Research Article

Maize Productivity Enhancement through Credit Program of Zari Tarqiati Bank Limited in Rural Areas of District Mardan

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Abstract | Maize, for its easy and excess availability in the rural areas of Khyber Pakhtunkhwa province is considered a main staple food in low income households. Due to small scale farming in the province the maize growers are always in need of loan for the purchase of inputs. The present study examined the effect of ZTBL credit program on maize productivity in district Mardan of Khyber Pakhtunkhwa, Pakistan. For this, a sample of 226 farmers was selected by employing multi stage sampling technique. At first stage, all the three tehsils (i.e.; Mardan, Takht Bhai and Katlang) of the district were selected. At second stage, two villages from each tehsil were randomly selected. In third stage, all the beneficiaries of ZTBL credit program for maize crop was selected and interviewed. Descriptive statistics, paired t-test and correlation analysis were used to analyze the data. It was found, that ZTBL credit program has overall a positive effect on maize productivity in the study area. Majority of the credit beneficiaries were small scale farmers who obtained medium term credit followed by short term credit type. Thus, higher amount of credit was disbursed under the category of medium term followed by short term. The average yield, cost and return for the maize crop showed significant results due to the proper utilization of the credit by the farmers. The major constraints to farmers while obtaining credit were complicated procedure of pass book preparation, amount less than requirement, unavailability of timely credit and non-availability of collateral. The study recommends amount of loan according to the farmers' requirements, bank staff cooperation and one window operation to address the problems of farmers while obtaining loan/credit from ZTBL. Such type of credit program ensuring proper utilization of credit should also be replicated to other districts of the province.

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Keywords | Credit program, ZTBL, Maize, Productivity, District Mardan

Introduction

Agriculture is an inevitable concomitant to the economies of developing countries as it plays a key role in providing food to the population and supplying other sectors with raw materials for production of goods and services (FAO, 2009). In case of Pakistan the agriculture sector accounts of 19.82 percent of Gross Domestic Product (GDP) with a 4.67 percent of GDP coming from major crops (wheat, rice, sugarcane, maize and cotton). Maize being the highest yielding cereal crop in the world has a significant importance for countries like Pakistan, where rapidly increasing population has already out stripped the available food supplies. Maize ranks third most grown crop in the world with an area of more than 118 mil-

lion hectares with an annual production of about 600 million metric tons. In Pakistan, maize is the fourth largest grown crop after wheat, cotton and rice with an overall production of 4.920 million tonnes during 2015-16 (GoP, 2015-16; Arain, 2013).

Among the provinces, Khyber Pakhtunkhwa is accounted for higher production of maize. According to Agriculture Statistics, Khyber Pakhtunkhwa, Peshawar the total area, production and yield per hectare of maize in Khyber Pakhtunkhwa stood at 30927 (000 hectares), 100706 (000 tonnes) and 3265 (Kg), respectively. Gradual increase in provincial population and the demand for food is phenomenal, especially with a great impact from the Afghan refugees. The ever increasing demand for food can be fulfilled by properly managing the existing resources, in the short run. Maize is considered a main staple food in low income rural households as it is locally grown and available in excess in the province. Beside the human consumption this multipurpose crop serves as feed for livestock and industrial needs (Khaliq et al., 2004). However recently it was shadowed by challenges related to soil degradation; such as erosion, of organic matter content increases with continuous application organic fertilizers like farmyard manure and ever escalating price of chemical fertilizers (Farhad et al., 2009).

In Pakistan there are various institutions providing credit facilities for agriculture in general and for maize specific, to reduce poverty. The major institutional sources include ZTBL, commercial banks, cooperative and domestic private banks advancing loans to farmers (GoP, 2015-16). ZTBL is a major institution of agricultural credit provision to farming community to promote agricultural productivity which includes maize productivity. To achieve agricultural development, the bank is working since its establishment in 1961 by implementing various programmes such as supervised agricultural credit scheme *etc*. (Mohsin et al., 2011).

In developing economies like Pakistan, the agricultural credit plays an important role in making farming sector more productive and efficient. The institutional agricultural credit was positively affecting the agricultural productivity in Pakistan (Ayaz and Hussain, 2011). The bank is providing the agricultural credit all over the country including district Mardan of Khyber Pakhtunkhwa. In the district, the credit is also provided to enhance maize productivity.

