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RESPONSE OF LIVESTOCK FARMERS TO INSTITUTIONAL CREDIT USE IN PAKISTAN:

A CASE STUDY OF BAHAWALNAGAR DISTRICT

TUSAWAR IFTIKHAR AHMAD, PHD
Assistant Professor of Economics,
The Islamia University of Bahawalpur, Pakistan.
Bahawalnagar Campus
Email: tusawariftikhar@hotmail.com

KASHIF RAZA
Lecturer of Economics,
The Islamia University of Bahawalpur, Pakistan.
Bahawalnagar Campus
Email: kashif.raza@iub.edu.pk

ASAD SAIF
M. Sc. Scholar of Economics,
The Islamia University of Bahawalpur, Pakistan.
Bahawalnagar Campus

ABSTRACT

Substantial dependence on agricultural production is amongst the common characteristics of developing economies. In such an economic milieu, proper utilization of institutional credit—provided to livestock farmers—could reap multiple benefits for the farming communities. The present study aimed to answer that how come social, economic, and geographical context of a livestock farmer might or might not cause to happen the proper utilization of agricultural credit gained. For empirical analysis, primary information was collected from a sample of 143 farmers residing in the selected district (Bahawalnagar) of southern Punjab. In determining a farmer's response toward credit use, descriptive statistics exhibited a clear role of the gender and geographical area of the farmer; whereas the findings estimated through logistic regression signified the livestock income, off-farm income, and the herd size as the key credit-use-determinants. The study suggests that for a loaning institute, prior information about a farmer's income diversification may serve as a proxy to predict his/her credit-use response. In order to improve credit use efficiency, the study also favors the adoption of gender-specific and area-specific approaches for agricultural credit disbursement.

Keywords: Farmers, livestock assets, institutional credit, income diversification, southern Punjab

JEL Classification Codes: C31, G21, J1, O16, Q14

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I. INTRODUCTION

Agricultural credit is an integral part of the process of modernization of agriculture and commercialization of the rural economy. The introduction of easy and cheap credit is the quickest way for boosting agricultural production. The fulfillment of the credit requirements of the farming communities remained the prime policy of all the successive governments in Pakistan. For agriculture sector, the need for the credit also increases because of: the sector's exposure to the nature that brings seasonal variations in the farmers' returns, small farm income from small holdings, and a changing trend from subsistence to commercial farming. Agricultural development cannot be materialized, unless agriculture credit is systematically institutionalized for small farmers—which constitute the largest share of the farmers in Pakistan (Abedullah, 2009).

It is well documented that for many small scale farmers, lack of access to financial services is a constraint to the establishment or expansion of viable agricultural enterprises. Microcredit may enable small and marginal farmers to purchase the inputs they need to increase their productivity, as well as financing a range of activities adding value to agricultural output. Hence, in order to achieve the goal of output maximization, the farmers needed to be wise at the utilization of credit facilities (Nosiru, 2010).

Agricultural credit provides financial resources to the farming community particularly for purchase of primary inputs. The government considers it an important instrument for achieving higher production and attaches high priority to ensure its timely availability to the farmers. Seeing a northward trend in the credit requirements of the farming community in the recent past, government has enhanced agricultural credit allocation. (Khan, et al 2007).

Within the agriculture sector, livestock sub-sector has an exclusive position in present government's national agenda of the economic development. Historically dominated by subsistence small holders to meet their daily nutrition and monetary needs livestock sector plays an important role in poverty alleviation and socioeconomic uplift of rural masses. Credit is an important need of the farming communities to reap the multiple objectives and banks are the main source of providing institutional credit to the farmers. At present 31 commercial, microfinance banks and Islamic banks with around 3,950 agriculture designated branches are facilitating farmers by extending agriculture credit

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throughout the country. The agriculture lending banks comprising of 19 commercial banks, 2 specialized banks (ZTBL, PPCBL), 7 microfinance banks and 3 Islamic banks which are engaged in providing development loans to farming community for agriculture activities including livestock (GOP, 2015).

