

Future of Cooperative Farming in Pakistan

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Abstract

The main objective of this study was to work out production efficiency of some cooperative and non cooperative farmers in the central Punjab, Pakistan. For this purpose a survey of central Punjab was conducted in the year of 2008-09. Two type samples were taken for the study. First type sample was comprised of 15 respondents who had joined together in different ways to cultivate their available lands. Second type included 60 respondents, 20 from each district of Jhang, Faisalabad and TT Singh. The results obtained through t-statistics analysis revealed that the per acre use of Agri inputs and outputs obtained for all the cash crops was significantly different and higher in case of cooperatives than non-cooperatives farmers. The benefit cost (B-C) ratio indicated that it was 38% higher for cooperative than non-cooperatives as it was 1.98 and 1.43 for respective categories. But these cooperatives farming could not sustain for longer time due to the lake of education and conflicts between the members.

Keywords: Cooperatives, Farming, Punjab, Pakistan

1. Introduction:

The cooperative farming means bringing together of all land resources of farmers in such an every bit of land to the best of the fertility of land (Jasvir). The fragmentation and sub fragmentation of land is highly injurious to the agrarian economy of Pakistan. The law of inheritance is the major cause of such subdivision of land into small pieces. Currently round about 93% of the total farming community falls under the category of small farms (Govt of Pakistan provincial report). Small farmers are those who have less than 12.5 acre of land for cultivation.

Such small farmers can neither cultivate their small pieces of land nor use latest technologies being released. Such low production efficiency on more than 50% of the cultivated land is a serious issue for agrarian economy of Pakistan. Under such circumstances the cooperative framings has become an essential feature for Pakistani agriculture.

Cooperative farming ranging from pooling of all - few resources may of different types but the basic idea underlying cooperative farming is utilize the scare resources jointly. The individual agriculturist, whether a small holder, tenant or landless agricultural labor in our country is handicapped by the common factors of poverty, lack of financial resources and small size of holding that is always uneconomical.

When however, pool is formed and adequate land is secured to contribute an economic unit, the usual handicaps are removed. The collective resources of land, labor and finances for the development of land, facilities of irrigation, improved implements including expensive and labor saving machinery, crops finance marketing facilities-all these could be easily recurred. There is an immense for cooperative farming in Pakistan, although the movement is as yet in it.

After realizing the needs of cooperatives in Pakistan, the food and agriculture minister announced that the government had accepted the recommendations of commission on food and agriculture, as introduction of cooperative farming in Pakistan (Sheikh K.M, Nov, 2011).

The cooperative farming has been tried successfully in various countries like United Kingdom, Germany, France and Sweden. Following are the main advantages of cooperative farming: (a) Majority of the farmers keep the small units of land. So they cannot employ the improved methods of cultivation. Cooperative farming enables them to consolidate their small units of land for better utilization. (b) A poor farmer cannot purchase the machinery but a cooperative society can easily purchase the various machines. The use of

machines will not only reduce the cost of production but will increase the per acre yield. (c) A cooperative farming is in a better position to get the adequate and timely supply of essential agriculture inputs like fertilizer and seeds. (d) A cooperative farming society creates the brotherhood and love for the members because they work for their common interest. (e) A co-operative farming society will bargain in the market and will sell the product at maximum price. The income of the individual farmer will increase. (f) A co-operative society guides the farmer to increase their efficiency and production.

1.1. Objectives of Study:

- a) To estimate the physical inputs use for cash crops on cooperative versus non-cooperative farms in Punjab.
- b) To make the comparison of cooperative versus non-cooperative farmers on the basis of economic efficiency in Agri production.
- c) To find the causes of failure of cooperatives
- d) To make recommendations and suggestions based on empirical findings.

2. Review of Literature:

Chinn (1988) conducted a study in chide and used simple LP model framework to simulated various forms of cooperatives between representative farm of two villages in pre war China. He concluded that although two farms individually were quite efficient revenue maximizers, but significant mutual benefits would result from the formulation of an elementary agricultural producer's cooperative.

Fulton (1999) worked on cooperatives farming in and found that with co-op membership farmers participate to the patronage of the firm and to the decision-making process, becoming residual claimants of the returns from co-op activities. The way members obtain the residual return is not based on their ownership but on the base of product-delivery to the co-op.

