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When Is Microcredit Unsuitable?

Guidelines using primary evidence from low-income households in India

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Abstract

Rapid expansion in the microfinance sector has been credited with advancing financial inclusion in India, even as much of this growth has focused exclusively on simple group loans and credit-linked insurance. Both central bank regulations and self-regulations seek to address the risk of over-indebtedness often associated with rapid credit expansion through the implementation of lending caps and mandatory credit reporting, while recent regulatory developments additionally emphasize the need for lending institutions to detect and prevent mis-sale. This paper seeks to understand what might constitute a loan mis-sale and to inform the use of suitability guidelines for lending to low-income households by MFIs, SHGs and banks.

We reviewed a diverse body of evidence on microfinance and addressed specific evidence gaps with a year-long financial diaries survey of 400 active borrowers in rural south India. We find that certain features of borrowers' cashflows in interaction with lending practices and the nature of market sector development greatly influenced how credit was used and consequences for borrower distress. We observed high levels of over-indebtedness (21% sample households), financial distress and debt-dependence in the sample.

Critical faultlines in credit bureau reports may cause even fully compliant lenders to mis-sell credit to at least 33% MFI clients in the sample. To ensure responsible sale, there is an urgent need to integrate credit information about all institutional lending into a single report but once this is done, our data suggest that it would no longer be appropriate to apply over-indebtedness regulations in their current form. Doing so could prove too restrictive for 20% or more borrowers, and greatly limit the ability of formal finance to serve clients' needs. The focus must shift away from limiting consumer choice and instead towards building institutions' ability to conduct independent assessments of borrowers' repayment capacity and to use integrated credit information alongside their own risk assessments of clients. Specifically, suitable lending to low-income households will require lenders to review all outstanding debt, assess income and adequately respond to critical vulnerabilities including unusual income flows and uninsured cashflow risk originating from the nature of loan use.

In addition, the success of suitability in lending is also critically dependent on expanding commensurate access to savings, insurance and investment markets. Given the lack of market-based incentives to implement suitability and regulatory barriers to multi-product origination, we conclude with recommendations aimed at regulators and financial institutions, as well as directions for future research.

Outline

1. Introduction

The reach of formal credit in India remains low and rural consumer lending is dominated by group-based products. Self-help groups (SHGs) are promoted by NGOs, government-initiated or bank-initiated programs and linked with a bank that delivers savings and credit while joint-liability borrowing group are mostly organized through the regulated channel of microfinance institutions (MFIs), which are mostly incorporated as Non-Banking Financial Companies (NBFCs). While both types of group-based programs target similar clients, and are often classified together as microcredit, they differ in service delivery and governance. Particularly joint-liability group lending (JLG) has come to be associated with specialised financial institutions exclusively offering financial services to clients [2], and embedded within a commercial framework emphasizing financial viability and sustainable profitability (Mahajan and Navin 2013, Rhyne and Otero 1994, Weber 2001).

The size of the Indian microloan market was estimated at Rs. 1.4 trillion by March 2016, of which banks contributed less than 10% and MFIs and SHGs contributed the rest, in near equal share (Gada, et al. 2016). JLG loans alone were available in 566 of 676 Indian districts (84%), while in 430 districts (64%) 5 or more providers registered presence (Sriram 2015). The growth in microfinance has been credited with advancing financial inclusion, even though much of this growth has focused exclusively on simple loans and credit-linked insurance[3].

Alongside the national imperative for financial inclusion, there is also a marked requirement for financial service providers (FSPs) to institutionalize mechanisms for responsible delivery of services to poor and vulnerable customers (Sahasranaman, et al. 2014). Acknowledging the limitations of relying merely on disclosures and ex-post redressal mechanisms, specific requirements to prevent unsuitable sales have now begun to be embedded into Indian regulation (George 2014). This research seeks to inform the development of suitability guidelines for lending to low-income households through MFIs, SHGs and banks. We review diverse evidence on the uses and impacts of microcredit in the financial lives of low-income clients worldwide and find that borrower outcomes were heterogeneous, and that negative outcomes were correlated not only with borrowers' own characteristics but also lender practices and other market factors. Seeking to generate evidence from the Indian context, we conducted a year-long panel study of 400 rural households in south India, almost all of whom were active borrowers (nearly half were MFI borrowers) in a competitive lending market. Following Schicks (2013), we apply a customer protection lens to indebtedness and find that borrowers in the sample were vulnerable to experiencing significant debt-related financial distress as a result of unaffordable levels or otherwise unsuitable features of their outstanding debt. Further, market-prevalent lending practices seem to underestimate or entirely disregard borrower distress, while inadequacies in credit reports form critical faultlines that cause even compliant lenders to make unsuitable loans to clients. While certain parts of the analysis focus exclusively on MFI practices, the data suggest that these experiences were not unique to NBFC-MFIs. Given a

