Impact of Rural Finance on Cropping Pattern: A study of Tejwapur Block of Bahraich District of Uttar Pradesh, India

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A B S T R A C T

Keeping in view the importance of finance in agriculture is as important as development of technology of farming which generates income and employment to the farm population. The study was conducted in Tejwapur block of Bahraich district of U.P. Stratified purposive cum random sampling technique was applied to select the sample respondents and primary data were collected through interview method. Tabular analysis was done to present the results. Agricultural finance was found positively co-related with investment on cropping pattern (cash crop- banana, maize and sugarcane) and it shows that more cropping intensity on borrower farms than non-borrower farms. It is indicating that the financial support from rural finance is very helpful to improve the crop production and raise income of rural poor farmers and thereby employment.

Introduction

Finance in agriculture is as important as development of technologies. Technical inputs can be purchased and used by farmers only if sufficient money (funds) is available. Most of the times farmers suffer from the problem of inadequate financial state. This situation leads to borrowing from an easy and comfortable source Banerjee, 1970).

The importance of Agricultural finance for agricultural production in this country depends upon millions of small farmers. Their intensity, effort and efficiency have helped in raising yields per acre. Finance in agriculture act as a key to farmers. But farmers" money is always inadequate and he needs outside finance or credit. Because of inadequate financial resources and absence of timely credit facilities at reasonable rates, many of the farmers, are unable to adopt inputs and better methods or techniques.

The farming community must be kept informed about the various sources of agriculture finance. Agricultural finance possesses its usefulness to the farmers, lenders and extension workers. The knowledge of lending institutions, their legal and regulatory environment helps in selecting the appropriate lender who can adequately

provide the credit with terms and related services needed to finance the farm business [Jugale (1992)].

Seeing in the importance of credit in agriculture development, for the purpose Impact of agriculture credit on cropping pattern and cropping intensity in Tejwapur block of Bahraich district of Uttar Pradesh was framed with following objectives include to study the cropping pattern and cropping intensity of different size of sample farm of borrowers and non-borrowers. And also to study the comparative analysis of cropping pattern and cropping intensity of different size of sample farm of borrowers and non-borrowers.

Materials and Methods

Sampling Design: The purposive cum random sampling design was used for the selection of district, block, villages, and respondents.

Selection of District: Bahraich district of Uttar Pradesh was selected purposively considering the convenience of investigator.

Selection of block: A list of 14 blocks of Bahraich district was prepared and blocks namely Tejwapur was selected purposively for the study. A list of all banks functional in these blocks was prepared along with the list of villages which comes under their jurisdiction.

Selection of villages: A list of all the villages falling under selected blocks was prepared and five villages were selected randomly from the list.

Selection of respondents: A separate list of all the borrower and non-borrower farmers both from selected villages were prepared along with their size of holding and were

classified into three groups i.e. marginal (below 1 ha.), small (1-2 ha) and medium (2-4 ha and above). From this list so prepared, 50 each borrower and non-borrower farmers were selected through proportionate random sampling technique.

Collection of data: The primary data were collected on well-prepared pre structured schedule by survey method. Frequent visits were done by the investigator to selected respondents and require data were recorded by personal interview and secondary data were collected from block, tehsil, and district level offices.

Analytical tools: The data collected from the sample farmers were analyzed and estimated with certain statistical techniques.

Per cent: The frequency of particular cell was divided by the total number of respondents and multiplied by 100 to calculate the percentage.

Average: The simplest and important measure of average which has been used into statistical analysis was the average and weighted average. The formula used to estimate the average is:

Mean: It is computed by summing the values of all observations or items and by dividing the sum by the total number of observations or items.

$$\bar{X} = \frac{\sum x}{N}$$

Where,

$$\bar{X} = Mean$$

X= All observations
N= Total number of observation,

Weighted average

The weighted average of values is the sum of weights times values divided by the sum of the weights. The simplest and important measures of average which have been used into statistical analysis of the collected data are the weighted average, the formula used to estimate the weighted average is;

$$W.A. = \frac{\sum w_i x_i}{\sum w_i}$$

Where,

W. A. = Weighted average
X_i = Variable
W_i = Weights of X_i

Cropping system

The cropping pattern used on a farm and their interaction with farm resources, other farm enterprises, available technology and environment which determine their makeup.

