



An Economic Analysis of Farmers' Agricultural Credit Loans in Dindigul District

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Abstract – The focus of this paper is economic analysis of farmers' agriculture credit loans in Dindigul district. The borrowers for both willful and non-willful defaulters in agricultural credit loans have been the issue of the present study. Based on the amount of land under cultivation, 240 sample beneficiaries such as marginal farmers, small farmers, and large farmers were chosen for this study using data from simple random sampling. The percentage method and discriminate linear analysis were the statistical techniques employed in the analysis. Based on the socio-economic characteristics of the borrowers, the borrowers were first classified as non-defaulters and then as defaulters, and finally, the defaulters were further classified as willful defaulters and non-willful defaulters. The study revealed that formal credit for agriculture increased rapidly and was unable to meet the needs of farmers in Dindigul district. The discriminate function analysis used here was to classify farmer borrowers based on a set of independent variables into defaulters and non-defaulters, and then to classify defaulters as willful or non-willful. It concludes that the loans provided by lending agencies resulted in more jobs. Crediting real or actual cultivators with farming as a vocation has a favorable influence or impact on employment creation. At the same time, farmers confront a variety of challenges when seeking agricultural credit from banking institutions.

Keywords: Agriculture credit loans, farmers, borrowers, defaulters.

1. INTRODUCTION

India's economy is based mostly on agriculture, which contributes to 17.40 per cent of GDP, a percentage far greater than the global average of 6.10 per cent. The majority of people who live in rural areas rely on agriculture for their livelihood, either directly or indirectly. The green revolution, which brought about the latest technological advancements in the agriculture sector, has altered the structure and scope of the production process rather than raising productivity and output. However, small and marginal farmers cannot afford the new technology because it is capital demanding. To pay for farming expenses, the farmers are forced to rely on loans. As a result, agriculture financing is crucial for raising productivity and eliminating inequality (Alauddin Biswas, 2014). Agriculture's share of the GDP in 2018–19 was 15.96 per cent. The GDP of agriculture is around INR 32 trillion, or 32 lakh crores, given the country's approximate GDP of INR 200 trillion (RBI Report of Agriculture Internal Group Sept 2019). According to RBI guidelines, all scheduled commercial banks must lend 18.00 per cent of their total lending ANBC to direct agricultural activities and 40.00 per cent of their total outstanding loans to the priority sector (RBI PSL Circular, latest July 2021). Agricultural finance is concerned with the acquisition and use of capital in agriculture. Agricultural credit refers to the amount borrowed for agricultural operations during the year.



2. REVIEW OF LITERATURE

Gandhimathi and Vanitha (2010) in their study “Determinants of Borrowing Behaviour of Farmers - A Comparative Study of Commercial and Cooperative Banks” analyzed that the preference of farmers between commercial and cooperative banks for borrowing has been studied with the objectives of finding the distribution of institutional credit across various categories of farmers and to assess the coverage and quantum of credit and socio-economic factors which tell on the borrowing. The discriminant factor analysis was conducted in the study, which included 100 farmer borrowers. The study also suggested ways to improve farmers’ access to institutional loans.

Sharmishta Matkar and Anil Keshav Jadhao (2015), in their study on “Agricultural Credit in India: Status and Problems” identified that credit is an important input for agricultural development because it facilitates farmers to invest in new technologies, create, and market their goods. It shows that farmers can get short-term credit to finance crop production as well as medium and long-term credit for financing capital investment in agriculture. As a result of the intermittent failure of the monsoon and the usual vicissitudes of farming, rural indebtedness has been an essential and consistent feature of Indian agriculture. The study indicated that a larger proportion of the population belongs to the lower strata, which own the majority of the lands yet receive far less credit than is required.

Kirti Ranjan Swain and Niranjana Nayak (2016), in their paper “Agricultural Financing: A Challenge for the Banking Sector in India”, highlighted the difficulties farmers experience in getting agricultural financing. According to the study, policymakers could simplify the agricultural loan method, lower borrowing rates for marginal and small farmers, and tackle the problem of bank-employee cooperation. It suggested that the fear about the bank’s recovery process among rural farmers be addressed by educational awareness. The study suggested that farmers have insufficient knowledge about agricultural financing.

