Dvara Research | Policy Brief | June 2022

Approaches to Assessing Household Income for Microfinance Clients

Misha Sharma & Priyadarshini Ganesan[1]

Summary :

The Microfinance sector is gearing up for change as the recent RBI (Regulatory Framework for Microfinance Loans) Directions, 2022 has put in place comprehensive regulations to ensure customer protection. A cornerstone of this regulation is household income assessment of microfinance clients which is often as difficult as it is crucial. Formal income assessment for those earning such income largely in an informal economy poses some specific challenges. This case study documents some of the suggested approaches to household income assessment and presents a tech-backed solution that can aid operationalise such an assessment for microfinance clients.

About the Household Finance Research Initiative:

This policy brief presents independent research commissioned by the Household Finance Research to rigorously understand and document the financial lives of low-income or excluded households. A fundamental principle that guides this initiative's research efforts is the idea that a household is the key economic unit for policymakers, regulators, and practitioners to pay attention to. This is so that they may facilitate the creation of a suite of appropriate financial products and services, eventually enabling well-rounded balance sheets and financial well-being for the entire household unit.

[1] Priyadarshini Ganesan is Senior Research Associate and Misha Sharma is Practice Head with the Household Finance Research Initiative at Dvara Research.

Contents

Introduction

The recently published RBI (Regulatory Framework for Microfinance Loans) Directions, 2022 signals a shift towards credit assessment with a customer protection lens, intended to curtail over-indebtedness. It has fixed a household income upper limit of Rs. 3 Lakhs to be eligible for a microfinance loan and capped the debt repayment for all loans at 50% of the household's income. It also calls for household level data collection that is more detailed and incisive than what is being done by most Microfinance Institutions (MFIs) currently.

Accurate and comprehensive collection of household information leads to nuanced credit assessment that can aid low-income households access adequate credit that they can service comfortably. This however requires more effort and operational bandwidth from financial service providers (FSPs). Here, technology can be a game-changer in making this transition towards better credit assessment easier for FSPs and hassle-free for the households. There is consensus that digital upgradation and tech-backed solutions can bring down cost and help improve both the operational and credit efficiency[2] of FSPs. Conversations with a few FSPs also signal a willingness to improve household income assessment and an openness to try out new methodologies.

Our conceptual framework for HH income assessment detailed below considers the different facets of HH income such as Inflows, Outflows, Occupation, Family Size and gives a questionnaire-based approach to gather relevant information that is readily amenable to a digital format. Further, we are describing an existing technology solution that could help start a discussion on the exact modalities and requirements of a comprehensive tech-backed household income assessment.

Measuring Annual Household Income[3]

We propose approaches to measure annual household income (laying out both conceptual ideas as well as practical toolkit with survey-based questions) that FSPs can use to capture income data.

Objective

The objective of assessing household level income is to address concerns of over-indebtedness by linking households' debt to its income level and thereby understanding the repayment capacity of households. This is articulated in RBI's Directions where they propose that the payment of interest and principal for all outstanding loans of a

[2] As indicated by industry level organisations as well as some funder's requirements in the MFI sector.
[3] Submitted as part of Dvara Research's response to RBI's Consultative Document on the Regulation of Microfinance, 2021

household at any point of time be capped at 50% of the household's income. The framework has however fallen short by calling into account the debt – to– income ratio of the household rather than its debt-to-disposable income ratio which would be a better indicator of the household's capacity to service its loan(s).

Currently, there exists no uniform approach to capture the household-level income of a microfinance borrower. Given this gap, we propose a conceptual framework for assessing household level annual income.

Microfinance loan is meant to serve low-income households who typically face unpredictability and volatility in their income stream and most often do not have collateral assets. We therefore need to factor in all the components that have a bearing on their income. Here, we propose capturing both the income and expenditure of the household to arrive at the household's disposable income and also to provide a validity check for FSPs to ascertain the reasonableness of the figures reported. We set out a method to capture as much information as possible with a short and deliberately ordered questionnaire to estimate the income of the entire household. Following are the factors to be considered to accurately capture households' income and cashflows[4].

Factors to be considered for capturing household cashflows

Inflows

Inflows of low-income households, apart from being volatile, are also seasonal in nature. A farming household might see income flow from their primary activity only at the time of harvest, while they might depend on other secondary sources of income during the farming season. A migrant household that migrates for certain months of the year will see income peak during those months. Similarly, households with a migrant family member might receive regular cash transfers or a woman headed household might be receiving government transfers such as window pension. Therefore, questions need to accommodate for regular and irregular inflows, and transfers from family members (friends, close relatives) as well as external sources (government transfers under various welfare schemes).