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[2] Most MFIs in India are barred from accepting savings deposits, unless linked to or acting on behalf of a bank. Thus, microfinance outreach often also means an exclusive focus on credit and credit-linked life insurance.

[3] Credit-linked insurance is valid only for the tenure of the loan, and greatly undervalues insurable risk by capping sum assured at value of the loan.

competitive (and occasionally saturated) landscape with multiple access points for consumers, features such as fragmented credit bureaus and differential regulation for banks and NBFCs emerge as systemic threats to customer protection.

Towards informing the specific use of credit suitability assessments at point of sale, we outline the minimum components of such an assessment—

1. All lenders should ensure that loan amounts are appropriate and the agreed repayment terms are affordable for every borrower given their income flows, outstanding loan repayments (including self-reported informal loans) and critical payment obligations.
2. Lenders must also evaluate the harms of selling standardized products to those borrowers with highly volatile cashflows or those with unique liquidity or flexibility constraints. Uninsured cashflow risk must be provisioned for in the assessment, product design or terms of repayment.

Finally, we identify critical gaps in supporting infrastructure, market development, regulation and compliance, all of which will be essential to a suitability regime and successful customer protection.

2. Context

2.1 MFI growth and regulation in India

Analysing the rapid expansion of JLG lending since 2012, sector reports caution that while there has been moderate growth in client outreach, this has been far outpaced by the growth in business per client—between 2012 and 2015 alone, the average loan outstanding per client and branch had nearly doubled (Figure 1). The same report also warns that Tamil Nadu and Karnataka were not only among the fastest-growing markets, but also reported the highest incidence of *non-compliant* credit bureau inquiries. By a directive issued to NBFC-MFIs, the Reserve Bank of India (RBI) required all MFI lenders to compulsorily verify all loan applications against a credit bureau, and that no loan should be made to an applicant already borrowing from two NBFC-MFIs or holding a total indebtedness of Rs. 1 lakh (we later discuss the antecedents and critique of this regulation). Credit bureaus record all inquiries made on loan applications and tag as *non-compliant* those inquiries that would subsequently lead to a loan rejection. A high incidence of non-compliant inquiries might be a sign of aggressive loan seeking by clients or adverse marketing and group formation practices by lenders.

Figure 1 Patterns in the growth of NBFC-MFI lending

Source: Inclusive India Finance Report 2015 and MFIN Annual Report 2015-16
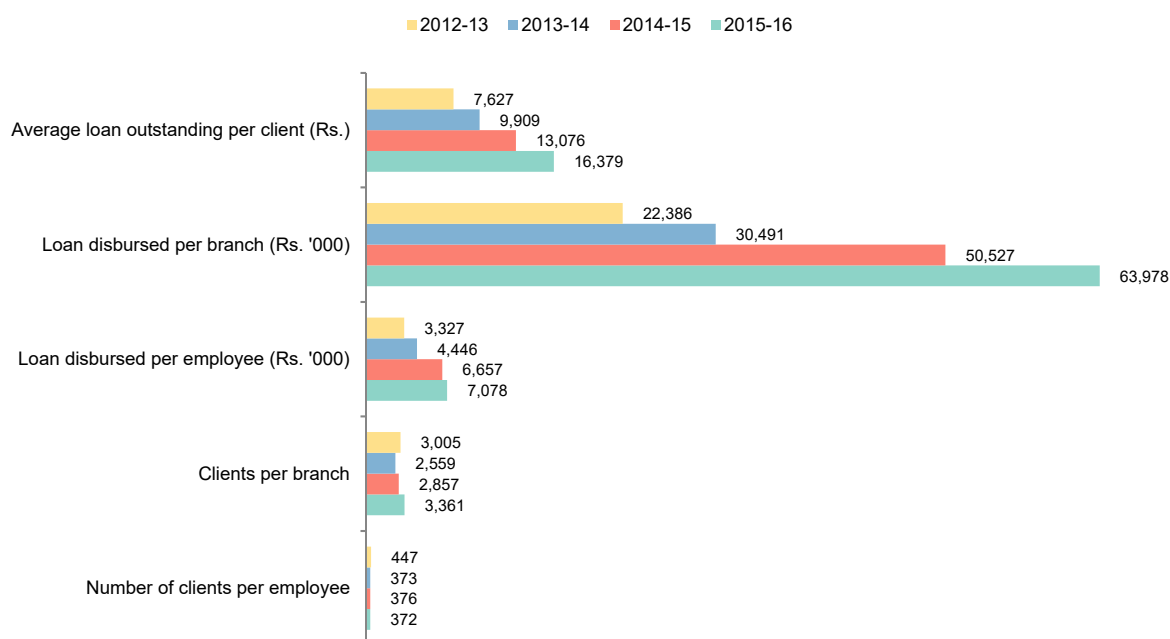
These caps and other restrictions on NBFC-MFIs are rooted in the Malegam committee's recommendations (RBI 2011) that first conceived the NBFC-MFI structure as governed by a set of central regulations that could curb aggressive lending and collection practices, while also freeing MFIs from the domain of state government regulations on moneylending. Also following from this committee's recommendations, two self-regulatory organizations (SROs) were

