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Diversion of loan use: who diverts and why?

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Diversion of Loan Use: Who Diverts and Why?[1]

Abstract

This paper uses 2973 loan profile records of 2810 poor households who have taken these loans from different quasi-formal sources of which about 50 percent of the loan taken is supplied by the Ultra-poor oriented program designed by PKSF. The objective of this program was to create some income source for these Ultra-poor through credit support. But diversion of loan use from the proposed IGA to other non-productive sector, especially to consumption hinders the objects and at the same time causes a threat to the MFIs as some of them become default. We observe that among these Ultra-poor households who have taken loan, about 68 percent of the loan was diverted from the proposed IGA to other activity with different degree of diversion and of these diverted loan, 40 percent was fully diverted. We find that among the non-savers, wage employers, inhabitants of char have higher likelihood of diverting their received loan from the proposed IGA to others and more than 28 percent of each loan on average was used for consumption.

JEL Classification: D11, D12, R20

Key words: Credit, Diversion, Default, Fund, IGA, Index, Loan, Microfinance

Introduction

The proponent of microfinance program is that the poor households who have innate business capability, but the constraints to the access to finance often hinder the promotion or creation of such enterprises. The microfinance revolution in Bangladesh has relaxed the severity of credit constraints to a great extent and promoted the greater access to finance. Money has reached at the root level in the form of credit, opened the opportunities to develop the desired business.

Since money is fungible, diversion of the use of loan is found among the loan receivers. Such diversion of the use of loan is sometimes intentional and sometimes it is unintentional. The intentional diversion of the use of loan is often used for unproductive activities and so

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considered as a negative indicator of loan use and it is hypothesized that the microfinance organization does not supply the loan other than the income generating activity. Therefore, the intentional diversion of the use of loan refers to the diversion of loan use from the productive sector to unproductive sector. On the other hand, the unintentional diversion of the use of loan compels the household to spend part of the loan or full of it for the purposes that are not mentioned in the application form. Many respondents reported that they never liked to divert the loan for any other use than was specified in the loan application (Jameela). But circumstances compel them to utilize the loan in different ways. To some, it may be due to acute poverty. To others, illness of the husband, educational needs of the children, sickness of the respondent herself, and unemployment of the husband or some other needs. It is quite relevant to mention that during the Monga season, when the available working days is scarce and the day labors have low level of monthly income compared other months. During this season, it is the women who meet the day to day expenses of the household either by borrowing money from the self help group or by managing to obtain funds from other persons like friends or relatives or even from the moneylenders.

This paper aims at to develop a loan use diversion index at each loan profile level and a weighted loan use diversion index at household level and then tries to answer the question of (1) what percentage of households or loans are diverted from the proposed activity to other activities; (2) whether loan use diversion is threat or bread; (3) who diverts of the received loan from proposed IGA to other uses and why; and (4) whether there is policy implication of such diversion of loan use or not.

Definition of Diversion of Loan Use

The diversion of loan use is defined as the quotient of the difference between the total amount of loan received and the amount of loan used for the proposed purpose and the total amount of loan received. Alternatively, diversion of loan use is equal to 1 less the value of the ratio of the amount of loan used in proposed activity and total amount of loan received. Since the diversion rate lies between 0 and 1, we called it loan diversion index. Systematically, this is defined as:

$$Loan\ Diversion\ Index(LDI) = 1 - \frac{Amount\ of\ loan\ used\ in\ proposed\ activity}{Total\ amount\ of\ loan\ received}$$

1. LDI=0 means that the household has not diverted its credit from its proposed activity

2. LDI $\in (0,1)$ means that the household has partially diverted its credit from the proposed activity. For example if LDI is equal to 0.25, then it will mean that the household has diverted its 25 percent received loan to other purposes other than the proposed purpose.

3. LDI=1 implies that the household has fully diverted its credit from the proposed activity.

The analysis at loan profile level gives the degree of diversion of each loan use. Since we want to see the determinants of diversion of loan use, we concentrate on household level outcome and hence households were considered as the analysis unit. To analyze the characteristics of the diversion of loan at household level, we have estimated the weighted loan diversion index (WELDI), where the frequencies of diversion of loan uses of loan profiles were being used as the weight. The characteristics of WELDI are analogous to LDI.

Is Diversion of Loan Use Threat or Bread?