3. OBJECTIVES OF THE STUDY

1. To analyze the socio-economic characteristics of the sample farmers in Dindigul district
2. To identify the effects of agricultural credit loans on borrowers and non-borrowers.
3. To discuss the borrowers for both wilful and non-wilful defaulters in agricultural credit loans.

4. DATA SOURCE AND METHODOLOGY

This paper attempts to describe the technique, including its reasons for selecting the study area. Data was collected from primary sources. The selected farmers were contacted in person, and the study’s aims were carefully explained to them. Their cooperation was acquired. Details regarding the sample farmer’s socioeconomic characteristics, borrower and non-borrower status, investment pattern in farm income and output, and other aspects relevant to the present study were obtained from each of the sample farmers through the personal interviews in Dindigul district. According to the study’s objectives, the 240 sample beneficiaries were divided into three groups based on the amount of land they farmed; marginal farmers, small farmers, and large farmers. The percentage method was one of the statistical techniques employed in the analysis. The borrowers were first classified as non-defaulters and defaulters using the discriminate linear analysis, and then the defaulters were further divided into wilful and non-wilful defaulters based on the differences in their socioeconomic characteristics.

5. RESULTS AND DISCUSSION

According to this research, agricultural finance must enable farmers to increase their output and revenue through increased productivity, economies of scale, or both. The effects of agricultural financing on socioeconomic traits, farm output production, and income of sample farmer borrowers and non-borrowers, as well as the borrowers for wilful and non-wilful defaulters in agricultural credit loans have been examined.

Table -1:Socio-economic category wise Respondents

Variables	Marginal Farmer		Small Farmer		Large Farmer	
	No of Respondents	Percentage	No of Respondents	Percentage	No of Respondents	Percentage
Gender						
Male	199	82.92	208	86.76	224	93.33
Female	41	17.08	32	13.34	16	6.67
Total	240	100.00	240	100.00	240	100.00
Age Groups						
Less than 24	39	16.25	41	17.08	2	0.83
25 to 49	99	41.25	76	31.67	60	25.00
More than 50	102	42.50	123	51.25	178	74.17
Total	240	100.00	240	100.00	240	100.00
Educational Status						
Illiterate	70	29.17	80	33.33	78	32.50
Primary level	50	20.83	52	21.67	54	22.50
Middle School level	41	17.08	37	15.42	36	15.00
High school Level	36	15.00	30	12.50	31	12.92
Higher Secondary School Level	30	12.50	25	10.42	27	11.25
Under Graduation and above	13	5.42	16	6.66	14	5.83
Total	240	100.00	240	100.00	240	100.00
Sector						
Rural	182	75.83	175	72.92	182	75.83
Urban	58	24.17	65	27.08	58	24.17



Total	240	100.00	240	100.00	240	100.00
Marital Status						
Married	190	79.17	198	82.50	220	91.67
Unmarried	45	18.75	39	16.25	18	7.50
Widow	5	2.08	3	1.25	2	0.83
Divorce/Separate	-	-	-	-	-	-
Total	240	100.00	240	100.00	240	100.00
Nature of Family						
Nuclear	150	62.50	130	54.17	150	62.50
Joint	90	37.50	110	45.83	90	37.50
Total	240	100.00	240	100.00	240	100.00