Zarai Taraqiati Bank Limited (ZTBL) the former Agricultural Development Bank of Pakistan (ADBP) is the premier financial institution geared towards the uplift of the agriculture and rural sector by raising farm productivity, streamlining the institutional credit and increasing income generating capacity of the farming community through provision of financial services and technical knowhow. *Awami Zarai Scheme* (AZS) is a loaning scheme launched by the ZTBL for livestock raisers. All experienced poultry, dairy & fishery farmers are eligible for loan under the scheme. To ensure the proper utilization of the loan, strict monitoring is exercised by the mobile credit officers (MCOs) in 100% cases and a sample checking about loan utilization is made by the manager, zonal manager (recovery) and internal auditor of the bank (ZTBL, 2015).

A. SIGNIFICANCE OF THE STUDY

ZTBL is an important source of agricultural credit and livestock sector is an essential area of agribusiness in Pakistan. Livestock rearing is one of the greatest financial exercises for the rural population of the country. According to the Economic Survey of Pakistan (2014-15), livestock's contribution to agriculture value added stood at 55.9 percent while it contributes 11.8 percent to the national GDP during 2013-14 Gross value addition of livestock has increased to Rs. 776.5 billion, showing an increase of 2.7 percent as compared to last year. By increasing the productivity of livestock farming through the provision of institutional credit the benefits could be provided to the rural masses (GOP, 2015).

Either by comparing credit-beneficiaries with non beneficiaries or by comparing situations before and after credit-utilization, agricultural credit interventions have proved to be a powerful instrument in achieving goals relating to the farm output maximization and living standard improvement. Role of agricultural credit in augmenting farm productivity and then in socio-economic uplift of farming communities has been gauged through impact assessments in various micro studies. Proper utilization of credit is an important aspect along with the credit needs identification, farmer's credit-worthiness, provision of credit, impact of credit, and so on. A number of case studies carried out in almost all provinces of

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Pakistan and micro credit disbursement either through government or NGOs have proved to be successful in enhancing agricultural productivity. But without proper utilization of credit the efforts made either by government or non-government financial institutes may be inefficient. So, keeping the purpose at hand, the present study identifies different factors that could be responsible for defining a livestock farmer's attitude toward institutional credit use.

B. STUDY OBJECTIVES

Seeing the important role of institutional credit (under AZS scheme of ZTBL) in agricultural development, the study primarily aims to observe the credit utilization behavior of the livestock farming communities of district Bahawalnagar. The specific objectives of the study are:

1. To find out the impact of income earned from livestock on the credit utilization behavior of the of the farmers
2. To examine the relationship between off farm income and the loan utilization performance of the farmers
3. To see the association between livestock assets and loan spending behavior of the farmers
4. To see the impact of gender on loan spending behavior of farmers
5. To gauge the geographical differences with respect to the credit utilization behavior of farmers

C. RESEARCH HYPOTHESES

H_1 = As compared to large farmers, small farmers better utilize credit

H_2 = In comparison with male farmers, female farmers properly utilize credit

D. ORGANIZATION OF THE STUDY

After presenting the background of the study along with the study objectives in the introductory section the study comprises of the following sections: literature review section presents previous findings on the said themes in international and local contexts. Data and methodology section presents data source, data type, and data range, unit of measurement, and definition of variables. Forth section exhibits results and make discussion. Finally, the last section concludes the whole discussion and recommends suggestion on the basis of findings.

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II. LITERATURE REVIEW

Tibi and Adaigho (2015) analyzed empirically the impact of microfinance on small-scale poultry production in delta state of Nigeria. Analysis based on the Maximum Likelihood Estimation (MLE) technique revealed farmer's age, gender, educational level, household size, loan size, and some others as a set of socio-economic variables that significantly implied towards the probability of credit impact on poultry productivity.

Okon et al. (2012) examined empirically the impact of micro-credit scheme on rural farmers of Okobo, Itu, and Ikot Abasi agricultural zones in Akwa Ibon state of Nigeria. As compared to the traditional credit scheme (*Osusu*) the microcredit provision through institutional sources was observed bringing improvement in income, consumption, health care and nutrition, female empowerment, and in the savings of the farm families.