From the perspective of household benefit, it is a question that diversion of loan use is a problem engendering factor or positive benefit producing factors. The household mentions an income generating activity as a purpose of taking of loan from microfinance institution as the microfinance institution seldom supply credit beyond income generating activity. Since the MFIs have no monitoring system of evaluating the usages of received loan, households have an inherent tendency to divert from their proposed activity to their planned activity[2]. All planned activity is not worthless because every use of loan has its own benefit, for example, the single earner lead household who is dependent on wage income mentions that his family is taking the loan for buying a rickshaw, but when they receive the loan they buy a cow using a part of the received credit and part of it used for consumption and remained

[2] Suppose that the set of planned sector of utilization of credit is denoted as Ψ and the proposed sector of utilization is indicated by ξ and if the intersections of two sets become a null set, then the household will be considered as the fully diverter of credit use from its proposed activity. If the planned utilization set and proposed set fully coincide, then the household is said to be non-diverting household. Any case except these two cases, will exhibit a degree of diversion of credit use.

dependent on wage employment. Such diversion is basically a diversion from flow income to stock income and better nourishment due to smooth consumption and a diversion from wage employment to self employment. Now it is a question is which one is crucial – a flow income or a stock income; wage employment or self employment. The current diversion pattern suggests that if the borrower would buy a rickshaw/van and pulls it, at the end of the year he would have an asset[3] and a flow of income and if the borrower would buy a cow/goat s/he would a stock income which is equal to its market price at the sold period.

Girma argues that if the borrowers divert the funds from the proposed IGA to other uses, then they may default and become unable to reimburse the loan well. Wakuloba[4] tells that the main causes of default are poor business performance, diversion of funds and domestic problems. He mentioned that diversion of loan use among the poor loanees households causes 50 percent default, and among defaulters, 10 percent default occurs due to diversion of loan use. This default has no static effect, rather it has a dynamic effect because the bad record of loan history may hinders the access to formal credit from that organization in the future[5] and may be forced to take credit from the informal source at high interest rate to implement new IGA in the future.

Data and Variables

This paper uses the rural household survey data of 2810 poor households drawn from the five districts of the northwest region of Bangladesh and this is a sub-set of 7212 poor households of the northern region of Bangladesh. The each sample households of the sub-sample group has at least one loan profile and it has 2973 loan profile records. The survey was conducted by the Institute of Microfinance (InM) to target the ultra-poor households that are vulnerable to seasonal deprivation during the lean season (or *monga* period). The survey covered all the *Upazilas* of each districts.[6]

The index of loan use diversion is the key variable or outcome indicator of this paper which is tried to explained by means of a set of explanatory variables such as characteristics of household head, for example, age and occupation of head; characteristics of the households;

[3] The value of this asset depreciates over time, but it has a net positive value.
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[5] Many NGOs in Bangladesh terminate the membership due to bad loan repayment record.
[6] An Upazila is an administrative unit (below the district) consisting of a few villages.

asset dummies, types of shocks or risks and the regional dummy. (For creation and nature of variables see appendix 1)

Table 1 represents the basic characteristics of the households. The table shows that the average age of the household heads is almost 41 years, having a standard deviation of about 12. More than half of the sample households have head who are engaged in wage employment and it is seen from the table that among the non-diverters, 47 percent of the household head is engaged in wage employment while 55 percent of the household head is employed in wage employment. The household heads of the sample households have a very low level of education and this level is lower among the diverters than the non-diverters. Near about 70 percent of the households have savings and among the non-diverters, the saving tendency is higher than the diverters. Among the sample households, 27 percent households suffered from unanticipated risk or shocks last one year, 27 percent households have one meal during monga and 12 percent households live in char area. The diverting households are affected by risk/shock or monga than the non-diverters and 15 percent of the diverting households live char area while 12 percent of the non-diverters live in char.

Table 2 shows that overall about 51 percent of the received loan was diverted from the proposed purposes. About 42 percent of the received loan was fully diverted from the proposed purpose, while about 36 percent of the received loan was used for the mentioned purpose during loan application. About 22 percent of the received loan was partially diverted from the proposed purpose and the degree of partial diversion belongs to (0, 1)[7]. The diversion analysis at household level reveals that about 39 percent of the households who received loan diverted their loan from the proposed purpose to other purposes that are not mentioned in the application; while around 34 percent households fully utilize their loan on the proposed purposes. Almost 27 percent households divert their received loan from the proposed activity with different degree of diversion. Among the diverter households majority diverted fully of their received loan and among the partial diverter households majority have moderate degree of diversion of loan use.