Outflows

Households tend to smoothen consumption by borrowing and saving. However, there are certain peaks in expenditure during festivals, family functions or health emergencies that may be anticipated or unanticipated. We therefore need to understand regular consumption expenditure such as routine household expenses on food, housing, utilities, education, health, loan repayment, etc; any seasonal peaks that households typically face

[4] A Practical Note on Operationalising Suitability in Microcredit (George, 2019)

such as lending to family/friends, festival expenses, etc; as well as unanticipated expenses such as medical emergencies, house repair, etc.

Occupation

Low-income households are largely employed in the informal sector and often diversify their sources of income to smooth consumption over time. Therefore, it is important to capture the occupation status of family members (whether employed/unemployed/retired/etc.), the types of occupation involved in during the course of a year (primary, secondary, tertiary), and whether the income from the occupation is regular or volatile.

Family Size

Consumption needs of families tend to vary with size though not at constant proportion. Each additional member adds to expense but at diminishing rate due to intra family optimization of resources. We however need to assess the number of members in the household in order to arrive at the total income earned by the household.

Approaches

Questionnaire

The proposed toolkit uses this approach by asking households a set of questions to capture information on their income, expenditure and debt position. This would enable FSPs ascertain the financial position of the household and thereby aid credit assessment. We have proposed a comprehensive, well ordered and simply worded questionnaire that can aid recall, control misinformation, and enable cross-validation to conceptually arrive at household income. This however is prone to certain constraints which are discussed later in this document.

Template

This method would entail FSPs creating templates for different categories of households (as per location, occupation, crop yield, remuneration from different work, family characteristics, etc.) through an initial survey of a representative sample. Survey data can be corroborated with data from other sources such as National Sample Survey Organisation (NSSO), Centre for Monitoring Indian Economy (CMIE), etc. in order to arrive at income for each template. This can then be used to predict income of any prospective client matching a particular template. For example, an agricultural household farming onions in Kurnool district of Andhra Pradesh can be matched to an arid-horticulture-agricultural household template. This exercise can either be carried out by each of the FSPs individually or by a consortium providing templates to all FSPs.

Proposed Toolkit for FSPs to capture annual income, expenditure and debt obligations at the household level

I	**Household Size Information**
1	How many members are there in your household?
II	**Income Information_Memberwise**
2	Member No. (Questions 2 to 10. a5 to repeat for each member of the household)
3	Name
4	What has been your employment status in the last 12 months?
5	What is your primary source of income in the last 12 months? If you have more than one source, mention the occupation you spend most of you time on.
6	How often do you receive income from your primary source?
7	What is your annual income from your primary source? (If income varies, kindly mention expected average income) [5]
8	What is the lowest possible income you can earn from your primary source per year?
9	What is the highest possible income you can earn from your primary source per year?
10	Apart from your primary occupation, do your receive income from any other activity? (If yes, move to question set 10a, otherwise move to section III)
	If Yes
10. a1	What was your secondary source of income in the last 12 months?
10. a2	How often do you receive income from your secondary source?
10. a3	What is your annual income from your secondary source? (If income varies, kindly mention expected average income)
10. a4	What is the lowest possible income you can earn from your secondary source per year?
10. a5	What is the highest possible income you can earn from your secondary source per year?

[5] The FSP can then arrive at average annual income from primary and secondary source by adding up incomes for the year. For example, an agricultural household might earn farm income twice a year, one Rs. 40,000/- and another Rs. 32,000/- while also earning Rs. 3,000/- every month from livestock. The annual income would then be Rs. 40,000 +32,000+36,000 = Rs. 1,08,000 /-.

III	**Income Information_Household**
11	Annual rent received by household from leased out land/housing?
12	Annual remittance received regularly by household from any family member?
13	Annual government transfers received by household such as pension, widow/old age/disability assistance, scholarship, etc.?
IV	**Expenditure Information_Household**
14	What is the average monthly expense incurred regularly by your household? (For food, clothing, schooling, housing, regular medical costs, utilities, transport, etc.)[6]
15	What was the amount you spent on unplanned expenses (unforeseen medical expense, emergency expense for house repair, etc.) in the last year?[7]
16	Are there any additional expense that you expect to incur this year (for festivals, family gift commitments, education, etc)?[8]
V	**Debt Information_Debtwise**
17	How many outstanding debts does your household have at this point? (Questions 18 to 20 repeats for each loan of the household)
18	What was the source of this debt?
19	What is the amount still outstanding on this loan?
20	What is the amount that is due on this loan this year?

