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Microfinance clients' awareness index: A measure of awareness and skills of microfinance clients

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Abstract The promotion of financial education for poor people in developing countries calls for work on several fronts, one of which is to develop a measure to evaluate the outcome of financial education in relation to broader development goals. This paper proposes a Microfinance Clients' Awareness Index (MCAI) to determine the level of financial awareness of microfinance clients. This index is a comprehensive measure that incorporates information on several aspects of financial awareness in one single number lying between 1 and 2, where 1 denotes complete ignorance and 2 indicates complete financial awareness of the microfinance product.

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Introduction

Financial services for the poor, often referred to as microfinance, cannot solve all the problems caused by poverty but can help put resources and power into the hands of poor and low income people themselves, letting them make everyday decisions and chart their own paths out of poverty.

However, low levels of money management knowledge deter clients and potential clients of microfinance from understanding and utilising the range of products and services available. Choosing from among the growing number of microfinance products and services requires a lot of information and the skills to calculate costs, project cash flow needed

to make repayments, and weigh alternatives. Field experiences suggest that financial literacy is even more important with respect to insurance contracts (Cole & Fernando, 2008).

Moreover, given the increasing commercialisation of microfinance and the entry of for-profit players in this sector, financial literacy¹ is seen as a means to enhance client protection that includes the issue of fair and transparent pricing, effective communication, sensitivity to over-indebting clients, and ethical behaviour of staff. Financial literacy initiatives

¹ Organization for Economic Co-operation and Development (OECD) has defined financial education as "the process by which financial consumers/investors improve their understanding of financial products, concepts and risks, and through information, instructions and/or objective advice, develop the skills and confidence to become more aware of (financial) risks and opportunities, to make informed choices, to know where to go for help, and to take other effective actions to improve their financial well being" (OECD (Organization for Economic Co-operation and Development), 2005).

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give clients the knowledge, skills, and confidence to understand and evaluate the information they receive and empower them to purchase the financial products and services that meet their needs and those of their families (Rutledge, Annamalai, Lester, & Symonds, 2008). Arguably, although microfinance institutions (MFIs) had been providing comprehensive group training (CGT)² to their clients for years to help clients understand how to calculate interest owed, repayments, or basic terms of their loans or savings products, there had been no systematic efforts or curricula based on a behaviour-change approach to promoting financial literacy for microfinance clients.

The literature review reveals that there is a need for financial literacy and that there is a paucity of research that looks at current levels of financial awareness of microfinance clients (Tiwari, Khandelwal, & Ramji, 2008). It is further noticed that various indicators while used individually can provide only partial information on the financial awareness of the microfinance clients. Moreover, in India, the unified code of conduct developed by MFIN and Sa-Dhan³ emphasise the issue of client education and specify that MFIs must have a dedicated process to raise clients' awareness of the options, choices, and responsibilities vis-à-vis financial products and services available, and MFIs must ensure regular checks on client awareness and understanding of the key terms and conditions of the products or services offered.

Therefore, there is a pressing need to have a comprehensive measure of financial awareness which might be able to incorporate information on several aspects of financial literacy, preferably in one single number. A comprehensive measure of financial awareness is useful for the following reasons, among others: 1) to compare several MFIs with respect to their clients' level of financial awareness at a particular point of time, 2) to monitor the progress of policy initiatives for financial awareness of microfinance clients in a country over a period of time, and 3) to address questions of academic interest that have been put forward in the growing literature on financial literacy.

Against this backdrop, we propose the Microfinance Client Awareness Index (MCAI), which satisfies all the above criteria of a good measure of financial awareness index. Our proposed MCAI takes values between 1 and 2, 1 indicating complete ignorance of the product and 2 indicating complete financial awareness.

Further, this index is used to answer the following key research questions:

- What is the level of financial awareness of MFI clients?
- What are the different dimensions of financial awareness?

- How can MFIs be compared with each other on the basis of these dimensions?

In this context, this study, based on survey of 320 microfinance clients conducted in the rural area of Varanasi district of eastern Uttar Pradesh, India, is an attempt to develop a composite indicator to evaluate the outcomes and impacts of financial education programmes conducted for the microfinance clients.

The paper is structured as follows: the second section gives an overview of the literature available on the evaluation of financial literacy programmes. The third section describes the framework for creation of MCAI and discusses the sample chosen for the study, while the fourth section illustrates the empirical strategy for creation of MCAI including the set of weights used. The fifth section presents the Microfinance Clients' Awareness Index and discusses scores and ranks of MFIs. It also throws light on the association between the index and its components. The sixth section discusses, broadly, the strengths, weaknesses and potential applications of the tool developed. The seventh section provides the concluding remarks. Two appendices complement the report—detailing tables, data, statistical analysis, and sample statistics.

Literature review: evaluation of financial literacy programmes

One of the big obstacles in designing research which evaluates financial literacy programmes is determining how to measure success. Although it is clear that financial education is beneficial and has a positive impact on the lives of consumers, the kind of impact and its degree are often difficult to measure. Researchers and practitioners continue to debate the rigour of various evaluation techniques and the measures (Lyons, 2005).

Lusardi and Mitchell (2011a) agree that it is important to assess financial literacy but note that in practice, exploring how people process economic information and make informed decisions about household finances are difficult to explore. However, a set of three questions first developed by Lusardi and Mitchell (2011b) for the American Health and Retirement Study (HRS) in 2004 are commonly used to test financial literacy. These questions test the understanding of three basic financial concepts: interest rate compounding, inflation, and risk diversification. The first two questions require basic numeracy skills, while the third question requires familiarity with the definition of stocks and mutual funds.

Cole and Fernando (2008) point out that financial literacy test scores are highly correlated with math test scores, suggesting that financial literacy tests may partly measure an innate or acquired ability to solve problems in general. If this is indeed the case, then teaching financial literacy may have limited effect: the more fundamental skills of addition, multiplication, and division may matter more. However, we must look for alternative measures if financial literacy is not based simply on arithmetic skills.

Gray, Cohen, and Stack (2009) listed various indicators of financial well-being used in different research studies such as reduction in financial stress, reduced amount of time spent managing financial matters, motivation to plan ahead and set a financial goal, independent financial decisions, reduced debt,

² During comprehensive group training, punctuality, the necessity of paying weekly instalments on time and joint liability are emphasised. Group members also learn the "member's pledge." By repeating this pledge, members promise to come to every meeting without fail, utilise the loan for the said purpose, pay in a timely manner, take group and centre responsibilities seriously (Tiwari et al., 2008).

³ MFIN and Sa-Dhan, the two national Self-Regulatory associations of microfinance institutions in India, have collaborated to create a unified Code of Conduct for their member institutions. The Code of Conduct seeks to ensure that microfinance services are provided in a manner that are ethical and transparent and benefit clients in a holistic manner, and lay special emphasis on client protection and good governance.

Pillar	Sub-pillar	Indicator
Awareness	Loan basics	Amount of loan (amt_loan)
		Duration of loan (dur_loan)
		Loan instalment amount (inst_amt)
		Concept of joint liability (joint_lia)
		Interest rate (int_rate)
	Insurance basics	Amount of insurance premium (ins_prem)
Insurance claim (ins_claim)		
Concept of insurance (ins_concept)		
Skills	Basic computing skill	Total interest amount (tot_int)
		Balance number of instalments (bal_inst)
	Financial skill	Loan principal repaid (princi_repaid)
		Loan interest paid (int_paid)
	Comparing products	Ability to choose cheaper loan (cheap_loan)

Figure 1 Theoretical framework of the Microfinance Clients Awareness Index (MCAI).

reduced debt-service ratio, increased savings, successful financial or business negotiation, and greater satisfaction with bank products or services.