Source: Primary data

Table 1 displays the respondents' classification according to gender. Of the 240 marginal farmers, 82.92 per cent of them are men and the remaining 17.08 per cent are women. Out of the 240 small farmers, 86.76 per cent of them are men and the remaining 13.34 per cent are women. Of the 240 major farmers, 93.33 per cent of them are men, and the remaining farmers are women. Men make up the majority of farmers. The respondents' age distribution is seen in the above table. Of the 240 marginal farmers, 42.50 per cent are over 50 years old, 41.25 per cent are between the ages of 25 and 49, and the remaining 16.25 per cent are under 24 years old. Besides, 51.25 per cent of the 240 small farmers in this category are over 50 years old, 31.67 per cent are between 25 and 49 years old, and the remaining 17.08 per cent are under 24 years old. Regarding the 240 major farmers in the category, 74.17 per cent are over 50 years old, 25.00 per cent are between 25 and 49 years old, and the remaining 0.83 per cent is under 24 years old. This suggests that the majority of elderly individuals work in agriculture. Regarding the farmers' educational classification, of the 240 marginal farmers in the category, 29.17 per cent are illiterate, 20.83 per cent have completed primary school, 17.08 per cent have completed middle school, 15.00 per cent have completed high school, 12.50 per cent have completed higher secondary school, and the remaining 5.42 per cent have completed undergraduate and above. Regarding the group of 240 small farmers, 33.33 per cent of the respondents are illiterate, 21.67 percent have completed primary school, 15.42 per cent have completed middle school, 12.50 per cent have completed high school, 10.42 per cent have completed higher secondary education, and 6.66 per cent have completed undergraduate and above. Based on the study's observation, 240 large farmers have the educational backgrounds; 32.50 per cent have only completed primary school, 22.50 per cent have studied middle school, 15.00 per cent have studied high school, 11.25 per cent have completed higher secondary education, and the remaining 5.83 per cent have studied undergraduate and above. It reveals that very low percentages of educated individuals work in agriculture. Of the 240 marginal farmers who responded to the survey, 75.63 per cent reside in a rural region and the remaining 24.17 per cent in an urban one. Of the 240 small farmers in the category, 27.08 per cent reside in an urban region and 72.92 per cent in a rural one. Of the 240 large farmers in the category, 27.14 per cent reside in an urban region and 75.83 per cent in a rural one. Of the 240 farmers in the marginal farmers group, 79.17 per cent are married, 18.75 per cent are unmarried, and the remaining 2.08 per cent are widows. Among the 240 small farmers under consideration, 82.50 per cent are married,

16.25 per cent are unmarried, and 1.25 per cent are widows. Regarding the 240 large farmers category, 91.67 per cent of the farmers are married, 7.50 per cent are unmarried and the remaining 0.83 per cent are widows. Regarding the 240 marginal farmers category, 62.50 per cent of the farmers live in nuclear families, and 37.50 per cent live in joint families. Of the 240 small farmers in the category, 54.17 per cent reside in nuclear families, and the remaining 45.73 per cent do so in joint families. Of the 240 major farmers in the category, 62.50 per cent live in nuclear families and 37.50 per cent in joint families.

Table -2: Average Output Generated Per Sample Farmer Borrowers (Output Quintals)

Category of Farmer	Average Output Generated Per Sample Farmer Borrowers			
	Pre loan year	Post loan year	Additional Output Over Pre loan year	Average Growth Over Pre loan year (Percentage)
Marginal Farmer	25.20	30.60	5.40	21.43
Small Farmer	34.00	40.20	6.20	18.23
Large Farmer	41.00	54.30	13.30	32.44
All sample farmer borrowers	27.80	33.00	5.20	18.70

Source: Primary data

Table 2 illustrates that the average agricultural output grew by 18.70 per cent, from 27.80 quintals in the pre-loan year to 33.00 quintals in the post-loan year. Large farmers saw the largest percentage rise, at 32.44 per cent; they are closely followed by marginal farmers at 21.43 per cent and small farmers at 18.23 per cent. With every increase in holding size, the average output per sample farmer borrower in both the pre-loan and post-loan years nearly quadrupled in absolute terms. This was mostly caused by the amount of land that was farmed and farmed by various types of farmers. Because (1) they had easy access to the available inputs, (2) they were better off financially, and (3) agricultural activities on their larger fields were profitable, the large farmer borrowers were able to maximise agricultural output. The marginal farmer borrowers produced less on their small cultivated land, but the growth rate between the pre-loan and post-loan years was fairly high because the financing institutions were able to easily supply credit without requiring any physical security through a variety of direct loan schemes and anti-poverty programs. Conversely, small farmers found themselves in less favourable positions across all fields, as their output growth rate between the pre-loan and post-loan years was unable to match that of marginal and big farms.