Realizing the fact that major crops like maize has potential contribution of Pakistan's agricultural economy. Identifying and developing the potential areas of maize production is part of the overall development strategy for this sector and overall rural poverty alleviation concerns in specific. The maize production in rural livelihood also deserves special attention of researchers and policy makers on all types of poverty indicators (*e.g*. income, nutritional, access to or institutional support *etc*.). In rural scenario financial constraint mainly limited the opportunities of people in maize production which can be facilitated by the provision of credit from ZTBL. So for developing any livelihood improvement strategy through maize production in the district requires the estimation of the effect of credit programme of ZTBL. It will not only find the achievements of the programme but also the bottlenecks which will be helpful for further designing the livelihood improvement strategies of the rural dwellers of the area.

Realizing its vitality this study was conducted, aiming at (i) evaluating the effects of ZTBL credit program on maize productivity on small, medium and large farms (ii) the identification of problems and constraints faced by farmers during the credit program (iii) providing recommendations for improvement of ZTBL's credit program for agricultural development.

Materials and Method

The study was conducted in district Mardan of Khyber Pakhtunkhwa, Pakistan. A sample size of 226 farmers/maize growers was selected by using multi stage sampling technique. At first stage all the three tehsils of district Mardan namely; Mardan, Thakhth Bai and Katlang were selected. In the second stage, two villages from each tehsil were selected randomly, namely; Gujar Garhi, Rustam, Lund Khawar, Shergarh, Katlang and Jamal Garhi. At third stage a total of 226 farmers were selected for interview on the criteria of all being beneficiaries. Consequently, 60 such farmers were found in Mardan, 63 in TahkhthBai and 103 in Katlang tehsil. According to village-wise distribution, 37 beneficiaries were interviewed from Gujar Garhi, 23, Rustam; 35, Lundkhwar; 28, Shergarh; 60, Katlang and 43 in Jamal Garhi. The data were collected through a pre-tested questionnaire. The collected data were analyzed by using descriptive statistic, paired t-test, correlations and rank orders.

Results and Discussion

Table 1 reveals the facts about farm sizes (in hectares) of the sampled farmers in the study area. A total of 90 percent of the farmers/beneficiaries were operated on 1-5 hectares of land indicating small scale farming in the study area due to which the farmers needed credit for the maize crop. Only 6 percent respondents owned 5-10 hectares of land. These facts clearly reveal that majority of the loan recipients were small farmers of 1-10 hectares of land.

Table 1: *Distribution of farm size among sampled farmers in the study area*

Farm size categories (in hectares)	Frequency	Percentage
1-5	203	90
5-10	14	6
10-15	5	2
15-20	2	1
Above 20	2	1
Total	226	100

Source: *Survey, 2012;* **r:** *-0.063*; **P:** *0.343*

The correlation between farm size and productivity of maize was found negative and insignificant. The correlation value (-0.063) reflected that the unitary increase in farm size decreased maize yield by 6.3 percent per hectare. However, per hectare yield increased to 3 hectares and above. This was due to the diseconomies of scale because on smaller farms the cost of production increases more than the net returns hence decreasing productivity (Koutsoyiannis, 1979).

Table 2: *Type of credit availed by sampled farmers in the study area*

Types of credit	Frequency	Percentage
Short term	99	44
Medium term	122	54
Long term	5	2
Total	226	100

Source: *Survey, 2012*

Data regarding types of credit availed by the sample respondents were presented in Table 2. It was found, that in the study area majority of the farmers are availing medium term credit followed by short term credit. Fewer respondents availed the long term credit. The results indicate that in the study area, medium and short term credit types are sufficient to fulfill the needs of majority of the small scale farmers.

Table 3 indicates that a total amount of Rs.49, 550, 000/- credit was dispersed by ZTBL among the sampled farmers during the study year. Out of total dispersed credit amount, 16, 81 and 3 percent have been allocated to short, medium and long term credit types, respectively. It shows that medium term disbursement was over and above the other two types of credit. The long term credit that promotes investments in farm infrastructure was almost negligible in the study area. It shows that the bank had the tendency of overlooking the long term credit and linked extremely with medium term credit followed by short term. The low amount of credit disbursement in the long term credit category is due to the fact the fewer farmers availed this type of credit, while more farmers availed the medium term credit followed by short term credit. This is all because of small scale farming in the study area.

Table 3: *Total amount disbursed to sampled farmers in the study area*

Types of credit	Amount (Rs.)	Percentage
Short term	7849000	16
Medium term	39971000	81
Long term	1730000	03
Total	49550000	100

Source: *Survey, 2012*

Table 4 shows the continuation status of the credit program by farmers in the study area. The results from Table 2 shows that majority of the farmers (71%) were of the view to avail the credit in future while 29 percent were of the view to not avail the credit in future. It is clear from the results that majority of the farmers required credit for their future needs related to maize crop due to poor conditions of the small scale farmers in the study area.