Table 3 shows the matrix that explains the purpose and use of loan. There are 1676 loan profiles which are taken for agriculture purposes, but 36 percent of these loan is used for

[7] This is an open interval that excludes the two values 0 and 1; but includes values which are greater than 0 but less than 1.

that purpose, while about 29 percent of that loan is used for consumption purpose, 4.42 percent for treatment, 4.47 percent for repairing houses, 5.91 percent for small business, 6.09 percent for loan repayment and the remaining is used for other purposes. Like agriculture loan, a major portion of the loan taken for the purpose of small business has diverted to consumption (29.63%), treatment (3.70%), and loan repayment (7.12%). Most of the proposed loan purpose is diverted to consumption, for example, 28.86 percent of the loan taken for purchase rickshaw/van, 27.73 percent of the loan taken for house repair and 35.48 percent of the loan taken for treatment.

Who Diverts and Why?

The livelihood strategy affects the usages of the available fund. Many of the microfinance borrower households have chosen wage employment activity as their livelihood. These wage based households have a limited option of using the taken credit fund for the proposed income generating activity, they spend a significant portion of their received credit on unproductive activity like consumption, social program etc. Therefore, it is postulated that among the wage employers, there is a positive intension of the diversion of the received credit from the proposed income generating activity to other activity which may be productive or unproductive. The diversion of the received credit from the proposed productive activity to the other productive activity may not be a serious problem, but the goodness depends on the yield rate of the activities. However, the diversion from the proposed income generating activity to the unproductive activity is a problem because such diversion hinders the possible increase of household income.

But the success of proper use of received credit does not only depend on livelihood strategy but also depends on the management skill of the households. Better management of the fund in their proposed income generating activity requires some level of experience or education which helps them to make the usage of the received loan effective. Girma (1996) believes that education of the borrowers or users of fund determines how funds are utilized. Literacy and low level of education hinder effective utilization of loan funds by borrowers/users.

Any kind of shock forces the households to divert the loan from the proposed income generating activity to cope with the risk. Necessity knows no law and this is why the shock

affected households diverted the received loan from the proposed activity or program. The households starving during monga[8] have higher tendency to divert the loan.

There is close link between the diversion of the use of received loan and the alternate sources of fund investing in the proposed activity. Household savings and informal loan are two alternate sources of meeting the gap of the diverted amount. Alternatively, a good balance of savings makes the household to be confident to cope up the unanticipated events and hence may reduce the tendency to divert the loan from the proposed income generating project. Saving, here, is playing the role of hedge coping instruments. Other view may state that savings may induce the current loan use from the proposed activity to other and the diverted amount will be covered by savings. Therefore, there may not have a concrete direction of the relationship between diversion of loan use and the savings of the households. Analogous relationship lies between the access to informal source of fund and the diversion of formal fund from the proposed project to other projects.

Special training of borrowers in the business they are running such as tailoring, hair dressing, animal husbandry, etc. has a positive impact on the effective utilization of funds. Girma established that when borrowers are trained, they tend to utilize their funds effectively; the loan is used for the true purpose. Therefore, the integration of training and training specific credit may prompt the households to be pro-proposed IGA implementation[9].

Methodology

Let $y = X\beta + \varepsilon$ be the model, y represents continuous outcomes—either observed or not observed. This model assumes $\varepsilon \sim N(0, \sigma^2 I)$.

For observations j e C, we observe y_j; i.e., point data. Observations j € L are left-censored; we know only that the unobserved y_j is less than or equal to yL_j, a censoring value that we do know. Similarly, observations j £ R are right-censored; we know only that the unobserved

[8] *Monga* is an acute form of seasonality in food consumption that causes food deprivation what Sen (1981) calls "lack of entitlement to food".

[9] In addition to the integration of training and credit, monitoring should be established by the funding agency to make sure that the fund is effectively used for the proposed IGA. When borrowers are supervised in utilizing the loans, they tend to use the funds properly, but if there is no close monitoring they often fail to use the funds effectively.

y_j is less than or equal to y_{Rj}. Observations j ϵ / are intervals; we know only that the unobserved y_i is in the interval (y_{1j}, y_{2j}).

