Role of recognized and relaxed micro-credits in lessening poverty of Haor region of Bangladesh: A comparative study from a socioeconomic perspective for sustainable development

Abstract

The study aims to identify the main two sources of microcredits viz. formal and informal and their characteristics in terms of interest rate, instalment types, payment, volume, purposes, users and impact on poverty alleviation in the economic lagging area of Bangladesh. In conducting the study, a total of 2340 households were surveyed with a semi-structured questionnairewhere 780 households were treatment group who were not users of microcredit but eligible. The collected data were analyzed usinga Z-test and factor analysis mainly. The findings showed that there isa significant difference between formal and informal credits in respect of interest rate, cost, instalments, number, volume,duration, and collateral. The borrowers preferred informal sources over formal sources and the study suggested redesigning the formal sources considering the socioeconomic condition of the *Haor* people. The study originally identified the socioeconomic characteristics of both formal and informal microcredits in Bangladesh. The study will directly help to achieve SDG-1(no poverty) and SDG -17(sustainable finance).

Keywords: Development, Development Studies and South Asia

JEL Classification: O17, I32, E26, E21

1. Introduction

Most of the *Haors*(Wetland)of Bangladesh are in the North-Eastern part of the country covering 19,998 sq. km of land and in total 3.56% area (CEGIS, 2012). The people of the *Haor* area arebelow average than the remaining parts of the country. According to the report of the *Haor* Infrastructure and Livelihood Improvement Project,(*CALIP*, 2017) of the International Fund for Agricultural Development (IFAD) the long seasonality of wet monsoon (6-7 months from May to October) forces the *Haor* people to remain out of work for most of the times while about one-third of the people is extremely poor as they lie below the lower poverty line and only about 30% of them lays above the upper poverty line(Islam, 2014). As a consequence, a lion part of the *Haor*people suffer from food insecurity and other basic needs(Monirul Alam et al., 2018)and finally, they depend on borrowings from money lenders and microcredit institutions for their livelihood.

People in the Haor area of Bangladesh are way behind in access to formal banking services and microcredit emerged as an easily accessible source of loans. However, the rate of interest on different types of microcredits in Bangladesh is excessively high (Prince et al., 2020) and varied from 12.5% to 43% and in some cases, it rose to 110%(Hassan et al., 2015). The rate of interest for the informal sector might be higher than for the formal sector. The type and nature of both formal and informal micro-credits in the *Haor* region are still unexplored. There aredifferences in respect of cost, terms, duration, receiving capacity, and availability between formal and informal sources. The study aimed to identify the differences between these two types of micro-credits with solid ground-level data.

Microcredit has become a globally used term to mean very small-sized supervised loans without any collateral originated in Bangladesh first in 1983 by Grameen Bank(Snow & Buss, 2001). Subsequently, many commercial banks and NGOs introduced different types of micro-credit in different forms. These sources of micro-credits can be classified into formal and informal. The formal sources are regulated by the country's banking and financial services acts/rules or regulations whereasinformal sources embrace all financial transactions taking place beyond various countries' regulations on banking and other financial sectors. Informal finance includes professional moneylenders, and part-time moneylenders such as estate owners, traders, grain millers, smallholder farmers, employers, relatives,friends,credit unions, cooperative societies, etc.

In spite of the rapid increase in the formal micro-credit market in Bangladesh (26.41% in 2023[1]), informal sources continued to remain the major sources of rural micro-credit. The credit supply system inthe rural area of Bangladesh is stilldominated by informal moneylenders whoseshare isabout two-thirds of totalcredit in rural areas. In this regard, ambiguity still exists in the empirical literature about whether the formal microcredit outperforms its informal counterpart in reducing poverty. To address this question, this study aims to contribute to the empirical literature on microcredit by unpacking the role of formal and informal microcredit in poverty alleviation. Our findings unveil that there is a significant difference between formal and informal sources of microcredit with respect to the interest rate, cost and collateral. We also found that the borrowers prefer informal microcredit despite its high cost, interest rate, and shorter duration. These findings have practical implications for policymakers in redesigning the existing loan structure for the economic betterment of society.

2.Literature Review

There are a number of studies(Duong & Nghiem, 2022; Félix & Belo, 2019; Garikipati, 2017; Phan et al., 2023; Wahab et al., 2018)recognizedthe different ways and means of positive impact of micro credit on the borrowers in terms ofincrease byincome, revenue,assets, food intake,donation, typicalof living, social status, output in businessand agriculture,prosperity, savings,mobilization oflocal economy,consumption, reduction of- cost andpoverty,ensure sustainable finance(Huybrechs et al., 2019; Shahidullah & Haque, 2014), empowering women(Akhter & Cheng, 2020; Al-shami et al., 2018; Hameed et al., 2019; Hussain et al., 2019; Shafique & Siddique, 2020), affectseconomic development (Al-Amin, 2022; Dhakal & Nepal, 2017; Hermes, 2014; Owais Shafique & Rana M. Naeem Khan, 2020) and reducing income inequality (Hermes, 2014; Kumari, 2022; Le et al., 2022; Miled et al., 2022) among the borrowers.

