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DETERMINANTS OF FARMERS ACCESS TO BORROWING IN FORMAL CREDIT MARKET (A CASE STUDY OF D.I.KHAN)

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ABSTRACT

The study is based on household level survey in two selected villages (Puroa and Yurak) of District Dera Ismail Khan in July 2001. As 10% of all households in both villages are taken as sample. The data is collected by using a pre-tested interview schedule. The objectives of the study are to review the agricultural credit policy of Pakistan to identify factors determining farmer access to formal credit and to investigate purposes of credit. Logistic regression model is used to obtain maximum likelihood estimates of explanatory variables explaining farmer access to borrowing in formal markets.

The finding of the study shows that education, age, area operated and male workers are the main determinates of borrowing in formal markets. Farmer education and age are statistically significant at 5% level. The study indicates that farmers has a limited access to the formal credit

markets as only 24% of the respondent got formal credit and 76% of farmers has borrowed from informal sources.

INTRODUCTION:

Agriculture is the mainstay of Pakistan's economy, which accounts for more than 24 percent of gross domestic product (GDP). It employs over 5O% of the labor force and is the main source of foreign exchange earnings. More than 70% of the population, which resides in rural areas, is directly or indirectly dependent on this sector.

Being a major component of the country's economy, the agriculture sector is in a position to affect the country's economic development in many ways. Among these, agricultural credit assumes a central position in the whole strategy of agricultural development of a country like Pakistan for a number of reasons. Small farms dominate agriculture in Pakistan, which constitutes 47% of the total private farms in the country.

Pakistan, like other developing countries, is primarily faced with the task improving the productivity and living conditions of its rural masses that are engaged subsistence farming.

The need for increasing credit, to boost agricultural production becomes much more important when one looks at the deplorable state of Pakistan's agriculture. For an agricultural economy, this state of affairs is a great challenge. As a matter of fact non- availability of adequate credit is not the only problem of farmers, since a majority of them of in are poor and illiterate. The also hesitate to accept new ideas/or technology. Therefore,

they suffer from the lack of technical knowledge and other agricultural support services.

Although, the volume of formal credit has expanded in real terms at a high rate over about the last 53 years, the contribution of formal credit to agricultural development has been below expectation and week (Qureshi 1992, Malik, 1993). Therefore, the extent of limited access of small farmers to agricultural credit has demonstrated the need for a systematic investigation of agricultural credit markets in Pakistan.

Objectives:

The main objectives of the study are as follws:

1. To identify factors determining farmers access to credit in formal credit markets.
2. To investigate factors hindering farmers from getting credit in formal credit markets.
3. To assess the purpose and use of credit by the farmers.

Hypothesis:

The following hypothesis are tested:

1. The higher the education the greater chances to get formal credit.
2. The larger the farm size, the greater the chance of getting formal credit.

Fac = f (Edu, Age, Area, Male worker)

$Fac = \beta_0+\beta_1 \text{ Edu} + \beta_2 \text{ Age} + \beta_3 \text{ Area} + \beta_4 \text{ Male w} + e_i$

Literature Review:

As early as 1970s there has been a consensus among Pakistan policy makers on the importance of rural credit in the process of agricultural development. It is recognized that a shift from a resources based to a science based agriculture and be facilitated through the availability of agricultural credit. Many studies have been conducted in Pakistan to examine the role of agricultural credit in different perspectives.

Khan & Khan (1969) observed that volume of the credit required increased with the size of the holding, these has important implications for financing agriculture sector.

Anjum (1973) suggested an effective supervised credit system in order to meet the requirements of agricultural sector positively.

Gerald (1974) examined the agricultural Credit market in a depressed region in the state of Sao Poulo, Brazil and concluded that the federally subsidized interest rate program reduced reedit availability to the small and risky clients who were served by the formal lenders.

Michael (1975) suggested that greater flexibility of loan payment would make small farmers more willing to use available credit.

Afzal (1979) concluded that credit has great impact on cropping productivity and boosting up the income of the farmers.

Khan (1981) started that although several measures had been taken to improve the flow of formal credit to agriculture sector, the situation was still far from satisfactory. The study reported various problems associated

with the formal credit system and suggested a number of measures for the improvement of the system.