Cropping pattern

It refers to the proportion of area under different crop at a particular period of time. A change in cropping pattern means a change in the proportion of area under different crops.

Crop rotation

Growing of crops in definite sequence on a definite area in a definite period.

Cropping Intensity

It refers to the number of crops raised on the same field within a year, it can be expressed through formula:

$$CI = \frac{Gross\ cropped\ area}{Net\ sown\ area} \times 100$$

Results and Discussion

Average size of land holding on sample farms under different size group of farms

The study covers a sample of 100 respondents i.e. 50 non-borrower and 50 borrower respondents which were stratified in to three size group of farms namely marginal (below 1 ha), small (1-2 ha), and medium (2-4 ha) with respect to land holding.

The average size of holding on various group of sample farms are presented in Table-1. It is evident from the table that the average size of holding in study area were 0.60, 1.56 and 2.93 hectares on marginal, small and medium size of farms of non-borrower respectively, whereas in case of borrower farms the average size of land holding were found 0.56, 1.58 and 2.48 hectare on marginal, small and medium size group of farms respectively.

Overall average size of holding was 1.25 and 1.48 hectare of non-borrower and borrower respectively. On the sample farms total cultivated area was found to 62.61 and 73.82 hectare on non-borrower and borrower farms respectively.

It is depicted from the table that the average holding size of borrower sample farms were higher than the non-borrower in Tejwapur block of study.

It may be concluded that holding size had the direct effect on borrowing nature of the farmers.

Cropping pattern on sample farms

The cropping pattern followed by the sample farmers of Tejwapur block are presented in Table-2.a & 2.b for borrower and non-borrower categories.

Table.1 Average size of holding on sample farms under different size groups of farms (ha)

Sl. No.	Size group of farms	Non-Borrower				Borrower		
		No. of respon-dents	Total area	Average size		No. of respon-dents	Total area	Average size
1.	Marginal	26	15.59 (24.90)	0.60		21	11.82 (16.01)	0.56
2.	Small	17	26.53 (42.37)	1.56		11	17.36 (23.52)	1.58
3.	Medium	07	20.49 (32.73)	2.93		18	44.64 (60.47)	2.48
Total		50	62.61 (100.00)	1.25		50	73.82 (100.00)	1.48

Table.2a Cropping pattern under different size group of sample farms (ha): Borrower

Sl. No.	Crop	Average size of sample farms						Overall Average	%
		Marginal	%	Small	%	Medium	%		
A.	Kharif	**0.48**	**45.28**	**1.41**	**48.45**	**2.19**	**48.23**	**1.30**	**47.79**
1.	Paddy	0.20	18.87	0.59	20.27	1.15	25.33	0.63	23.16
2.	Maize	0.11	10.38	0.32	11.00	0.38	8.37	0.25	9.19
3.	P. Pea	0.02	1.89	0.05	1.72	0.10	2.20	0.50	18.38
4.	Banana	0.10	9.43	0.34	11.68	0.40	8.81	0.26	9.56
5.	Moong+Urd	0.03	2.83	0.06	2.06	0.09	1.98	0.06	2.21
6.	Chari	0.01	0.94	0.03	1.03	0.05	1.10	0.03	1.10
7.	Vegetable	0.01	0.94	0.02	0.69	0.02	0.44	0.02	0.73
B.	Rabi	**0.44**	**41.51**	**1.19**	**40.89**	**1.98**	**43.61**	**1.16**	**42.65**
1.	Wheat	0.24	22.64	0.59	20.27	1.17	25.77	0.65	23.90
2.	Mustard	0.05	4.72	0.16	5.50	0.22	4.85	0.13	4.78
3.	Lentil	0.03	2.83	0.13	4.47	0.10	2.20	0.08	2.94
4.	Pea	0.02	1.89	0.10	3.44	0.15	3.30	0.08	2.94
5.	Sugarcane	0.08	7.55	0.17	5.84	0.29	6.39	0.18	6.62
6.	Berseem	0.01	0.94	0.02	0.69	0.03	0.44	0.02	0.74
7.	Vegetable	0.01	0.94	0.02	0.69	0.02	8.14	0.02	0.74
C.	Zaid	**0.14**	**13.21**	**0.31**	**10.65**	**0.37**	**3.30**	**0.26**	**9.56**
1.	Urd+Moong	0.04	3.78	0.12	4.12	0.15	0.44	0.10	3.68
2.	Chari	0.01	0.94	0.01	0.34	0.02	0.02	0.01	0.37
3.	Mentha	0.09	8.49	0.18	6.19	0.20	0.2	0.15	5.51
Grand Total (A+B+C)		**1.06**	**100.0**	**2.91**	**100.0**	**4.54**	**100.00**	**2.72**	**100.00**