On the other hand,few scholars(Angelucci et al., 2018; Banerjee et al., 2015; Cons & Paprocki, 2010; Khandker et al., 2013; Osmani & Mahmud, 2015)established the negative impact of micro-credit on the livelihoods of borrowers in different forms such as oncredit trap,group formation as risk sharing mechanism.Many scholars(Al-shami et al., 2018; Angelucci et al., 2018; Anne Wangui Gichuki et al., 2014; Banerjee et al., 2015; Bylander, 2014; Kandie & Islam, 2022; Obagbemi et al., 2022)identifiedmixedeffect of micro-credits

[1] Microfinance sector sees 26% credit growth in FY23 (dhakatribune.com)

on the livings of borrowers in terms of reduction ofpoverty, financing, increase of asset, income, consumption,revenuenet worth, savings etc. considering the different types of borrowers, amount of loan, terms and conditions of loan and period.

A number of researchers compared theimpact of formal and informal micro-credits. Gichukiet al.(2014)found thatmicro and small enterpriseseasily access informal sources more than formal sources in terms of high cost, sternsecurity requirements, the disinclination of people for actingas underwriters, high dispensationfees, and the short reimbursement period.Berhanu et al. (2021)found thatthebenefits of formal and informal credits varied by the group of stakeholders. Phan Dinh Khoi (2012) examined the causes of households' borrowing decisions in terms of prescribed and relaxed micro-credits and micro-credits accessibility and found that informal micro-credits alter the households' decisions to obtain formal microcredit. It is worth noting that the environmental effects of microcredit are also substantial in ensuring environmental sustainability (Huybrechs et al., 2019; Shahidullah & Haque, 2014) and green transformation of business enterprises.

3.Methodology

The study is designed to explore the nature of both proper and relaxed micro-credits in the *Haor* region of Bangladesh. The household-level data has been gathered from both micro-credit recipients and control households. The study employed different statistical tools and techniques including mean, standard deviation, Z–test, t-test, and factor analysis. The study adopteda cluster-sampling design while*Haor*-attached mouzas/unions have been treated as clusters. A total of 30 clusters have been covered in the survey while 30 clusters are regarded as statistically representative samples of a population by internationally recognized survey designs, such as WHO's EPI cluster sampling design (TURNER et al., 1996).

The recognized sample size determination formula[2]has been applied and yields that at least 1544 targeted households are required to cover for the study. For roundingup in clusters, the study increased the sample size from 1544 to 1560. The study has covered 780 households as control (50% of the cases). The characteristics of the control households are almost similar to the cases. Thus, the total sample size of the study stood at 2340 poor households. The respondents have been divided among clusters using systematic probability proportionate to size (PPS). The UNICEF pencil-spin method was used to select the

[2] $n = \frac{p(1-p)Z^2}{(0.04p)^2} \times Deff$ where, p is the indicator percentage, Z is the value of normal variance with 95% confidence interval, 0.04p is the relative error margin and *Deff* is the design effect.

households randomly within the cluster and finally, 52 micro-credits recipient households and 26 control households have been selected for interview from each cluster. A structured interview schedule (questionnaire) has been developed and administered for conducting the household survey.

4. Results and Discussion

4.1.Sources and types of micro-credits in studyregion

As stated earlier there are two typesof microcredits viz. official and relaxed.In this study, the official sources included public and private banks,associations, micro-finance institutions (MFIs) NGOs, and insurance companies which are regulated either by the government directly or by the affiliated body or authority such as MRA (Micro-credits Regulatory Authority), Bangladesh Bank, Bureau of NGOs, Ministry of Finance or any other authorized body. The relaxed sources are (i) interest bearing –including local money lenders(ii) non–interest bearing including relatives, friends/neighbours/landowners.