For the Tobit[10] model, the log likelihood is

$$L = -\frac{1}{2}\sum_{j\in C} w_j \left\{\left(\frac{y_j - X\beta}{\sigma}\right)^2 + log2\pi\sigma^2\right\} + \sum_{j\in L} w_j log\Phi\left(\frac{y_{Lj} - X\beta}{\sigma}\right) + \sum_{j\in L} w_j log\Phi\left(\frac{y_{Lj} - X\beta}{\sigma}\right)$$
$$+ \sum_{j\in R} w_j log\left\{1 - \Phi\left(\frac{y_{Lj} - X\beta}{\sigma}\right)\right\} + \sum_{j\in l} w_j log\left\{\Phi\left(\frac{y_{2j} - X\beta}{\sigma}\right) - \Phi\left(\frac{y_{1j} - X\beta}{\sigma}\right)\right\}$$

Here, $\Phi(\,)$ is the standard cumulative normal distribution, and w_j is the weight for the jth observation. If no weight is assigned or specified, then $w_j = 1$

For binary outcome data the dependent variable $\boldsymbol{y}$ takes one of two values. We let:

$$\boldsymbol{y} = \begin{bmatrix} \mathbf{1} & with\ probability\ p \\ \mathbf{0} & with\ probability\ (1-p) \end{bmatrix}$$

A regression model is formed parameterizing the probability p to depend on a regressor vector $\boldsymbol{X}$ and a $K \times 1$ parameter vector $\boldsymbol{\beta}$. The commonly used models are of single-index form with conditional probability given by $p_i = \Pr[y_i = 1|X] = F(x_i'\beta)$; here $F(.)$ is a specified function. To ensure that $0 \le p \le 1$ it is natural to specify $F(.)$ to be a cumulative distribution function.

The probit model specifies the conditional probability: $p = \Phi(x'\beta) = \int_{-\infty}^{x'\beta} \phi(z)dz$; here $\Phi(.)$ is the standard normal cdf (cumulative density function), with derivative $\phi(z) = (1/\sqrt{2\pi})\exp\left(-\frac{z^2}{2}\right)$, which is the standard normal density function.

The probit maximum likelihood estimation (MLE) first – order conditions are that $\sum_{i=1}^{N} w_i\left(y_i - \Phi(x_i'\beta)\right)x_i = 0$; here, w_i is the weight which is defined as $w_i =$

[10] Tobin (1958) for the original derivation of the tobit model and Amemiya (1973) for a generalization to variable, but known, cutoffs. AiJ introductory description of the tobit model can be found in, for instance, Johnston and DiNardo (J997, 436-441), Kmenta (1997, 562-566), Long (1997, 196-210), and Maddala (1992, 338-342).

$\phi(x_i'\beta)/[\Phi(x_i'\beta) - (1 - \Phi(x_i'\beta)]$ varies across observations. The probit model marginal effects are $\frac{\partial p_i}{\partial x_{ij}} = \phi(x_i'\beta)\beta_j = \phi(\Phi^{-1}(p_i))\beta_j$, where $p_i = \Phi(x_i'\beta)$.

In our analysis, we have used probit for discrete variables[11]. In the index function formulation interest lies in explaining an underlying unobserved preference toward loan diversion from the proposed IGA to other IGA, y^*, but all we observe is the binary variable y, which takes value 1 or 0 according to whether or not y^* crosses a threshold.

Let y^* be a latent or unobserved variable such as the loan diversion. The natural regression model for y^* is the index function model:

$$y^* = X'\beta + u$$

However, this model can't be estimated as y^* is not observed. Instead, we observe:

$$y = \begin{cases} 1 \; if \; y^* \; response \; positively \\ 0 \; if \; y^* \; response \; negatively \end{cases}$$

Here the threshold of zero is a normalization explained in the following.

$$\Pr[y = 1|X] = \Pr[y^* > 0] = \Pr[X'\beta + u > 0] = \Pr[-u > X'\beta] = F(X'\beta)$$

Here F is the cdf of (- u), which equals the cdf of u in the usual case of density symmetric about zero. The probit model will arise if the error u is standard normal distribution.

