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Socioeconomic Characteristics of Beneficiaries of Rural Credit

(A case study of D.I.Khan District, Khyber Pakhtunkhwa, Pakistan)

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Abstract
Agriculture is not only the backbone of our food, livelihood and ecological security system, but is also the very soul of our sovereignty. In Pakistan population density is high and has been increasing day by day and agricultural land has been decreasing because of fragmenting or converting it into residential plots. To meet the domestic food requirements and raising standard of life use of improved production technologies developed by research is must. In this behalf government of Pakistan has been extending loan to poor farmers for adoption of new farm technology; a capital intensive technology. Right adoption of new farm technology depends on different demographic factors of farmers. Therefore objective of the paper was to see who benefits more of credit. Primary data regarding different determinants effecting well being of farmers after use of credit was collected from 320 farmers who participated in credit using stratified sampling technique through structured questionnaire. Descriptive statistics, ANOVA and Linear regression model was applied with the help of SPSS. Education and visiting agriculture information centre were found significant suggesting younger more educated farmers who visits information centre be provided credit ,as they had ability to improve their standard.
Keywords: Agriculture, Rural credit; house hold, economic welfare, farmers.

Introduction

International prose asserts that rural credit began alleviating poverty quite a lot of decades ago when organization of different nations started testing the notions of lending to the people who were on the breadline .According to Vogt (1978), credit may provide people a chance to earn more money and improve their standard of living

Agriculture sector in Pakistan is contributing nearly 22% to the national income of Pakistan (GDP) and employing just about 45% of its workforce. As much as 67.5% of country's population living in the rural areas is directly or indirectly reliant on agriculture for its livelihood (Government of Pakistan, 2008).Agriculture as a segment depends more on credit than any other segments of the financial system because of the seasonal variations in the farmers' returns and a varying tendencies from subsistence to commercial farming. Most small farmers cannot back their farming business from their inadequate savings. These farmers therefore require support in the form of assembly credit in order to take up relevant technologies to improve their farm productivity and income (Ater et al., 1991).

Dera Ismail Khan division lies in the arid zone of Pakistan and is located in the extreme south of the Khyber Pakhtunkhwa Province at the bank of river Indus. Total geographic area of 0.73 million hectares out of which only 0.24 million hectares is cultivated. About one third of the cultivated area is irrigated while the other two third depends on rainfall and hill torrents for its moisture requirements. Main stay of peoples of this area is agriculture and over 75% population derives its earning directly or indirectly from agriculture, till recently, farmers are a poor segment of population of this district. Their income is quite meager. Technical know how is limited. Where farmers of study area need practical guidance in the application of new farm technical know how there they need credit to apply this capital intensive technology. Therefore main objective of paper was to see socioeconomic characteristics of farmers who have ability to improve their standard as a result of using rural credit in their farms and hence a good impact on the economy of the area.

Literature Review:

Getting access to credit helps the poor improve their productivity and management skills and hence, increase their income and other benefits such as health care and education. Pragmatic evidence can be originated from various papers, such as (Morduch, 1995; Gulli, 1998; Khandker, 1998; Pitt and Khandker, 1998; Zeller, 2000; Parker and Nagarajan, 2001; Khandker, 2001; Khandker and Faruque, 2001; Coleman ,2002; Pitt and Khandker, 2002; Khandker, 2003)

Quach, Mullineux and Murinde (2003) found that household credit contributes positively and significantly to the economic wellbeing of households in terms of per capita expenditure, per capita food expenditure and per capita non-food expenditure. The positive effect of credit on household economic wellbeing was apart from whether the households were poor or better-off.