Khan et al. (2013) in a primary study; conducted in a selected district of KPK-province, examined empirically the effect of Zarai Taraqiati Bank Limited (ZTBL) in enhancing farm productivity through agricultural credit. The study found that credit has no positive impact on production and income of farmers. On the other hand it showed that respectively 12 % and 88% of the beneficiaries/respondents used agricultural credit for the right purpose and for mixed purposes. The study implied towards the importance of awareness-raising in farmers about credit utilization.

Shah et al. (2015) investigated empirically the impact of microcredit disbursed through a non- governmental organization (NGO)—Balochistan Rural Support Programme (BRSP)—on agricultural development in district Mastung (Baluchistan). According to the study 81.66% respondents claimed that microcredit facility had improved their household living standard while 18.33% respondents were opposite in such statement. On overall the study showed the positive impact of institutional credit on agricultural development. To assure the desired outcomes, the study proposed the proper monitoring and evaluation of the respondents after getting loan.

Javed et al. (2006) made empirically an impact assessment of micro-credit program of an NGO—Punjab Rural Support Program (PRSP) on wheat and sugarcane production in Faisalabad. A positive impact of institutional credit on crop productivity was recorded. It was suggested that the proper monitoring should be made by planning officers

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of the credit providing institution and by the socials organizers. Credit was also seen to have a positive impact on the income earned from crops.

Fayaz et al. (2006) evaluated the effects of short term credit advanced by ZTBL for enhancement of crop productivity and income of growers in district Swat of KPK province. A comparison of beneficiaries and non-beneficiaries was made to see the impact of institutional credit on the productivity of crops and the incomes of the farmers. Majority of the farmers did not misuse the credit. A considerable and significant gap was observed in terms of crop yields and farm incomes between the beneficiaries and the non-beneficiaries. It was suggested that mobile credit officers (MCOs) should visit the borrowers/farmers regularly and provide the required technical assistance to them.

Khan et al. (2007) analyzed the impact of micro credit program of Sarhad Rural Support Program (SRSP) on livestock enterprise development in KPK. The study was a kind of before-and-after analysis. The study showed that institutional credit use in accordance with the project's objectives had its impact in terms of improvement in the users' socio-economic status and vice versa. It was suggested that the SRSP should increase the credit limit to the respondents and the government of Pakistan should give women the access to the credit to sustain their income and improve economy.

Iqbal et al. (2012) evaluated the role ZTBL in the development of livestock in the district Swat of KPK. It was also a kind of before-and-after analysis. The study found to be recording the strong impact of institutional credit in augmenting the livestock population along with increasing the average incomes of the livestock farmers in the study area.

Taj et al. (2012) found that micro credit significantly increased livestock population in agriculturally landless and land owning families. The special emphasis of the study was on the women livestock raisers. The study revealed the impact of institutional credit in terms of women empowerment, improved households' income and consumption.

In the previous studies, agriculture loan was found to be helpful to improve living standard, food, health and education and has positive impact on agriculture development. Micro finance also plays a significant role to improve the income levels of farmers. These studies have found relationships between credit utilization, livestock purchasing, daily milk production, and changes in income level of the respondents. The micro credit has been

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used to increases the productivity and it plays a positive role in livestock and agricultural development.

III. DATA AND METHODOLOGY

The data for the present study were collected from livestock farmers of district Bahawalnagar who gained agricultural credit from ZTBL Chishtian branch. Amongst a list of 280 respondents who took loan under AZS scheme (in 2013-14), only those who took loan just for the development of livestock, were selected from the list. Hence, a purposive sampling technique was applied for the selection of the respondents. A well structured questionnaire was used as an instrument whereas face-to-face interviewing was applied as a technique for data collection. Of the total 143 respondents, respectively, 27%, 20%, 24%, and 28% were women livestock raisers, landless livestock keepers, small farmers (having own farm land less than 5 acres), and large farmers (having own farm land more than 5 acres). The data were collected in 2015 and analyzed by using statistical package for social science (SPSS) version 20.