Characteristics	No. of HH	% of HH	Average amount	Total amount	% of total	SD amount
Loan Type						
Cash	1595	99.3	37651	60053106	99.29	53321
Kinds (food items)	12	0.7	35625	427500	0.71	52938
Total	1607	100.0		60480606		
Sources of loan						
Formal	1158	72.1	34596	40062504	66.00	40826
Informal	449	27.9	45475	20418100	34.00	76126
Total	1607	100.0	37656	60480606		
Formal sources						
Public banks/association	88	5.5	52313	4603500	11.50	62822
Private FI/NGO/Insurance)	1070	66.6	33139	35458998	88.50	38142
Total Formal	1158	72.1	34596	40062504	100.00	40826
Informal sources						
Home-grown money investor	393	24.5	46675	18343098	89.84	74777
Non-interest loan (Families/groups/nationals)	53	3.3	38076	2018000	9.88	87567
More than one source	3	0.2	19000	57000	0.28	1732
Total Informal	449	27.9	45475	20418100	100.00	76126
Informal by interest						
Interest bearing	408	90.9	47696	19460099	95.30	79057
Non-interest-bearing	41	9.1	23366	957 1000	4.70	27571
Total	449	100.0	45475	20418100	100.00	

Table 1: Sources and types of micro-credits

Table 1 shows that 99.3% of HHs borrowed in cash loans and only 0.7% in kinds and in terms of the total amount the percentage is about the same 99.29% cash and 0.71% in

kinds. In terms of sources 72.1% of HHs borrowed from formal sources and 27.1% of HHs from informal sources and in terms of the amount of loan 66% from formal sources and 34% from informal sources. There are two types of formal sources viz. (i)government (Banks/Co-operatives; and (ii) nongovernment (MFI/NGO/Insurance) and the data showed that 5.5%HHsborrowed from the former and 66.6% from the latter. There are three types of informal sources- local money lenders; non-interest loans (Relatives/friends/neighbors); and more than one source. The data revealed that 24.5%of HHs took loans from the first, 3.3% from the second, and only 0.2% from the third type sources while in terms of the amount of loan 89.84% from the first, 9.88% from the second and 0.28% from the third.Again, the informal sources have been divided into interest-bearing and non-interest bearing and the data revealed that 90.9% have taken from interest-bearing sources and 9.1% from non-interest bearing and respect amount loans 95.3% from the former and 4.70 from the latter.

4.2.Terms and conditions of formal and informal micro-credits

Table 2 shows the profile of micro-credits benefits for the borrower households in the year 2020. The study found that there are significant ($p<0.01$) differences between formal and informal micro-credits withrespect to all types of interest rates. There are also significant ($p<0.01$) differences between formal and informal micro-credits in respect of weekly, monthly, and annual instalment types.In addition, there isa highly significant ($p<0.01$) difference between formal and informal micro-credits with respect toall kinds of instalment volume. The study also revealed that there are significant differences in respect of all types betweenboth formal andinformal credits and also in respect of collateral.

Profile of micro-credits	Formal credits (*N* = 1158)		Informal credits (*N* = 449)		P-value	Overall (*N* = 1607)	
	HHs	Average	HHs	Average		HHs	Average
Interest rate							
No interest (0%)	-	-	041	23365.85		041	23365.85
1% to 10%	141	39539.01	106	25576.42	<0.001	247	33546.96
11% to 15%	525	28456.19	055	25254.55	<0.001	580	28152.59
16% to 20%	211	39123.22	021	65095.24	0.001	232	41474.14
21% to 25%	171	29672.51	041	69853.66	0.001	212	37443.40
More than 25%	110	56536.36	185	60156.76	<0.001	295	58806.78
Installment type							
Weekly	619	30378.03	015	31133.33	<0.001	634	30395.90
Biweekly	013	18846.15	007	24657.14	0.258	020	20880.00
Monthly	501	38613.77	180	26580.56	<0.001	681	35433.19
Quarterly	006	27500.00	028	30321.43	0.176	034	29823.53
Annually	019	79105.26	219	64589.04	0.001	238	65747.90
Total installment							

One time	015	88400.00	180	37544.44	<0.001	195	41456.41
02 to 12 times	508	35810.04	223	52157.40	<0.001	731	40796.99
13 to 24 times	023	53652.17	030	46566.67	0.001	053	49641.51
More than 24 times	612	31553.92	016	39500.00	<0.001	628	31756.37
Duration of loan							
Six months	039	33410.26	021	18790.48	<0.001	060	28293.33
One year	1096	33050.64	317	33285.49	<0.001	1413	33103.33
Two years	023	110260.87	111	85333.33	<0.001	134	89611.94
Collateral type							
Collateral	067	56358.21	028	77807.14	0.003	095	62680.00
Non-collateral	1091	33259.85	421	43324.23	<0.001	1512	36062.17

Table 2: Terms and conditions of micro-credits in *Haor* region in Bangladesh*Note:* HHs=Households.

