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## A study on farmer behaviour influencers of agricultural credit and savings in Raipur district Chhattisgarh

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### Abstract

Agriculture credit is one of the requirements for farmers to improve agricultural output as a country's agricultural development progresses. The Indian rural credit system has dual investment features, with both official (institutional) and informal (non-institutional) sectors coexisting (Umesh, 2000). The district of Raipur in the Chhattisgarh was chosen for the study. Arang and Abhanpur block were selected purposively based on major Agri loan borrowers from the blocks, and two villages were selected purposively from each block, thus a total of 4 villages were selected for the present study. 50 farmers are will be selected randomly to comprise the sample of 200 for study. A multi-stage random sampling procedure was followed for selecting the sample of borrower farmers.

**Keywords:** Agricultural credit, borrowing behavior, savings

### Introduction

Agriculture's progress is dependent on the acceptance of new technologies, and new technology necessitates the use of agricultural credit (Aroutselvam and Zeaudeen, 2000) [3], which is the primary input in agriculture. Credit plays a key role in assisting the impoverished to escape poverty. Access to credit was positively connected with a decrease in rural poverty and a rise in secondary and tertiary outputs, according to evidence (Burgess and Pande, 2003) [12]. Agriculture credit is one of the requirements for farmers to increase agricultural output as part of a country's agricultural growth (Gandhimathi 2011) [6]. Agriculture credit is a critical component of the sector's expansion. Agricultural policies have been evaluated on a regular basis to ensure that appropriate and timely financing is available.

Agricultural credit is a significant part of the rural sector, accounting for over 85% of total rural credit requirements. During the 1990s, the growth of institutional lending for the agricultural sector slowed as well. Agricultural credit as a percentage of agricultural GDP has risen steadily over the years, from 5.4 percent in the 1970s, to 8.3 percent in the 1980s, 7.4 percent in the 1990s, and 6.7 percent in 2008-09, and it is now on the fall (Feder 2006) [5].

Savings are a vital aspect of any country's economy. Money functions as a driver for the country's progress since people save in many ways available to them. Saving is a crucial activity for anybody since it protects the future from unforeseen events. As a result, saving necessitates meeting financial obligations. Saving refers to a portion of income that is not immediately used but is saved for future investment, consumption, or unforeseeable events

Savings created by the household sector are a significant contributor in any economy's growth. They are the primary source of capital accumulation, determining a country's investment potential. Increased savings offer circumstances for increased future expenditure from the perspective of a household, (Aniola and Golas, 2013) [2], showing their financial standing (Bywalec, 2009) [4] and the standard of life of a certain family.

### Materials and Methods

Any scientific analysis of an issue necessitates the use of appropriate methods and procedures in order to reach a successful conclusion. This chapter attempts to describe and clarify the study's location, as well as the procedure used to choose respondents and create an interview schedule. The research method that was used is described under the following heads.

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**Sampling methodology**

The data for the study were collected from primary sources. A multi-stage random sampling procedure was followed for selecting the sample of borrower farmers. It includes the following aspects,

**Selection of district**

The study was conducted in Chhattisgarh state. From this state, Raipur district was purposively selected based on a great borrowing percentage of Agri loans.

**Selection of block**

There were 3 blocks in Raipur district viz., Arang, Abhanpur, and Dharsiwa Out of which Arang and Abhanpur block were selected purposively based on major Agri loan borrowers from the blocks.

**Selection of villages**

Two villages were selected purposively from each block, thus a total of 4 villages were selected for the present study.

**Table 1:** List of selected blocks and villages from Raipur district

District	Block	Villages	Farmers
Raipur	Arang	Farfoud	50
		Chhatouna	50
	Abhanpur	Dhusera	50
		Patewa	50
Total	2	4	200