Econometric Results

We have used three econometric models to identify the plausible determinants of diversion of loan use from the proposed IGA to other purposes. These are Tobit, Probit and Logit models. For Tobit model, the loan diversion rate is used as the dependent variable which has values within 0 and 1 (inclusive), while for probit model we have defined "divert" variable which is equal to 1 if the loan fully or partially diverted from the proposed IGA to other purposes and 0 otherwise. But the same set of explanatory variables is used for the three head such as age, employment and education; the household characteristics like household

[11] A latent variable is a variable that is incompletely observed. Latent variables can be introduced into binary outcome models in two different ways. In the first the latent variable is an index of an unobserved propensity for the event of interest to occur. In the second the latent variable is the difference in utility that occurs if the event of interest occurs, which presumes that the binary outcome is a result of individual choice.

savings, small business of the household, and the risk or shock the household faced last one year; area characteristics like presence of char.

The Tobit coefficients of the three models are the same sign as the corresponding Probit and Logit estimates. The coefficients of probit model are almost twice of Tobit coefficients, while the coefficients of Logit model are almost thrice of Tobit coefficients. Albeit there is a relationship of the sign and magnitudes of Tobit model with other two models, any kind of comparison between the coefficients of the Tobit model and the other two models is not informative.

Coefficients of the three models of the variable "wage employed household head" are positive and significant at 1 percent level, implying that there is a positive association between loan use diversion and wage employment. Such a relationship is plausible as most of the loan taken and supplied is given for different IGA, such the wage employers have a tendency to be remained on wage employment as their livelihood and they tends to divert the received loan from the proposed IGA to other activity of which consumption spending and loan repayment dominate.

We have explained earlier that the household savings is a risk coping instrument and the household savings reduces the diversion of loan use tendency among the borrowers as savings is available to cope up with the risk or shock. The coefficient of household saving variable is negative and this negative relation is statistically significantly different from at 10 percent level of significance. This implies that households having a positive amount of savings have a lower likelihood to divert the loan from its proposed IGA to other activities.

Any kind of risk or shock has a positive influence on loan use diversion, which is reflected in the econometric estimates. The coefficients of the shock variable and the variable of deprivation during monga are both positive, suggesting the higher likelihood of loan use diversion. The coefficient of shock variable is significant at 1 percent level while the coefficient of the variable "starvation during monga" is significant at 90 percent confidence interval level.

Regional heterogeneity has a positive influence on diversion of loan use, because geographical disparity locked the economic potential of the locality. The households who

live in char are vulnerable to various kinds of shock and risk and they have little economic choice of the use of their loan. Therefore, the lack of economic opportunity of using the loan for IGA prompts the households to divert their taken loan from the proposed IGA to other activity like consumption, social programs, house repair, loan repayment, etc.

Let us analyze the magnitude of diversion of loan use by changing the explanatory variables, that is, by increasing 1 unit of the explanatory variable if it is continuous or setting it equal to zero or 1 if the explanatory variable is dummy, holding the other variables hold constants at the time of change.

Being 10 years older the head increases the odds by a factor of 1.062 $(= e^{[0.006]*10})$, holding all other variables constant. For 10 year increase in age of household head, the odds of diverting of loan use will increase by 6 percent, keeping the remaining variables constant, while a standard deviation increase in the age of household head increases the odds of diverting the use of loan by 7.4 percent, other things remaining the same. Like age, livelihood strategy influences the loan uses. The household head, who is engaged in wage employment, the odds of diversion of the received loan of these heads increases by a factor of 1.35, or the odds of diversion of loan use rises by 34.70 percent, holding all other variables constant. Conversely, the odds of non-diversion of the received loan will increase by a factor of 0.74, other things remaining the same (For other variables see table 5).

Conclusion

The relaxation of credit constraints for promoting microenterprise facilitates the object to a great extent, but relaxation of microenterprise oriented credit constraints often relaxes the consumption constraints. The relaxation of the credit and promotion of microenterprise was hopes to increase income which is expected to increase the consumption. But what happens in reality? A significant portion of many loans taken for the IGA is diverted from the proposed IGA. Such diversion of loan use from productive sector to unproductive sector is a threat for the households as well as for the MFIs or credit supplying institutions. Therefore, attention should be given to the proper utilization of the loan. Proper monitoring system and proper IGA related training program can ensure the best utilization of the received loan, which can increase the expected household income and hence increases per capita household food and non-food expenditure.