Every budding borrower faced a credit limit because of asymmetries of information between borrowers and lenders and the imperfect enforcement of loan contracts. At the national level, access to bank credit was positively and significantly influenced by age, being male, household size, education level, household per capita expenditure and race (Kavanamur, 1994; Okurut et al, 2004; Okurut, 2006; Diagne et al,2000;Giagne and Zeller 2001). Small landholder farmers were too poor to benefit from any kind of credit, and that, even if they had access to ample credit and inputs, their land constraints were so cruel that any increase in productivity would fall short of guaranteeing their food security (Fredrick and Bokosi, 2004). The formal lenders took on strict collateral rudiments to lessen dodging thus straightening out poor from the process. Status, the dependency ratio of households, and the amount of credit applied for by the household were recognized as the determinants of credit rationing by the bank. The low level of proceeds and asset escalation made the poor household unappealing and caused high-risk contour for formal lenders (Duong et al, 2002; Pal, 2002; Barslund and Tarp, 2007). Credit was not a profiting activity for small farmers (Saboor et al, 2009). Literacy was positively and significantly related with saving due to interventions in credit by farmers Panda (2009) household size, number of visit by extension agent, farm size, hired Labor, agrochemical, fertilizer and seedling were positively related with income, while age, educational level and Level of participation were negatively related to income earned by the farmers due to interventions in credit. Among these variables, farm size was the most significant (Kudi et al, 2009).If agriculture credit is methodically institutionalized for small farmers; agricultural progress can be materialized. Due to small holdings, low crop yields and small income, there is very petite saving among the best part of Pakistani farmers (Abedullah et al, 2009).The farmers with upper level of education had better thoughtful about the role of credit in getting modern technology and the role of technology to augment output therefore were demanding large amount of credit as compared to farmers with low down education. Large farmers could afford to take bigger amount of credit because they had relatively large piece of land to put in the bank as collateral

Methodology

Primary data from 320 farmers who participated in farm credit were collected using stratified sampling technique on farm and farmers' characteristics affecting wellbeing of farmers with the help of structured questionnaire and interview as used by many researchers such as (Nunung et al, 2005,Oladosu, 2006; Faturoti et al, 2006).Apart from various closed end questions on different determinants that might effect well being, questionnaire also contained a question with such attributes that were indicators of change in well being of farmers for frequency count. Such attributes were also designed on five scales for knowing regression impacts of different determinants on well being of farmers. Statistical Package for Social Sciences (SPSS) was used for frequency counts, correlation check and ANOVA test. Regression analysis was applied to know cause and effect on the works of (Oladosu, 2006; Kizilaslan and Omer, 2007; Olagunju, 2007).

Modeling

The General Linear Model is commonly estimated using ordinary least square has become one of the most widely used analytic techniques in social sciences (Cleary and Angel 1984). Most of the statistics used in social sciences are based on linear models, which means trying to fit a straight line to data collected. Ordinary least square is used to predict a function that relates dependent variable (Y) to one or more independent variables (x_1, x_2, x_3…x_n). It uses linear function that can be expressed as

$$Y = a + bX_i + e_i$$

Where

a	Constant
b	Slope of line
X_i	Independents variables
e_i	Error term

Hence to assess contribution of different determinants in wellbeing due to intervention in farm credit Linear Regression Model was expressed as follow

Y (Well being of farmers) = a (constant) + X_1 (Age) +X_2 (Education) + X_3 (Family size) + X_4 (Farm size) + X_5(Farming experience) + X_6 (Numbers of times credit attained) + X_7(Visiting agricultural information system) + ei (Error term)

Analysis and Interpretation

Table 1 indicates that before taking credit mostly farmers lacked personnel transport facilities, entertainments facilities communications facilities, furnished houses, better health and education facilities etc. After using credit for production purpose, now 180 farmers out of 320 possessed TV, 198 out of 320 had telephone facility, 182 out of 320 got motor cycle facility, 268 out of 320 had car facility, 254 out of 320 built new furnished houses, 214 out of 320 had got admitted their children in private schools for better education, 188 out of 320 got access to better health facilities and 224 out of 320 could enjoy visiting other cities.