There is strong evidence that the rate of interest of informal sources is significantly higher than that of formal sources.On the other hand, the duration ofa loan is greater for informal sources than that for formal sources significantly.Theaverage amount ofloan was higher in the ‘collateral’ type than ‘non-collateral’ for both prescribed andrelaxed micro-creditsand the difference of averages was also statistically significant ($p<0.01$) in both formal and informal credits. The research explored that the formal micro-credit is taken bythe maximum amount of loan on average Tk.20969.69 at the condition of ‘total paid’ whereas the informal micro-credit is Tk.20911.05 at the condition of ‘principal’ paid.The differences inthe condition of loan pay between formal and informal micro-credits are significant ($p<0.01$). The study again revealed that the total unpaid loan had a maximum average for both official (Tk.25786.90) andrelaxed(Tk.54035.89) micro-credits and differences between them are also statistically significant ($p<0.01$).

4.3. Volume of overall loans

Table3 depicts that the total amount of the formal loan is about Tk. 40 million and an informal loan is about Tk. 20 million and in total is Tk. 60 million. The average formal loan is Tk. 34596 and the informal loan is Tk. 45475 and in overall average is Tk. 37636.The maximum amount of a formal loan is Tk. 5.5 lac and informal is Tk. 11.00 lac and the minimum amount for both formal and informal loansis Tk. 2000. The overall minimum and maximum amount of the loan is Tk. 20000 and 11.00 lac with SD Tk. 53303.

Statistics	Formal (*N*=1158)	Informal (*N*=449)			Overall (*N*=1607)
		Interest bearing (*N*=408)	No interest bearing (*N*=41)	All informal (*N*=449)	
Minimum	2000	2000	3000	2000	2000.00
Maximum	550000	1100000	150000.00	1100000	1100000
Total	40062504	19460099	958000	20418100	60480602
Mean	34596	47696	233656	45475	37636
SD	40826	79057	27571	76126	53303

Median	25000	30000	15000	25000	25000
IQR	25000	25000	15000	40000	25000

Table 3: Descriptive statistics of microcredits

4.4.Payment structure of loans

The payment structure shows that during the period (2016-20) 1113 households of formal credit borrowers' total paid amounted to Tk. 20969.69 on average out of which the principal loan was paid by 1108 receivers and interest paid by 1092 receivers on an average amount of Tk. 17679.33 and Tk. 3434.59 respectively while the 245 households of informal credit borrowers' total paid amounted to Tk. 20878.61 on average out of which the principal loan was paid by 144 receivers and interest paid by 233 receivers on an average amount of Tk. 20911.05 and Tk. 9030.34 respectively. Table 5 shows that there are significant differences between formal and informal credits with respect tothe total amount of loan paid, principal paid, and interest paid on average. The unpaid loan analysis showed that 946 households of formal credit borrowers failed to pay creditsamounted to Tk. 25786.90 on average out of which principalwas unpaid by 944 borrowers and interest unpaid by 945 receivers on an average amount of Tk. 21688.35 and Tk. 4148.79 respectively while the 402 households of informal credit borrowers totally failed to pay principal amounted to Tk. 54035.89 on average out of which the principal loanis unpaid by 401 receivers and interest unpaid by 326 receivers on an average amount of Tk. 20911.05 and Tk. 9030.34 respectively.

Profile of micro-credits	Formal credits (N = 1158)		Informal credits (N = 449)		P-value	Overall (N = 1607)	
	HHs	Average	HHs	Average		HHs	Average
Paid loan							
Total paid	1113	20969.69	245	20878.61	<0.001	1358	20953.26
Principal	1108	17679.33	144	20911.05	<0.001	1252	18051.03
Interest	1092	3434.59	233	9030.34	0.001	1325	4418.60
Unpaid loan							
Total unpaid loan	946	25786.90	402	54035.89	<0.001	1348	34211.31
Unpaid principal	944	21688.35	401	43408.75	<0.001	1345	28164.10
Unpaid interest	945	4148.79	326	13237.79	0.001	1271	6480.04

Table 4: Total, average, paid and unpaid amount of loan. ***Note:*** **HHs=Households.**

4.5. Purpose of loan

The purpose of this study is to analyze the reasons for taking micro-credits from both formal and informal sources, using descriptive and inferential statistics. The pilot survey identified seventeen purposes of loans, as shown in Table 5. The top three reasons for taking credits from both formal and informal sources were purchasing food items (32.1% for formal and 47.4% for informal), paying off previous loans (27.5% for formal and 34.1% for informal), and crop production (24.1% for formal and 32.4% for informal). Significant

differences were found between formal and informal sources for all three purposes. Healthcare expenditure was ranked fourth (19.4%) overall, with a higher percentage for informal loans (32.3%) compared to formal loans (14.4%). The fifth most common purpose was trade/business (17.8% overall), with a significant difference between formal and informal loans. Principal Component Analysis (PCA) was used to identify important purposes.