Table 1: Summary Statistics (Mean, Standard Deviation)

Variables	Aggregate		Non-diverters		Diverters	
	Mean	SD	Mean	SD	Mean	SD
Diversion of loan use	0.66	0.47				
Age of HH head	40.63	11.57	40.20	11.64	40.85	11.53
HH head is wage employed	0.52	0.50	0.47	0.50	0.55	0.50
Education of HH head	1.64	2.68	1.78	2.82	1.56	2.60
Have saving?	0.69	0.46	0.72	0.45	0.68	0.47
Have own small business?	0.04	0.20	0.05	0.23	0.04	0.19
Affected by unexpected shock?	0.27	0.44	0.24	0.42	0.28	0.45
Deprivation during monga	0.23	0.42	0.20	0.40	0.25	0.43
Have access to informal credit?	0.11	0.32	0.10	0.30	0.12	0.33
Does the HH live in char?	0.12	0.33	0.08	0.27	0.15	0.36

Note: SD means standard deviation of the respective variables and HH means household

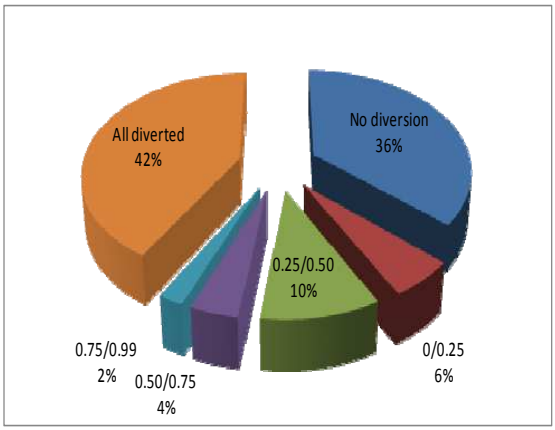
Table 2: Distribution of Diversion of Loan Use

Degree of diversion	Diversion at Loan Profile			Diversion at Household Level		
	Among all loans	Among diverters	Among partial diverters	Among all households	Among diverters	Among partial diverters
No diversion	36.34			33.91		
0/0.25	5.72	8.98	25.77	6.51	9.85	23.83
0.25/0.50	10.14	15.93	45.71	12.49	18.9	45.7
0.50/0.75	4.15	6.52	18.71	5.3	8.02	19.4
0.75/0.99	2.18	3.42	9.82	3.02	4.58	11.07
All diverted	41.48	65.15		38.75	58.64	
Observations	2939	1871	652	2810	1857	768

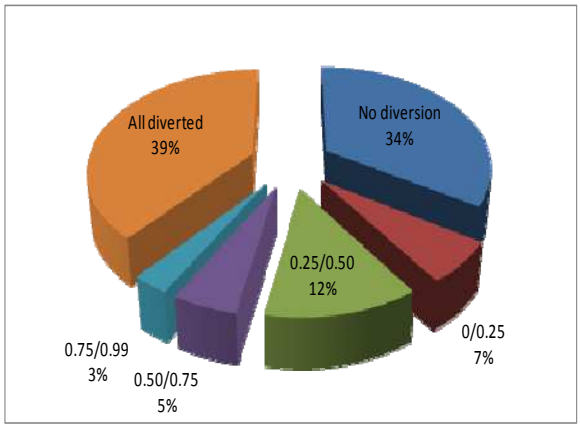
Note: The percentages of the analysis of diversion at loan profile shows the percent of loan diverted and the percentages of the analysis of diversion at household level indicates the percent of households who divert the loan from the proposed purpose to other purposes. The diversion of loan use at household level is the weighted average of diversion of loan use of loan profile of a household.

Figure 1: Degree of Loan Diversion

Diversion at Loan Profile



Diversion at Household Level



Note: The loan profile analysis is based on the loans taken by the household from different sources, while household level analysis is based on the total loan taken by the household within one year from formal source.

Table 3: Loan purpose and loan use matrix

Purpose and use of received loan	Agriculture	Vehicles	Consumption	Treatment	Repairing Houses	Small business	Loan repayment	Others	Obs.
Agriculture	36.04	3.64	28.70	4.42	4.47	5.91	6.09	4.77	1676
Vehicles	1.36	46.01	28.86	3.74	3.23	4.24	3.90	3.23	589
Consumption	2.33	1.17	81.71	1.95	0.39	4.28	0.78	2.33	257
Treatment	3.23	0.00	35.48	51.61	3.23	0.00	1.61	3.23	62
Repairing houses	0.84	1.68	27.73	2.52	57.42	1.12	1.12	1.40	357
Small business	3.42	2.71	29.63	3.70	3.28	42.88	7.12	4.42	702
Loan repayment	0.55	0.00	28.18	1.10	0.00	0.55	66.85	2.21	181
Others	6.03	2.48	25.89	2.13	2.13	4.26	1.06	51.77	282

