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IMPACT ASSESSMENT OF MICRO-CREDIT PROGRAMME OF PRSP ON CROP PRODUCTIVITY

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The present study was designed to evaluate the impact of micro-credit of PRSP on productivity of wheat and sugarcane in Faisalabad. For the purpose of the study, two field units namely Satiana and Salarwala were selected. Results showed that micro-credit disbursed by PRSP significantly increased production of wheat and sugarcane which increased the farmers' incomes. Thus, micro-credit scheme improved the living conditions of the farmers.
Key words: Crops production; Micro-credit; PRSP; Production function; Punjab.

INTRODUCTION

Pakistan's agriculture is characterized as having large number of small and marginal farms with limited financial resources. Because of small land holdings and thus insufficient financial resources, they are not able to use inputs at the desired level for higher production and to adopt new production technologies (Sarwar, 2001). This results in lower production and productivity in agriculture sector and also creates various social problems like rising unemployment and poverty in the rural areas. So there is the utmost need for cash for the purchase of seeds, chemical fertilizers, pesticides and mechanical equipments (Umair, 1999). However, there is considerable evidence that financial institutions provide loans to medium and large farmers ignoring marginal and small ones because of their inability to provide security (Naidu, 2002). The last two classes of farmers have little access to institutional sources of capital at appropriate terms and conditions to fulfill their agricultural needs.

In 1990's, to improve the socio-economic conditions of the rural masses, Government of Punjab launched micro-credit scheme through Punjab Rural Support Programme (PRSP) in order to provide small amount of loans to farmers and other rural dwellers. The main objective is to finance small and marginal farmers ignored by the formal financial sector (Aslam, 2001).

Micro-credit provided to the marginal and small farmers helps to improve livelihood of these poor farmers (Chand and Singh, 1987). The availability of credit provides access of farmers to productivity enhancing techniques and the purchase of inputs like seed, fertilizer, etc. Micro-credit has tremendous impact on agricultural production and cropping intensity and improvement in quality of life (Ikaram, 1994; Nazli, 2000). Thus, availability of micro-credit facilitates the poor farmers to purchase various inputs at proper time and also help in adoption of new production technologies thereby, transforming production patterns from subsistence to commercial farming (Khan, 1989). Different studies have been conducted to determine impact assessment of micro-credit on agricultural production and these studies indicate that provision of micro-credit has increased agricultural production and productivity to a substantial extent ((Kazi and Raza, 1995; AKRSP, 1997; PRSP, 1999; Ansari, 2001; Aslam, 2001).

The present study was designed to estimate the changes brought by micro-credit program of PRSP in crop productivity and to assess the role of micro-credit in enhancing the incomes of marginal and small farmers for the alleviation of poverty.

MATERIALS AND METHODS

To assess the effect of micro-credit advanced by Punjab Rural Support Program (PRSP) on crop productivity, two field units namely Satiana and Salarwala were taken from Faisalabad district, Punjab province. Community organizations availing the facility of micro-credit of PRSP for the purchase of agricultural inputs for producing either sugarcane or wheat crop were selected to collect the information relating crop productivity. Direct interviews, through well-designed questionnaires were conducted to gather information about their production, income, expenditure, consumption pattern and level of satisfaction. Primary survey of the study area was conducted which revealed that there were 356 community organizations in the selected field units. A sample of fifteen community organizations from twelve villages of both the field units was drawn by adopting simple random sampling technique. Each community organization has on an average 15-20 members consisting of mall and marginal farmers. Thus, a total of 90 respondents availing the facility of micro-credit program of PRSP

were interviewed for the purpose of the study. Data were collected during 2002.

The basic approach used to assess the relative socio-economic impact of credit involved a comparison between two time periods i.e. before and after the provision of credit.

It was assumed that availability of timely finance and fertilizer could contribute significantly in higher income. Agricultural practices are labour intensive and it was assumed that large family size of the respondents would have significant effect on crop production since; the respondents with large family size would not face shortage of labour during peak load periods. Farm size was included in the model to assess its effect on farm income. As far as schooling years of the respondents is concerned, it was incorporated in the model on the basis of assumption that it plays a vital role in the efficient management of available farm resources.