Purpose of taking a loan	Formal sources (*N* = 1158)	Informal sources (*N* = 449)	P-value	Both sources (*N* = 1607)
	Yes (%)	**Yes (%)**		**Yes (%)**
Purchasing of food items	32.1	47.4	<0.001	36.4
Crop production	24.1	32.4	0.001	26.4
Rearing cattle/poultry	13.7	9.8	0.043	12.6
Sending family members abroad	2.8	2.7	0.397	2.8
Trade/business/industry	20.2	11.6	<0.001	17.8
Fish farming/fishing	4.6	2.4	0.052	4.0
Daughter/son's marriage	2.9	6.5	0.001	3.9
Constructing housing	7.7	14.7	<0.001	9.6
Attempting natural calamities	4.0	15.4	<0.001	7.2
Undertaking the sudden death of HH's head	0.9	0.9	0.399	0.9
Purchasing of livelihood equipment	12.8	21.4	<0.001	15.2
Payment of loan	27.5	34.1	0.013	29.3
Repairing cost of houses	12.5	22.7	<0.001	15.4
Healthcare expenditure	14.4	32.3	<0.001	19.4
Education	7.4	17.6	<0.001	10.3
Others	13.3	9.1	0.027	12.1

Table 5: Descriptive statistics of purposes of credit receivers

The Principal Component Analysis (PCA) was performed using the Varimax rotation technique. Based on Eigenvalues of 1.00 and above, 17 dimensions were extracted and consolidated into five factors, with a cumulative percentage of the variance of 53%. The KMO value was found to be 0.823. The study identified five main factors for the purposes of a loan, based on the maximum variation of the factors.Factor I is related to daily life and livelihoods and comprises more than 50% (nine) of the listed purposes, Factor II is associated with the adaptability of natural shocks and farming and includes two purposes. Factor III is connected to cropping and rearing cattle and comprises two purposes - crop production and rearing cattle/poultry. Factor IV is linked with business and marriage and comprises two causes. Finally, Factor V is associated with a unique purpose, sending a family member abroad.

4.6. Expenditure and investment pattern of both formal and informal micro-credits

The respondents were presented with a list of 24 expenditures and investment items related to their loans, and out of those, 14 items were selected by them, as shown in Table 7. The analysis revealed that formal micro-credit receivers spent 15.05% of their total loan on food consumption, while informal micro-credit receivers spent 23.24%, indicating a significant (p=0.02) difference between the two groups of borrowers. In the clothing and essential sector, formal micro-credit receivers spent 1.55% of their loan, whereas informal micro-credit receivers spent 3.36%. Formal micro-credit receivers used 15.09% of their total loan on agricultural inputs, while informal micro-credit receivers used almost half (7.70%) of that amount. About 1.40% of formal and 0.23% of informal micro-credit receivers used their loan to purchase durables. Both formal and informal micro-credit receivers used almost 5% of their total loan on housing. The share of the total loan used to purchase the land was similar for both formal (2.23%) and informal (2.59%) micro-credit receivers. Formal micro-credit receivers spent more than double the amount of their loan in purchasing animals compared to informal credit receivers. Formal and informal micro-credit receivers spent almost equal amounts of their loan in paying off their previous loan. In the family enterprise sector, formal micro-credit receivers spent the highest (15.76%) amount of their loan, while the informal credit receivers spent about half of that amount (8.02%) as compared to formal borrowers.

Expenditure Heads	Formal (*N* = 1158)				Informal (*N* = 449)			P-value (Share)	Overall (*N* = 1607)	
	HHs	Average	Share (%)		HHs	Average	Share (%)		Average	Share (%)
Food consumption	384	12287.24	15.05		199	13908.04	23.24	0.020	12840.48	17.34
Clothing & essentials	078	6365.38	1.55		058	9965.52	3.36	0.314	7900.74	2.06
Agricultural inputs	285	16686.32	15.09		076	15927.63	7.70	0.098	16526.59	13.03
Purchasing durables	031	13193.55	1.40		003	7666.67	0.23	0.393	12705.88	1.07
Housing	153	12939.22	5.27		064	16968.75	4.89	0.396	14127.65	5.16
Purchasing land	039	18448.72	2.23		018	35333.33	2.59	0.398	23780.70	2.33
Purchasing animals	168	16041.67	9.24		037	18000.00	4.39	0.251	16395.12	7.88
Payment of loan	294	15964.29	12.03		117	21469.23	12.97	0.385	17531.39	12.29
Family enterprises	234	31602.56	15.76		045	47644.44	8.02	0.160	34189.96	13.60
Health care	138	13060.87	4.49		110	24063.64	11.68	0.043	17941.13	6.50
Human capital	039	14989.74	1.34		018	9833.33	1.26	0.399	13361.40	1.32
Going member abroad	027	112777.8	2.19		004	312500.0	0.83	0.392	138548.4	1.81
Children Marriage	037	30270.27	2.63		029	49948.28	5.19	0.344	38916.67	3.35
Others	240	23039.17	13.00		113	27420.35	16.86	0.250	24441.64	14.08

Table 6: Expenditure and investment pattern of both formal and informal micro-credits*Note:* HHs = Households.