A. MODEL SPECIFICATION

As applied in their work by Bashir et al. (2010), the present study has also developed and applied a logistic regression model to analyze the data. Logistic regression may be thought of as an approach that is similar to that of multiple linear regressions, but takes into account the fact that the dependent variable is categorical. Loan utilization response of each respondent/client of ZTBL was taken as a proxy to gauge his/her loan spending behavior. A criterion was set to classify the loan utilization response or trend into two categories, that is, “for livestock development only” and “for mixed purposes”. Loan utilization trend of a respondent/client spending the loan “for livestock development only” was classified as “positive” and assigned a code “1”. Conversely, the loan utilization trend of a respondent/client spending the loan “for mixed purposes” was classified as “negative” and assigned a code “0. This generated dummy variable served as dependent variable of the current study. Hence, the dichotomous nature of the dependent variable validates our aptness of making choice of the binary logistic regression to infer results of the study.

Econometric Equation:

$$\mathrm{Log}\,[\mathrm{P_i}/1-\mathrm{P_i}] = \beta_0 + \beta_1 \mathrm{X_{IAN}} + \beta_2 \mathrm{X_{IOTR}} + \beta_3 \mathrm{X_{NOB}} + \beta_4 \mathrm{X_{GDR}} + \beta_5 \mathrm{X_{AREA}} + \beta_6 \mathrm{X_{TLG}} + \mathrm{e}$$

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Where, $\text{Log}\,[P_i/1-P_i]$ = Logarithm or logit of the ratio of the probability that an event will occur (Pi) to the probability that an event will not occur (1 – Pi).

$\beta_0 = \text{Constant of the regressors}$

$\beta_1 \text{ to } \beta_6 = \text{coefficients of the regressors}$

$X_{IAN} = \text{Income from Animal (in Rupees)}$

$X_{IOTR} = \text{Income from other sources(in Rupees)}$

$X_{NOB} = \text{Number of buffaloes}$

$X_{GDR} = \text{Gender of the Respondents (male} = 0, \text{female} = 1)$

$X_{AREA} = \text{Area of the repondents (in acres)}$

$X_{TLG} = \text{Total loan gained(in Rupees)}$

$e = \text{Error Term}$

Similar to OLS regression, the logistic regression equation for predicting the dependent variable the probability of showing "positive" [Prob (Y_i = 1)] behavior and the probability of showing "negative" [Prob (Y_i = 0)] behavior from the independent variable prediction equation is as given below:

The ratio $P_i/1\text{-}P_i$ is called the odds ratio and Log ($P_i/1\text{-}P_i$) is called log odds or log of odd ratio or Logit which acts as dependent variable. This ratio will give the odds that the respondent/client's loan spending behavior is negative. A positive sign of the estimated coefficients would mean that the probability of a respondent/client to spend the loan for livestock development only is higher than that in reference category and vice versa keeping all other characteristics constant.

In this way, we saw the probabilities of the respondent/farmer's credit utilization behavior to be "positive" or "negative" with some change in the determinants (or predictors) of their credit utilization behavior. An odd ratio [exp (β)] value greater than 1 represents a high probability of spending loan for livestock development only with the increase in the value of regressors (Xs). An exp (β) value less than 1 shows a low likelihood of spending loan for livestock development only with the increase in the value of regressors. The parameters of the model are estimated by using the maximum likelihood (ML) technique.

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B. DIAGNOSTIC STATISTICS

R-squared in ordinary least-squares (OLS) regression tells us about the proportion of variance explained in the dependent variable because of the independent variables in the model. The Cox & Snell R Square and the Nagelkerke R Square are just the approximations (not the exact interpretation) which tell us something similar to R-square. That is why known as a "pseudo-R" statistic. High values are better than low values. Higher values mean that your model is more fit. Like adjusted R-square in ordinary least-squares, the Nagelkerke R-square is an adjustment of the Cox & Snell's R-square. The maximum value for the Cox & Snell's R-square is 0.75 and the maximum value for Nagelkerke R-square is 1.00.

IV. RESULTS AND DISCUSSION

Descriptive and inferential statistic techniques are used to analyze the data. In descriptive statistics, simply a comparison of means between two groups of livestock farmers was made. In inferential statistics, binary logistic regression was applied to generate results.

