



EFFECTS OF SHORT TERM CREDIT ADVANCED BY ZTBL FOR ENHANCEMENT OF CROP PRODUCTIVITY AND INCOME OF GROWERS

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ABSTRACT

The present study was conducted to examine the utilization and effects of short-term credit from Zarai Taraqati Bank Ltd. (ZTBL) at tehsil Kabal area of district Swat in August 2003. Eighty respondents were selected in which forty were the beneficiaries of ZTBL and the remaining forty were the non-beneficiaries selected from the same area. Paired sample t-test was used to compare the production and income of the beneficiaries without credit and with credit. Independent sample t-test was used to compare the production and income of beneficiaries with non-beneficiaries. On overall basis beneficiaries' farmer utilized 78.84% of the amount of credit for the purpose it was received. While the remaining amount i.e. 21.15% was mis-utilized. Per acre production of beneficiaries with credit for tomato, wheat, maize and onion were 170.4 maunds (1 maund equal to 50kg), 24.6 maunds, 39.4 maunds and 152.4 maunds, respectively. In case of beneficiaries without credit it was 139.6 maunds, 18.93 maunds, 30.3 maunds and 130.7 maunds, respectively on per acre basis. While in case of non-beneficiaries it was 144.5 maunds, 19.25 maunds, 32.2 maunds and 135.3 maunds, respectively on per acre basis. Net return of beneficiaries with credit for tomato, wheat, maize and onion was Rs.17410.9, Rs. 3908.67, Rs. 7695.75, and Rs. 16450.5, respectively on per acre basis. While beneficiaries without credit it was Rs. 11863.21, Rs. 2195.54, Rs. 5981.17, and Rs. 10968.9, respectively on per acre basis. In case of non-beneficiaries it was Rs. 13616.85, Rs. 2830.15, Rs. 6600.88, and Rs. 13465, respectively on per acre basis.

Keywords: bank, credit, utilization, crop, productivity, income, growers.

INTRODUCTION

The economy of Pakistan is predominantly agrarian in character. Despite of speedy growth in other sectors, agriculture is still the largest sector contributing 25 percent towards the Gross Domestic Production (GDP). About 67.5 percent of total population of the country lives in rural areas and agriculture is the main source of their livelihood. According to estimates agriculture sector has engaged about 44 percent of total labour force and its direct and indirect share in annual exports of the country is around 70 percent (Government of Pakistan, 2002).

The agriculture sector is multi-segmental. Majority of our farm community comprised of subsistence farmers who are not in a position to use high quality seeds, sufficient fertilizers and improved farm implements due to the lack of finances available to them. Lack of finance is one of the main reasons for low per acre productivity in our agriculture. The matter of enhancing agricultural productivity therefore largely depends on the availability of finance and credit facility available to the farmers in their respective areas (ADBL, 1996).

Every modern business is operated on capital or borrowed capital. Similarly, farming also requires capital. The need for farm credit in increasing production and effective utilization of farm resources is quite clear. Farming not only require credit in the form of improved seeds, fertilizer and modern implements but also requires liquid capital for financing harvesting, haulage of produce and other similar farm operation (ADBP, 1996).

In Pakistan there are two major sources of agricultural credit, non-institutional and institutional

sources. The non-institutional credit suppliers include friends; neighbors and professional moneylenders are the main source of credit in the country. Institutional sources comprise of cooperative banks, Zarai Taraqati Bank Ltd. (ZTBL), nationalized and privatized commercial banks and Taccavi credits (ADBP, 1996).

Zarai Taraqati Bank Ltd. (ZTBL) consolidated and intensified its operation to play an effective role in financing of farm investments to modernize agriculture, increase farm production and raise farm income. The bank continued to push forward the on-going programmes and projects relating to provision of credit and technology to targets groups covering landless, subsistence, small farmers and rural women through its credit programme (Government of Pakistan, 2001).

