

Research Article



Impact of Agricultural Credit on Livestock Income: A Case Study of District Lasbela, Balochistan

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Abstract | This study has evaluated the impact of agricultural credit on livestock income in district Lasbela, Balochistan. For assessment, we have used primary and secondary data to test the relationship between agricultural credit and livestock income. The results of the study indicate that agricultural credit help to develop livestock sector and enhance livestock income of the farmers by 65%. Furthermore, the elasticity of agricultural credit is higher than the elasticity of family size and education level. The elasticity of the credit, family size and education level are 11%, 0.09 % and 0.05% respectively. Thus, this paper argue that if the policy makers give priority to livestock in agricultural credit and devise easy credit procedures for the small farmers, will ultimately result in alleviating the problem of poverty and unemployment in the region.

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Introduction

Agriculture is not the only source of food and fiber for 200 million population around Pakistan but also a supplier of raw materials and labor to manufacturing sector. Notwithstanding, the transformation of our economy from primary to secondary and tertiary sectors, agriculture still is the main source of economic growth of Pakistan. Where, 44.7% of the working age population is associated with agriculture which in turn contributes 21.8% to the Gross Domestic Product (GDP). In addition to this, nearly 60% of foreign exchange earnings come from agricultural sector (GOP, 2015-16). However, this sector is facing serious problems such as lack of appropriate technology, crop management, availability of appropriate irriga-

tion system, lack of marketing and infrastructure facilities, and low availability of credit Khan et al. (2015).

Majority of the farmers in Pakistan are associated to subsistence farming and have no access to high quality seeds, fertilizers and modern agricultural tools. It is because of the lack of agricultural credit for the farmers. As Ahmad (2007) opine that agricultural production is greatly dependent on the farmers' accessibility to agricultural credit. Farmers are the mainstay of the country's economy and if agriculture credit accessibility is denied to them, productivity level would go on decreasing. Pakistan is facing the same situation and therefore, it is argued that one of the major reasons behind the low productivity in Pakistan is the lack of investment in the agriculture sector.

For a layman in Pakistan, agriculture means production of different crops in different seasons throughout the year. Even the small rural farmers and cattle raising peoples also consider agricultural activities and livestock as two different things. However, livestock is one of the most important sub sectors of agriculture and according to Economic Survey of Pakistan (2015-16) the livestock contributes almost 50% of the value added in the agriculture sector, amounting to 11% of Pakistan's Gross Domestic Product (GDP). Thus, livestock is one of the most important sub sectors of agriculture and majority of the people in the province of Balochistan are associated with this sector for their livelihood. It is an ancient occupation of the people living in Balochistan and all types of livestock (such as Cattle, Buffalos, Sheep, Goats, Camels, Horses, Mules, Asses and Poultry) are available in this province in a large number (livestock census data of 2004 and 2016 available as [Appendix 01](#) and [02](#)).

Currently, Balochistan is the largest province of Pakistan and constitutes 44% of the total geographical area of the country. Despite of the ecological and environmental limitations and being semi-arid and arid province, more than 47% of Balochistan's economy relies on livestock and 75% people in the province are linked with livestock sector for their livelihood. Similarly livestock of Pakistan contributes approximately 55% of value addition in the agricultural sector, whereas 11.4 % to national GDP.

Agricultural credit facility is a key instrument for rural development while at the same time investment play significant role to materialize a successful business venture. Traditionally, our farmers are hard working in nature and aim to increase production and efficiency with the help of proper utilization of agriculture resources for raising their livelihood levels. Therefore, rural credit is an important financial support for the small farmers through which they can generate sizable profits ([Khan et al., 2015](#)). [Khan et al. \(2015\)](#) investigated that the livestock have positive impact on poverty reduction in district Lasbela, moreover, they also revealed that the accessibility to credit and health care of the animals boost households' returns from livestock which help in poverty reduction.

The main sources of rural credit in Pakistan are institutional and non-institutional credit facilities whereas institutional credit sources are primarily extended

by Zarai Tarkiat Bank Limited (ZTBL), Commercial Banks, Cooperatives and Private National Banks while the non-institutional credit sources are limited to neighbors, relatives and friends ([Idress and Ibrahim, 1993](#)). Agricultural productivity is not only linked with inputs like improved seeds, fertilizers and modern equipment but also critically requires working capital to finance harvesting, transportation of products, labor and other holdings.

Agricultural credit facility is one of the essential component for the development of agriculture in Pakistan. Presently, agricultural credit gives the impression of being the only approach to eliminate absolute poverty of the farmers by increasing per acre productivity ([Anka, 1992](#)). Hence, for better agricultural productivity, the government is required to give more importance to agricultural credit. In the recent years, credit demand by an agricultural community has shown a marked increase. Consequently, the government has improved the distribution of agricultural credit to some extent.