Table 4: Regression Result of Diversion of the loan use

Explanatory Variables	**Tobit**	**Probit**	**Logit**
HH head's age (years)	0.002*	0.004*	0.006*
	(0.001)	(0.002)	(0.004)
Wage employed HH head	0.098***	0.183***	0.298***
	(0.027)	(0.050)	(0.083)
HH head's education: years	-0.007	-0.012	-0.019
	(0.005)	(0.009)	(0.015)
Have savings?	-0.055*	-0.109**	-0.177**
	(0.029)	(0.054)	(0.089)
Own small business	-0.071	-0.116	-0.187
	(0.068)	(0.121)	(0.195)
Affected by shock	0.085***	0.167***	0.270***
	(0.030)	(0.057)	(0.094)
Starvation during monga	0.054*	0.108*	0.177*
	(0.032)	(0.060)	(0.099)
Takes loan from informal sector	0.048	0.092	0.153
	(0.042)	(0.080)	(0.132)
Presence of char	0.195***	0.408***	0.680***
	(0.040)	(0.080)	(0.138)
Constant	0.381***	0.145	0.230
	(0.060)	(0.109)	(0.178)
/sigma	0.679***		
	(0.012)		
Number of observations	2,810	2,810	2,810
Log-Likelihood	-2,852	-1,764	-1,765

Note: *** indicates the significance at 1 percent level; ** shows the significance at 5 level; and * implies significance at 10 percent level. The degree of diversion is the dependent variable of the model. The log-likelihood has kept round-off.
Source: InM Household Survey (PRIME Round-II, 2010)

Table 5: Coefficients and the odd ratio

Divert any amount of loan?	e^b	e^bStdX	e^b	e^bStdX	%	%StdX	SDofX
	Factor change in odds		Factor change in odds: reverse				
Age of HH head	1.006	1.074	0.994	0.931	0.600	7.400	11.571
HH head is wage employed	1.347	1.160	0.743	0.862	34.700	16.000	0.500
Education of HH head	0.981	0.950	1.019	1.053	-1.900	-5.000	2.676
Have saving?	0.838	0.922	1.194	1.085	-16.200	-7.800	0.461
Have own small business?	0.829	0.963	1.206	1.039	-17.100	-3.700	0.202
Affected by unexpected shock?	1.310	1.127	0.764	0.888	30.900	12.700	0.443
Deprivation during monga	1.193	1.077	0.838	0.928	19.300	7.700	0.421
Have access to informal credit?	1.165	1.050	0.859	0.953	16.500	5.000	0.319
Does the HH live in char?	1.974	1.252	0.507	0.799	97.400	25.200	0.330

b = raw coefficient
z = z-score for the test of b = 0
p>|z| = p-value for z-test
e^b = exp(b) = Factor change in odds for unit increase in X
e^bStdX=exp(b*SD of X)=Change in odds for SD increase in X
SDofX =Standard Deviation of X

References

Jameela "Micro Credit, Empowerment and Diversion of Loan Use"

Wakuloba "Causes of *default* in government micro credit programmes"

Appendix 1

Description of Variables

- Loan diversion index (LDI) or weighted loan diversion index is created by developing a definition (given in the main text). This is a continuous variable containing values within 0 and 1 as this is a ratio variable. From this variable a dummy variable "divert" is generated which takes value 1 if the household diverts its loan and 0 otherwise.
- Age of household head is a variable that contains integer values and this variable is obtained from the structured household questionnaire.
- The variable "Education of household head" contains values within 0 and 17. The household head that has no education is labeled as 0, the household head having passed class five is labeled as 5, and so on.
- A dummy variable "have savings" is created from the amount of savings which is an agglomeration of various types of savings like savings in bank/MFIs, informal saving associations, DPS/GPS, lending to others etc. This variable takes value 1 if the household has a positive amount of savings and 0 otherwise.
- A dummy variable is created for the ownership of small business. It is coded as 0 if the household has no small business and 1 if the household has small business.
- The dummy for unanticipated risk/shock is created which is equal to 1 if the household is affected by the unexpected risk/shock and 0 otherwise.
- Deprivation during monga is created as a dummy variable
- The "char" variable indicates the characteristics of the locality. It is equal to 1 if the region/village located in char.