approved in 2014[4] and tasked with formulating and administering a Code of Conduct for all member MFIs, including adequate practices to ensure borrower protection.

Regulations by central bank and SROs place great emphasis on fair and responsible lending practices including explicit measures to address borrower over-indebtedness. The RBI's Fair Practices Code includes guidelines on mandatory disclosures, non-coercive collection and grievance redressal (RBI 2015), while the lending directive to NBFC-MFIs (RBI 2015a) requires adherence to borrower-level indebtedness limits (where total borrower indebtedness may not exceed Rs. 1 lakh or to no more than two NBFC-MFI lenders at a time). It further specifies restrictions on loan ticket size (no more than Rs. 60,000 in the first cycle), tenure (no less than 24 months for loans greater than Rs. 30,000[5]), interest rate (no higher than a specified margin over average cost of funds). The SROs' joint Code of Conduct requires compliance with the RBI directive but also goes further to list, as MFIs' Commitment to Customers, "We, as part of the Microfinance Industry promise the customers that we will […] conduct proper due diligence to assess the need and repayment capacity of customer before making a loan and must only make loans commensurate with the client's ability to repay" (MFIN 2015).

However, specific inadequacies in design of or compliance with the current customer protection regime may result in negative outcomes. First, the specification of lending limits could lead NBFC-MFIs to "lend to the limit" as a practice and disregard borrower heterogeneity; also, relying excessively on credit bureau reports, they may fail to assess debt affordability in more meaningful ways (Gada, et al. 2016). Second, both central bank and self-regulations only apply to NBFC-MFIs while at least four other types of institutions serve low-income clients (Sriram 2015)—Universal and Small Finance banks are governed by the RBI but through a different set of regulations than NBFC-MFIs, while co-operatives, SHG promoting organizations, non-profits and NGOs delivering financial services may be regulated by state governments, or not at all. There are also concerns that certain aspects of RBI regulations treat banks and non-banks differently, including those that govern the terms of lending to low-income clients and even in markets where both sets of entities are active (Jariwala and Mehta 2015). The Draft Micro Finance Institutions (Development and Regulation) Bill of 2012 sought to usher in uniform activity-based regulation, but has seen limited legislative success so far and as a result, the onus of ensuring harmonized regulation in microfinance continues to remains with the RBI.

Third, even where the language of regulation is clear, inadequacies in credit reporting practices and bureau infrastructure may limit institutions' ability to conduct comprehensive assessments (Jariwala and Mehta 2015, Khaitan 2015, Mathews 2016). Jariwala and Mehta (2015) estimate that microfinance credit bureaus do not capture as much as 47% of total microfinance debt (including loans made by business correspondents of banks, SHGs, small MFIs and NGOs).

Nevertheless, active self-regulation ensures overall compliance with the rules and indicate the success of efforts to organize commercial microfinance and curb reckless lending. This period has also seen NBFC-MFIs formalize core systems and processes and build strong internal

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[4] The SROs are Microfinance Institutions Network (MFIN) and Sa-Dhan – The Association of Community Development Finance Institutions.

