V

CONCLUSIONS

The study concludes that various factors, including household demographics and regional characteristics, affect access to institutional agricultural credit in India. Despite several policy initiatives by the Government of India, such as the nationalization of banks and the introduction of the Kisan Credit Card (KCC), a substantial number of farmers continue to depend on non-institutional credit sources. As of 2018-19, 33 per cent of loans to agricultural households came from non-institutional lenders, who often charge higher interest rates. The likelihood of accessing institutional credit is found to be higher for households with older male heads, larger landholdings, and higher levels of education. Social group distinctions also play a role, with Scheduled Castes and Other Backward Class households enjoying better access to institutional credit compared to Scheduled Tribe households. Additionally, regional factors are significant, with households in coastal, irrigated, and rainfed regions being more likely to secure institutional credit than those in arid areas. The study emphasizes the importance of continued efforts to eliminate barriers that marginalized and disadvantaged groups face in accessing institutional credit. It calls for policy interventions tailored to the specific needs of different regions and demographic groups to ensure fair access to agricultural credit across the country.

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