A. SOCIAL, ECONOMIC, & GEOGRAPHICAL VARIABLES VERSES CREDIT UTILIZATION BEHAVIOR: A DESCRIPTIVE ANALYSIS

This section presents the mean values regarding a farmer's: 1) socio-demographic characteristics, 2) land and income resources, 3) livestock assets, 4) group, 5) geographical area, and 6) amount of loan gained, with respect to their credit utilization attitude. On the basis of credit use, respondents/farmers were divided into two categories, those who utilized credit: 1) for livestock development purpose only 2) for mixed purposes.

Table 1: A Descriptive Analysis (Averages)

Bases of Comparison		Credit utilization for	
Sets of Variables	Variables	Livestock development only	mixed purposes
Socio-Demographic Characteristics	Age	49.37	48.44
	Education	7.25	7.74
	Farming Experience	27.14	27.18
	Family size	6.86	6.82
Land and Income Resources	Farm Land Area	10.93	19.47
	Income from Crops	274240.5	316935.48
	Income from Animals	84137.93	101842.11
	Off farm Income	115000	40000.00

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Livestock Assets	Number of Buffaloes	5.98	6.93
	Number of Cows	6.57	8.86
	Number of Goats	10.25	8.67
Livestock Raiser Group	Landless	93.1	6.9
	Women	100	0
	Small farmer	45.7	54.3
	Large farmer	67.5	32.5
Area	Murad	67.5	32.5
	Gajiani	71.6	28.4
	Fordwah	100	0
	Over all	76.2	23.8
Total Loan Gained		204201.8	319558.82

SOCIO-DEMOGRAPHIC CHARACTERISTICS

The variables included in this category relate to the respondent/farmer's age, educational status, farming experience, and family size. As it is evident from the table-1, regarding this set of variables a considerably non-difference observed between the two groups of farmers regarding their attitude towards institutional credit use. Hence, it could be concluded that farming communities exhibit homogeneity with respect to their socio-demographic attributes. Those who used the institutional credit for livestock development purpose and those who used it for mixed purposes had almost same socio-demographic standings. Correspondingly speaking, our respondents, on an average, were in the late forties of their ages, had attained more than 7 numbers of schooling years, had farming experience for more than last 27 years, and each farmer's family comprised of 7 persons.

LAND & INCOME RESOURCES

Regarding ownership of farm-land resources and income diversification, the credit user groups of farmers had considerable differentials. Once again table-1 is self explanatory. On an average, the group of farmers who used credit for livestock development only owned small acreage (10.93 acres) of agricultural land as compared to the farm land acreage (19.47 acres) owned by the group of farmers who used credit for mixed purposes. Likewise, for earning their annual income, the former group had the most reliance on the crop farming followed by the reliance on off-farm sources, and the least reliance on livestock farming. On the other hand, the reliance of the latter group for earning their annual income (in descending order) was on crop farming, livestock farming, and off-farm sources. Irrespective of the credit user groups of farmers, crop farming was the main stay of rural agricultural communities in the surveyed areas. As compared to the farmers

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owning large farmland areas, the landless and small farmers were relying more on the off-farm sources to supplement their annual incomes. But for the landless and small farmers, the shares of their annual incomes coming from crops and livestock were relatively smaller than those of the farmers owning large farmland areas.

LIVESTOCK ASSETS

Differences observed between the two groups of farmers were only relating to the size of herd they owned. Both the groups were rearing small (goat) and large (buffalo, cattle) ruminants. Those who used the institutional credit for livestock development purpose were rearing a relatively small sized herd. For large ruminants, the average herd size owned by those who used institutional credit for mixed purposes was relatively large as compared to those of who used the credit for livestock development purpose only. But for owning small ruminants, the situations was quite opposite between both groups of farmers.

LIVESTOCK RAISER GROUP

Amongst the livestock raisers, regarding their loan spending attitude it was seen that all (100%) the women respondents, 93.1% landless livestock raisers, 67.5% large farmers, and 45.7% small farmers utilized gained loan for livestock development only.