As noted in the introduction, these indicators while used individually can provide only partial information on the financial awareness of the microfinance clients. This study seeks to bridge this gap to some degree by developing a composite indicator that can be used to measure the extent of financial awareness of microfinance clients.

Framework for creation of MCAI

Theoretical framework

As largely recognised by the scientific literature, the financial education of a consumer is the "capacity to have familiarity with and understanding of financial market products, in order to make informed choices" (RBI Report, 2008).

When viewed from this standpoint, the following elements were found important for a definition of financial education considering microfinance clients:

- 1) Clients should be aware of the financial product and its basic terms and conditions.
- 2) Clients should have basic computing and financial skill to calculate interest on the financial products offered to them.
- 3) Clients should be able to translate their knowledge about financial product and computing and financial skills into evaluating the financial product offers, compare them and choose the optimal product.

These three elements are those surveyed and captured in this study to construct MCAI, a comprehensive tool to measure the level of financial awareness of microfinance clients. The structure of the theoretical framework of the Index is reported in Fig. 1.

A total of 13 indicators were analysed and grouped into two main dimensions of financial awareness: (1) knowledge of Loan Basics and Insurance Basics and (2) Basic Computing Skill and Financial Skill of microfinance clients.

The index has a pyramid structure: it is the weighted average of two pillars (*Awareness* and *Skills*). Each pillar is the weighted average of a variable number of sub-pillars and finally each sub-pillar is made by various indicators constructed from the survey questions.

The first pillar measuring Awareness uses eight questions divided into two sub-pillars: *Loan Basics* (five indicators) and *Insurance Basics* (three indicators). This pillar aims at measuring the basic knowledge deemed necessary for microfinance clients to make informed borrowing decisions. It includes conceptual understanding of joint liability and insurance, and the capacity to identify the interest rate of loan at which they borrow.

The pillar *Skills* gathers together five indicators grouped in three sub-pillars: *Basic Computing Skill* (two indicators) that reflects their ability to calculate the total interest amount they pay on loan and the balance number of instalments they are required to pay. The second sub-pillar, *Financial Skill* (two indicators), tests their ability to segregate principal and interest amounts in the total instalment amount, and the third sub-pillar, *Comparing Products* (one indicator), examines their skill to choose cheaper products out of the available products offered by different MFIs in their region.

Data

The present study was conducted with four MFIs operating in Varanasi district. Varanasi is one of the more populous districts in Uttar Pradesh⁴ containing 1289 inhabited villages and a population of over 36 lakhs as per the 2011 census. Most of the population (more than 55%) lives in rural areas. The

⁴ Uttar Pradesh is one of the backward states in India that is home to 199 million (16.49%) residents with per capita net state domestic product amounting to Rs. 16,182 against per capita Net National Product at factor cost as Rs.33,731. The Poverty Headcount Ratio of Uttar Pradesh is 37.7%, much higher than the India average of 29.8%. According to the United Nations Human Development Report in 2007–08, Uttar Pradesh ranks 18th out of 23 states in human developmental terms with Human Development Index value as 0.38 which is much lower than the India average of 0.467. (http://www.undp.org/content/dam/india/docs/uttar_pradesh_factsheet.pdf).

total sex ratio for the district is 913. The female literacy rate in the district (67%) is better than the state average of 59.2% (Census of India, 2011).

There were eight MFIs working in the research area at the time of survey (June–Sep, 2011). Out of them, four were non-banking financial companies (NBFCs) and four were working as Section 25 companies. Four out of eight private sector MFIs working in the research area were selected for this study (the top two MFIs belonging to each category i.e. Section 25 company (non-profit) and NBFCs (for-profit) were selected).

The sampling frame is chosen from among clients having outstanding loans from MFI/MFIs in the rural area of Varanasi district. The estimated number of total MFI clients in the selected villages was 6384 at the time of data collection (All the MFIs were asked about the number of clients they serve in the selected villages). Four out of eight development blocks and 15 villages per block were randomly selected, and finally MFI clients were selected as described below. The sample size of MFI clients was determined by using the following formula:⁵

$$n = N / (1 + Ne^2)$$

Fifteen villages in each block were randomly chosen, and the first seven households who were clients of at least one MFI encountered in each village were surveyed.

In selecting client households, it was not possible to randomly select seven households from each village, because a list of all the MFI clients in selected villages was not available. However, in order to ensure that the sample did not suffer from selection bias and enjoyed a level of randomisation, the survey was conducted in a minimum of four hamlets per village. Additionally, no two respondents lived next door to each other; in other words, every other house was skipped. Besides, only those clients were surveyed who belonged to at least one of the four MFIs selected for the study.

This ensured that we did not restrict our sample to MFI clients of any one particular community or location within a village. After preliminary examination, 320 responses out of 420 were found complete and valid, and this constituted a 76.2% response rate for the study. The data from MFI clients were collected through a pre-tested, well-structured questionnaire based on the demographic profile, borrowing details and understanding of the different aspects of the loan they borrowed.

Qualitative information was collected through semi-structured interviews of the MFI officials (16 Field Officers, 12 Branch Managers and 12 other officials related to the area of Human Resource, Finance and Internal Audit departments of selected MFIs) operating in the area to analyse the policies and practices adopted by MFIs with respect to client education, and to understand the kind of training they provide to their clients.

Empirical strategy for creation of MCAI

To construct the composite indicator, MCAI, the sequence of the steps followed is based on the OECD-JRC handbook on

constructing composite indicators (OECD-JRC, 2008). A preliminary univariate and multivariate analysis is used to assess the suitability of the dataset, and to understand the implications of the ranks and scores of the methodological choices, for example weighting and aggregation, used during the construction of the composite indicator.

For the purpose of constructing the index, 13 questions were used to compile 13 indicators measuring different aspects of clients' financial awareness. The original questions were all in an ordinal scale and were dichotomous.⁶ The scores assigned to each question vary within [1, 2], with 2 associated to the correct answer and 1 associated to the incorrect answer.

Regional average is calculated as the simple arithmetic average of the scores obtained by MFIs operating in the research area. Each MFI score has been calculated taking the sample average of MFIs' individual client awareness values.

To test the internal consistency of items and to judge the sampling adequacy in a survey, reliability test (Cronbach alpha⁷) and KMO⁸ measures were carried out. The results of these tests were satisfactory (Cronbach alpha or c-alpha-0.682 and KMO measure = 0.629) and allowed us to carry the analysis further.

Univariate analysis

In the theoretical framework of the Index all the 13 indicators are dichotomous and assume values 1 or 2. This generates, in most of the cases, skewed distributions highly concentrated either towards 1 or 2.

In the sub-pillar Loan Basics within Awareness pillar, all the indicators assume value 2 (the maximum value) for more than 90% of the observations in the sample. The sub-pillar Loan Basics comprises questions on their awareness of amount of loan, duration of loan, instalment amount that they pay every week and basic concept of joint liability.⁹

The questions within second sub-pillar Insurance Basics assess the respondents' knowledge about the insurance product offered to them. Almost 60% of the respondents understand the basic idea of insurance and its benefits. Sixty three per cent were also found to be aware of the amount of insurance premium they pay along with the weekly instalment of their

⁶ Dichotomous data are data from outcomes that can be divided into two categories (for example: female/male, yes/no), where each participant must be in one or other category, and cannot be in both.

⁷ C-alpha measures the portion of total variability of the sample of individual indicators due to the correlations of indicators. It increases with the number of individual indicators and with covariance of each pair. If no correlation exists and individual indicators are independent, then c-alpha is = 0, while if individual indicators are perfectly correlated, c-alpha = 1.