Table -3: Average Income Generated Per Sample Farmer Borrowers

Category of Farmer	Average Income Generated Per Sample Farmer Borrowers			
	Pre loan year	Post loan year	Additional Output Over Pre loan year	Average Growth Over Pre loan year (Percentage)
Marginal Farmer	2536	3167	631	24.88

Small Farmer	5237	6239	1002	19.13
Large Farmer	8650	11962	3312	38.29
All sample farmer borrowers	4509	5631	1122	24.88

Source: Primary data

According to Table 3, the pre-loan average income for each sample farmer borrower was Rs. 4509. In the year following the loan, it rose to Rs. 5631, indicating a growth of almost 24.88 per cent. Large farmers experienced the largest rise, accounting for 38.29 per cent of the total. Marginal farmers followed closely after with 24.88 per cent, small farmers coming in last at 19.13 per cent. Since the majority of the sample borrowers’ revenues come from agricultural produce, their growth rates roughly matched those of production. With each rise in the size of the holding, the quantities of income received before the loan year and after the loan year nearly double, in some cases more than double. The primary cause of this was the variation in operational holdings’ sizes. Even in the year following the loan, marginal farmers’ income was just Rs. 31.67 for small farmers and Rs. 6239 for marginal farmers. Only for large farmers was the average revenue of Rs. 11962 rather high. Even while the sample marginal and small farmer borrowers’ income increased less than that of the large farmer borrowers between the pre-loan and post-loan years, their income changed dramatically during that time. By providing them with finance from financing institutions, they were able to modernise their agricultural practices, adopt a cropping pattern that was technically possible for the area, and engage in other related agricultural activities, all of which increased their income in the year that followed the loan.

Table -4: Average Output for Non-borrowing Sample Farmers (Output Quintals)

Category of Farmer	Average Output Generated Per Sample Farmer Borrowers			
	Pre loan year	Post loan year	Additional Output Over Pre loan year	Average Growth Over Pre loan year (Percentage)
Marginal Farmer	17.40	20.20	2.80	16.09
Small Farmer	25.70	27.30	1.60	6.23
Large Farmer	33.10	36.40	3.30	9.97
All sample farmer borrowers	21.40	24.00	2.60	10.83

Source: Primary data

Table 4 shows that for all sample farmer non-borrowers in the pre-loan year, the average output per non-borrower was 21.40 quintals. In the post-loan year, this grew to 24.00 quintals, indicating a gain of 2.60 quintals or 10.83 per cent. The largest percentage growth was recorded by marginal farmers (16.09 per cent) followed by large farmers (9.97 per cent), and small farmers (6.23 per cent).

Table -5: Average Income for Non-borrowing Sample Farmers

Category of Farmer	Average Income Generated Per Sample Farmer Borrowers			
	Pre loan year	Post loan year	Additional Output Over Pre loan year	Average Growth Over Pre loan year (Percentage)
Marginal Farmer	2364	2732	368	15.57
Small Farmer	4382	4846	464	10.59
Large Farmer	8258	8740	482	5.84
All sample farmer borrowers	3172	3570	398	12.55

Source: Primary data

Table 5 illustrates that there is a rise of 12.55 per cent in the pre-loan year for all sample farmer non-borrowers. The average income per sample non-borrower went from Rs. 3172 in pre-loan years to Rs. 3570 in post-loan years. The largest percentage was recorded by marginal farmers (15.57 per cent) then small farmers (10.59 per cent) and large farmers (5.84 per cent). The amount varied from Rs. 2364 for marginal farmers to Rs. 4382 for small farmers and finally to Rs. 8258 for large farmers in the pre-loan year, this is the average annual gain per sample farmer who is not a borrower. The sums shown in the corresponding table for the post-loan year Rs. 2732, 4846, and Rs. 8740 for marginal, small, and large farmers, respectively, show how badly the non-borrowers were doing financially.