Ménard (2004) concluded that asset specificity and mutual dependency form the second major dimension in determining farmers' likelihood to network with agricultural co-ops. Co-ops have an advantage with respect to transactions that involve specific joint-investments, and when parties are involved in long-term relations.

P. Mavimbela et al (2010) found that savings and credit cooperatives have a positive contribution towards food crop production as it enhances farmers' ability to purchase farm inputs and easily acquire other farm requirements. Members of savings and credit cooperative societies demonstrated the attainment of higher food crop yields to meet household needs and had capacity to utilize more capital for production than non-members. They further indicated that membership to a cooperative enables members to access credit, which becomes useful in improving agricultural production of small farmers.

3. Methodology:

Due to fragmentation and inheritance, the number of small farmers is increasing over time. These farmers are not in a position to adopt and use the modern cultivation technologies. Under such circumstances, the combined use of costly and modern technology is the only possibility for small farmers. In order to make the comparison between production efforts of some joint farmers and individual farmers, a survey was conducted in central zone of Punjab. In this study, data were collected from the district of Jhang, TT Singh and Chionat. This study was based on two type samples. First type sample included fifteen groups of small farmers, who had joined together in either way for farming purpose. Some had joined to purchase a common tractor along with cultivations and other cultivations implements. They were six in number.

Another category of such farms was that who had joined together to create some sources of irrigation. These included electric tube well or peter. There was another 3rd category those had joined together in cultivations sources as well as irrigation sources. No another type of joined farming with pooling the recourses, was found in the study area.

The second type sample included 60 respondents who were cultivating their respective pieces of land individually. This sample was comprised of small farmers, twenty from each district.

With the help of a questionnaire all the information regarding use of inputs and corresponding outputs of some major crops like cotton, sugar-cane, rice and wheat was collected. On per acre base use of variable inputs like cultivation seed, irrigation, DAP, urea and plant protection measures, the total variable costs were

estimated. The gross returns per acre for each crop were also calculated.

Mean value of each input and output per acre represented the overall use of their inputs, both for cooperative and non cooperative/ individual farmers. Then to make the economic comparison of these two groups, benefits – cost ratio analysis was made. B-C ratio included

$$B-C = \frac{\text{Gross return from all crops}}{\text{Total available in put cost}}$$

Then to make the comparison between two groups, the t-Statistics was applied. It is the statistical / econometric technique which is used to make the comparison of mean of different variable / inputs for two competing groups. The t- statistics used for the comparison of inputs and output was:

$$t = \frac{\bar{X}_1 - \bar{X}_2}{S_{X_1X_2} \cdot \sqrt{\frac{2}{n}}}$$

where

$$S_{X_1X_2} = \sqrt{\frac{1}{2}(S_{X_1}^2 + S_{X_2}^2)}$$

Here $S_{X_1X_2}$ is the grand standard deviation (or pooled standard deviation), 1 = cooperative group, 2 = non-cooperatives group . The denominator of t is the standard error of the difference between two means. For significance testing, the degrees of freedom for this test is $2n - 2$ where n is the number of participants in each group.

4. Results and Discussion:

After making the necessary analysis through these techniques, the following results were drawn

Table-1 Per acre use of different variable inputs for cooperative and non cooperative farmers

Description	Cooperative				Non Cooperative			
	Cot	Sc	Wt	Rice	Cot	Sc	Wt	Rice
Cult	6	8	4	6	4	6	4	4
seed	8	10	60	5	5	9	45	5
irrigation	8	32	5	20	4	12.5	3	10.6
DAP	2	2	2	1	0.8	1	0.75	0.65
Urea	2	3	2	1.5	1	1.25	1	0.78
PP	6	2	1	1	4	0.45	0.5	0.35
yield mds	25	850	42	38	8	400	18	18