⁸ KMO is a measure that judges the sampling adequacy. A KMO statistic is computed for each individual indicator, and their sum is the KMO overall statistic. KMO varies from 0 to 1.0. A KMO overall should be .60 or higher to proceed with factor analysis.

⁹ Joint liability refers to a kind of group lending mechanism in which the group ensures each of its members to get access to the loans directly from the MFI by providing joint liability (social collateral). Under joint liability each group member is made responsible for the loans of other group members. If one member defaults, the other group members are required to cover the loan from their own resources, and if they do not, they lose access to future loans. It is thus in each member's interest to ensure that other members pay on time.

⁵ "N" is the size of the population which is 6384. Assuming the standard error (e) as 5% and substituting the values in the equation, the size of the sample was found to be 376.4.

Table 1 Correlation matrix^a of 13 indicators.

	amt_loan	dur_loan	tot_int	bal_inst	ins_prem	ins_claim	ins_concept	joint_lia	inst_amt	princi_repaid	int_paid	cheap_loan	int_rate
Correlation	1.00												
amt_loan	1.00												
dur_loan	.493	1.00											
tot_int	-.050	-.101	1.00										
bal_inst	-.052	-.106	.243	1.00									
ins_prem	-.075	-.017	.243	.201	1.00								
ins_claim	.050	.101	.260	.053	.395	1.00							
ins_concept	-.079	-.027	.151	.049	.580	.416	1.00						
joint_lia	.511	.638	-.064	-.068	-.046	.064	-.051	1.00					
inst_amt	.404	.193	.058	.052	.020	.040	.016	.310	1.00				
princi_repaid	.013	.027	.070	-.036	.012	-.070	-.075	.017	.011	1.00			
int_paid	.011	.022	.057	-.209	-.145	-.057	.092	.014	.009	.399	1.00		
cheap_loan	.046	-.078	.079	-.057	.096	.241	.119	-.006	.037	-.065	-.053	1.00	
int_rate	.085	.172	.038	.046	.205	.367	.247	.110	.069	.159	.129	.049	1.00

^aDeterminant = .068.

amt_loan: Amount of loan; dur_loan: Duration of loan; tot_int: Total interest amount; bal_inst: Balance number of instalments; ins_prem: Amount of insurance premium; ins_claim: Insurance claim; ins_concept: Concept of insurance; joint_lia: Concept of joint liability; inst_amt: Loan instalment amount; princi_repaid: Loan principal repaid; int_paid: Loan interest paid; cheap_loan: Ability to choose cheaper loan; int_rate: Interest rate.

loan. However, 79% of them were not aware of the payouts and procedure of insurance claim if calamity occurred.

Clients (58%) did not seem to know what their interest rates were. However, more than 75% of them were able to calculate actual total interest amount by applying basic computing skills rather than using the interest rates.

For more complex questions related to segregation of principal and interest amount in each of the instalments they paid, more than one third of respondents chose not to attempt the questions. The values of indicators princi_repaid and int_paid are found equal to 1 in 95% of cases.

Finally, only 18% of the respondents were able to choose the cheaper loan out of the given options of loan products, given their poor educational backgrounds (refer to Appendixes A and B for details).

Multivariate analysis

Multivariate analysis, and in particular Principal Components Analysis (PCA), is used to compare the theoretical framework with the statistical framework emerging in the dataset analysed. Principal Components Analysis requires that there should be some correlation greater than 0.30 between the variables included in the analysis. For this set of variables, there are 10 correlations in the matrix greater than 0.30, satisfying this requirement (Table 1).

To check how much the variables used in the analysis have in common with the extracted components, communalities are calculated and presented in Table 2.

Whole dataset

The Principal Component Analysis on the data reveals the presence of five relevant factors explaining 65.21% of the variance

Table 2 Communalities—13 indicators.

Indicators	Initial	Extraction
amt_loan	1.000	.668
dur_loan	1.000	.718
tot_int	1.000	.615
bal_inst	1.000	.692
ins_prem	1.000	.657
ins_claim	1.000	.624
ins_concept	1.000	.645
joint_lia	1.000	.700
inst_amt	1.000	.509
princi_repaid	1.000	.667
int_repaid	1.000	.713
cheap_loan	1.000	.789
int_rate	1.000	.481

Extraction Method: Principal Component Analysis.

joint_lia: Concept of joint liability; amt_loan: Amount of loan; dur_loan: Duration of loan; inst_amt: Loan instalment amount; ins_concept: Concept of insurance; ins_prem: Amount of insurance premium; ins_claim: Insurance claim; int_rate: Interest rate; int_paid: Loan interest paid; princi_repaid: Loan principal repaid; bal_inst: Balance number of instalments; tot_int: Total interest amount; cheap_loan: Ability to choose cheaper loan.

of the dataset (Table 3). Correlation matrix of the 13 variables has led to the extraction of five latent dimensions, whereas MCAI counts two pillars and five sub-pillars. The first factor alone accounts for 18.1% of the total variance while the fifth one explains only 8.5% of the total variance. The rotation method used is Varimax Rotation Method.

The inspection of the loading factors (Table 4) reveals that the indicators have significant and autonomous explanation power. The signs of loadings corresponding to all the

Table 3 Total variance explained.

Component	Initial Eigenvalues			Extraction sums of squared loadings			Rotation sums of squared loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.386	18.355	18.355	2.386	18.355	18.355	2.351	18.082	18.082
2	2.336	17.972	36.327	2.336	17.972	36.327	2.149	16.530	34.612
3	1.524	11.721	48.048	1.524	11.721	48.048	1.513	11.642	46.254
4	1.195	9.195	57.242	1.195	9.195	57.242	1.351	10.396	56.649
5	1.037	7.973	65.216	1.037	7.973	65.216	1.114	8.566	65.216
6	.847	6.517	71.733						
7	.795	6.116	77.848						
8	.704	5.416	83.264						
9	.595	4.576	87.840						
10	.478	3.674	91.514						
11	.454	3.489	95.002						
12	.338	2.597	97.600						
13	.312	2.400	100.000						

Extraction Method: Principal Component Analysis.

Table 4 Whole dataset: loadings of the principal components

Rotated component matrix^a

	Component				
	1	2	3	4	5
joint_lia	.827	.042	-.008	-.100	-.070
amt_loan	.807	-.063	.007	.021	-.112
dur_loan	.780	.140	.003	-.222	-.204
inst_amt	.584	-.074	.042	.339	.213
ins_concept	-.107	.792	-.009	.022	.070
ins_prem	-.081	.745	-.134	.274	-.040
ins_claim	.099	.723	-.065	.083	.284
int_rate	.183	.595	.278	-.071	-.103
int_paid	-.012	.010	.832	-.135	.053
princi_repaid	.018	-.018	.798	.123	-.121
bal_inst	-.041	.072	-.216	.747	-.286
tot_int	-.060	.188	.177	.706	.217
cheap_loan	.000	.132	-.078	-.021	.875

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

^aRotation converged in 5 iterations.

joint_lia: Concept of joint liability; amt_loan: Amount of loan; dur_loan: Duration of loan; inst_amt: Loan instalment amount; ins_concept: Concept of insurance; ins_prem: Amount of insurance premium; ins_claim: Insurance claim; int_rate: Interest rate; int_paid: Loan interest paid; princi_repaid: Loan principal repaid; bal_inst: Balance number of instalments; tot_int: Total interest amount; cheap_loan: Ability to choose cheaper loan.

components (Table 4) are the same for all the indicators, confirming that indicators correlate in the same direction with the five latent dimensions.