Table.2b Cropping pattern under different size group of sample farms (ha): Non-Borrower

Sl. No.	Crop	Average size of sample farms						Overall Average	%
		Marginal	**%**	**Small**	**%**	**Medium**	**%**		
A.	**Kharif**	**0.51**	**44.35**	**1.42**	**48.63**	**2.69**	**50.56**	**1.12**	**48.07**
1.	Paddy	0.23	20.00	0.58	19.86	1.20	22.56	0.48	20.60
2.	Maize	0.11	9.57	0.27	9.25	0.44	8.27	0.21	9.01
3.	P. Pea	0.02	1.74	0.07	2.40	0.19	3.57	0.06	2.58
4.	Banana	0.10	8.69	0.28	9.59	0.50	9.40	0.22	9.44
5.	Moong+Urd	0.03	2.61	0.12	4.11	0.20	3.76	0.08	3.43
6.	Chari	0.01	0.87	0.06	2.05	0.09	1.69	0.04	1.72
7.	Vegetable	0.01	0.87	0.04	1.37	0.07	1.31	0.03	1.29
B.	**Rabi**	**0.49**	**42.61**	**1.21**	**41.44**	**2.24**	**42.11**	**0.98**	**42.06**
1.	Wheat	0.23	20.00	0.64	21.92	1.30	24.44	0.52	22.32
2.	Mustard	0.08	6.95	0.14	4.80	0.27	5.07	0.13	5.58
3.	Lentil	0.04	3.48	0.09	3.08	0.12	2.26	0.07	3.00
4.	Pea	0.09	7.83	0.12	4.11	0.19	3.57	0.11	4.72
5.	Sugarcane	0.03	2.61	0.14	4.80	0.24	4.51	0.10	4.29
6.	Berseem	0.01	0.87	0.05	1.71	0.07	1.32	0.03	1.29
7.	Vegetable	0.01	0.87	0.03	1.02	0.05	0.94	0.02	0.86
C.	**Zaid**	**0.15**	**13.04**	**0.29**	**9.93**	**0.39**	**7.33**	**0.23**	**9.87**
1.	Urd+Moong	0.09	7.82	0.15	5.14	0.19	3.57	0.12	5.15
2.	Chari	0.01	0.87	0.05	1.71	0.06	1.13	0.03	1.29
3.	Mentha	0.05	4.35	0.09	3.08	0.14	2.63	0.08	3.43
Grand Total (A+B+C)		**1.15**	**100.00**	**2.92**	**100.00**	**5.32**	**100.00**	**2.33**	**100.00**

Table.3a Cropping intensity of different size group of sample farms (%): borrower

Sl. No.	Size group of farms	No. of farms	Net cultivated area (ha)	Gross cropped area (ha)	Cropping intensity
1.	**Marginal**	21	0.56	1.05	187.50
2.	**Small**	11	1.58	2.91	184.18
3.	**Medium**	18	2.48	4.54	183.06
Average		**50**	**1.48**	**2.72**	**183.78**

Table.3b Cropping intensity of different size group of sample farms (%):Non-borrower

Sl. No.	Size group of farms	No. of farms	Net cultivated area (ha)	Gross cropped area (ha)	Cropping intensity
1.	**Marginal**	26	0.60	1.15	191.66
2.	**Small**	17	1.56	2.92	187.17
3.	**Medium**	07	2.93	5.32	181.57
Average		**50**	**1.25**	**2.33**	**186.40**

Table.3c Comparative cropping intensity on borrower and non-borrower sample farms

Sl. No.	Size group of farms	Cropping intensity		
		Borrower	**Non-borrower**	**Per cent change**
1.	**Marginal**	187.50	191.66	102.22
2.	**Small**	184.18	187.17	101.62
3.	**Medium**	183.06	181.57	99.18
Average		**183.78**	**186.40**	**101.42**

Cropping pattern on borrowers sample farms

It is depicted from the Table-2.a that on an average the highest area was covered under wheat 23.90 per cent followed by paddy 23.16 per cent, banana 9.56 per cent, maize 9.19 per cent, sugarcane 6.62 per cent, urd + moong 3.68 per cent, mentha 5.51 per cent, mustard 4.78 per cent, both of lentil and pea 2.94 per cent, P.pea 1.84 per cent, both of vegetables and chari 1.47 per cent, berseem 0.74 per cent of total cropped area on sample farm.