Table -6: Socio-economic characteristics of the borrowers for wilful and Non-wilful defaulters

Socio-economic characteristics of the borrowers	Mean		Differences
	Wilful defaulters	Non-Wilful defaulters	
X ₁ = Size of holding in acres	3.5821	3.1262	0.4559
X ₂ = Operational size in acres	2.9542	2.3420	0.6122
X ₃ = Education	0.8539	0.7078	0.1461
X ₄ = Social groups	0.6845	0.6216	0.0629
X ₅ = Age of the farmer	48.4532	49.4530	-0.9998
X ₆ = Percentage of the area under HYV's to the total operated area	56.4823	31.568	24.9143
X ₇ = Cropping intensity in percentage	202.4512	207.2354	-4.7842
X ₈ = Percentage of income from farming to the total income	28.2471	25.4750	2.7721
X ₉ = Per capita per annum consumption expenditure in rupees	525.9650	480.4652	45.4998

X ₁₀ = Per acre fertilizer used in rupees	192.4238	127.7521	64.6717
X ₁₁ = Size of the loan	30655.84	30468.26	187.58
X ₁₂ = Working capital in rupees per hectare	6528.3218	5710.5281	817.7937

Source: Primary data

Table 6 provided the chosen socioeconomic characteristics, their mean values, and any differences between the defaulter and non-defaulter groups. In light of the concerning rise in past due amounts, banks' recovery of advances has taken on increased significance. The bank's management is motivated to maintain the lowest amount of past-due balances. The issue of the bank loan not being repaid causes accumulating past dues, which is a major issue. A borrower's suitability for credit was determined by taking into account both his ability to repay and his resources. Thus, the goal of the current study was to develop guidelines that, when combined with certain socioeconomic factors, may be used to identify potential borrowers or bad borrowers. Classifying the farmer borrowers into defaulters and non-defaulters, and then further categorising the defaulters into willful and non-wilful defaulters, was the goal of the discriminate function analysis as applied here. Based on the socio-economic characteristics of the borrowers, a set of independent variables was employed for these variables. Table 6 lists the borrowers' chosen socio-economic characteristics, along with the means and discrepancies between the two group's defaulters and non-defaulters. Equation Table 7 gives the discriminate function fitted to the data;

$$Z = -0.0146 X_1 + 2.7651 X_2 + 0.0989 X_3 - 1.0168 X_4 - 0.0486 X_5 + 0.0371 X_6 + 0.0258 X_7 - 0.0030 X_8 + 0.0098 X_9 + 0.0132 X_{10} - 0.0002 X_{11} + 0.0001 X_{12}$$

In order to determine whether or not the characteristics taken into consideration collectively are adequately discriminating between the categories of defaulters and non-defaulters, the discriminate function was tested for significance. The calculated values for D2 and variance ratio are 1.9678 and 2.5376, respectively. Given that the discrimination function was significant, it was possible to classify the borrowers into defaulters and non-defaulters using the twelve characteristics that were taken into consideration. Table 7 displays the determined percentage contribution of socioeconomic variables to the overall distance of the borrower groups by discriminating function.

Table -7: Percentage contribution of socio-economic variables to the borrowers' total distance measured

Socio-economic variables	Co-efficient	Mean difference	Co-efficient X Mean Difference	Percentage	t - value
X ₁ = Size of holding in acres	-0.0146	0.4559	-0.0067	-0.1753	4.8475*
X ₂ = Operational size in acres	2.7651	0.6122	1.6928	44.2956	3.9871*
X ₃ = Education	0.0989	0.1461	0.0144	0.3768	0.7812
X ₄ = Social groups	-1.0168	0.0629	-0.0640	-1.6747	1.0472
X ₅ = Age of the farmer	-0.0486	-0.9998	0.0486	1.2717	3.0115*
X ₆ = Percentage of the area under HYV's to the total operated area	0.0371	24.9143	0.9243	24.1862	0.5016