As expected, the first and second components are marked by high loadings on the Loan Basics and Insurance Basics sub-pillars respectively. The third and fourth components are marked by Computing Skill and Financial Skill respectively, whereas the indicator cheap_loan is exclusively loaded on component five.

Table 5 Awareness: loadings of the principal components.

Rotated component matrix^a

	Component	
	1	2
joint_lia	.834	.007
amt_loan	.801	-.037
dur_loan	.798	.064
inst_amt	.552	.050
ins_concept	-.109	.804
ins_prem	-.104	.781
ins_claim	.097	.748
int_rate	.208	.556

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalisation.

^aRotation converged in 3 iterations.

joint_lia: Concept of joint liability; amt_loan: Amount of loan; dur_loan: Duration of loan; inst_amt: Loan instalment amount; ins_concept: Concept of insurance; ins_prem: Amount of insurance premium; ins_claim: Insurance claim; int_rate: Interest rate.

Pillar-level analysis

Similar analysis is conducted at the pillar level for the pillars Awareness and Skills.

Awareness

Principal Component Analysis suggests the existence of two relevant factors explaining respectively 29.4% and 26.6% (in the total 56%) of the variance of the dataset. Given that this pillar is composed by two sub-pillars the finding seems to confirm the framework of the index.

The loading factors between the indicators and the first principal component have the same signs in the dataset confirming that these indicators correlate in the same direction with the most important latent factor (Table 5). A perfect matching between the statistical and the theoretical frameworks would entail the two components loading principally

Table 6 Skills: loadings of the principal components.

	Component		
	1	2	3
int_paid	.838	-.124	.023
princi_repaid	.804	.097	-.099
tot_int	.203	.785	.253
bal_inst	-.243	.784	-.240
cheap_loan	-.083	.013	.952

Extraction method: principal component analysis.

Rotation Method: Varimax with Kaiser Normalisation.

^aRotation converged in 4 iterations.

int_paid: Loan interest paid; princi_repaid: Loan principal repaid; tot_int: Total interest amount; bal_inst: Balance number of instalments; cheap_loan: Ability to choose cheaper loan.

the respective indicators (joint_lia, dur_loan, amt_loan and inst_amt in the first and the rest in the second). This is partially the case. Table 5 shows that indicator int_rate (belonging to the Loan Basics sub-pillar) loads with the second principal component better, suggesting that it explains the different latent characteristic of client awareness.

Overall the statistical analysis confirms the structure of this pillar for the data except one change i.e. int_rate loads better onto the second principal component (refer to footnote¹⁰ for clarification).

Skills

The PCA on the data shows the number of principal components as three i.e. identical to the number of its sub-pillars. The variance explained by these three principal components ranges between 29.1% of the first and 20.7% of the third (overall, they account for 74.9% of the total variance). Furthermore, the analysis of the loading factors suggests that the indicator cheap_loan has an autonomous behaviour, being loaded alone on one component (Table 6).

Altogether, these findings highlight that the theoretical framework of the pillar is confirmed.

¹⁰ The researchers accept that the interest rate is not related to insurance aspects of the loan but under practical situation observed, MFIs place emphasis on interest rate only to the extent of providing information relating to insurance to their clients. Moreover, different MFIs provide information of interest rate in different forms i.e. on flat or declining terms. That creates confusion in the minds of clients and they prefer to remember it in terms of total interest payment they have to make on their loan. Hence, based on the statistical output, the weight age of awareness pertaining to interest rate in Indian conditions (research area) has been found fit along with insurance sub-pillar. The survey results also raise serious concerns about the understanding of the loan contract by microfinance clients. Despite not being aware of the interest rate that they pay on their loan, they borrow from 2–3 MFIs for their household needs that may result in overburdening the poor. Their understanding about the interest rate (which can be considered the very basic piece of information about any credit product) is found to be as low as the awareness about the insurance aspects of the loan. That is one of the reasons why interest rate was shifted from loan_basics sub-pillar to the insurance_basics sub pillar reflecting the ground reality.

As per the results of the analysis, the framework is redesigned where the indicator int_rate is shifted from Loan Basics sub-pillar to Insurance Basics sub-pillar and consequently this sub-pillar is renamed as *Insurance Basics and Interest Rate* (Fig. 2).

Set of weights for the Index and aggregation method used

The approach used by Nicoletti, Scarpetta, and Boylaud (2000) is that of grouping the individual indicators with the highest factors loadings into intermediate composite indicators. With the MCAI data set there are five intermediate composites and they are aggregated by assigning a weight to each one of them equal to the proportion of the explained variance in the data set (Table 7).

Looking at the nature of data, linear aggregation method is used to construct the composite.

Findings

Overview of the Index: scores and ranks

Table 8 presents the scores and ranks for the Microfinance Client Awareness Index. MFI 4 leads the group of surveyed MFIs, followed by MFI 3 and MFI 2. At the opposite end, MFI 1 scores 3.2% lower than average score.

MFI 4 has the best score in the pillars Awareness as well as in the pillar Skills. MFI 1 is on rank 2 in the pillar Skills but occupies the last position overall due to its poor performance in both the sub-pillars Loan Basics and Insurance Basics and Interest Rates in the pillar Awareness.

Furthermore, for all the MFIs, the scores of the first pillar are higher than the scores of the second pillar. This is due to the high scores obtained by all MFIs on the questions on amount of loan, duration of loan, instalment amount and concept of joint liability (overall average of 1.99, 1.96, 1.99 and 1.98 respectively, see Table 9) and the low scores obtained in the questions int_paid, princi_repaid and cheap_loan (overall average of 1.01, 1.02 and 1.18 respectively) of the second pillar.

Probably the best way to compare microfinance clients' awareness is to make 100 the overall average and calculate the distance of each MFI from this average (figures given in the brackets in Table 8). The best performers have a score up to 5% higher than the regional average, while the low performers have up to 3% less. Awareness is the pillar where this gap is higher (reporting up to 5% higher and 7% lower) followed by Skills where the gap found is lower.

Within Awareness pillar, at sub-pillar level, the gap is higher in the Insurance Basics and Interest Rate sub-pillar (reporting up to 14% higher and 17% lower), whereas gap among MFIs' scores is almost negligible in Loan Basics sub-pillar (Table 10).

Within Skill pillar the gap is higher in Basic Computing Skills sub-pillar (11% lower and 7% higher), whereas gap is almost negligible in the sub-pillar Financial Skills and very low in Comparing Products sub-pillar ($\pm 3\%$).

The difference in the scores of MFIs has been observed on account of the difference among them regarding selection of clients (refer to Sample Statistics given in Appendix B) and

Pillar	Sub-pillar	Indicator
Awareness	Loan basics	Amount of loan (amt_loan)
		Duration of loan (dur_loan)
		Loan instalment amount (inst_amt)
		Concept of joint liability (joint_lia)
	Insurance basics & Interest rate	Amount of insurance premium (ins_prem)
		Insurance claim (ins_claim)
		Concept of insurance (ins_concept)
Skills	Basic computing skill	Total interest amount (tot_int)
		Balance no. of instalments (bal_inst)
	Financial skill	Loan principal repaid (princi_repaid)
		Loan interest paid (int_paid)
	Comparing products	Ability to choose cheaper loan (cheap_loan)

Figure 2 Framework of the Microfinance Clients Awareness Index (MCAI) confirmed after PCA.

Table 7 Weights for MCAI indicators based on principal components method for extraction of common factors.