**Selection of farmers**

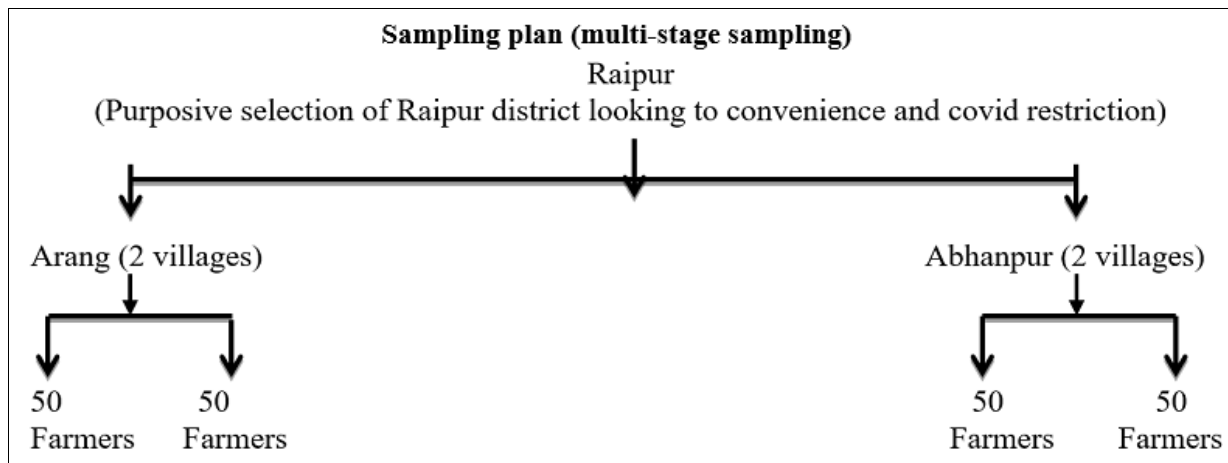
50 farmers are will be selected randomly to comprise the sample of 200 for study. The entire number of borrowers was divided into four groups based on the magnitude of their holdings, as shown below.

Less than 1 ha (Marginal farmer-4)

1 to 2 ha (Small farmer-60)

2 to 4 ha (Medium farmer-59)

Above 4 ha (Large farmer-77).



Proportionate representation of marginal, small, medium, and large farmers is to size.

**1. Method of data collection**

The data was obtained utilizing the personal interview approach after the research design and interview schedule were finalized. The field survey approach was used to attain the given goals. For data collection, the investigator personally contacted all of the respondents. The investigator introduced himself to the respondents and explained the aim of the visit, the study's objectives, and its significance, as well as asking for their involvement in the study. After establishing a rapport with them, point-by-point information was requested of them according to the set schedule, and their responses were recorded. Those respondents who were absent at the time of the interview were also approached a second time. The real data collection effort took place the 15 March to 15 April, 2022. However, all responders had given excellent responses and were therefore considered participants in the study.

**Data Sources:** Both primary and secondary data were collected for the study.

**Primary Data:** The investigation requires both primary and secondary data. On the basis of the data requirements of the respondents for different objectives in the study region,

primary data from farmers was obtained by personal interview and questionnaire.

**Secondary Data:** Secondary data were collected from the banks, the internet, journals.

**2. Statistical tool or framework**

For analysis and inference development, the following statistic parameters were used. The parameters used are defined as under.

**a. The data so collected is analyzed using the Percentage Method**

The percentage method refers to a certain type of ratio that is used to compare two or more sets of data. The percentage method's formula is:

$$P = \frac{X}{Y} * 100$$

Where

X = Number of respondents falling in a specific category to be measured.

Y = Total number of respondents.

**b. Discriminant Analysis to Identify Borrowing Behavior**

The discriminant analysis was carried out by taking into account eight socio-economic characteristics: age, gender,

education, occupation, annual income, landholding size, family size, Agri loan amount, using a linear multiple discriminant function of the form to identify the socio-economic factors that influenced borrowings from farmers.

$$Z = L_1X_1 + L_2X_2 + L_3X_3 + L_4X_4 + L_5X_5 + L_6X_6 + L_7X_7 + L_8X_8$$

Where,

Z = Total discriminant score for farmers

X<sub>1</sub> = Age

X<sub>2</sub> = Gender

X<sub>3</sub> = Educational level

(1-illiterate, 2-primary, 3-Middle, 4-high school, 5-higher secondary, 6-collegiate)

X<sub>4</sub> = Occupation

X<sub>5</sub> = Annual income

X<sub>6</sub> = Landholding size (ha)

X<sub>7</sub> = Family size (No.)

X<sub>8</sub> = Agri loan amount

## Results and Discussion

### Demographic / economic profile of respondents

Table 1 shows the demographic and economic profile of the farmers who responded. The following data is presented: age, gender, education level, size of land holding, occupation, types of family, family size, annual income, regularly repay loan and source of agricultural loan. Out of 200 farmers more than half of the respondents (59%) were in the above 45 years age group, followed by 28 percent in the above 36-45 years age group, and 13 percent in the up to 35 years age group. Table 1 also state that the maximum number of Agri. loan borrowing farmers were from above 45 years age group which are considered as actively taking

credit. The majority of the respondents were in the male (83.5%), followed by the female (16.5%).