AREA

The scheme launched by ZTBL was purely for livestock development purpose and the entire borrower were assumed to be spending it for the said purpose. But area wise comparison showed that respectively 67.5%, 71%, and 100% of the respondents in the areas of *Murad*, *Gajiani*, and *Fordwah* utilized credit for the purpose of livestock development only. In other words, respectively 32.5% and 28.4% of the respondents from the areas of *Murad* and *Gajiani* used agricultural credit for mixed purposes.

TOTAL LOAN GAINED

A substantial difference was also observed regarding average size of loan disbursed to both groups of farmers/respondents. Those who used credit for the exact purpose—actually the credit institution's scheme was about—would be able to receive a relatively less amount of loan (204201.8 rupees) than those of (319558.82 rupees)who used credit for mixed purposes. For a credit institute, generally a farmer's size of capital stock (in terms of land and livestock assets) serves as a criterion for deciding about the

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amount to be disbursed as loan. In spite of having relatively small working capital in terms of agricultural land and livestock assets, the landless and small farmers made relatively big use of the available institutional credit in terms of efficiency and in accordance with the objectives of the scheme of credit disbursement.

B. DETERMINANTS OF A FARMER'S CREDIT UTILIZATION BEHAVIOR: A REGRESSION ANALYSIS

A dichotomous nature of the dependent variable (credit utilization behavior) validates the aptness of choosing binary logistic regression technique to generate results of the study. This part of the section, by using the values of odd ratios, explains the likelihood of happening or not happening an event under the influence of regressors.

Table 2: Binary Logistic Regression Analysis Results

Variables	Coefficient (β)	S.E.	Df	Exp(B)
IAN	0.102585	6.017019	1	1.1080**
IOTR	0.235645	2.716548	1	1.2657*
NOB	-0.18027	6.849114	1	0.8350***
GDR	19.99202	1.22E-05	1	4.81E+08^{NS}
AREA	19.06451	9.22E-06	1	1.9E+08^{NS}
TLG	-0.00273	0.081157	1	0.997275^{NS}
Constant	-38.294	2.03E-05	1	2.34E-17^{NS}
Model Summary	**-2 Log likelihood**			108.0463
	Cox & Snell R Square			0.289229
	Nagelkerke R Square			0.434199
Estimated Equation	$Log\,[P_i/1-P_i] = -38.29 + 0.1025\text{IAN} + 0.2356\text{IOTR} - 0.1802\text{NOB} + 19.9920\text{GDR} + 19.0645\text{AREA} - 0.0027\text{TLG} + e$			

Note: Dependent Variable: credit utilization behavior (credit utilized for livestock development purpose only =1, credit utilized for mix purposes =0), *=significant at 10%, **= significant at 05%, *** = significant at 01%, NS = Not significant

INCOME FROM ANIMAL SOURCES (IAN)

The odd ratio [exp(β) value] associated with the income earned from animals (IAN) is 1.1080, indicating that when the income earned from animals of the respondents increase by one unit, the probability that the respondents would utilize loan for livestock development purpose increases 1.1080 times. The coefficient was also found statistically significant at 5% level of significance. It could possibly be due to the reason that if a farmer earns more income from animal sources more would be his or her family's dependence on livestock as a source of earning, hence more likely he or she would utilize the credit for purely livestock development purpose.

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INCOME FROM OTHER SOURCES (IOTR)

The odd ratio associated with the income earned from other sources (IOTR) is 1.2657, indicating that when the income earned from off-farm sources of the respondents increase by one unit, the probability that the respondents will use loan for livestock development purpose increases 1.2657 times. The coefficient was found statistically significant at 10% level of significance. Generally, the share of income earned from off farm sources is larger for small and landless farmers. Both of these groups of farmers have to rely more on sources other than crop and livestock farming just because they are often resource poor by owning no or small livestock and farm land assets. Whereas for a credit institute, the eligibility and security criteria regarding the amount of loan to be granted to a farmer revolves around the acreage of agricultural land a farmer owns. That is, large farmers always remain advantageous and conversely speaking, small and landless farmers stay behind at all times.

