The Economic Journal of Nepal, Vol. 32, No. 3, July-September 2009 (Issue No. 127) © CEDECON-TU

Do Socio-Economic Factors Matter on Access to Formal Credit Market in Nepal? Determinants of Formal Credit Market Participation

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Abstract

Access to formal credit particularly of rural poor and marginalized households is crucial for poverty alleviation as it allows households to borrow against future income and firms to invest for instance in machinery and equipment. Realizing this importance, government of Nepal has initiated number of policies and market interventions to increase the access to formal financial services since late 1950s. The current statistics, however, reveals dismal performances on increasing the access to formal financial services in general and access to credit in particular. Indeed access to formal financial services is declining, financial intermediation is stagnating. So, by using NLSS II data 2003/04 this study attempts to identify and analyze the significance of various socio-economic determinants of formal credit market participation by the poor by using a simple Probit regression model and has found household size, per capita food expenditure, age of the household head, age square of household head, highest years of formal education of household head and the coefficients for dummies of rural-urban, ecological belt two, development region one and development region three to be significant.

Introduction

Economic transformation of the poor and deprived rural population lies on the shift in rural economic activities from subsistence to commercial. However, the saving and investment required for the commercialization of the rural economic activities is very low due to low earnings. To mitigate the saving and investment gap in rural economy, access to credit market would be desirable. Despite the various endeavors, the outreach of financial institutions has covered only 30 percent to 35 percent of the population. It means 65 percent to 70 percent people relying on merchants, money lenders, traditional co-operatives etc. for financing on socio-economic activities with high interest rate (CECI, 2008).

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Nobel peace prize winner, economist and founder of the Grameen Bank, Muhammad Yunus argues that credit is vital for relieving poverty. Credit allows household to borrow against future income and firms to invest for instance in machinery and equipment. However, a large part of the world lives in poverty lacking access to credit. It is generally agreed among researcher and policy maker that poor rural households in developing countries lack adequate access to credit. This lack of adequate access to credit is believed to have significant negative consequences for various aggregate and household level outcomes including technology adoption, agricultural productivity, food security, nutrition, health and overall household welfare.

The recent political development and social movements across the country are the result of deep dissatisfaction with how the market economy has worked or not in Nepal. The introduction of market principles has not yielded the desired outcomes in the financial sector. Over the past decade the financial sector has increased in both size and number in institutions but access to and use of financial services remain limited. Only 26 percent of households have a bank account and 45 percent of these households prefer to save at home while 53 percent prefer to borrow from the informal sector (WB, 2007).

In the past 50 years, Nepal's government has tried to increase access to formal financial services for small business and low-income households. The government has introduced direct lending programs for small business and low income households, required banks to open branches outside the Kathmandu valley, created specialized wholesale and retail institutions and lowered market entry requirement to foster the development of different types of financial institutions. Despite the government efforts, access to formal financial services is declining (WB, 2007). Banks dominated in urban areas and among the wealthiest. The poor usually lack productive resources and have no property rights and are therefore not able to provide the collateral in order to gain access to credit to finance their small business ventures (Oxfam, 1987).

There are various socio-economic factors that determine the formal credit market participation. Access to bank credit is positively and significantly influenced by age, by sex (male), household size, education level, household per capita expenditure and race (Okurt, 2002). Farm size and irrigation are major determinant of borrowing from formal institutions; where as family size is the most decisive factor in borrowing from informal sources(Yadav et al., 1992). Similarly, the access to credit market also depends on family size, seasonal dummies, education of the household head, land holding, number of live stock, (Bokosi, 2001; Diagone, 1999; Modak, 1992). These characteristics are important for two reasons. First, they influence the households' demand for credit. Second, potential lenders are likely to base their assessment of borrowers' credit worthiness on such characteristics. The present study mainly attempts to explore and analyze the major determinants of the formal credit market participation.

Methodology

The study uses the Nepal Living Standard Survey 2003/04 (NLSS II) survey data

collected by Central Bureau of Statistics (CBS) during April 2003 to April 2004. The data were collected by using a two stage stratified sampling scheme to select a nationally representative sample by enumerating 3,912 households from 326 primary sampling units (PSU) in the cross-sectional sample.

Theoretical Model

This study uses a household production model with utility maximizing households subject to full income constraint. The household model shows that if all the factor markets and product markets exist and the markets work well then all prices are exogenous and production and consumption decisions are separable. But if any one of market fails, errors will occur when the model is specified as if market mechanism is working well. In a situation of market failure production and consumption decisions are linked together through endogenous prices and the market prices alone can not determine the household's decision to participate or not in the credit market.