Table 1 Change in living standard of farmers before and after use of farm credit

Possessions	Frequency(BLA)	Frequency ALA)
More land	150	170
TV	140	180
Telephone	122	198
Motor cycle	138	182
Car	52	268
New house	66	254
Send child to govt schools	162	158
Send child to private schools	106	214
Seeing doctor in cities	132	188
Eating in restaurants	62	258
Keeping livestock for business	44	276
House renovation	168	152
Member in an organization	82	238
Visit other cities	96	224
BLA = before loan attainment, ALA=after loan attainment		

Detailed discussion of impact of using agricultural credit on living standard with respect to different farms and farmers characteristics

Age

Impact of use of agricultural credit on middle-aged farmers (31 years to 45 years) to improve their living standard was more than lower (15 years to 30 years) or upper (46 or above) age group of farmers (table2) Middle-aged farmers mostly paid more attention on the education of their children. Out of 214 farmers who paid attention on the education of there children 92 (43%) belonged to middle age group. Out of 238 respondents who after taking benefits from use of credit for their agriculture production improved their living standard being a member of an organization 102(42.85%) belonged to middle ages farmers led to 70 farmers of upper age group

Table 2 Descriptive statistics of the Impact of using farm loan on living standard with respect to age group of farmers

Possessions	Age			Total	% of 31-45
	15-30	31-45	46-above		
More land	46	68	56	170	40
TV	50	68	62	180	37.77778
Telephone	64	66	68	198	33.33333
Motor cycle	56	66	60	182	36.26374
Car	68	110	90	268	41.04478
New house	80	94	80	254	37.00787
Send child to govt. schools	50	66	42	158	41.77215
Send child to private schools	52	92	70	214	42.99065
Seeing doctor in cities	52	70	66	188	37.23404
Eating in restaurants	72	98	88	258	37.9845
Keeping livestock for business	82	112	82	276	40.57971
House renovation	46	56	50	152	36.84211
Member in an organization	66	102	70	238	42.85714
Visit other cities	68	78	78	224	34.82143

Source: - Field survey

Out of 268 respondents who improved their standard having personal transport facility after the use of credit for agricultural production 110(41%) belonged to middle age group followed by 90 farmers of upper age group Thirty seven percent respondents now had better health facilities. Age group had no significant impact (p=0.706) on living standard (table3). . Change in living standard depends upon income and also upon developed communication & transport means, religious and social values attached with the change. Farmers of either age changed their living standard when they had better income.

Table 3 Impact of farm and farmers characteristics (ANOVA)

Variable	Levels	Sum of Squares	df	Mean Square	F	Sig
Age	Between group	6.621	2	3.311	.349	.706
	With in Group	3009.379	317	9.493		
	Total	3016.000	319			
Education	Between group	36.823	2	18.412	1.959	.143
	With in Group	2979.177	317	9.398		
	Total	3016.000	319			

Farming Experience	Between group	28.392	2	14.196	1.506	.223
	With in Group	2987.608	317	9.425		
	Total	3016.000	319			
Family Size	Between group	24.855	2	12.428	1.317	.269
	With in Group	2991.145	317	9.436		
	Total	3016.000	319			
Farm Size	Between group	227.961	2	113.981	12.960	.000
	With in Group	2788.039	317	8.795		
	Total	3016.000	319			
Numbers of times credit attained	Between group	724.433	2	362.217	50.107	.000
	With in Group	2291.567	317	7.229		
	Total	3016.000	319			

Education

Better educated farmers in study area improved their living standard more than illiterates and low educated farmers after taking benefits from the use of credit for crop productivity (table 4). Forty three point fifty three percent (43.53%) respondents among those respondents who now had more farmlands after use of farm credit were educated above secondary level.