[6] Monthly expense is being asked for ease of recall. FSPs can then multiply by 12 to arrive at annual expenditure.
[7] Additional unplanned expenses incurred in the last year can be used as a proxy for possible unplanned expense this year.
[8] Answers to questions 14, 15 & 16 can be summed to arrive at the household's annual expenditure which can then be deducted from the household's annual income to arrive at the household's yearly disposable income.
*For each member of the household.
**For each loan taken by the household

Choice Set				
Q4*	Q5*	Q6*	Q10	Q18**
Employed	Self Employed: Agriculture	Hourly	Yes	Bank
Not Employed	Self Employed: Non-agriculture	Daily	No	MFI
Retired	Wage employment: Agriculture	Weekly		MBFC
Others, Specify	Wage employment: Non agriculture	Monthly		SHG
	Regular salaried/wage employee	Quarterly		Money Lender
	Others, Specify	Half Yearly		Friends/Family
		Yearly		Employer
		Others, Specify		Shops

Constraints

Any new addition to the administrative process of a FSP takes time and energy to operationally streamline. This will be particularly true of the microfinance sector which is cost sensitive and largely caters to non-salaried heterogenous population. Income measurement is a crucial component of credit appraisal mechanism and the task of coming up with a reasonable measure of income for a varied consumer-base is a work-in-progress. In the toolkit we have set up above, there are various factors that might undermine the quality of the data generated. We list out some of the possible concerns so that FSPs may be aware of them and thereby tweak their processes to take cognizance of such shortcomings while at the same time use the data to make meaningful credit assessment.

Response Bias

Innate cognitive biases in respondents might affect the accuracy of the data being reported. This could be due to a variety of factors. Some situations are explained below to illustrate some of the possible reasons for incorrect responses:

i) A farmer might report his/her income as the market value of his/her produce. However, actual income would be the profit earned over and above input costs.

ii) Inability to accurately report income/expenditure since the person is not in the habit of keeping tabs on inflows and outflows.

iii) General tendency in respondents to under report income while over reporting expenditure.

iv) Own account workers and sole proprietorship entrepreneurs might have overlapping personal and professional accounts and it hence becomes difficult to accurately report income and expenditure data.

Response bias can be minimized by a well-constructed survey that allows for data triangulation. The toolkit proposed here tries to do this by nudging the respondent to think along different aspects of the same income/expenditure data which can help reduce bias.

Untrained administration

Given the fiduciary responsibility that financial service providers have towards their clients, the task of making the survey/questionnaire easy and comprehensible falls on the FSPs. This requires trained staff who would understand the exact needs of the questions being asked (what information needs to be captured and for what purpose) and articulate it in the most suitable manner to the customer. The accuracy and utility of data captured using this toolkit would depend on nuanced administration of the questions. This involves training and capacity building on the part of the MFIs.

Incentive mismatch

There is incentive for both the FSP and customer to tweak income and expenditure figures in order to fall within the regulatory ceiling of microfinance loan eligibility. However, the responsibility of capturing data as precisely as possible rests with the FSPs. The efficacy of such prescriptive regulatory ceiling can itself be called into question when it generates such contradictory incentives for the participants. Therefore, the pressing need to measure income (and thereby repayment capacity) accurately while disbursing loans should be strongly advocated and reiterated among stakeholders in order to ensure long time stability of the ecosystem.

The above constraints can be minimized by a questionnaire that systematically and iteratively builds on relevant questions so as to enable customer recall, order them in a way as to make it difficult to provide false information, and be simple and specific enough to come up with methods and tools for cross-validation of the data.

Case Study: A Technology backed solution for MFIs

Any intervention to improve the quality of household income measurement and thereby credit assessment entails additional costs to FSPs. While the costs can be spread over a large clientele for FSPs operating at scale, the same might not be possible for a smaller player. Technology can act as an aid to cut costs or at least make costs commensurate with scale. Technological support can make it easier to administer questions to prospective clients, feed data into a centralised registry or template immediately, and validate the data on a real time basis. This can act as a starting point for simplifying processes, improving credit decisions, and providing risk-based pricing to customers.

Here, we are describing one such technology which is a digital architecture that enables customer onboarding, credit underwriting, automatic to semi-automatic product processing, statutory reporting, etc. The technology is a customised software interface that offers a digital framework for a range of business processes from customer and loan management to audit and business intelligence. It is currently being deployed by over 20 financial institutions and is amenable to different devices such as mobiles and tablets. This software offers a unique case study since its digital customer data collection module comprehensively covers aspects of customer household characteristics most relevant to quality credit assessment.