The utility maximizing households participate in the credit market (loan participation =1) if a loan is expected to increase utility and they do not demand loans (loan participation=0) in the opposite case. If a household demands loans, the size of the loans applied for is determined by variables related to the optimal investment or the optimal consumption.

Variable Specification

If market was perfect then we know that household's decision to participate or not would depend on the market price. But in the situation of market imperfection, the household's decision to participate or not on the credit market depends on various household and resource characteristics.

Since the participation on the credit market is the dependent variable, age, sex, acquired education of the household head, household size, landholding, and per capita food expenditure are the independent variables. Besides these the participation of the household in the credit market also depends on whether the household is in the rural or urban areas, poor or non-poor etc. The variables determining credit market participation have different expected sign as shown below.

Variables Determining Credit Market Participation with Expected Sign

Independent Variable(s)	Expected Sign of the Coefficient	Nature of Variable
Age of household head (Age)	+	Continuous
Sex of household head(Male) (sex)	+	Dummy (if female=0, 1 otherwise)
Education of the household head (Edu)	+/-	
Household size (Hhsize)	+/-	Continuous
Land holding (Land)	+/-	Continuous
Per capita food Expenditure (Pce)	-	Continuous
Poor/Non Poor	-	Dummy (if poor =0, 1 otherwise)
Rural/ Urban	-	Dummy (if rural=0, 1 otherwise
Ecological Belt One (b1)	+/-	Dummy (if Mountain=1, 0 otherwise)
Ecological Belt Two (b2)	+/-	Dummy (if Hill=1, 0 otherwise)
Development Region One (d1)	+/-	Dummy (if Eastern Development Region=1, 0 otherwise)
Development Region Two (d2)	+/-	Dummy (if Central Development Region=1, 0 otherwise)
Development Region Three(d3)	+/-	Dummy (if Western Development Region=1, 0 otherwise)
Development Region Four (d4)	+/-	Dummy (if Mid-Western Development Region=1, 0 otherwise)

Econometric Model

The households' participation on credit market is a dichotomous dependent variable. The probability of participating on the credit market can be analyzed with the help of a probabilistic model (Bokosi, 2001, Okurt, 2002). In order to know whether a household participates or not given the socioeconomic characteristics, this study has used the Probit Model to estimate maximum likelihood function more meaningfully. To motivate the probit model, we assume that any given household compares utility with or without participation in the credit market. The Probit model can be specified as:

Consider that whether a household is participating on credit market or not depends upon the household's readiness and ability. We can denote this by a latent variable say y^*. The variable y^* is non-observable latent variable; however, it depends upon various socio-economic characteristics of the household. For example, y^* depends on family size, land holding, education of the household head etc. The relationship then can be specified as:

$$y_i^* = \beta_0 + \beta_1 X_i$$

Where, β_0 and β_1 are coefficients and X represents the vectors of socio-economic characteristics.

Suppose $y_i = 1$ if the ith family observed to participates, $y_i = 0$ otherwise.

In order to estimate the coefficients of the probit regression equation STATA 10 version of the statistical software has been used.

Determinants of Credit Market Participation: Empirical Results and Discussions

Table1 shows the summary of the regression results of probit model used for the study to know the determinants of credit market participation. The results from the Probit analysis indicate that among the various socio-economic explanatory variables, household size, per capita food expenditure, age of the household head, age square of household head, highest years of formal education of household head and the coefficients for dummies of rural-urban, ecological belt two, development region one and development region three are found to be significant.

Table 1: Probit Regression Results: Determinants of Households' Credit Market Participation

Dependent VariableLoan Participation	Coefficient	Std. Err.	z
Independent Variable(s)			
Household Size	0.0473*	0.0104	4.54
Per Capita Food Expenditure	-0.0002*	0.0001	-3.86
Age of Household Head	0.0332*	0.0090	3.67
Age Square of Household Head	-0.0004*	0.0001	-4.64
Highest Education Degree Completed	-0.0208*	0.0078	-2.66
Sex of Household Head(Male)	0.0083	0.0565	0.15
Poor/ Non-Poor	-0.0214	0.0583	-0.37
Rural/Urban	-0.5724*	0.0536	-10.67
Ecological Belt One (b1)	-0.0272	0.0807	-0.34
Ecological Belt Two(b2)	-0.1033**	0.0486	-2.12
Development Regions One (d1)	0.3470*	0.0943	3.68
Development Regions Two (d2)	0.1225	0.0899	1.36
Development Regions Three (d3)	0.2409**	0.0979	2.46
Development Regions Four (d4)	-0.09332	0.1024	-0.91
Constant	-0.1667	0.2257	-0.74
Number of Observations			*3768*
LR Chi2(15)			*412.38*
Prob > Chi2			*0*
Pesudo R2			*0.0843*
Log Likelihood			*-2239.6425*