Informal micro-credit receivers spent almost three times as much money on healthcare expenditures with their loans compared to formal micro-credit receivers. The share of total loan expenditure on human capital was relatively similar for both formal (1.34%) and informal (1.26%) credit borrowers. For the purpose of sending a family member abroad, formal micro-credit receivers spent over 2% of the total loan, while informal micro-credit receivers spent less than 1%. In the case of spending on children's marriages, informal micro-credit receivers used 5.19% of their total loans, while formal micro-credit receivers used only half that amount (2.63%).

4.7. Comparison of income between the borrower and non-borrower households

Table 7 shows that the annual income of borrowers' majority (66%) depends on income from labour salesfollowedby agriculture 56%, non-agriculture 52%,business 25%and donations/begging 13% and 78%) is indebted.On the other hand, the annual income of the majority 63%of non-borrowers comes from the business following agriculture 45%,non-agriculture45% business 27%, donations/begging 11%.It is seen that 22% of non-borrowers are under the pressure of debt. There are significant differences between the income of borrowers and non-borrowers in respect of non-agriculture anddebt.

Major income source	Borrower (*N* = 1607)				Total in Million (% of total)	Non-borrower (*N* = 733)					t-statistic
	HHs	% of HHs	Average (000)	SD (000)		HHs	% of HHs	Average (000)	Total in millions (% of total)	SD (000)	
Agricultural	900	56%	45	325	40(24)	333	45%	46	15(20)	42	-0.51
Non-agricultural	830	52%	43	48	36(22)	331	45%	56	18(25)	65	-3.63***
Labor sale	1053	66%	57	39	60(36)	464	63%	54	25(34)	28	1.06
Business	400	25%	69	58	28(17)	197	27%	74	15(20)	60	-1.02
Donation/begging	208	13%	98	12	2(1)	81	11%	11	0.90(1)	16	-0.71
Total income excluding debt	**1607**	**100%**	**103**	**59**	**165(100)**	**733**	**100%**	**102**	**74(100)**	**64**	**0.44**
Debt	1253	78%	29	36	36	158	22%	12	2	14	5.82***
Total income including debt	**1607**	**100%**	**70**	**49**	**109**	**733**	**100**	**86**	**62**	**53**	

Table 7: Sources of income;*Note:* HHs = Households; SD = Standard Deviation

4.8. Comparison of expenditure between borrowers and non-borrower households:

Table8 displays the expenditures of both borrower and non-borrower households. Both groups spent money on both food and non-food items, but borrowers spent 80% on food and 20% on non-food, while non-borrowers spent 84% on food and 16% on non-food. There

is a significant difference in non-food consumption as well as total consumption between the borrower and non-borrower households.

There are twelve investment expenditure items, and for borrowers, the items above 5% in terms of percentage of total expenditure are agriculture (20%), healthcare (20%), family business (16%), house repair (9%), and poultry/livestock (7%). For non-borrowers, the investment items above 5% in terms of percentage of total expenditure are healthcare (27%), agriculture (23%), education (18%), family business (9%), and house repair (9%).There are significant differences between the borrower and non-borrower investment expenditures with respect to education, healthcare, poultry/livestock, productive assets, durable goods, house repair, and other investments, as well as in total investment expenditure and total expenditure (consumption plus investment).

Major expenditure heads	Borrower (*N* =1607)					Non-borrower (*N* = 733)					t-statistic
	HHs	%of HHs	Average (000)	Total in million (% of total)	SD (000)	HHs	% of HHs	Average (000)	Total (in millions (% total)	SD (000)	
1. Food	1607	100	563	90(80)	24	733	100	55	41(84)	25	1.25
2. Non-food	1607	100	14	22(20)	95	733	100	11	8(16)	83	5.11***
A.Totalconsumption (1+2)	**1607**	**100**	**70**	**112(100)**	**27**	**733**	**100**	**66**	**49(100)**	**28**	**2.79*** **
3. Education	1190	74	10	12(16)	12	481	66	9	4(18)	12	1.79*
4.Healthcare	1539	96	10	15(20)	12	686	94	8	6(27)	10	3.53***
5.Agriculture	811	50	19	15(20)	12	279	38	19	5(23)	18	-0.14
6.Poultry-livestock	541	34	10	5(7)	11	202	28	5	1(5)	6	5.58***
7.Family business	220	14	25	6(8)	16	79	11	22	2(9)	12	1.17
8.Productive asset	233	14	12	3(4)	14	54	7	6	0	7	2.74***
9.Durable goods	146	9	9	1(1)	11	84	11	4	0	4	3.78***
10.House repair	574	36	11	7(9)	21	235	32	7	2(9)	9	3.11***
11.Land purchase	38	2	30	1(1)	35	13	2	25	0	23	0.43
12.Others	561	35	16	9(12)	14	158	22	11	2(9)	12	4.03***
B. Total investment (3-12)	**1606**	**100**	**46**	**74(100)**	**36**	**730**	**100**	**31**	**22(100)**	**29**	**10.29*** **
C. Total expenditure (A+B)	**1607**	**100**	**116**	**186**	**51**	**733**	**100**	**97**	**71**	**47**	**8.50*** **
Savings	507	32	4	59	4	111	15	19	2	24	-13.59***