The gross cultivated area was higher 47.79 per cent in the kharif followed by rabi season 42.65 per cent and less in the Zaid season 9.56 per cent on all farm situations. On an overall average total sown area was found to 2.72 ha. on the sample farms which varied as 1.06 ha, 2.91 ha and 4.54 ha. in marginal small and medium categories of farms respectively.

Cropping pattern on borrower's sample farms

Table-2.b shows that the cropping pattern followed by non-borrower sample farmers. It is depicted from the table that on overall farm the per cent area covered under different crops during kharif season was 48.07 per cent which is 42.06 per cent in rabi and 9.87 per cent in zaid season. Banana, Mustard and mentha stood on second 9.44, 5.58 and 3.43 per cent of gross cropped area. On an overall average total sown area was found to 2.33 ha.

On the sample farms which varied as and 1.15 ha, 2.92 ha and 5.32 ha in marginal small and medium size group of farms respectively.

It is concluded from the data presented in table-2.a and 2.b that financial assistance provided to the borrower sample farmers enable them to cultivable land higher area as compared to the non-borrower farms.

Cropping intensity in study area

Borrower sample farms

It has been computed for all size groups of farms and is presented in Table-3.a The maximum cropping intensity was observed to be 187.50 per cent in case of marginal farms, followed by small and medium farms corresponding to 184.18 per cent and 183.06 per cent respectively with an overall average of 183.78 per cent.

It is concluded from the table that the cropping intensity was indirectly associated with the size of sample farms. It was observed during the investigation that family labour involve in farm activities were mainly responsible and helpful to grow more crops on marginal size group of farms.

Non-borrower sample farms

Similarly, in the case of non-borrower, it is depicted from Table-3.b that the overall farm cropping intensity was 186.40 per cent which was highest 191.66 per cent on marginal farm

followed by small and medium farms which accounted for 187.17 and 181.57 per cent respectively. In case of non-borrower farms too cropping intensity on marginal farms was highest than small and medium farm due to better utilization of family labour.

Comparative cropping intensity on borrower and non-borrower sample farms

The comparative study of cropping intensities on borrower and non-borrower sample farms is presented in Table-3.c. It was higher (i.e. 191.66 per cent) on non-borrower sample farm than borrower sample farms (i.e. 187.50 per cent), which were higher than 172.41 per cent to district cropping intensity.

It is inferred from the data presented in the table that the marginal groups of farmers were more aware for the best use of their tiny holding with the help of their family labour utilization. Overall cropping intensity of borrower and non-borrower farmers shows that sample farmers in the borrower category were well aware to better utilization of farm resources managed through financial assistance from agricultural loans had a lower cropping intensity than of non-borrower farms i.e. 184.68 per cent compared to 183.78 per cent of borrower sample farms. Since borrower respondents are likely to grown banana and sugarcane annually as cash crops, thus they had lower cropping intensity than non-borrower respondents.

It is concluded from the study that the overall average holding size was 1.48 ha. In case of non-borrower sample farm the overall average size of holding was 1.25 hectares. Here it is concluded that the borrower farmers were having the larger size of holding in comparison to non-borrower. The study of holding size is concluded that borrower farmers were having the larger size of holding in comparison to non-borrower. Thus it shows

that size of holdings played an important role in borrowing the credit.

The cropping patterns followed by borrower and non-borrower sample farms are found of similar nature. Rice, wheat and menthe crops were found as main crops of kharif, rabi and zaid season respectively on both borrower and non-borrower sample farms. Total cropped area on overall farms was 2.72 ha on borrower farms which is 1.7 times higher than the overall gross cropped area 2.33 ha on non-borrower sample farms, which shows the positive impact of credit on farm business.

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