X ₇ = Cropping intensity in percentage	0.0258	-4.7842	-0.1234	-3.2290	0.7999
X ₈ = Percentage of income from farming to the total income	-0.0030	2.7721	-0.0083	-0.2172	4.1480*
X ₉ = Per capita per annum consumption expenditure in rupees	0.0098	45.4998	0.4459	11.6679	3.0193*
X ₁₀ = Per acre fertilizer used in rupees	0.0132	64.6717	0.8537	22.3388	1.2111
X ₁₁ = Size of the loan	-0.0002	187.58	-0.0375	-0.9813	3.0147*
X ₁₂ = Working capital in rupees per hectare	0.0001	817.7937	0.0818	2.1405	4.7121*

Source: Primary data

Note: * Significant at 5 per cent level

Table 7 demonstrates that the following factors are significant in identifying the groups of borrowers in the study area: the size of the holding in acres (X₁), the operational size of the borrowers in acres (X₂), the age of the farmer (X₅), the percentage of income from farming to total income (X₈), the per capita annual consumption expenditure in rupees (X₉), loan size (X₁₁) and the working capital in rupees per hectare (X₁₂). The remaining five variables are education (X₃), social groups (X₄), percentage of the area under HYV's to the total operated area (X₆), cropping intensity in percentage (X₇) and per-acre fertiliser used in rupees (X₁₀) are determined to be unimportant. With respect to the overall distance measured, the primary variables' corresponding weights were -0.1753, 44.2956, 1.2717, -0.2172, 11.6679, and 2.1405 percent. To determine the significance of the mean differences, the t-test is run on each attribute. After calculating the t values, it was discovered that there were significant differences between the two groups' mean differences in terms of holding size in acres (X₁), operational size of the borrowers in acres (X₂), farmer age (X₅), percentage of farming income to total income (X₈), per capita annual consumption expenditure in rupees (X₉), loan size (X₁₁) and working capital in rupees per hectare (X₁₂). Therefore, the size of the holding in acres (X₁), the borrowers' operational size in acres (X₂), the farmer's age (X₅), the proportion of farming income to total income (X₈), the per capita annual consumption expenditure in rupees (X₉), loan size (X₁₁) and the working capital in rupees per hectare (X₁₂) were thought to be the primary variables that distinguished between defaulters and non-defaulters among the borrowers. To determine whether these factors alone can meaningfully distinguish defaulters from non-defaulters, the discriminate function is run with only these important characteristics included in the equation.

6. SUGGESTION

A small number of debtors claimed they had become accustomed to not making payments. Therefore, the government should be supportive and may think about passing legislation to avoid repaying bank loans.

In order to increase productivity and add value to farm products, the Integrated Agricultural Credit



Approach which links credit with supplies, inputs, and services needs to be operationalized in the public-private partnership model. This includes transportation, storage, processing and marketing.

7. CONCLUSION

Any form of agricultural finance is available; it continues to assist the well-known in achieving increased output and revenue through increases in productivity, economic expansion of their operations, or both. More jobs were created as a result of the lending agencies' credit. Giving recognition to the real or actual farmers who practise farming as a profession has a beneficial effect on the creation of jobs. Farmers must simultaneously deal with a variety of issues in order to obtain agricultural financing from banking organisations. The Indian economy's agriculture sector is labor-intensive, land-poor, and capital-scarce. Therefore, it would be extremely difficult to reap the rewards of agricultural modernization without providing farmers with sufficient funding at a fair interest rate. Under the current socioeconomic and political circumstances in rural areas, farmers' access to financing from commercial banks both public and private has also proven to be a fantasy for them. The most unfortunate victims of private money lenders are the farmers, who have the freedom to recoup their payments through arrogance and attachment to the impoverished farmers' crops, personal property, and dwellings. However, the rural sector's current resource base and ability to generate adequate amounts of financial resources, notably in the agricultural sector, are now constrained. According to this report, banks do not promptly give financing to farmers, nor do they sanction an adequate amount. In order to improve the socioeconomic conditions of farmers in this research region as well as the expansion of agricultural production, extra attention should be paid to timely financing provision.

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