[5] This limit was initially set at Rs. 15,000 but revised to Rs. 30,000 in November 2015.

capacity, in recognition of which several were successfully granted differential banking licenses in 2015. These internal developments could prove critical for the successful adoption of suitable practices towards better customer protection.

2.2 Review of literature

The discussion of mis-selling in financial services in India has been limited, and largely focussed on the practices of universal banks (Das 2013, Halan and Sane 2016, Mowl and Boudot 2014, RBI 2016). Related discussions in microfinance, while yet to explore mis-sale, document variations in organization structures, delivery channels, lending practices and of course, the nature of regulation. A recent wave of rigorously collected and systematically synthesized evidence also confirmed significant heterogeneity in microborrower outcomes—certain client types benefitted greatly from their small loans (Angelucci, Karlan and Zinman 2013, Karlan, Knight and Udry 2012, Banerjee, et al. 2014) while others presumably did not, and these effects mostly cancelled each other out (Banerjee, Karlan and Zinman 2015, Kaboski, Buera and Shin 2016). In these studies, factors such as borrowers' entrepreneurial character, risk tolerance and patience as well as loan use, having prior credit experience and overall community characteristics have been shown to mediate the ultimate impact of microcredit access on borrowers.

Randomized evaluations did not explicitly seek to identify which customers experienced the most harm from microfinance, although this is perhaps the most critical evidence required from a customer protection perspective. For example, respondents receiving more access to credit in Hyderabad, India reported on average that they were more worried and less happy (Banerjee, et al. 2014), although it is unclear whether objective measures of indebtedness were correlated with reported distress. The reverse was observed in some other study environments (Angelucci, Karlan and Zinman 2013), and the underlying factors driving heterogeneous qualitative experiences with microloans are yet to be rigorously understood.

The risk of borrower over-indebtedness is counted among the biggest threats to customer protection in microfinance. The consequences of over-indebtedness for borrowers can be severe, but will likely differ depending on the extent of over-indebtedness and the strategies adopted to manage this debt. Transitional over-indebtedness may be characterized by levels of debt that are high relative to income, but not overwhelmingly so; borrowers might be able to use various strategies to stabilize and reduce total debt over the medium term (Guérin, et al. 2013) without significantly eroding their asset holdings. However, borrowers carrying persistently higher levels of debt (such as when the repayments due are equal to income, or higher) were observed juggling various sources of funds to maintain their creditworthiness, and were also likely to experience significant asset erosion (Grammling 2009, Guérin, et al. 2013), pauperization, or extreme dependence on support from social networks.

Often, low-income households themselves may be aware of the implications of positive coping strategies versus negative, undesirable strategies but their ability to choose strategies might be limited in an underdeveloped financial market and also determined by factors such as timeliness and reliability of formal services or the opportunity costs of doing so (Gash and Gray 2016). Often, opportunity costs may include more than transaction costs. For example,

low-income households in Kenya held between 70-90% of their savings in illiquid "committed" savings products with presumable economic and psychological costs attached to premature withdrawal (Zollmann 2015). Other results from recent financial diaries mark the emergence of critical issues in customer protection for the poor over and above longstanding concerns to improve access. Both Meka and Grider (2016) and Stuart (2015) highlight a subset of low-income clients who accessed and actively used formal credit without fully understanding implicit costs and were at risk of debt entrapment in an environment without sufficient safeguards.

Schicks and Rosenberg (2011) reviewed six field studies from saturated markets and reported that anywhere between 12%-85% of the study populations were classified as over-indebted. Definitions of over-indebtedness were also as widely varied: they could be the outcomes of debt (delinquency or default, although these are typically lagging indicators), borrowers' financial characteristics (number of loans, debt-service ratio and debt-asset leverage ratio) or the nature of sacrifices made by borrowers to meet repayments. Schicks (2013) develops a unique, exhaustive and multi-dimensional classification for definitions of over-indebtedness along several dimensions and argues that the 'problem indicators' that lenders may care about from a risk management and self-preservation perspective may not adequately measure the harms that customers should be protected from. Many studies seem in agreement that to understand debt-related distress research must shift focus from impacts created after the loan to the process of making repayments during the loan (Dattasharma, Kamath and Ramanathan 2016, Field, et al. 2012, Schicks 2013, Venkata, Yamini and Krishna 2010).