Table 4 Descriptive statistics of the Impact of using farm loan on living standard with respect to educational grouping of farmers

Possessions	Education			Total	% of above secondary
	Up to primary	Up to secondary	Above secondary		
More land	28	68	74	170	43.52941
TV	36	78	66	180	36.66667
Telephone	44	74	80	198	40.40404
Motor cycle	34	74	74	182	40.65934
Car	54	110	104	268	38.80597
New house	54	96	104	254	40.94488
Send child to govt schools	28	64	66	158	41.77215
Send child to private schools	42	96	76	214	35.51402
Seeing doctor in cities	40	72	76	188	40.42553
Eating in restaurants	50	103	104	257	40.46693
Keeping livestock for business	50	112	114	276	41.30435
House renovation	26	62	64	152	42.10526
Member in an organization	40	102	96	238	40.33613
Visit other cities	48	88	88	224	39.28571

Source: - Field survey

Out of 152 respondents who had better residence than before using credit for crop productivity 64 (42.10%) were educated above secondary level followed by 62 farmers who were educated up to secondary level. Among 182 and 198 respondents who got access to more transport and communication facilities than before using credit 74 (41.65%) and 80 (40.40%) respondents respectively belonged to those farmers who had education above secondary level. Education affected insignificantly (p=0.143) the living standard of the farmers (table3). Farmers of any education level got possessions of those food and non-food items that improved their standard of living when they had more income due to agricultural growth after using farm credit for adoption

Farming experience

More experienced farmers (experience of 21years or above) improved their living standard more than less experienced farmers after the use of farm credit (table5).

Table 5 Descriptive statistics of the Impact of using farm loan on living standard with respect to farming experience group.

Possessions	Farming Experience (in years)			Total	% Of 21 & Above
	1-10	11-20	21-above		
More land	34	60	76	170	44.70588
TV	44	50	86	180	47.77778
Telephone	38	58	102	198	51.51515
Motor cycle	34	64	84	182	46.15385
Car	56	92	120	268	44.77612
New house	52	88	114	254	44.88189
Send child to ovt schools	38	50	70	158	44.3038
Send child to private schools	50	76	88	214	41.1215
Seeing doctor in cities	40	58	90	188	47.87234
Eating in restaurants	49	84	124	257	48.24903
Keeping livestock for business	66	92	118	276	42.75362
House renovation	32	44	76	152	50
Member in an organization	56	84	98	238	41.17647
Visit other cities	38	76	110	224	49.10714

Source: - Field survey

Out of 268 respondents who improved them in getting personal Out of 198 respondents who got access to better communication facilities after the use of credit for crop productivity 102(51.52%) respondents had more than 20 years of farming experience. Out of 152 respondents who now lived in renovated houses after the use of credit for crop productivity 76 (50%) respondents belonged to those farmers who had more than 20 years of farming experience. Out of 257 farmers who could entertain them in restaurants after the use of credit for crop productivity124 (48.25%) were highly experienced conveyance after the use of credit for crop productivity 120(44.78%) belonged to those respondents who had more than 20 years of farming experience led to 92 respondents who had farming experience of 11years to 20 years. Among 224 respondents who now could visit other cities110 (49.10%) respondents were highly experienced farmers. Farming experience group had no significant impact (p=0.223) on change in living standard (table3). Farmers with any farming experience in study area changed their standard of living when they saw change in other fellows.

Family size

Respondents who had medium family size (6 members to 10 members) raised their living standard more

than those respondents who had small family size (1 member to 5 members) or big family (more than 10 members) after use of credit for crop productivity (table 6).

Table 6 Descriptive statistics of the Impact of using farm loan on living standard with respect to family size.

Possessions	Family Size (in members)			Total	% 0f
	1-5	6-10	11-above		6-10
More land	60	76	34	170	44.70588
TV	46	100	34	180	55.55556
Telephone	48	112	38	198	56.56566
Motor cycle	58	94	30	182	51.64835
Car	78	140	50	268	52.23881
New house	74	136	44	254	53.54331
Send child to Govt schools	38	84	36	158	53.16456
Send child to private schools	56	124	34	214	57.94393
Seeing doctor in cities	52	114	22	188	60.6383
Eating in restaurants	72	145	40	257	56.42023
Keeping livestock for business	86	144	46	276	52.17391
House renovation	40	90	22	152	59.21053
Member in an organization	74	118	46	238	49.57983
Visit other cities	54	138	32	224	61.60714