Pillar	Sub-pillar	Indicators	Weights
Awareness (0.53)	Loan basics (0.28)	joint_lia	0.084
		amt_loan	0.080
		dur_loan	0.075
		inst_amt	0.042
	Insurance basics and Interest rate (0.25)	ins_concept	0.076
		ins_prem	0.067
		ins_claim	0.063
Skills (0.47)	Financial skill (0.18)	int_rate	0.043
		int_paid	0.094
	Computing skill (0.16)	princi_repaid	0.086
		bal_inst	0.085
	Comparing products (0.13)	tot_int	0.075
		cheap_loan	0.13

joint_lia: Concept of joint liability; amt_loan: Amount of loan; dur_loan: Duration of loan; inst_amt: Loan instalment amount; ins_concept: Concept of insurance; ins_prem: Amount of insurance premium; ins_claim: Insurance claim; int_rate: Interest rate; int_paid: Loan interest paid; princi_repaid: Loan principal repaid; bal_inst: Balance number of instalments; tot_int: Total interest amount; cheap_loan: Ability to choose cheaper loan.

Table 8 Microfinance clients' awareness index scores and ranks of the index and its pillars.

	Awareness		Skills		MCAI	
	Scores	Ranks	Scores	Ranks	Scores	Ranks
Overall average	0.923 (100)		0.622 (100)		1.545 (100)	
MFI 1	0.861 (93.3)	4	0.634 (101.9)	2	1.495 (96.8)	4
MFI 2	0.925 (100.2)	3	0.588 (94.5)	4	1.513 (97.9)	3
MFI 3	0.934 (101.2)	2	0.625 (100.5)	3	1.56 (100.9)	2
MFI 4	0.973 (105.4)	1	0.640 (102.9)	1	1.613 (104.4)	1

MFI: micro finance institution.

emphasising certain aspects of their product while they run comprehensive group training. Diving a little deeper on the aspects where the gap among MFIs is found to be higher (for example, the sub-pillar Insurance Basics and Interest Rate), it indicates that MFI4 pays more attention to elaborating the

conceptual part of insurance during its training programme. This difference among clients of different MFIs is further reflected in the scores of the pillar Awareness that comprise sub-pillars Loan Basics, and Insurance Basics and Interest Rate.

Table 9 Scores for the 13 indicators of the MCAI divided by Pillar.

	Pillar-awareness							
	Awareness							
	joint_lia	amt_loan	dur_loan	inst_amt	ins_concept	ins_prem	ins_claim	int_rate
Overall Avg.	1.98	1.99	1.96	1.99	1.60	1.63	1.21	1.43
MFI 1	1.98	1.99	1.95	1.99	1.40	1.40	1.00	1.00
MFI 2	2.00	2.00	2.00	2.00	1.60	1.65	1.15	1.40
MFI 3	1.99	1.99	1.98	1.99	1.65	1.60	1.20	1.75
MFI 4	2.00	2.00	1.98	2.00	1.75	1.85	1.48	1.58
	Pillar-Client Skills							
	Skills							
	int_paid	princi_repaid	bal_inst	tot_int	cheap_loan			
Overall Avg.	1.01	1.02	1.78	1.79	1.18			
MFI 1	1.00	1.00	1.95	1.85	1.15			
MFI 2	1.00	1.00	1.40	1.80	1.15			
MFI 3	1.00	1.00	1.95	1.65	1.20			
MFI 4	1.05	1.03	1.80	1.88	1.23			

amt_loan: Amount of loan; dur_loan: Duration of loan; tot_int: Total interest amount; bal_inst: Balance number of instalments; ins_prem: Amount of insurance premium; ins_claim: Insurance claim; ins_concept: Concept of insurance; joint_lia: Concept of joint liability; inst_amt: Loan instalment amount; princi_repaid: Loan principal repaid; int_paid: Loan interest paid; cheap_loan: Ability to choose cheaper loan; int_rate: Interest rate. MFI: micro finance institution.

Table 10 Scores for the five sub-pillars of the Microfinance Clients' Awareness Index.

	Loan basics		Insurance basics and interest rate		Basic computing skill		Financial skill		Comparing products	
	Scores	Rank	Scores	Rank	Scores	Rank	Scores	Rank	Scores	Rank
Overall Average	0.555 (100)		0.368 (100)		0.285 (100)		0.183 (100)		0.154 (100)	
MFI 1	0.554 (99.9)	3	0.306 (83.2)	4	0.304 (106.8)	1	0.180 (98.4)	3	0.15 (97.1)	3
MFI 2	0.560 (100.9)	1	0.365 (99.1)	3	0.254 (89.2)	4	0.184 (100.7)	2	0.15 (97.1)	3
MFI 3	0.550 (99.0)	4	0.383 (104.2)	2	0.289 (101.5)	3	0.18 (98.4)	3	0.156 (101.3)	2
MFI 4	0.555 (100)	2	0.418 (113.5)	1	0.294 (103)	2	0.187 (102.1)	1	0.159 (103.4)	1

MFI, micro finance institution.

Another sub-pillar where variability among four MFIs is found on the higher side is Basic Computing Skill. The rank of MFI1 is 1, whereas it lags behind if we look at its MCAI score. Having higher basic computing skills can be associated with the basic education level intuitively. If we look at the sample statistics given in Appendix B, the clients of MFI1 are found more educated (60%), whereas MFI2 that is ranked last in this sub-pillar, has more than 50% of its clients classified as "illiterate."

Overall, the findings of this study help to identify the weak area for each MFI which needs attention to improve the financial awareness level of the MFI's clients. Besides, the scores obtained by MFI clients strongly suggest that CGT, which is being provided to them is not educating clients successfully and not enabling them to compare and choose the right product for themselves.

Association between the index and its components

While in a composite, it is normal to have a little (but positive) association between pillars (pillars ideally describe

different aspects of the underlying latent dimensions the composite aims to capture), one would expect a certain degree of correlation between the indicators of the same pillar. Table 1 summarises the association between indicators of both the pillars. The indicators within the same sub-pillars display all positive and statistically significant correlations. When this happens, a common direction for the indicators in the pillar can be talked about.

The correlation between each indicator with the corresponding pillar (Table 11) has the expected sign and is significant in all the cases. The indicators are also found to have significant association with the index except the indicator int_paid that belongs to the sub-pillar Financial Skill. All those indicators that have a greater variability (high coefficient of variation as per Tables A1 and A2 given in Appendix A) have higher correlation to their corresponding pillar as well as to MCAI.

Analysing at the sub-pillars level, Insurance Basics and Interest Rate, Computing Skill and Comparing Products correlate with MCAI to the extent of 0.831, 0.468 and 0.440 respectively (Table 12), while the sub-pillar Loan Basics contributes much less with a correlation of 0.189 (due to dur_loan,

Table 11 Spearman's rank correlation (individual level) between indicators, pillars and MCAI ranks.

Pillars	Sub-pillars	Indicators	Correlation with MCAI	Correlation with corresponding pillar
Awareness	Loan Basics	joint_lia	.171**	.215**
		amt_loan	.139*	.165**
		dur_loan	.167**	.274**
		inst_amt	.130*	.135*
	Insurance Basics & Interest Rate	ins_concept	.663**	.797**
		ins_prem	.670**	.743**
		ins_claim	.641**	.708**
Skills	Basic Computing Skills	int_rate	.432**	.534**
		tot_int	.465**	.623**
	Financial Skills	bal_inst	.337**	.541**
		princi_repaid	.126*	.186**
		int_paid	0.068	.144**
Comparing Products	cheap_loan	.440**	.585**	

*Correlation is significant at the 0.05 level (2-tailed).