To assess the impact of micro-credit the linear multiple regression analysis was used. The functional form and variables were as under:

Y = f (Cr, Fer, Fs, Fa, Edu)

$$Y_i = \beta_o + \beta_i \sum_{i=1}^{n} X_i$$

where

Y_i = Income of the farm (Rupees)
Cr = Credit taken (Rupees)
Fer = Fertilizer expenditure (Rupees)
Fs = Family size of the loanee (Numbers)
Fa = Total farm area (acreages)
Edu = Schooling years of the respondents

RESULTS AND DISCUSSION

Cropping pattern is the image of the relative share of all crops grown on the farm in the total cropped area. Analysis of data revealed that the average share of land allocated to wheat and sugarcane on all marginal farms was 3.28 and 0.32 acres, respectively while the respective share on the small farmers' land was 6.17 and 1.21 acres before availing micro-credit facility. It was visualized that the small and large farmers would devote a larger share of land to wheat crop in order to meet the family consumption requirements after taking micro-credit from PRSP and it was found that the average share of land allocated to wheat and sugarcane on all marginal farms was 3.50 and 0.25 acres respectively whereas in case of small farmers the respective share was 6.47 and 1.10 acres. This decrease in acreage under sugarcane crop was due to increased area under wheat crop (Table 1).

Table 1. Cropping Pattern and Enterprise Combination

Items	Marginal Farms		Change	Small Farms		Change
	Before micro-credit	After micro-credit		Before micro-credit	After micro-credit	
Crop Description						
Wheat (ac)	3.28	3.50	+0.22	6.17	6.47	+0.30
Sugarcane (ac)	0.32	0.25	-0.07	1.21	1.10	-0.10
Enterprise Combination						
Crop + livestock (%)	50.00	58.69	+8.69	68.18	79.54	+11.36
Crop + poultry (%)	43.47	34.78	-8.69	18.18	6.81	-11.37
Crop + machinery (%)	6.52	6.52	0.00	13.63	13.63	0.00

It is a very common observation in Pakistan that size of land holding has been slimming owing to the operation of law of inheritance, structural changes in agricultural industry and mushroom growth of population. In the realm of such circumstances, it has become a burning matter of concern for the farmers to reorganize the farming business for having a reasonable economic efficiency from their fragmented pieces of land. Thus, they are endeavoring for every possible means to combine various enterprises and factors of production in such a way that they could maximize income from their small land holdings. Keeping in view such constraints, the sampled farmers selected such crop combination that fetched maximum possible returns. Micro-credit provided to the small and marginal farmers affected through bringing changes in crop combination. The results of the study depicted that before availing micro-credit facility of PRSP, three types of enterprise combination namely crop and livestock, crop and poultry and crop and machinery were observed, however, among these combinations, crop and livestock was commonly observed on small and marginal farms. Other important combination was crop and poultry, however, its adoption was higher on marginal farms as compared to small farms mainly because of risk factor involved in this combination. After availing micro-credit facility, the farmers changed their enterprise combination from crop and poultry to crop and livestock combination on marginal and small

farms. The percentage change reported on marginal farms was 8.69 and on small farms it was 11.36 percent. This result indicated that the farmers changed their enterprise combination from more risky to less risky one. Since, risk involved in crop and livestock is comparatively less compared to crop and poultry. The higher percentage change in enterprise combination was observed on small farms.

Crop production

Availability of finance affects crop production in the way it facilitates the small and marginal farmers to purchase inputs at the proper time. Results of the study depicted that 86.67 percent respondents claimed that their crop production increased after taking micro-credit from PRSP. There were some farmers who were of the view that their crop production declined in spite of availability of finance. The reasons for decline in crop production were found to be mismanagement of the credit, small loan size, increased expenditures, no farming experience and drought.

Average yield of wheat and sugarcane was estimated as 23.50 and 612.70 mounds, respectively on marginal farms before taking micro-credit. After taking micro-credit from PRSP, the average yield of wheat improved by 0.60 percent while that of sugarcane declined by 4.40 percent. This decline in yield of sugarcane was the result of water shortage during this cropping season and the marginal farmers were not in a position to fulfill crop water requirement from other sources like tube-wells. The average yield per acre of wheat on the small farms was 24.70 mounds before taking micro-credit and it rose by 0.90 percent after taking micro-credit from PRSP. A decline in the yield of sugarcane was estimated on the small farms because of the reason mentioned earlier (Table 2).