Source: - Field survey

Out of 257 respondents who had now better food opportunities than before use of credit for crop productivity 145 (56.42%) respondents belonged to those farmers who had medium family size. Out of 276 respondents who had now more livestock than before use of credit for crop productivity 144 (52.17%) respondents belonged to those farmers who had medium family size.Out of 268 respondents who had now personal conveyance than before use of credit for crop productivity 140(52.23%) respondents belonged to those farmers who had medium family size. Out of 224 respondents who were able to visit other cities after use of credit for crop productivity138 (61.61%) respondents belonged to those farmers who had medium family size. Out of 254 respondents who lived in new house after use of credit for crop productivity 136 (53.54%) respondents belonged to those farmers who had medium family size. Out 214 respondents who had got admitted their children in private schools for better education after using credit for crop productivity 124 (57.94%) respondents belonged to those farmers who had medium family size. Out of 188 respondents who got better health facilities after using credit for crop productivity 114(60.63%) respondents belonged to those farmers who had medium family size. Family size had no significant impact (p=0.269) on standard of living (table3). Farmers in study area changed their living standard because where they earned more due to increased crops productivity after taking benefits from using farm credit there they accepted effects of having better communication and transport facilities provided them from government.

Farm size

Impact of using credit for farming purpose on welfare of farmers was more on those farmers who had small farm lands (up to 400 canal) than those farmers who had farms of medium size (401 canal to 800 canal) or big size (more than 800 canal). Greater attention of small farmers for their welfare was on livestock, better eating, becoming member in organizations, visiting other cities, personal conveyance, Communication facilities and better housing respectively (table7).

Table 7 Descriptive statistics of the impact of using farm loan on living standard with respect to Farm Size

Possessions	Farm Size (In canal)			Total	% Of 1-400
	1-400	401-800	801-above		
More land	116	12	42	170	68.23529
TV	120	24	36	180	66.66667
Telephone	138	24	36	198	69.69697
Motor cycle	130	20	32	182	71.42857
Car	186	30	52	268	69.40299
New house	164	36	54	254	64.56693
Send child to govt schools	96	34	28	158	60.75949
Send child to private schools	142	28	44	214	66.35514
Seeing doctor in cities	128	34	26	188	68.08511
Eating in restaurants	173	38	46	257	67.31518
Keeping livestock for business	180	46	50	276	65.21739
House renovation	104	24	24	152	68.42105
Member in an organization	164	24	50	238	68.90756
Visit other cities	154	34	36	224	68.75

Source: - Field survey

Out of 276 respondents who enhanced their livestock 180 respondents were those farmers who had small farmlands. Out of 257 respondents who had better food opportunities than before use of credit for crop productivity 173 respondents were those farmers who had small farmlands. Out of 238 respondents who were members in organizations after use of credit for crop productivity 164 respondents belonged to those farmers who had small farmlands. Out of 224 respondents who visited other cities for entertainment after using credit for crop productivity 154 respondents belonged to those farmers who had small farmlands. Out of 198 respondents who had better communication facilities than before use of credit for crop productivity 138 respondents belonged to those farmers who had small farmlands. Farm size had significant impact (p=0.000) on living standard of farmers (table3). Farmers who had small farms used new farm technology more than farmers who had farms of other sizes to enhance their agriculture products from small piece of land.Hence generated more income to meet necessities of life and to change standard of living.

Numbers of times credit attained (in years)

Impact of participation in credit for agricultural productivity on living standard of the farmers was more on those farmers who took credit for 1 to 2 times than those farmers who participated in credit from 3 times to 5 times and 6 times or above (table 8).