**Correlation is significant at the 0.01 level (2-tailed).

joint_lia: Concept of joint liability; amt_loan: Amount of loan; dur_loan: Duration of loan; inst_amt: Loan instalment amount; ins_concept: Concept of insurance; ins_prem: Amount of insurance premium; ins_claim: Insurance claim; int_rate: Interest rate; int_paid: Loan interest paid; princi_repaid: Loan principal repaid; bal_inst: Balance number of instalments; tot_int: Total interest amount; cheap_loan: Ability to choose cheaper loan.

Table 12 Spearman's rank correlation (individual level) between sub-pillars, pillars and MCAI ranks.

		Awareness	Skills	MCAI
Pillars	MCAI	.854**	.689**	
	Awareness		.247**	
Sub pillars	Skills	.247**		
	Loan-Basics	.291**	-0.105	.189**
	Insurance Basics & Interest Rate	.964**	.271**	.831**
	Basic Computing Skill	.137*	.734**	.468**
	Financial Skill	-0.021	.209**	.118*
	Comparing products	.176**	.585**	.440**

*Correlation is significant at the 0.05 level (2-tailed).

**Correlation is significant at the 0.01 level (2-tailed).

amt_loan and inst_amt that has correlation of less than 0.3 with MCAI). The sub-pillar Financial Skill has a negligible contribution of 0.118 due to indicators princi_repaid and int_paid have low correlation with the index i.e.0.126 and 0.068 respectively.

Overall the MCAI seems to be mostly determined by the pillar Awareness with a correlation of 0.854 while the pillar Skills, contributes much less with a correlation of 0.689.

A closer look at Table 12 reveals the correlation of sub-pillars with both the pillars depicting the "awareness" and "skill" aspect of the index. Loan Basics has a correlation of .291 with Awareness pillar and -.105 with Skills pillar. The low correlation of the sub-pillar Loan Basics with the index is an indication of trade-off between the correlation of Loan Basics sub-pillar with these two pillars. Similarly, low correlation of the sub-pillar Financial Skill with the index is due to the negative association of this sub-pillar with the unrelated pillar Awareness.

In all the cases, however, the correlation of the sub-pillars with their corresponding pillars (the correlation of Loan

Basics and Insurance Basics with the pillar Awareness and the correlation of Basic Computing Skill, Financial Skill and Comparing Products with the pillar Skills) was found positive, significant and higher than the association with the unrelated pillar. Correlation between pillars is relatively low (.247) signalling the fact that the pillars describe different aspects of MCAI.

Discussion

The initial question that guided our research was: How to capture the different dimensions of financial awareness of microfinance clients. The present study offers a comprehensive measure that is able to incorporate information on several aspects of financial awareness, in one single number with the help of MCAI.

The MCAI, the summation of the product of the two pillars which is further divided into five sub-pillars, permits an analysis of each MFI against the theoretical maximum possible score

of 2. An MCAI of an MFI with a total below 20% of the maximum possible score (2) can be rated as "low" in relation to financial awareness.

The rational categorisation of MCAI values is made into nominal groups with the band 80–89% (score 1.60 to 1.79) indicating "medium" financial awareness and over index value of 1.89 classified as "high" level of financial awareness. In this study, three of the surveyed MFIs received low values and can be classified as falling within the "low financial awareness" category. Of the four MFIs compared, MFI4 emerges as the most competent MFI with an MCAI of 1.613 indicating "moderate financial awareness." It has been found that none of the surveyed MFIs belong to the category of "high" financial awareness.

Similarly benchmarking is done for the MCAI pillar scores. The theoretically maximum possible score of the Awareness pillar is 1.06 based on the weighting scheme applied to construct the index. The scores of 0.848 to 0.953 can be classified as "medium" and over 0.953 depicts "high" level of financial awareness. MFI4 falls within "high" financial awareness category for the Awareness pillar. All the other MFIs belong to the category of "medium" level of awareness.

For the pillar Skills (maximum possible score of .94), the score below 0.752 indicates "low" skill, the score ranging between 0.752 and .845 can be considered as "medium" and above 0.845 will be "high" level of financial awareness. The survey results reveal that all the surveyed MFIs score low on Skills. The very low score for *int_paid*, *princi_repaid* and *cheap_loan* are major contributors for lowering the Skills values for all the MFIs.

On similar lines, the benchmark values can also be provided for sub-pillars within pillars, that can serve as a tool for MFIs to evaluate the awareness level of their clients at sub-pillar level and also assess the particular aspect within Awareness or Skills pillars on which they lag behind, in terms of client education.

While the composite MCAI can serve as an overall index of financial awareness, the component indices and their sub-indices (index value of pillars and sub-pillars) can provide specific guidance on ways to improve overall performance. Moreover, the simplicity, availability of benchmarks, and ease of application of MCAI allow MFIs to understand and replicate the exercise to assess the effectiveness of the CGT they run. By measuring the level of financial awareness of microfinance clients, MCAI has supplemented an existing gap in terms of measurement tool of financial awareness. However it suffers from the limitations discussed below.

The choice of indicators for constructing MCAI can be criticised in all fairness as too narrow, since it does not take into account the financial services related to saving, group management, and awareness about institutions and policies all of which are important dimensions of financial awareness in the context of microfinance clients. We acknowledge the validity of the criticism, but argue that the choice of indicators must be consistent with the product offered by MFIs. In the Indian context, MFIs (NBFCs as well as Section 25 companies) are not allowed to collect savings from their clients as per government guidelines. Besides, incorporating indicators, such as group management, and awareness regarding institutions and their policies may offer greater insight, but their inherent complexity and subjectivity as well as the

difficulty in obtaining data diminish their value as a tool for policy-making and comparisons across MFIs.

Further, the scope of this study is limited to the clients of MFIs who follow Grameen Group methodology i.e. individual loans are lent to each member of the group by MFI officials and group meetings are held only once in a week and that too in the presence of an MFI field officer unlike the Self Help Group (SHG) model where members pool savings and lend among themselves. The issue of group management is more relevant for the clients of the SHG model. Besides, the repayment rate of all the surveyed MFIs is found to be 99–100%; therefore, "group management" does not assume significance in the present study.

In addition to the limitations discussed above, the present study is confined only to the rural area of Varanasi district, and that too for four of the MFIs. The issue of generalising the study is a matter of scope of future research and can be sorted out by collecting data for a large number of MFIs of different regions across the country.

Acknowledging the limitations of composite indicators but focussing on their potentiality, Mahbub ul Haq (the pioneer of the Human Development Index) draws attention to the compromises that must be made for any useful policy index (Haq, 1995). In the eagerness to find a more acceptable measure of financial awareness, the remarkable features of the MCAI, that it expresses all financial awareness in a single number and also permits comparisons over time and across geographic regions, should not be lost sight of.

Existing literature indicates that no financial awareness index has been constructed to date. However, the theoretical framework soundly points to the view that an index of similar nature exists for measuring empowerment of microfinance clients. The authors were of the view that an attempt to construct a similar index for measuring financial awareness needs to be undertaken despite of its present limitations.

The MCAI has been conceived as an applied tool that should contribute to enhance rural women's understanding of the financial product as the results of the study have significant implications for industry as well as regulators. The scorecard can be served as the first step for MFIs to formulate training programmes for improved awareness as a means of protecting vulnerable clients. On the other hand the policy making bodies (viz., Reserve Bank of India (RBI) and National Bank for Agriculture and Rural Development (NABARD) in the Indian context) may use this feedback to measure the level of financial awareness among microfinance clients, analyse their policies and make suitable amendments to ensure client protection. This study will be of great help to the government to understand whether MFIs are formally endorsing the principles of client education, educating the staff, translating the principles into policies and including them in the operating practices.