The objectives of the study were as under:

- Analyze the utilization of credit by small farmers in the study area,
- Compare the effects of utilization of credit on crop production and income of beneficiaries without credit and with credit, and
- Suggest measures as to how the present credit scheme can further be improved.

MATERIALS AND METHODS

The study was conducted to analyze the impact of ZTBL short-term credit provided for enhancement of crop productivity at tehsil Kabal area of district Swat. The following methodology was adopted:

**Universe of study**

The study was carried out in tehsil Kabal area of district Swat. Primary data was collected from the respondents while secondary data was collected from the record of ZTBL (Mingora branch).

Sampling and sampling procedure

Sample size was selected according to the secondary data from the bank official record. Total number of short-term beneficiaries from ZTBL for production purposes was 330 in tehsil Kabal, district Swat, who were scattered in different villages. Due to time and financial constraint it was not possible to cover all the villages of the area. Therefore three villages namely Ktlai, Melagha and Qualagay were purposively selected, which had maximum number of short-term beneficiaries i.e. 60, 55 and 45, respectively. The sample size was 80 respondents. Among these 80 respondents about 25% (40) of the beneficiaries' farmers was randomly selected, for comparison with non-beneficiaries' farmers of the same socio economic status who were also randomly selected. Due to market prices and environmental conditions of beneficiaries without credit and with credit non-beneficiaries' farmers were selected. Non-beneficiaries' farmers were selected from the same villages to which beneficiaries' farmers belonged.

Collection of data

For the purpose of collecting the required data, interviews' schedule was developed and pre-tested. It was modified as required.

Analysis of data

The data thus obtained was analyzed statistically and reported in the form of tables. The following statistical techniques were used for analysis of the data:

Paired t-test

To compare crop production and income of beneficiaries without credit and with credit paired t-test was applied by following the procedure as outlined below:

- I. The null and alternative hypothesis are

$$H_0: \mu_1 = \mu_2$$

$$H_1: \mu_1 \neq \mu_2$$

Where μ_1 = mean of variables (production, income) without credit 2001.

μ_2 = mean of variables (production, income) with credit 2002.

- II. $\alpha = 0.05$

- III. Given a sample from each of two populations with $\sigma_1^2 \neq \sigma_2^2$ that is, with unequal variances, the null hypothesis $\mu_1 = \mu_2$ can be tested by using the following t-statistic (Chaudry 1996, p. 257).

$$t = \frac{\bar{d}}{sd / \sqrt{n}}$$

Where

$$\bar{d} = \sum \frac{di}{n}$$

$$\text{And } sd = \sqrt{\sum \frac{(di - \bar{d})^2}{n - 1}}$$

The critical region consists of all the t-values, which are greater than or equal to t-tabulated.

- IV. If the computed value of t-statistic falls in the critical region, H_0 shall be rejected, the hypothesis of no difference between the two means.

Independent sample t-test

To compare crop production and income of beneficiaries with non-beneficiaries independent t-test was applied by following the procedure outlined as below:

- I. The null and alternative hypothesis are

$$H_0: \mu_1 = \mu_2$$

$$H_1: \mu_1 \neq \mu_2$$

Where μ_1 = mean of variables (production, income) of beneficiaries 2002.

μ_2 = mean of variables (production, income) of non-beneficiaries 2002.

- II. $\alpha = 0.05$

- III. Given a sample from each of two populations with $\sigma_1^2 \neq \sigma_2^2$ that is, with unequal variances, the null hypothesis $\mu_1 = \mu_2$ can be tested by using the following t-statistic (Chaudry 1996, p. 258).

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}}$$

$$\text{Where } X_1 = \sum \frac{X_1}{n_1}$$

$$X_2 = \sum \frac{x_2}{n_2}$$

The critical region consists of all the t-values, which are greater than or equal to t-tabulated.

- IV. If the computed value of t-statistic falls in the critical region, H_0 shall be rejected, the



hypothesis of no difference between the two means.