Table 8: Expenditures between the borrower and non-borrower; *Note:* HHs = Households; SD = Standard Deviation

4.9. Causes of non–payment of a loan

To identify the reasons behind the non-payment of loans in time the borrowers were givena list of 15 causes. The collected data is postured in terms of the percentage of the respondents with respect to disagree, neutral, and agree.The descriptive statistics of the causes of not payment of loans timely by formal and informal borrowers showed that thetop

five causes agreed by formal borrowers are short instalmentperiods (80.9%) following high-interestrates (70.6%), natural calamities (67.9%), medical treatment/medicine (67.7%), and acute food problem (63.7%). On the other hand, the top five causes agreed by informal borrowers are highinterest rate (92.8%) followingmisappropriation of loan (82.8%), medical treatment/medicine (80.5%) short instalment period (72.2%) and natural calamities (71.1%). In total top five causes of nonpayment of loans timely are short instalmentperiods (78.1%), high rate of interest (77.8%), medical treatment/medicine (71.9%), misappropriation of loan (69.2%), and natural calamities (68.9%). It is observed that the top five causes are among the top five causes marked either by formal or informal borrowers.

Name of the causes		Formal sources (N = 1158)				Informal sources (N = 449)			Both
	HHs	Disagree	Neutral	Agree	HHS	Disagree	Neutral	Agree	Agree
Acute food problem	726	15.8	20.5	63.6	349	25.2	5.7	69.1	65.4
Medical treatment/medicine	725	7.4	24.8	67.7	349	9.2	10.3	80.5	71.9
Investment loss	731	8.9	30.1	61.0	348	14.1	15.2	70.7	64.1
Natural calamities	733	15.4	16.6	67.9	349	19.5	9.5	71.1	68.9
Inadequate loan for investment	721	12.1	25.9	62.0	349	15.8	21.2	63.0	62.3
The period of the loan is short for return onthe investment	724	7.5	27.2	65.3	349	14.6	26.4	59.0	63.3
The instalment period is very short	723	5.8	13.3	80.9	349	14.6	13.2	72.2	78.1
The rate of interest is very high	729	14.4	15.0	70.6	349	5.2	2.0	92.8	77.8
Renewal of loan is unavailable	721	23.7	39.3	37.0	349	16.6	33.2	50.1	41.3
Misappropriation of loan	722	10.9	26.5	62.6	349	6.6	10.6	82.8	69.2
Crop's failure	725	20.8	33.4	45.8	349	23.8	13.8	62.5	51.2
Expenses for the marriage of son/daughter etc.	719	55.1	30.2	14.7	349	74.5	9.2	16.3	15.3
Family problems and expenditure	721	61.9	31.2	6.9	349	78.1	14.4	7.5	7.1
Unexpected accident	723	39.1	27.2	33.6	349	61.7	10.4	28.0	31.8

Table 9: Descriptive statistics of the cause of non-payment of loans timely

ThePCA reducedfourteendimensions to four factors significantly for non-payment of loans explaining 53.52% of total variations through extracting factors with 0.715 KMO.The first one is composed of six dimensionsandcan be treated as basic needs and the second can be called social cost includes three dimensions, the third can be treated as loans and investment loss and lastly the fourth factor is linked to the cost of a loan and is composed of three dimensions.