The majority of the respondents (21 percent) had finished high school education," followed by 18 percent in the category of "higher secondary," followed by 16.5 percent in the category of "primary." Followed by 15.5 percent in the category of "middle" Only 27 responders (13.5) fell into the group of "collegiate." There were 15.5 percent of responders in the category "illiterate." 38.5 percent of the Agri loan borrowing farmers had large (4 to 10 ha) size of land holding, 30 percent of them had small (1 to 2 ha) size of land holding, 29.5 percent of them had medium (2 to 4 ha) size of land holding, only 2 percent of them had marginal (up to 1 ha) size of land holdings. More than half of Agri loan borrowing farmers (80%) have only farming as their main occupation, whereas had farming + business 14.5 percent and 5.5 percent of respondents had farming + government service as their occupation.

Majority of the respondent's 65 percent were "nuclear family" and 35 percent were "joint family" respectively. 59% of respondents have a large family, while only 41% have a small family. Maximum number (37.5 percent) of the respondents had a medium annual income, i.e., between Rs. 50,001 to 100,000. The high annual income respondent's (above Rs. 100,000) were 36.5% whereas, 26 percent of them had low annual income (up to Rs. 50,000). 68% respondents said they pay regular loans and 32% of respondents said they do not repay regular loans. 78.5 percent respondents have borrowed the Agri loan from cooperative societies, besides the other formal source used by the farmers were commercial banks (21.5 percent).

Joshi S.K. and Choudhary V.K. (2018)<sup>[10]</sup> revealed the same results in his study.

**Table 1:** Demographic / economic profile of respondents

Socio economic category	Type	Number of respondents	Percentage
Age (Years)	Up to 35 years	26	13
	Above 36-45 years	56	28
	Above 45 years	118	59
	Total	200	100
Gender	Male	167	83.5
	Female	33	16.5
	Total	200	100
Education level	Illiterate	31	15.5
	Primary	33	16.5
	Middle	31	15.5
	High school	42	21
	Higher secondary	36	18
	Collegiate	27	13.5
	Total	200	100
Size of land holding (ha.)	Marginal (up to 1ha)	4	2
	Small (1 to 2 ha)	60	30
	Medium (2 to 4 ha)	59	29.5
	Large (4 to 10 ha)	77	38.5
	Total	200	100
Occupation	Farming alone	160	80
	Farming + Business	29	14.5
	Farming+ Government service	11	5.5
	Total	200	100
Types of family	Nuclear family	130	65
	Joint family	70	35

	Total	200	100
Family size	Small (less than 5)	82	41
	Large (more than 5)	118	59
	Total	200	100
Annual income (Rs.)	Low up to 50,000	52	26
	Medium 50,001 to 100,000	75	37.5
	High Above 100,000	73	36.5
	Total	200	100
Regularly repay loan	Yes	136	68
	No	64	32
	Total	200	100
Sources of Agricultural loan	Cooperative society	157	78.5
	Commercial bank	43	21.5
	Total	200	100

**Borrowing Behavior - Discriminant Analysis**

To identify the socio-economic factors which led to discrimination between commercial bank and co-operative society for borrowing, discriminant analysis was carried out. The mean and standard deviations of the included variables were estimated as the first step in this study, as shown in

Table 2.

Table 2 showed that borrowers from commercial banks had higher education, occupation, and had higher annual income, bigger size of landholding, large family size and higher Agri loan amount, whereas borrowers from co-operative society had taken out higher age, and gender.

**Table 2:** Mean and standard deviations of selected variables

S. N.	Factors	Commercial banks		Cooperative society	
		Mean	SD	Mean	SD
1.	Age (X <sub>1</sub> )	2.40	.760	2.50	.676
2.	Gender (X <sub>2</sub> )	1.14	.351	1.17	.379
3.	Education (X <sub>3</sub> )	4.51	1.53	3.30	1.58
4.	Occupation (X <sub>4</sub> )	1.53	.702	1.18	.474
5.	Annual income (X <sub>5</sub> )	197906.98	93695.508	111369.43	71123.339
6.	Landholding (X <sub>6</sub> )	5.97	1.478	3.12	1.92
8.	Family size (X <sub>7</sub> )	1.70	.465	1.50	.502
9.	Agri loan amount (X <sub>8</sub> )	505104.65	452504.769	139146.50	94083.931