NUMBER OF BUFFALOES (NOB)

A one unit increase in number of buffaloes (NOB) owned by a farmer was found to be associated with 16.50% less likely for the loan to be used for livestock development purpose only. The coefficient for the variable was found to be statistically significant at 01% level of significance. The same situation is also evident from the table (1),where for large ruminants (buffalo and cow), the average herd size owned by large farmers—those who mostly utilized credit for mix purposes—is larger than those of small and landless farmers (those who mostly utilized credit for livestock development purpose only).

GENDER OF FARMER (GDR)

As compared to the male respondents the female respondents had 4.81 times more probability to use loan for livestock development purpose only. For this variable (GDR), the coefficient was found to be statistically insignificant. All the women livestock raisers utilized gained loan for livestock development only (table,1).

AREA OF FARMER (AREA)

As compared to the borrowers living in the villages of Gajiani & Murad areas (coded as “0”) the borrowers living in the villages of Fordwah area (coded as “1”) were more likely to spend loan for livestock development purpose only. For this variable (AREA),

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the coefficient was found to be statistically insignificant. The respondents living in the areas of *Fordwah* utilized credit for the purpose of livestock development only.

TOTAL LOAN GAINED (TLG)

A one unit increase in the total amount of loan gained (TLG) by a borrower was found to be associated with less likely for the borrower to use it for livestock development only. Here the coefficient for the variable was found to be statistically insignificant.

But a comparison of the groups presented in results of table (1) clearly shows that the livestock raisers/borrowers who utilized credit for mix purposes, on average, gained 115357.02 rupees more as loan than those who utilized the available credit for livestock development purpose only. Similarly, on average, the former group had advantage over the latter group by: having 8.54 acre more of farm land, earning respectively 42694.98 rupees and 17704.18 rupees more incomes from crops and livestock annually, and having one more buffalo and 2 extra cows.

C. EXPLANATORY POWER OF THE MODEL

In our analysis the value of Cox & Snell R Square is 0.289 indicating that 28.9% variability in the dependent variable (livestock raiser/borrower's credit utilization response) is explained by the independent variables in the model. Similarly, the value of the Nagelkerke R Square is 0.434 indicating that 43.4% variability in the dependent variable is explained by the independent variables in the model.

V. CONCLUSION AND POLICY RECOMMENDATIONS

Credit is sine-qua-non for farm production. While going through the literature we have seen productivity comparisons of credit provisions made through the formal and informal sources. For a farmer, informal sources have been found to be expensive and exploitative, whereas the net benefits gained through formal sources of credit are uncovered as heading northward. So, expansion of the institutional credit may substitute non-institutional credit use hence expectedly resulting into more efficient use of credit by farmers.

Micro finance institutes, in a number of studies, have been identified as credible sources in promoting rural development through increasing farm productivity and reducing

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poverty. Hence, institutional credit is serving as and being known to be a catalyst for sustainable development.

At present, though not most of yet a plenty of farmers did not utilize the gained credit for the required purpose. In its attempt to explore the reasons for proper or improper use of credit at the farmers'/borrowers' end, the study suggests the herd size kept by a farmer, incomes earned from livestock and off farm sources to be focused most by the loaning institution while making decision to disburse loan. Seeing the efficient use of credit made by the livestock raising women, the study also advocates the need for adopting gender-specific approaches by the loaning institutes. As according to the World Bank (2016), empowering women farmers means big gains for agriculture. Across the globe, women in agriculture have less access than men to productive resources and opportunities. Closing the gender gap would generate significant gains for the agriculture sector and increase yields on women-run farms by as much as 20-30%.

Similarly across areas, credit-use-efficiency differentials suggest the implementation of area-specific credit programs by the credit institutes. Credit institutions should also develop a mechanism for identification of the worthiness of potential client/farmer in terms of credit requirement and its proper utilization. Proper utilization of credit can be ensured via conducting farmers' training programs and through proper monitoring and supervision of the clients by the institute's staff. A previous credit-utilization record of the farmer may also help a credit institute to make subsequent decision.

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