4.10. Attitude of borrowers towards micro-credits

To measure the attitude of respondents towards micro-credits we have listed 16 dimensions with a three-point scale - disagree, neutral, and agree. Table10portrayed that among the sixteen dimensions in the case of formal credits, the top five agreed (positive) aspects are: food security (53.6%);better access to healthcare (50.9%);better financial situation (50%); increased employment opportunities (45.6%) andincome (44%). The top five agreed (positive) attitudes of informal borrowers' are-that local loans are easierthan MFIs (76.8%); better access to healthcare (61.2%); increased food security (56.1%); better financial situation (52.3%); and help in running business (49.4%). In total the top five positive attitudes are- foodsecurity (54.3%); better access to healthcare (53.8%);better financial situation (50.7%); local loans are t than MFIs (48.7%) and help in running business (45.2%). In total top five disagreedattitudes are -the cost of local loans is lower than MFIs (73.6);local lenders are more friendly than MFIs (58.4%);terms and conditions of local loans are easier than MFIs (57.9); the duration of credits is sufficient (56.4%); and (v) savings has increased (56.1%).To identify the most important aspects of attitude the PCA is done in the following sub-section.

Statements of attitudes	Formal sources (*N* = 1158)			Informal sources (*N* = 449)			Both sources (*N* = 2340)	
	Disagree	Neutral	Agree	Disagree	Neutral	Agree	Disagree	Agree
The rate of interest is reasonable	56.9	12.1	31.0	88.4	4.2	7.3	65.7	24.4
Amount of credits is sufficient	46.5	14.1	39.4	57.2	4.7	38.1	49.5	39.0
The duration of credits is sufficient	55.5	15.0	29.4	58.8	6.7	34.5	56.4	30.9
Terms and conditions are not rigid	41.4	33.4	25.2	63.9	12.7	23.4	47.7	24.7
Food security has increased	13.9	32.5	53.6	31.8	12.0	56.1	18.9	54.3
Income has increased	30.3	25.7	44.0	48.3	14.0	37.6	35.3	42.2
Savings have increased	49.9	22.9	27.2	71.9	13.1	14.9	56.1	23.8
Helpin better access to education	25.5	40.2	34.4	38.3	26.7	35.0	29.1	34.5
Helping in better access to healthcare	21.8	27.4	50.9	26.3	12.5	61.2	23.0	53.8
Help in a better financial situation	24.7	25.3	50.0	33.2	14.5	52.3	27.1	50.7
Helpful to run the business	21.3	35.1	43.6	28.7	21.8	49.4	23.4	45.2
Employment opportunities increased	27.5	26.9	45.6	47.7	16.3	36.1	33.1	42.9
Local loans are easier to get than MFIs	46.6	15.6	37.7	18.9	4.2	76.8	38.9	48.7
Local lenders are more	63.0	16.6	20.5	46.8	5.6	47.7	58.4	28.1

friendly than MFIs								
The cost of local loans is lower than MFIs	74.9	16.8	8.4	70.4	6.0	23.6	73.6	12.6
Terms and conditions of local loans are easier than MFIs	59.3	17.8	22.9	54.1	8.9	37.0	57.9	26.8

Table 10: Distribution of the attitude of borrowers on micro-credits*Note:* MFIs = Microfinance institutions.

The PCA explained57.38% of the total variation by extracting the dimensions with a 0.747 KMO measure and identified four factors as significant based on Eigenvalue (1.00 and above).However,the first factor is income and savingsconsisting of six items and the next factor is connected to terms and conditions consisting of four dimensions, the third factor regardsthe cost of credits explaining 11.84% of the total variation is composed of three dimensions finally the fourth related to food and health security explains 8.29% of the total variation.

5. Conclusion

The foregoing discussions and analyses revealed that 72.1% of HHs borrowed from formal sources and almostall of the loans (99.3%) weremade in cash.Among the formal sources, MFI and NGO are the principal (66.6%) while in the case of informal sources local money lenders (dominating 24.5%) source. Most of the informal credits (90.9%) are interest-bearing. About 50%ofHHs borrowed at an 11% to 15% interest rate while about 41 %of HHs borrowed at more than 25% interest rate from informal sources the rate of the latter is greater than the former and the difference issignificant in respect of interest rate. The loin part 53%offormal creditis a weekly instalment while a greatportion 49%of informalcredit isannual following 40% on a monthly basis.The greatest amount of both proper (95%) and relaxed (71%) are one-year duration and most of them (94%) are non-collateral.There are significant differences between formal and informal credits with respect tothe type of instalment, number of instalments, duration, and collateral types. The significant differences between these two types of microcredits have existed in terms of total paid and unpaid, principal paid and unpaid where formal credits are greater than informal credits.The main purposes of taking both types of loans are obtaining food items, constructing houses, tackling shocks of natural calamities, purchasing livelihood equipment, paying off the loan, and repairing the cost of the house, health, and educational expenditures. The main causes of non-payment of both types of credits are acute food problems, medical treatment, loss of investment, natural calamities, misuse of loans, and loss of crops. The attitude towards micro-credit showed that

terms and conditions are not rigid, micro-credits help in increasing income, saving employment, financial condition, and running a business.

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