Table 8 Descriptive statistics of the Impact of using farm loan on living standard with respect to period of credit taken by farmers

Possessions	Period of Credit taken			Total	% 0f 1-2 Years
	1-2 years	3-5 years	6-10 years		
More land	78	86	6	170	45.88235
TV	108	72	0	180	60
Telephone	110	88	0	198	55.55556
Motor cycle	108	68	6	182	59.34066
Car	134	120	14	268	50
New house	128	114	12	254	50.3937

Send child to Govt schools	80	72	6	158	50.63291
Send child to private schools	100	108	6	214	46.72897
Seeing doctor in cities	114	66	8	188	60.6383
Eating in restaurants	142	101	14	257	55.25292
Keeping livestock for business	124	132	20	276	44.92754
House renovation	86	58	8	152	56.57895
Member in an organization	112	120	6	238	47.05882
Visit other cities	130	86	8	224	58.03571

Source: - Field survey

The indicators, which were given more attention for improvement in living standard among others, were foods, health, education for children, conveyance, visiting other cities, housing, Livestock for business and becoming members in organizations etc. Out of 188 respondents who had access to better health facilities than before use of credit for crop productivity 114 (60.63%) respondents were those farmers who obtained credit for one or two times (in years). Out of 180 respondents who had television facility after use of credit for crop productivity in order to get information of about and to entertain themselves 108 (60%) were those respondents who obtained credit one or two times. Out of 198 respondents who had telephone facility than before using credit for crop productivity 110 respondents were those farmers who obtained credit for one time or two times. One hundred and eight respondents (59.34%) out of 182 respondents who had motorcycle (personal conveyance) facility than before using credit for crop productivity were those farmers who obtained credit for one time or two times. Out of 224 respondents who could visit other cities for enjoyment after using farm credit 130 (58%) respondents belonged to those farmers who obtained credit one time or two times. Credit taken period affected living standard significantly (p=0.000, table3). Mostly farmers were not willing to take credit more than 5 times because of risk bearing. Hence farmers who took credit for few times tried their best for the right use of credit to enhance their agriculture and got more profit. Hence became able to improve their livings.

It can be seen in table 9 that education, family size and farm size were positively correlated with well being,

Table 9 Correlation between Dependent and independent variables

Dependent Variable	Independent variables						
	Age (years)	Education	Family Size	Farm Size (acres)	Agricultural information	Farming experience	NTCA
Living Standard	-0.122	0.133	0.043	0.031	-0.176	-0.032	-0.003
Sig. (2-tailed)	0.030	0.017	0.444	0.576	0.002	0.572	0.952

While age, farming experience, visiting agriculture information centre and numbers of times credit attained were negatively correlated. It means younger, more educated big farmers who participated in credit and visited agriculture information centre few times changed their living standard. Education had positively significant impact and visiting agriculture information centre for getting help how to apply new farm technology had negatively significant impact on wellbeing of farmers (table 10).

Table 10 Regression impacts of different independent variables on dependent variable well being

Model	R	R Square	Adjusted R Square	F	Sig.
Independent variables	.242	.058	.037	2.768	.008
	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	3.304	.559		5.913	.000
Age (years)	-.013	.012	-.096	-1.128	.260
Education	.038	.021	.131	1.809	.071
Family size	-.006	.028	-.013	-.218	.828
Farm Size (acres)	2.230E-5	.000	.024	.440	.660
Numbers of times credit attained	-.021	.046	-.028	-.464	.643
Farming experience	.007	.011	.055	.656	.512
Agricultural information	-.071	.024	-.175	-3.011	.003

It means that highly educated farmers got more benefits of using farm credit. They visited agriculture information centre to know better use of new farm technology only few times because centre was not easily accessible. The F-statistics shows that the explanatory variables included in the model collectively had significant impact on well being. The R^2 and Adjusted-R^2 values suggest that below 5 percent variations in the well being were explained by the explanatory variables included in the model. The analysis revealed findings that rejected null hypothesis and confirmed that credit is very important for agricultural productivity.

Conclusion.

From the findings of present survey it is concluded that different determinants used in the model were collectively important in explaining impact on well being. But education and demonstrative effect is more significant. However R2 = 0.058 and adjusted R2 = 0.037 values were not distinctive in explaining impact. More educated younger farmers with either family and farm size and farming experience are provided credit as they were more adoptive. Extension services be easily accessible for them so that they may take full advantage of obtaining credit through application of this credit in adoption of new farm technology and to raise their income and hence their living standard.

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