The MCAI could be useful to the microfinance community for monitoring the clients' financial awareness in every country. It is hoped that by inserting it into financial literacy subfield, it could stimulate greater discussion and research on the current level of financial awareness among regulators and policy makers. The MCAI could permit country and regional rankings, serving as a comparative tool of governmental policies towards MFI clients' level of financial awareness, and providing a quantitative assessment of their

level of financial awareness. Further, as was the case with the Human Development Index (HDI), which sparked the development of other indices, the MCAI could lead to the development of other microfinance client related, more specific indices that could allow analysis and policy recommendations. Besides, this study also provides an empirical database about the level of financial awareness of microfinance clients in the research area.

Conclusion

This study was an attempt to develop a composite indicator to measure the level of financial awareness of MFI clients in the context of rising concerns over financial literacy, consumer protection, and reckless lending. The long-term goal is that MCAI can become an applied tool useful for microfinance clients' financial awareness level analysis and policy implementation.

The study also establishes benchmarking targets to set a clear direction for MFIs. These targets are set not only for overall financial awareness but also for its different dimensions. These benchmarks may assist MFIs in terms of making targeted interventions with respect to indicator categories where they scored less.

The MCAI calculations indicate that at the time of data collection, MFI4 clients were more aware about the product compared to clients of other MFIs. The MFI4 clients can be categorised as having a "moderate" level of financial awareness, whereas the clients of other three MFIs had "low" levels of financial awareness. This index not only allows comparison of different MFIs on the basis of their clients' awareness scores, but also indicates which particular area of knowledge and skills MFIs should pay attention to in their future training programmes to protect their clients from being over-indebted, and hence can help reduce the threat of mass default as reported in certain pockets of the country.

While selected indicators should describe the existing state of financial awareness, indicators need to be reviewed periodically to align them with the evolving government initiatives in providing financial education to rural women.

In particular, to make MCAI a more sound and universally applicable index, there are several possibilities to build upon and expand this work. Consideration may be given to expand MCAI to include the measurement of saving. The weighting of the saving dimension can be statistically determined after conducting survey on microfinance clients of the SHG model as well as other models followed across the world where savings form an integral part of microfinance.

More work could be done on the sensitivity of weighting structures to the construction of the composite as well as the use of different elicitation methods to extract weights for inclusion in a composite index. Future work could also examine the underpinnings of the relationship between the collinearity of indicators and changes in the weight structure.

Further, additional data can be collected and analysed to improve evidence of the validity of instrument, including expanding, piloting and revising indicators to incorporate various types of financial products offered by MFIs across nations; recruiting a larger and more representative national sample, especially with clients from MFIs extensively engaged in financial education, and larger samples of clients from various

racial and ethnic groups that is consistent with the conceptual framework described in this study.

Acknowledgement

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Appendix A

Univariate analysis

Appendix A presents the Univariate Analysis of the indicators covered by each pillar, which aims at identifying distributional characteristics (e.g. asymmetry, central tendency).

Descriptive statistics

Awareness

The distributional characteristics of the indicators covered by the Awareness pillar are presented in [Table A1](#) and in [Fig. A1](#).

Indicators *amt_loan*, *joint_lia*, *inst_amt* and *dur_loan* assume value 2 (the maximum value) in more than 95% of the observations. This raises some issues on their informative power (the high concentration of the values is also

Table A1 Client awareness—descriptive statistics.

Sub-pillar	Indicators	Mean	SD	CV
Loan basics	<i>Amt_loan</i>	1.99	.097	.048
	<i>Joint_lia</i>	1.98	.124	.063
	<i>Dur_loan</i>	1.96	.190	.097
	<i>Inst_amt</i>	1.99	.079	.040
Insurance basics & interest rate	<i>ins_concept</i>	1.60	.491	.307
	<i>ins_prem</i>	1.63	.485	.298
	<i>Ins_claim</i>	1.21	.405	.336
	<i>Int_rate</i>	1.43	.496	.347

sd, standard deviation; cv, coefficient of variation.

joint_lia: Concept of joint liability; *amt_loan*: Amount of loan; *dur_loan*: Duration of loan; *inst_amt*: Loan instalment amount; *ins_concept*: Concept of insurance; *ins_prem*: Amount of insurance premium; *ins_claim*: Insurance claim; *int_rate*: Interest rate. Given that all the indicators in pillar 1 are dichotomous and assume values 1 or 2, this table shows a rather right-skewed distribution for the indicators generated by questions on awareness of amount of loan, duration of loan, instalment amount and concept of joint liability. The indicators within the sub-pillar Insurance Basics and Interest Rates are more evenly distributed compared to the indicators within the Loan Basics sub-pillar.

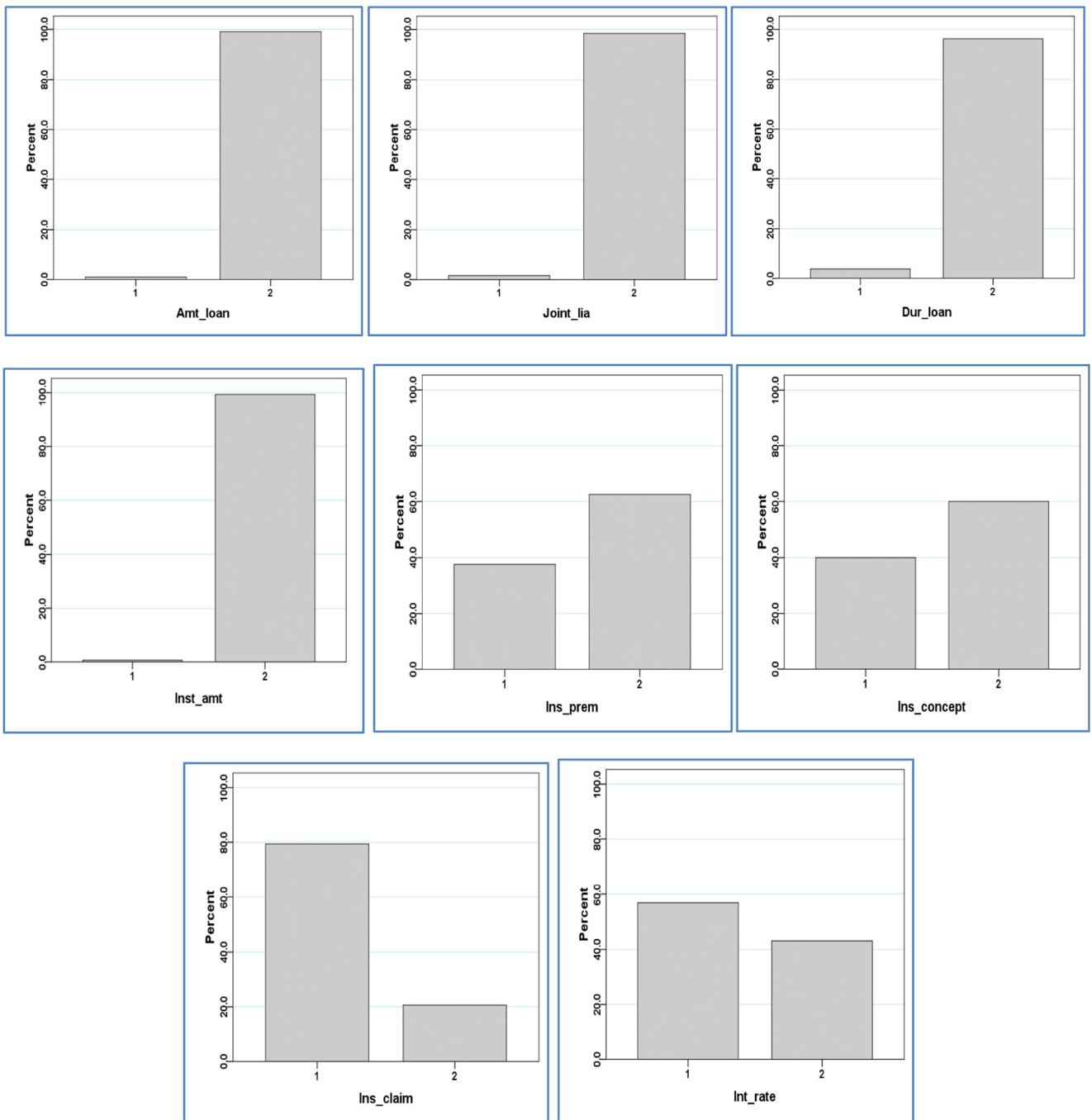


Figure A1 Client awareness—histograms.