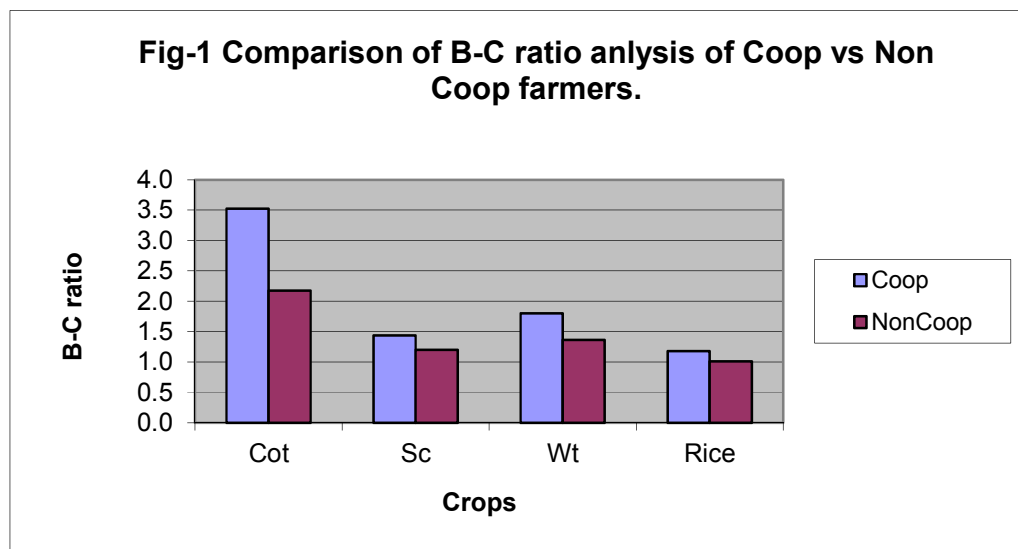
Data given in table -1 demonstrate the use of some variable inputs in physical terms being used on per acre basis by cooperative and/ non cooperative framers. Results revealed that for all the crops, the level of inputs use by cooperative farmers was higher than non-cooperative framers. Similarly the output level was also higher for all the crops in case of cooperative farmers than non cooperatives.

Table-2 Per acre cost of different variable inputs for cooperative and non cooperative farmers

Description	Cooperative					Non Cooperative				
	Cot	Sc	Wt	Rice	Overall	Cot	Sc	Wt	Rice	Overall
Cult (Rs.)	3600	4800	2400	3600	3600	2400	3600	2400	2400	2700
seed(Rs.)	2000	25000	1800	225	7256.25	1250	22500	1350	225	6331.25
irrigation(Rs.)	12000	48000	7500	30000	24375	6000	18750	4500	15900	11287.5
DAP(Rs.)	7600	7600	7600	3800	6650	3040	3800	2850	2470	3040
Urea(Rs.)	1920	2880	1920	1440	2040	960	1200	960	748.8	967.2
PP(Rs.)	2700	700	350	350	1025	1800	157.5	175	122.5	563.75
yield (Rs.)	105000	127500	38850	46550	79475	33600	60000	16650	22050	33075
Total cost(Rs.)	29820	88980	21570	39415	44946.25	15450	50007.5	12235	21866.3	24889.7
B-C Ratio	3.52	1.43	1.80	1.18	1.98	2.17	1.19	1.36	1.01	1.43

Data given in the table 2, demonstrate B-C analysis made for both categories of the farmers. Similar to the use of the physical inputs, their respective costs and incomes were also higher in case of cooperative group of farmers than non-cooperatives. B-C ratio analysis revealed that as a whole it was 1.98 in case of cooperative group of farmers and 1.43 for non cooperative group of farmers.

Figure below shows, the B-C analysis ratio estimates for different crops being grown by both categories of the farmers. It is clear that B-C ratio for all the cash crops of cooperative farmers was higher than those of non-cooperatives.



In order to make the comparison of inputs and outputs on statistical grounds, t-statistics was applied. Some hypotheses to be tested by this technique were formulated:

Hypothesis-1

$H_0: \bar{X}_{cul(c)} = \bar{X}_{cul(nc)}$ No difference between the use of cultivations by coop vs. non-Coop.

$H_a: \bar{X}_{cul(c)} \neq \bar{X}_{cul(nc)}$ Different use of cultivations by coop vs. non-Coop

Hypothesis-2

$H_0: \bar{X}_{seed(c)} = \bar{X}_{seed(nc)}$ No difference between the use of seed by coop vs. non-Coop.