Gross income from crop enterprise

The monetary values of all the income items, like selling of crops, by-products, and value of crops consumed at home etc. were added up to calculate gross income from crop enterprise. Results of Table 2 indicated that income received from selling crop produce by the marginal and small farmers was Rs. 15410 and 26501, respectively before availing micro-credit facility, the respective income earned by selling by-products was Rs. 522 and 1100 and value of crops used for home consumption was Rs. 10087 and 15540 on marginal and small farms, respectively.

It is a priori that after taking micro-credit, the income would increase and this priori was confirmed by the results given in Table 2. It was learnt that average gross income per acre by selling crops of marginal and small farmers increased from Rs. 15410 and 26501 to Rs. 19301 and 31676, respectively after taking micro-finance from PRSP. Similarly, income earned by selling by-products improved from Rs. 522 and 1100 to Rs. 715 and 1272 on marginal and small farms, respectively. The positive change was estimated as Rs. 193 and 172 on marginal and small farms, respectively. Value of crops consumed at home also rose from Rs. 10087 and 15540 to Rs. 12793 and 17521 on marginal and small farms, respectively (Table 2).

Table 2. Crop Production and Gross Income

Items	Marginal Farms		Change	Small Farms		Change
	Before micro-credit	After micro-credit		Before micro-credit	After micro-credit	
Crop Production (mounds/ac)						
Wheat	23.50	24.10	+0.60	24.70	25.60	+0.90
Sugarcane	612.70	608.30	-4.40	615.20	610.40	-4.20
Gross Income from Crop Enterprise (Rs/acre)						
By selling crops	15410	19301	+3891	26501	31676	+5175
By selling by-products	522	715	+193	1100	1272	+172
Consumed at home	10087	12793	+2706	15540	17521	+1981

The respondents were categorized into four classes on the basis of net income. Respondents with more than Rs. 10,000 net income were termed as well-to-do, better-off were those having net income of Rs. 8,000-10,000 whereas those having income in the range of Rs. 7,000-8,000 and 6,000-7,000 were termed as poor and very poor, respectively. The results showed that 13.33 percent respondents who were better-off improved their ranking and shifted to well-to-do level, 6.67 percent respondents living in poor condition upgraded their living standard toward better-off ranking and 12.22 percent respondents of very poor category shifted to poor category after availing micro-finance from RPSP.

Regression Analysis

An attempt had been made to estimate the dependence of crop income on different factors such as credit, inputs, etc. R^2, coefficient of determination

revealed that the estimated values were closely corresponded to the data by 27 percent. All independent variables included in the regression analysis are explained as under:

Coefficient of credit had a positive value of 0.54 and was significant at one percent significance level. It indicates that there was significant increase in the income of marginal and small farmers after getting micro-credit from PRSP. The reason may be that they were in a position to purchase required inputs at proper time and this timely availability of inputs led to increased production and ultimately income of the farmers. Coefficient of fertilizer variable had positive value of 1.32 and was significant at one percent significance level. It indicated that productivity increased with increased use of fertilizer. Family size variable had a positive coefficient with a value of 1189.42. However, it was statistically non-significant. As far as farm area is concerned its coefficient was positive but was non-significant. Positive coefficient indicated that it was difficult for the farmers to increase the farm area because of small amount of credit disbursed by PRSP. Education plays a vital role in the farming enterprises. Coefficient of this variable was positive, however, it was statistically non-significant (Table 3).

Table 3. Estimates of the Regression Function

Variables	Coefficients	Std. error	t-value	Significance
Constant	20031.32	11145.84	1.79	0.08
Credit	0.54	0.19	2.84	0.01
Fertilizer	1.32	0.38	3.47	0.01
Family size	1189.42	1807.26	0.66	0.51
Farm area	567.19	568.65	0.99	0.32
Education	1267.46	7207.73	0.18	0.86

$R^2 = 0.27$ N = 90

CONCLUSIONS AND SUGGESTIONS

Results of the study showed that crops and livestock combination was commonly adopted by the sampled respondents. Micro-credit proved to be effective in increasing crop production and improving the living standard of the farmers in the selected areas. Regression analysis indicated that credit and fertilizer were important while considering increased income received from wheat and sugarcane. The results of this paper invoke that loan size disbursed by PRSP and other agencies should be increased according to the requirement of the rural entrepreneurs and it should be disbursed in proper time. Post disbursement monitoring should be carried out both internally as well as externally. This pertains to internal monitoring by community organization members and external monitoring by social organizers and monitoring and planning officers of PRSP.

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