Muhammad and Shah (1981) found that the loaning system of credit institution was not based on the actual needs of the farmers. They further stated that the structure of the society was such that resourceful farmers were getting more than their requirements while non influential small farmers succeeded to get an amount which was considerably less than their requirements.

Adam (1983) on the other hand, reported that the provision of cheap agriculture credit, a common practice in developing countries, led to inefficient resource allocation, concentration of income and poor rural financial market performance.

Khan (1986) suggested the Korean type credit system for the establishment of Agro based industries to absorb rural unemployed, especially small farmers and women and to improve delivery system of inputs needed.

Malik (1986) suggested institutional supervised credit backed by essential technology for rural development. He further suggested to finance small and medium Agro based industries in order to uplift small farmers.

Salami (1988) investigated whether formal institutional credit benefited small- scale farmers by increasing their productivity in using resources. To analyze this, multiple regression were run on farm survey data from, the Ashante Ghana. The farmers in the region mostly used traditional methods. No statistically significant difference in resources

productivity existed between samples of credit in non-credit receiving farmers.

Malik (1989) stated that the importance of institutional sources of credit had increased as compared to the non institutional sources of farm sector despite the increased importance of institutional sources of credit, the small and tenant farmers had smaller access to the institutional credit.

Carter and Wiebe (1990) had shown that access to capital and its distribution across agents could profoundly shape the structure and performance of an agrarian market economy.

Sial (1990) examined the contribution of institutional credit in terms of such things as allocative efficiency, technical efficiency and net revenue per acre on small farmers in the Punjab Province of Pakistan. The study demonstrated that availability and use of credit increased net revenue on small farms through improving allocative and/or technical efficiency.

Mbata (1991) reported that the agricultural credit regarded as a pertinent vehicle for increased efficiency among small-scale farmers. The study therefore evaluated the role of institutional credit and its impact on smal1 farmers in River State, Nigeria.

Qureshi and Shah (1992) had critically reviewed rural credit policy in Pakistan. The study reported that the formal credit has expanded at a high rate, but the relationship between the credit and the agricultural value added was found to be positive but weak and below expectation.

Suryakumai (1992) used regression analysis to investigate the impact of credit on agricultural output among scheduled tribes in

Visakhapatnam district of Andharapredesh, India. The study was based on data collected from 180 households, 90 from the developed region and 90 from the less developed region. Production functions were estimated separately for the developed and less developed region to investigate the association of various inputs and other factors with the value of gross output. The analysis showed that the provision of credit through its association with other inputs variables could improve the living standards of the tribal.

Idrees and Ibrahim (1993) examined the role of agricultural credit in the development of agriculture. The study identified the relationship between farmer's income levels, education levels and their attitude towards adopting new farm technologies. The data for the study was collected from 12 union councils in district Karak. The study showed that farmers adopted improved seeds, improved implements, farm manure and commercial fertilizers.

Himayatullah (1995) stated that between 1980-81 and 1994-95 institutional credit for the sector had registered an average annual growth rate of above 5 percent. This positive change in agriculture credit was accompanied by the establishment of new financial institutions and the adoption of credit policies to increase the flow of credit for the sector in general and for small farmers in particular.

RESEARCH METHODOLOGY:

The required data for the study is collected through a household level survey in two selected villages of D.I.Khan. ln order to compare the results, two villages' (i.e.) Paroa and Yarak are purposively selected. ln

order to decide the sample size, a list of household was prepared in each village. Then in the 2nd stage households were selected for interview using systematic random sampling techniques.

According to district census report (Government of Pakistan, 1990) the total number of household in both villages is 764 of which 409 and 355 households are situated in Paroa and Yarak, respectively. A total of t0% is taken as a sample. Thus gave us a sample of 70. The population and sample households are given in Table -1.

Table No.1.

Population and Sample Households in the study area.

Village	**Total Households**	**Sample household**
Paora	409	41 (52.53%)
Yarka	355	35 (46.47%)
Total	764	76 (100.00)
Note) Figures in parenthesis are percentages.		