According to [Muhammad et al. \(1981\)](#); the system of bank credit is not according to the real needs of the farmers. They also noted that the structure of the society is so complicated and only resourceful farmers managed more credit from the banks as compared to those ones who really need credits for increasing the production. [Ansari \(2001\)](#) has reported that the introduction of modern technology and innovation have a great potential to increase agricultural productivity. Therefore, farmers always have intention to take loans from different institutions on reasonable terms and conditions in order to increase the productivity of their farms. [Waqar \(2002\)](#) stated that the monthly income and savings of the farmers have increased significantly with the suitable utilization of agricultural credit. Hence, it indicates that proper utilization of credit matters a lot not only for the welfare of the farmers but the country at large. [Malik \(1989\)](#) indicated that as compared to the non-institutional sources in the past, the institutional sources of credit have significantly increased. However, small holding farmers have limited access to the institutional credit and they are heavily relying on non-institutional credit. Agricultural credit is very important to boost aggregate economic activities by creating demand for other sectors of the economy. Therefore, in nutshell, agriculture credit can perform the role of multiplier and can stimulate economic activities in other related

sectors as well.

The rest of the study is organized as follows: The forthcoming section outlines model specification, data sources, methodology and variables description while section three and four contains main findings and conclusion respectively.

Methodology

Primary and secondary data has been used for this study. Primary data was collected through a well-organized questionnaire, while secondary data was extracted from published reports of livestock, Government of Balochistan and different issues of Economic Survey of Pakistan. The span of the study and area of research is decided to be district Lasbela, Balochistan and its five tehsils such as Uthal, Bela, Gadani, Hub, and Dureji. Due to certain financial constraints and time limitations only 100 samples were selected from different tehsils of the district Lasbela. The following equation has been developed and applied to estimate livestock income of the family before and after availing an agriculture credit from Zarai Taraqati Bank Limited (ZTBL).

$$\pi = P_M Q - P_f Q - P_v Q - C_M - C_f \quad (1)$$

π = Profit, P_M = Per liter price of Milk, P_f = Per Kilogram Price of Animal Feed, P_v = Per Visit Cost of the Veterinarian Treatment, C_M = Miscellaneous cost of various natures and C_f = Fixed cost.

Equation (1) depicted that the profit of households before and after taking loan from ZTBL:

$$\pi = P_M Q - P_f Q - P_v Q - C_M - C_f - i \quad (2)$$

Here 'i' is the real interest rate on which the households take loan from the bank. For obtaining the monthly interest rate, we divided the total amount of money by 12. Hereafter, to derive the incremental increase of the profit owing to loan can be estimated with the help of the given formula i.e. $\pi = \pi_2 - \pi_1$. In addition to this, in order to examine the impact of institutional credit on livestock's income, the Ordinary Least Square (OLS) technique has been applied on equation (3) to get the strength of agriculture credit.

$$Y = \alpha + \alpha_1 N + \alpha_2 R + \alpha_3 C + \varepsilon_i \quad (3)$$

We also applied natural log on both sides of the equation (3) to get more appropriate results and elasticity of respective variables. Thus, the equation (3) becomes:

$$\log Y = \alpha + \alpha_1 \log N + \alpha_2 \log R + \alpha_3 \log C + \varepsilon_i \quad (4)$$

Where: Y represents per month revenue of milk in the above equation (4) and the revenue from milk is a dependent variable while the rest of the variables are independent i.e. (N) family size, (EL) education level and (C) agricultural credit. While, α_i represent elasticity of respective variables.

Results and Discussion

Table 1 describes the frequency distribution with different characteristics of the respondents and the amount of credit availed by them. In the selected sample, 24% of the farmers are illiterate whereas 30% and 20% of the farmers are having primary and middle education respectively. And only 16% and 10% of the farmers have passed their matriculation and secondary school education respectively.

It represents that 50% of the farmers have taken loan ranging from PKR 100,000 to 200,000, while 40% have availed loan between PKR 200,000 to 300,000 and the remaining 10% of the farmers have availed this financing facility between the rang of PKR 300,000 to 400,000.

The average family sizes of the respondents are fairly large. In the sample which we have selected for this study, 32% of the respondents have family members between 10 to 12 individuals. Likewise 20% and 24% of the respondent's family size is up to 06 and 08 persons per family respectively. It is known that experience in crop farming and livestock are key factors in increasing the productivity and such experience on the part of the small farmers has always been a great impact on the productivity of farmers. In Table 1 we highlighted this factor; the experience of the farmer; wherein majority of the farmers have pretty much experience as shown in Table 1. For instance, 56% of the farmers having 10 or more years of experience, while 24% have 8 years of experience and the remaining 20% have 6 years of experience.