RESULTS AND DISCUSSION

Maximization of output is the goal of every producer. It is a fact that credit has a very significant effect on production levels and plays a vital role in increasing productivity (Government of Pakistan and agriculture division).

Table-1 shows that in case of beneficiaries without credit and with credit, by applying paired t-test, the results were significant in case of all four crops i.e. tomato, wheat, maize and onion, by comparing probability of t with $\alpha = 0.05$. The results show that credit has a highly positive effect on production of beneficiaries with credit.

Table-1. Comparison of crop production of beneficiaries with and without credit.

Crops	Beneficiaries Without credit	Beneficiaries with credit	t-value	Probability of 't'
	Mean	Mean		
Tomato	139.60	170.40	6.25*	0.0000
Wheat	18.90	24.10	6.87*	0.0001
Maize	30.90	39.10	11.36*	0.0000
Onion	130.70	152.40	6.70*	0.0002

* = Significant

Credit has also a very significant on income levels and plays a vital role in increasing income level of farmers (Government of Pakistan food and agriculture division 2001).

results were significant in case of all four crops by comparing the probability of t with $\alpha = 0.05$. The results show that credit has positive effect on income of beneficiaries with credit.

Table-2 shows that in case of beneficiaries without credit and with credit, by applying paired t-test the

Table-2. Comparison of crop of beneficiaries with and without credit.

Crops	Beneficiaries Without credit	Beneficiaries with credit	t-value	Probability of 't'
	Mean	Mean		
Tomato	11863.60	17414.4	3.23*	0.0066
Wheat	2190.54	3907.70	5.02*	0.0010
Maize	5981.20	7695.20	5.64*	0.0008
Onion	10967.80	16450.20	5.42*	0.0006

* = Significant

Table-3 shows that in case of beneficiaries and non beneficiaries, by applying independent sample t-test the results were significant in case of all four crops, by

applying the probability of t with $\alpha = 0.05$. The results show that credit has a highly positive effect on production of beneficiaries with credit.

Table-3. Comparison of crop production of beneficiaries and non-beneficiaries.

Crops	Beneficiaries Without credit	Beneficiaries with credit	t-value	Probability of 't'
	Mean	Mean		
Tomato	170.40	144.30	8.75*	0.0000
Wheat	24.10	19.10	7.30*	0.0000
Maize	39.10	32.10	9.83*	0.0000
Onion	152.40	135.60	5.48*	0.0001

* = Significant

Table-4 reveals that in case of beneficiaries and non beneficiaries, by applying sample t-test the results were significant in case of all four crops, by comparing the probability of t with $\alpha = 0.05$. The results show that credit has a highly positive effect on production of beneficiaries with credit.

**Table-4.** Comparison of crop income of beneficiaries and non-beneficiaries.

Crops	Beneficiaries Without credit	Beneficiaries with credit	t-value	Probability of 't'
	Mean	Mean		
Tomato	17414.40	13615.80	3.18*	0.0038
Wheat	39.07.70	2835.20	2.21*	0.0417
Maize	7695.20	6608.20	6.36*	0.0000
Onion	16450.20	13470.6	3.27*	0.0047

* = Significant

CONCLUSION

Credit plays a crucial role in facilitating the modernization of agriculture and raising the participation of small farmers in the production process.

The study concludes that ZTBL credit scheme had positive effect on crop production and income of growers and it is likely to be an effective tool for development of agriculture provided the distribution of credit is made with justice and the procedures are made easy.

RECOMMENDATIONS

- Procedure for acquisition and recovery of credit is made easy so that maximum number of farmers can benefit from it;
- The monitoring and credit system should further be improved so that the mis-utilization of the credit by the farmers is minimized;
- It will be better if the credit is provided to the farmers in the form of kind (seed, fertilizer, weedicides/insecticides/pesticides etc.); and
- Mobile Credit Officers (MCOs) should visit the borrowers' farmers regularly and provide the required technical assistance to them.

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