**Table 3:** Wilk's lambda (U-statistics) of selected variables

S. N.	Factors	Wilk's lambda	F-ratio
1.	Age (X <sub>1</sub> )	.996	.720
2.	Gender (X <sub>2</sub> )	.999	.256
3.	Education (X <sub>3</sub> )	.908	20.05
4.	Occupation (X <sub>4</sub> )	.928	15.25
5.	Annual income (X <sub>5</sub> )	.821	43.228
6.	Landholding (X <sub>6</sub> )	.709	81.08
7.	Family size (X <sub>7</sub> )	.974	5.23
8.	Agri loan amount (X <sub>8</sub> )	.688	89.681

Wilk's lambda (U-statistics) and its corresponding univariate F-test (one-way analysis variance) were used to evaluate the mean differences between the selected groups, and the results are reported in Table 3 for the selected variables. When the value of Wilk's lambda approaches one, there is no significant difference between the means of two groups and vice versa. The estimated value of Wilk's lambda approached one for all the factors, except education, occupation, annual income, landholding. It showed that the borrowers of Commercial banks and Cooperative society differed widely in relation to education, occupation, annual income, and landholding. The other tests used in the process of discriminant analysis were Correlation between discriminating variables and canonical discriminant function. Table 4 shows the pooled within-group correlation between the discriminating variables and the canonical discriminant function. The correlation co-efficient were ranked according to their contribution in the discriminating function. Table 4 shows that the Agri loan amount had the biggest contribution to the function (.835). Gender, on the other hand, had the smallest influence (-.045). It revealed

that the gender did not contribute to the variation in borrowing behaviour from commercial bank and co-operative society.

**Table 4:** Correlation between discriminating variables and canonical discriminant function

S.N.	Factors	Function 1
1.	Agri loan amount (X <sub>8</sub> )	.835
2.	Landholding (X <sub>6</sub> )	.794
3.	Annual income (X <sub>5</sub> )	.579
4.	Education (X <sub>3</sub> )	.395
5.	Occupation (X <sub>4</sub> )	.344
6.	Family size (X <sub>7</sub> )	.202
7.	Age (X <sub>1</sub> )	-.075
8.	Gender (X <sub>2</sub> )	-.045

**Table 5:** Canonical Discriminant Function Coefficients

S. N.	Factors	Function 1
1.	Age (X <sub>1</sub> )	.345
2.	Gender (X <sub>2</sub> )	.334
3.	Education (X <sub>3</sub> )	.091
4.	Occupation (X <sub>4</sub> )	-.012
5.	Annual income (X <sub>5</sub> )	.000
6.	Landholding (X <sub>6</sub> )	.208
7.	Family size (X <sub>7</sub> )	.103
8.	Agri loan amount (X <sub>8</sub> )	.000
	Constant	-3.463

Unstandardized Coefficients, Now Discriminant Function is  $Z = -3.463 + .345 + .334 + .091 - .012 + .000 + .208 + .103 + .000$

Age, gender, education, annual income, Landholding, family size, and Agri loan amount all showed a positive sign in the equation. It was discovered that Co-operative society borrowers had larger Age, gender, education, annual income, Landholding, family size, and Agri loan amount than Commercial bank borrowers.

### Conclusion

The Agri loan amount and the size of the landholding have been recognized as the most important criteria in determining whether a borrower should go to a commercial or cooperative society. It demonstrates that farmers with larger landholdings and higher Agri loan amount borrow from commercial banks. The discriminant functional analysis between commercial bank borrowers and cooperative society borrowers revealed that the Agri loan amount was the major discriminator followed by gender. For commercial bank borrowers, the size of the landholding has been shown to affect the per hectare crop loan. Per acre investment loans have decreased in both commercial and cooperative societies, as well as among farmers. As a result, per hectare investment loans that are not related to the size of the landholding are sanctioned by both commercial and cooperative societies. It was deduced that the sample farmers' borrowing behavior was impacted solely by their economic features, rather than their social characteristics.

### Suggestions

1. Farmers that have borrowed from commercial banks are large farmers; but, due to the lengthy process, marginal and small farmers are unable to borrow from these institutions. To shorten the operation, proper precautions should be adopted.
2. Marginal and small farmers have taken out a disproportionately small amount of investment loans. Because they are afraid of being repaid, banking institutions have ignored them. As a result, regardless of the amount of the landholding, the farmers' repayment capacity should be adequately appraised. A sufficient quantity of investment credit should be made available to marginal farmers.
3. The loan process is quite cumbersome, and a typical borrower encountered numerous challenges. It is proposed that the difficult process of acquiring a loan be simplified. Collecting various documents from various agencies is a complex task, thus some arrangement may be made to obtain all of the essential documents at one time and in one location.

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