*** Significant at < 1 percent, ** significant at < 5 percent**

The positive and significant relationship between the household size and household borrowing explains that as family size increases more stress falls on the household's (consumption) expenditures which is mostly reflected through an increased probability of borrowing. However, the limitation to this result is that it does not capture the number of working members on the household. A better explanatory variable could have been the ratio of workings members to household size. Due to limited statistical information, this variable has not been incorporated for the purpose of the study.

Same type of relationship of household head's age to the household borrowing implies that older household head has accumulated more information and experiences which might lead to the worthiness of participating on credit market. Also, he will have more relationship among the public and so lesser chance to be defaulter. This is reflected in the higher probability to participate in the credit market. However, the coefficient of age square of the household head is negative but statistically significant. This implies that the probability of participation of the household on the credit market increases at a decreasing rate as the age of the household head increases.

The statistically significant but negative relationship between per capita food expenditure and probability of credit market participation of a household explains the fact that per capita food expenditure is taken as a proxy for wealth of the household. As we know wealthier households do have more resources of their own and so they are less dependent on the credit market. Thus, a household with more wealth will be less likely to participate in the credit market.

If the household head is more educated he will have more opportunities in the labor market and he would be supported by his own income. So higher the level of education the household head attained, he will be less likely participating in the credit market. This has been made confirmed by the statistically significant but negatively related coefficient of the household head's education.

The positive and statistically significant coefficients of the dummies used for eastern development region, western development region and credit market participation implies that if a household migrates to these regions from other development regions, the probability of participating in the credit market by the household increases but it is opposite if the same happens to be in hilly region which is shown by the significant negative coefficient for the dummy, ecological belt two.

The coefficient for the dummy of rural-urban is negative and statistically significant at less than one percent significant level. This implies that the household in the urban area is less likely to participation in the credit market than in the rural side. In other words, if a household move from rural to urban areas, the household will be less likely to be participating in the credit market. This can be attributed to the fact that the household in the urban areas will be generating income of their own and the will be less dependent on credit.

The negative coefficient of land holding which has supported the prior theoretical expected sign implies that higher the land holding size, the probability of participating on credit market is less likely. For a rural economy like Nepal where the land is the prime

form of holding wealth, the relationship can be expected. However, statistically land holding is not significant on determining the participation on credit market. It does not matter in the credit market participation whether the household has smaller or larger land holding size.

The table 1 shows that if a household head is male, there is more probability of participation in the credit market due to the fact that female headed household are more risk averter and socio-cultural set up of our society is also unfriendly to the female borrower.

The coefficient of the dummy for poor or non-poor is negative and statistically insignificant. This implies that whether a household is poor or non-poor does not significantly affect the participation to the credit market. However, the negative coefficient indicates that household being non-poor instead of poor; there will be less probability of participating in the credit market. In other words, if the household moves from the poor bracket to non-poor, the probability of the household's participation in the credit market declines. This may be due to the fact that the non-poor household has more resources of its own which makes the household to be less dependent on credit market to smoothen their consumption and productive activities.

Conclusions

An adequate access to credit market by poor household is necessary to increase their productivity and living standard in significant and sustainable manner. However, the above findings from the empirical study both on supply and demand side indicators show that even the access of the households on the credit market is limited and even skewed against the poor. It is not as easy as expected to realize the government's efforts to increase access to formal financial services because the participation on the formal credit market significantly depends on various socio-economic variables.

The results from the Probit analysis indicate that among the various socio-economic explanatory variables, household size, per capita food expenditure, age of the household head, age square of household head, highest years of formal education of household head and the coefficients for dummies of rural-urban, ecological belt two, development region one and development region three are found to be significant.

Thus, by recognizing the critical role that credit can play in alleviating rural poverty in a sustainable way, innovative credit delivery systems that can address all the socio-economic determinants of the credit market participation should be promoted throughout the country as a more efficient way of improving rural households' access to formal credit market.

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