$H_a: \bar{X}_{seed(c)} \neq \bar{X}_{seed(nc)}$ Different use of seed by coop vs. non-Coop

Hypothesis-3

$$H_0: \bar{X}_{\text{irri}(c)} = \bar{X}_{\text{irri}(nc)} \text{ No difference between the use of irrigation by coop vs. non-Coop.}$$

$$H_a: \bar{X}_{\text{irri}(c)} \neq \bar{X}_{\text{irri}(nc)} \text{ Not equal use of irrigation by coop vs. non-Coop}$$

Hypothesis-4

$$H_0: \bar{X}_{\text{DAP}(c)} = \bar{X}_{\text{DAP}(nc)} \text{ Similar application DAP by coop vs. non-Coop.}$$

$$H_a: \bar{X}_{\text{DAP}(c)} \neq \bar{X}_{\text{DAP}(nc)} \text{ Different application of DAP by coop vs. non-Coop}$$

Hypothesis-5

$$H_0: \bar{X}_{\text{urea}(c)} = \bar{X}_{\text{urea}(nc)} \text{ Same level Urea use by coop vs. non-Coop.}$$

$$H_a: \bar{X}_{\text{urea}(c)} \neq \bar{X}_{\text{urea}(nc)} \text{ Different level Urea use by coop vs. non-Coop}$$

Hypothesis-6

$$H_0: \bar{X}_{\text{pp}(c)} = \bar{X}_{\text{pp}(nc)} \text{ No difference in the use of PP by coop vs. non-Coop.}$$

$$H_a: \bar{X}_{\text{pp}(c)} \neq \bar{X}_{\text{pp}(nc)} \text{ Different use of PP by coop vs. non-Coop}$$

Hypothesis-7

$$H_0: \bar{X}_{\text{GIF}(c)} = \bar{X}_{\text{cul}(nc)} \text{ No difference between GI of coop vs. non-Coop.}$$

$$H_a: \bar{X}_{\text{GIF}(c)} \neq \bar{X}_{\text{cul}(nc)} \text{ Different GI of coop vs. non-Coop}$$

Table – 3. Results obtained through t-statistics analysis showing the difference between inputs and outputs on per acre basis for cooperative versus non cooperatives.

Non Cooperatives inputs	Cooperative Farmers inputs								
	Inputs	Cult	seed	irrigation	DAP	Urea	PP	yield mds	
	Cult	2.15							
	seed		1.96						
	irrigation			4.5					
	DAP				3.15				
	Urea					2.58			
	PP						1.96		
	yield mds							4.25	

T-theoretical values at 1% = 3.74, 5% = 2.61 and 10% = 1.96

Estimates given in the table-3 indicates that the estimated values of t were higher than theoretical values of t for all the inputs and outputs for all the crops. It indicated that there was a significant difference in input use and output obtained by both groups of the farmers' i.e. cooperatives and non cooperatives.

Although cooperative farmers were performing well, but some draw backs were also observed during the survey. So many evidences were noted that such cooperatives could not run for long term. Some factors were also indentified which were the cause the failure of these cooperatives. Among them the important factors were:

Table-4 Factors responsible behind the failure of cooperatives farming.

Sr. No	Factors	%age
1	Lack of education	75
2	Lack of Honest Manager	63
3	Rising level of in put price	57
4	Lack of proper guidance	48
5	Individual conflicts	45

Most of the respondents (75%) were of the view that due to lack of education, their cooperatives failed,

while 63 % perceived that to run the cooperative for long term, there was a need of honest managers, such managers should be from other than members. But such managers could not be paid regularly and consequently cooperative failed.

Similarly 57 % respondents identified that frequently rising price of agri inputs and POL were the cause of failure of cooperatives. Because high rising prices of inputs, discourage the member to share in the rising repair cost.

Some other members reported that level of proper guidance for cooperatives and individuals conflicts were some other important factors due to which cooperatives farming failed in the rural areas of Punjab.

5. Conclusions:

From the study it was concluded that the cooperating farming was beneficial and more economical than individual agri. farming. But their long term stability was affected by some factors like lack of education, honest managers, and member's conflicts. Results are also consistent with Khalid (2008).

6. Suggestions:

The government should increase the rate of education to make the cooperative farming more effective. Importance of cooperative farming society should be explained to the farmers. The government should remove the defects in the recovery process. It will increase the efficiency of financial institutions and there will be reduction in defaulters. The management can ask the members of the society in friendly manner for the repayment of debt. When crop is in the market, loan can be recovered easily. The government should discourage corrupt people and people should also be co-operative with the government to make cooperative farming more effective.

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