The lowest part of Table 1 has reported the income of the farmers after and before availing the loan facility

ZTBL. It shows that there is significant increase in farmers' income after availing loan facility (agricultural credit). The increase in income is almost 65% due to agriculture credit.

Table 1: Characteristics of the Livestock Farmers at Lasbela

Characteristics (Char) of the respondents N=100			
Char		Frequency	Percentage
Education	Illiterate	24	24%
	Primary	30	30%
	Middle	20	20%
	Matriculation	16	16%
	FA/ FSc	10	10%
	Above FA/Fsc	00	00%
	Total	100	100%
	Amount of loan from ZTBL	100000-20000	50
20000-30000		40	40%
30000-40000		10	10%
40000 ≥		00	00%
Total		100	100%
Family size	4-6	20	20%
	6-8	24	24%
	8-10	18	18%
	10-12	32	32%
	12-14	04	04%
	14-16		
	Total	100	100%
Experience	4-6	20	20%
	6-8	24	24%
	8-10	40	40%
	10-12	10	10%
	12-14	06	06%
	Total	100	100%
Average income of the respondents after and before the use of agriculture credit for the development of livestock N=50			
	After	Before	
Number of Milking Animals	12	07	
Monthly income from Live-stock	20,308	12,340	
Percentage Change (increase)	65%		

Table 2 shows that there is positive relationship amongst all the variables but the coefficients of correlation are lower than 0.50. So, keeping in view the results of Table 2, it can be concluded that there is no problem of multicollinearity in the model. However, the correlation between the amount of agriculture credit and education is quite high as compared

to other variables. This relationship is quite meaningful which shows that educated farmers can easily get the institutional loan as compared to less educated or non-educated farmers.

Table 2: Correlation Matrix

Variables	LI	FS	EI	AOC
LI	01	0.49	0.38	0.53
FS		01	0.21	0.20
EL			01	0.57
AOC				01

Where: (LI) Livestock Income, (FS) Family Size, (EL) Educational Level, (AOC) Amount of Credit

Table 3: Empirical Results of the Regression

Empirical results of the regression		
Variables	Coefficient	T-Values
Intercept	8.020	1.76
Amount of credit	0.11***	4.67
Educational level	0.05**	3.18
Family size	0.09*	2.10
Diagnostic test of the Model		
R-Square	0.61	
D.W test	2.23	
F- Statistics	11.52***	

Where: ***<0.01, **p<0.05 and *p<0.10,

Table 3 presents the empirical results of the model, demonstrating that all of the variables are statistically significant and bears significant and theoretically correct signs as expected. The coefficient of agriculture credit is 0.11, which is fairly higher than the coefficients of education and family size. Hence, it indicates that in order to improve the efficiency of livestock, the credit availability plays more important role than education and family labor; because credit availability ensures the rational and timely use of inputs in livestock productivity. Equally, the coefficient of education is 0.07; which shows that the 01% increase in farmers' education can lead to augment the farmers' monthly income of livestock by 0.07 %. There is clear indication that livestock sector has a huge capacity to absorb the unemployed educated labor force. Moreover, the elasticity of family size is 0.09, which is high enough and meaningful, shows that 01% increase in family labor leads to increase the farmers' monthly income of livestock by 0.09%. The results of the model indicates that livestock is labor intensive industry and has the capacity to absorb more labor force. Moreover, with availability of capital and livestock, the en-

gagement of more labor force will also increase the (omit the space) opportunity to get the advantages of economies of scale in livestock sector. Hence, in this regard a favorable credit policy is very important for livestock sector. It is argued that agricultural credit facility to the masses and education level have immense importance in development and growth of livestock sector, as well as, this sector can be proved as an effective area of absorbing labor force and therefore reducing the dependency ratio among rural areas.

Conclusions

The results of the study indicated that agricultural credit facility has almost doubled the livestock income of the farmers and highly productive to improve the socio-economic status of the farmers. Moreover, among all the explanatory variables, the elasticity of agricultural credit is the highest, which provides a strong evidence that provision of institutional credit plays a crucial role in development of the livestock sector. Similarly, with the help of agricultural credit, farmers can expand the size of their businesses. Additionally, family labor and farmers' education have also a strong and positive impact on livestock income. It is concluded that agricultural credit is the key to expand livestock industry with the proper utilization of the unemployed and unskilled labor force to mitigate the problem of unemployment and poverty in district Lasbela in particular and Balochistan in general.

Authors Contribution

Khalid Khan prepared the first draft of the manuscript. Muhammad Abdul Kamal helped in interpretation of the results, literature review, citations and manuscript editing. Saubia Ramazan and Gulawar Khan helped in the data filtering, analysis and estimations of the results. Gulzar Ali and Sheharyar Ahmed settled the questionnaire, and references style and collected the data.

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