Table 4: *Continuation status of the credit program by the sampled farmers in the study area*

Response category	Frequency	Percentage
Yes	161	71
No	65	29
Total	226	100

Source: *Survey, 2012*

The average per hectare yield of maize crop, before and after credit utilization was 2806 Kg and 1525 Kg,

Table 5: *Effect of credit on average yield (Kg)/hectare of maize crop in the study area*

Crop name	Average yield(Kg)/Hectare after credit utilization	Average yield(Kg)/Hectare before credit utilization	Differences (Kg)	% change	df(n-1)	t-value	P-value
Maize	2806	1525	225	84	225	25.233	0.000

Note: *at 5 percent level of significance*

Table 6: *Effect of credit on average cost (Rs.)/hectare of maize crop in the study area*

Crop name	Average cost(Rs.)/Hectare after credit utilization	Average cost(Rs.)/Hectare before credit utilization	Differences (Rs.)	% change	df(n-1)	t-value	P-value
Maize	33811	17514	16297	93	225	8.186	0.000

Note: *at 5 percent level of significance*

Table 7: *Effect of credit on average returns (Rs.)/hectare of maize crop in the study area*

Crop name	Average return (Rs.)/Hectare after credit utilization	Average return (Rs.)/Hectare before credit utilization	Differences (Rs.)	% change	df(n-1)	t-value	P-value
Maize	54501	22302	32200	144	225	34.184	0.000

Note: *At 5 percent level of significance*

respectively as can be seen in Table 5. The result of paired t-test shows that significant differences exited for before and after credit yield which further implies that the credit program has a positive effect on the maize crop productivity in the study area. The results are in line with Vitor et al. (2014).

Table 6 shows the data regarding average cost of maize crop before and after credit utilization in the study area. According to table 6, the average cost per hectare has been increased from Rs.17, 514/- to Rs.33, 811/- due to the credit program. The results were found highly significant at 5 percent. An increase of 93 percent has been estimated. It implies that due to credit availability the farmers used high quality seed and other inputs such as fertilizer, weedicides and labour thus total cost showed this much increase in the study area. It further implies that the credit has been properly utilized for the maize crop.

The results in Table 7 depicts that the average return per hectare of maize crop has been increased from Rs. 22, 302/- to Rs.54, 501/- due to credit program. The paired t-test results were found highly significant at 5 percent level of significance and with 144 percent change value. It implies that due to credit the farmers used modern inputs and thus received higher average return for the maize crop which further shows the significance of credit program for the small scale farmers of the study area.

The results (Table 8), shows that the major constraints to farmers during the credit program were complicated procedure of pass book preparation, amount less than requirement, unavailability of timely credit and non-availability of collateral. Other constraints are non-cooperation of bank staff and distant banks. Khan and Jan (2012) also reported that the credit amount less than requirement serve as a barrier in obtaining loan from the banks. The significant results ensure the proper utilization of credit by the farmers in the study area.

Table 8: *Problems and constraints faced by sampled farmers in obtaining loans*

Constraints	Frequency	Percentage	Rank
Unavailability of timely credit	130	58	3rd
Complicated procedure of passbook	143	63	1st
Non-availability of collateral	123	54	4th
Non-cooperation of bank staff	90	40	5th
Amount less than requirement	134	60	2nd
Distant banks	114	19	6th

Source: *Survey, 2012;* **Note:** *Multiple responses were allowed hence the total frequency exceeded the sample size.*

Conclusion and Recommendations

The study concluded that ZTBL credit program has overall a positive effect on maize productivity in the

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study area. Majority of the credit beneficiaries were small scale farmers who obtained medium term credit followed by short term credit type. Thus, higher amount of credit was disbursed under the category of medium term followed by short term. The average yield, cost and return for the maize crop showed significant results due to the proper utilization of the credit by the farmers. The major constraints to the farmers while obtaining credit were complicated procedure of pass book preparation, amount less than requirement, unavailability of timely credit and non-availability of collateral. The study recommends amount of loan according to the farmers' requirements, bank staff cooperation and one window operation to address the problems of the farmers while obtaining loan/credit from ZTBL. It is also important for the farmers to ensure best utilization of the loan for which purpose loan has been received to enhance productivity of the maize in the study area. Such type of credit program ensuring proper utilization of credit should also be replicated to other districts of the Khyber Pakhtunkhwa Province.

Author's Contribution

Naushad Khan generated the research idea while Munir Khan and Javeria Tanveer refined this. Naushad Khan and Munir Khan proposed the proceedure of reasearch and analysed the results. Shahnaz Akhtar suggested formate of the research paper and contributed to report writting. Shaista Naz wrote the manuscript. Muhammad Kaleem identified the respondents and helped in data collection. Javeria Tanveer proof read the manuscript.

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