As part of customer enrolment, the software module collects information on the following heads (customizable as per MFI's need):

Customer Information	Family Information	Source of income and frequency
Name	Family members	Member occupation
DOB	Member-wise relationship to the customer	Member-wise cash inflow
Marital Status	Member-wise gender	Member-wise cash inflow frequency
Age	Member-wise age	
Religion	Member-wise DOB	
Caste	Member-wise education	
Father or Father-in-law Name	Member-wise marital status	
Spouse Name	Member-wise health status	
Spouse DOB		
Mobile number		
Address		

Planned and incurred expenses[9]	Asset ownership	Poverty Probability Index
Expense on food	Television	No. of household members
Expense on health	Refrigerator	Education level of female head/spouse
Expense on education	Fan	Refrigerator ownership
Expense on electricity	Almirah/Dressing Table	Stove/gas burner ownership
Expense on rent	Chair/Stool/Bench/Table, Stove/Gas burner	Pressure Cooker/Pressure Pan ownership
Public Utility Expenses	Pressure Cooker/Pressure Pan	Television ownership
Festive Expenses	Motor Car/Jeep, Cycle/Scooter	Electric fan ownership
Savings	Dairy Animals (Excludes calves)	Alimarah/dressing table ownership
Additional House Expenses	Irrigated land (in acres)	Chair/stool/bench/table ownership
External Remittances	Non-irrigated land (in acres)	Motor car/jeep/cycle/scooter ownership
Insurance Premium		
Community Expenses		
Social Events		

Housing	Bank Account	Liabilities of the household
House ownership	No. of bank accounts	Existing formal loans of the HH
Build type	Bank account details	Existing informal loans of the HH
Drinking water supply		
Water filter		
Type of toilet facility		

[9] To be collected in Monthly/Weekly/Yearly/Daily/Quarterly/Fortnightly/10 day intervals.

The above heads cover most of the characteristics that are pertinent to household income assessment and thereby repayment capacity. By doing so, FSPs become better positioned to make informed credit decisioning. The module also factors in some of the inherent biases and incentives of the customers and therefore provides inbuilt validity checks to ensure that the data collected from the customer is as accurate as possible. Apart from the most basic input field verifications, it is also capable of more advanced validity checks. Following are some of the digital validity checks that simplifies and eases customer management, collects reasonably valid data and improves operational efficiency.

- 4 alphabets + 4 digits + 1 alphabet PAN card details
- 12-digit Aadhar entry
- Validate if pin code matches the entered district
- When a customer reports farmland ownership of only 2 acres but a high annual income from farming, the software provides real-time validity prompt that the reported income exceeds what is normally possible from farming 2 acres of land. The field officer can then use the prompt to enquire further into the actual farmland ownership and the earnings from it.
- Matches customer image with backend database (offered by 3rd party companies) to verify if the onboarded customer is in fact the right person.
- Taps into negative checklists such as those of FATF to eliminate risk of fake enrolment.
- Spotlights inordinately high expenses or inflows for further discussion and such deviations can be marked for review by higher authority in the customer enrolment portal.
- Checks geo-coordinates of JLG members to verify how proximate they are to each other.
- Real-time online encumbrance verification for any collateral offered by customers.
- Digitized gold assaying that is synced with the software to eliminate information tampering.
- omprehensive imaging of business premises (machinery, stocks, etc.) to validate described asset ownership with the image.
- Validate GST payment details with backend database.

As documented above, digitization enables real-time validation of data input and provides operational checks which can lead to quick turn-around times and better credit decisioning. Moreover, it can also be customised to use inbuilt templates (as explained in the template-based approach) to match customer characteristics which can then be used by field agents to check the validity of the information being provided by customers. For MFIs that work in the highly informal space with little to no documentation, these cross-validations can boost their credit assessment capabilities which in turn can pave way for a more robust and safer MFI ecosystem.

Leveraging technology

Further to its operational and credit assessment role, technology can aid MFIs remain nimble and responsive to customer needs and offer better customer service. The customer factsheet as mandated by RBI can be updated real-time as per repayments made by the customer and revised schedules can be generated for the customer as and when there is a break or change in schedule due to any late/early payment.

Technology can also be leveraged as a market monitoring tool by giving loan officers the option to red flag certain customers for in-person follow-ups or as high risk for default. This will enable managers keep their eyes and ears on the ground and deal with problems as they emerge. Such red flags can also be analysed and studied to generate heat maps of defaults for certain geographies or among certain customer categories. These real-time heat maps can give a quick pulse check of the MFIs performance in any region and help monitor the market effectively for any early signs of stress.

Improvements to HH income assessment can therefore help control incidence of over-indebtedness among MFI customers. The right technological aid to implement this can reap multiple benefits beyond just better credit decisioning. A well thought out technological back end can aid MFIs function better, reduce operational costs and remain sensitive to market conditions.