ECONOMETRIC MODEL:

ln order to identify the variables that determine the farmers access to formal credit, binary choice models are used. A binary choice model assumes that individuals are faced with a choice between two alternatives and that the choice they make depends upon the characteristics of the alternatives. Binary choice models include a linear probability model (LPM) probit model and logit model. (Maddala, 1983)

Since, the theoretical justification, for employing the probit model is often rather limited and the logit model is considered somewhat more appealing model specification, it is thus relevant to use the logit model (Pindyk and Rubinfeld, 1976). ln logistic regression, a simple logit model, we directly estimate the probability of an event occurring. Since our dependent variable has two values (i.e.) one when farmers receive formal credit and zero when they do not, and that it can be predicted from a set of independent variables, the logistic regression model can be written as

$$\text{Pi F (Zi)} : ei^{z}/(1 + ei^{z}) = 1/I + ei^{-zi}) - \quad \text{eq(1)}$$

$$= ei^{z} = \{ \text{ pi / (I-Pi)} \quad \text{eq (2)}$$

Taking natural log on both sides of eq (2) we get

$$\text{Zi: ln (Pi/I-Pi)} \quad \text{eq (3)}$$

Based on eq 3, Zi is related to the explanatory variable (Xi) as a linear combination expressed as follows.

Note) where pi is the probability that an individual will get formal credit and (I-Pi) is the probability that he will not get.

$$Zi = \alpha + \beta \sum X_i + ei$$

$$Zi: \beta + \beta_1 \text{ Edu} + \beta_2 \text{ Age} + \beta_3 \text{ Area} + \beta_4 \text{ Male W} + ei$$

β_o: Intersect or constant.

β_1: Coefficients of explanatory variables.

X_1 : Education of a household head (Years)

X_2: Age of the household head (Years)

X_3: Area operated by the household (acres)

X_4 : Number of adult male workers in the household.

e_i : Error term.

ANALYSIS:

As discussed in section (Methodology), logistic regression was used to identify factors determining farmer access to formal credit. The maximum likely hood estimates of the logistic regression model are given in table-2.

TABLE – 2

Factors Determining Farmer's Access to Formal Credit

Constant/Indep	**Maximum likely hood estimates of logic model**	
Variable	**Coefficients**	**t-ratios**
Constant	-0.08***	-2.93
Education	0.20**	2.50
Age	0.42**	2.60
Area Operated	0.55*	1.92
Male Worker (Adult)	0.45	0.90

-2 log likelihood	32.98
Chi-squared	130.80
Sample size	76
Overall performance of the model	60%

Note: - *, **, *** shows 10%, 5% and 1% level of significance respectively.

According to the estimated coefficients, farmers education and experience (captured by age variable) are the most important determinants of borrowing in formal credit markets, coefficient of both these variables

are statistically significant at least at 5% level other variables including area operated is significant at 10% level. However adult male worker is not significant.

The result of logistic regression given in the table 2 supports our hypothesis.

The first hypothesis states that higher the education greater the chances to get formal credit thereby showing a positive relationship between farmer education and his access to formal credit. The estimated coefficient of education variable is positive and statistically significant at 95% level of confidence. It confirms our first hypothesis.

The second hypothesis states that the larger the farm size the greater the chance of getting formal credit. Area operated by the formers was used as a proxy for farm size in the logit model. The estimated coefficient of operated area is also positive and significant at l0o/o. This implies to the acceptance of the second hypothesis as well.

CONCLUSIONS AND RECOMMENDATIONS:

1. Education, experience and age are to borrowing from formal sources. borrowing in formal credit sources. the important determinants of farmer's access Area operated also determines their access to.
2. There are many imperfections in the existing formal which it does not clear the market. Requirements sureties make it difficult for farmers to get loans from credit market system due to of collateral and personal formal markets.

3. There exists a dual credit market system. The vacuum left by formal credit sources is filled out by the informal sources. The latter thus serves as a complimentary market.
4. All credit institutions must ensure that small farmers are given due share in their credit operation.
5. The loaning procedure of the credit institution should be further simplified for the benefit of farmers.
6. To avoid unnecessary delay, credit disbursement should be made quick, so that it is available at time needed by the farmers for the purchase of agricultural inputs.

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