reflected by the low standard deviation and coefficient of variation).

The same table and figure show that questions on insurance concept, insurance premium, and interest rate generate more informative indicators, with observations mostly equally distributed between the minimum and the maximum value (respectively 1 and 2) except the indicator *ins_claim* which tends to skew towards left.

Client skills

Table A2 presents some descriptive statistics for the indicators covered by the second pillar (client skill); Fig. A2 complements this table. As already mentioned above, they are all dichotomous with minimum and maximum values respectively equal to 1 and 2.

Table A2 Client skills—descriptive statistics.

Sub-pillar	Indicators	Mean	SD	CV
Financial skill	princi_repaid	1.02	.136	.133
	int_paid	1.01	.111	.110
Computing skill	tot_int	1.79	.405	.226
	bal_inst	1.78	.418	.236
Comparing products	cheap_loan	1.18	.386	.327

sd = standard deviation; cv = coefficient of variation.

princi_repaid: Loan principal repaid; int_paid: Loan interest paid; bal_inst: Balance number of instalments; tot_int: Total interest amount; cheap_loan: Ability to choose cheaper loan.

Indicators princi_repaid and int_paid have a strong left-skewed distribution (it is equal to 1 in more than 95% of the cases) raising some concerns about their informative power.

Another indicator cheap_loan is also left skewed and its value is observed as 1 in almost 80% of the cases.

The situation is different for the two remaining indicators. The response to questions on number of balance instalments and total interest amount is found correct for more than 75% of the cases.

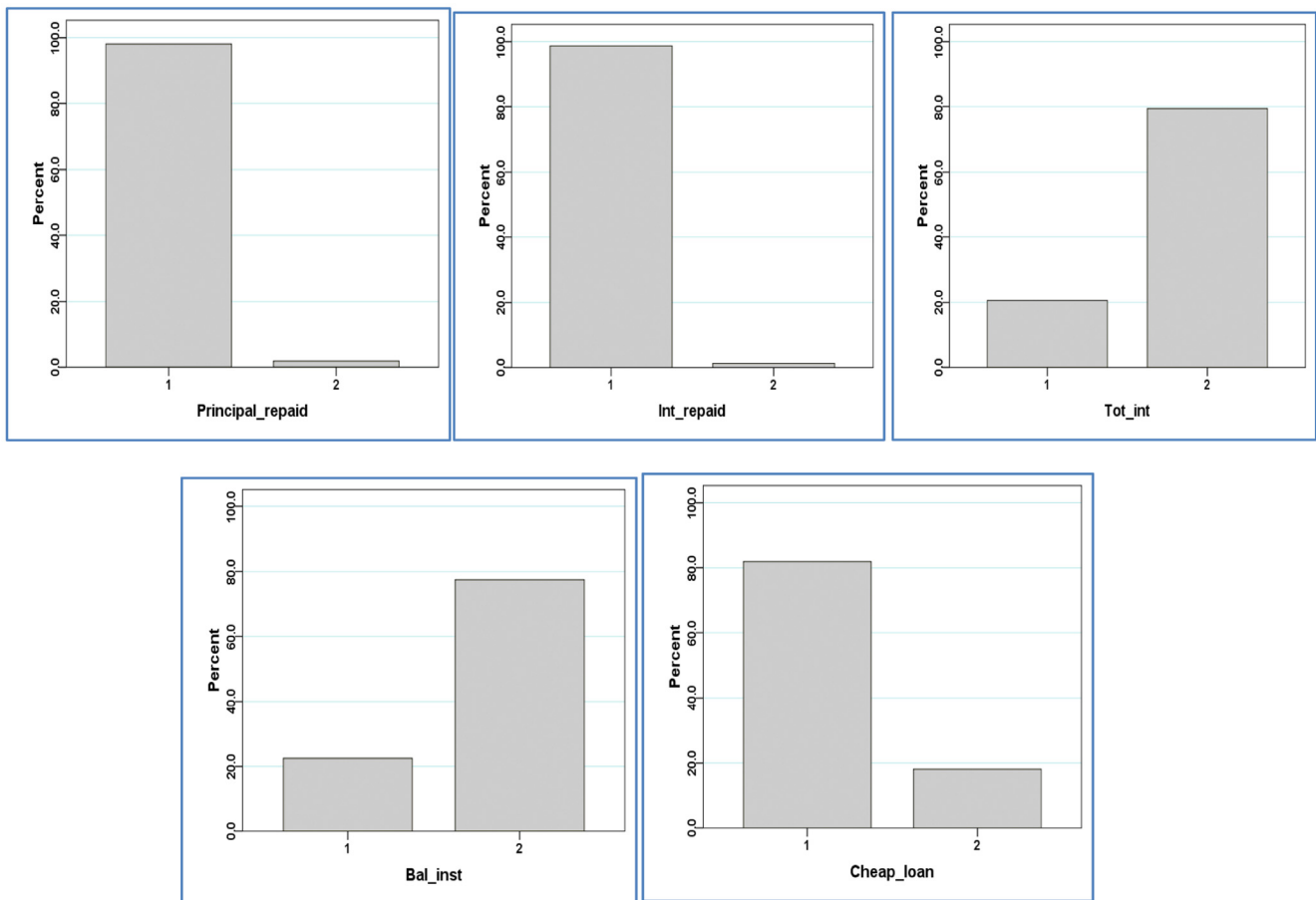


Figure A2 Microfinance client skills—histograms.

Appendix B Sample statistics

Table A3 Demographic profile of microfinance clients (N = 320).

Characteristics	Categories	MF11	MF12	MF13	MF14	Frequency	Percentage (%)
Gender	Male	—	—	—	—	—	—
	Female	80	80	80	80	320	100
Age	21–30 years	27	24	48	15	114	35.6
	31–40 years	49	41	28	49	167	52.2
	41–50 years	4	15	4	16	39	12.2
Education Level	Illiterates	32	52	39	42	165	51.6
	Primary	16	4	29	18	67	20.9
	Higher secondary	32	24	12	20	88	27.5
Annual household income (Rs.)	<50000	—	40	48	14	102	31.9
	Upto 1 lakh	56	24	20	29	129	40.3
	Upto 2 lakh	16	12	12	30	70	21.9
	>2 lakh	8	4	—	7	19	5.9
Number of outstanding loans	Single	—	48	52	12	112	35
	Multiple	80	32	28	68	208	65
Number of subsequent loans taken from the same MFI	First time borrowers	60	76	5	54	195	60.9
	Older Clients	20	4	75	26	125	39.1

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