Factors other than total level of debt or the debt income ratio may also mediate whether borrowers experience distress. Venkata et al. (2010) document that microcredit borrowers attributed financial stress they experienced during the loan tenure to seasonality-related income volatility, life-cycle events and related expense volatility and the additional burden of repayment in the event of delinquency by others in their group. Field et al. (2012) find that clients with a monthly repayment schedule scored 45% lower on a Financial Stress Index than clients with repayments due every week. Further, they observed that this differential was particularly large towards the end of the loan (correlated with a large differential in the average incomes earned by the two sub-groups), demonstrating how microcredit's features hold the potential to both induce and mitigate financial stress.

Deep qualitative research has highlighted systematic lending practices that place tremendous stress on borrowers to hide delinquencies and make timely repayments at any cost. Even by the design of dynamic incentives, individual borrowers have explicit incentives to "manage away" temporary liquidity mismatches in favour of a clean repayment record. Also by design, joint liability groups are expected to help each other make timely repayments either through internal lending or through coercion. Interviews with microfinance borrowers have confirmed that these terms of microfinance borrowing are well understood (Tiwari, Khandelwal and Ramji 2008). However, when these norms for borrowers are not matched by norms for responsible lending and borrowers hold unsustainable debt, the brute application of coercive collection and public shaming (Karim 2011, Mowl 2016) may make it near impossible for borrowers to admit repayment difficulties and seek renegotiation. MFIs have institutionalized

practices that simply do not allow delinquencies to occur—some expanding the scope of joint liability to the centre[6] level (Nandhi 2015) and some even recovering losses from their own frontline staff who are unable to collect timely repayments. Such practices, in addition to placing a great deal of stress on delinquent borrowers, also create distortions in the integrity of the repayment record itself and all centralized credit information.

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[6] A centre is a slum or hamlet within which multiple joint-liability groups are aggregated for operational ease. All groups in a centre usually have meetings at the same time, at a central location and receive loans in roughly the same cycle. A centre leader is assigned to aid coordination between the MFI and borrowers. However, it may be unrealistic to expect that borrowers may be willing to be jointly liable for all in their centre, rather than just the members of their group. The level of information asymmetry and social differences at the centre level may be much higher than smaller groups.

3. Data

The primary data collection for this study was conducted between February 2015 and May 2016 in Krishnagiri district, Tamil Nadu located in adjunction with two other south Indian states—Andhra Pradesh and Karnataka. The reach of institutional lending is higher in Krishnagiri when compared to all-India rural outreach. In 2012, the estimated incidence of rural institutional indebtedness in Krishnagiri was 29% of households (vs. 22% all-India) and the median institutional debt outstanding per borrowing household was Rs. 34, 606 (vs. Rs. 18,488 all-India, source: authors' estimates from NSSO'S All India Debt and Investment Survey 2012-2013). In 2013, Krishnagiri ranked among the top 100 Indian districts in formal financial development while Tamil Nadu itself consistently ranked among the very best performing states (CRISIL 2015). The MIX Finclusion database(Mix 2016) consistently ranked Krishnagiri district as well-served, with a total gross loan portfolio of Rs. 58.84 crores and an average loan outstanding of Rs. 19, 542[7] in June 2015.

3.1 Sampling

Rural households from Krishnagiri were recruited into the study by a stratified random sampling protocol. Census villages were first surveyed for active joint liability borrowing groups (JLGs) and 18 villages were chosen. All member households of randomly selected JLGs were included in the sample, and an equal number of non-MFI households from each village were also included. For example, if we sampled 2 JLGs of 5 members each, we also randomly sampled 10 households from the same village who did not borrow from MFIs, but likely borrowed from a variety of other sources including banks, self-help groups and moneylenders. Thus oversampling JLG borrowers overestimates the incidence of microfinance indebtedness in the sample, but permitted a detailed investigation on the borrowing behavior of similar households within a small sample.

We conducted detailed monthly interviews with a total of 400 panel households for a year, surveying in detail on their socioeconomic characteristics, cashflows, access to finance and financial behavior.

3.2 Sample characteristics

The largest proportion of sample households reported their primary income source as casual wage labour (46%), while an additional 41% households cited the same as a non-primary income source (see Figure 2). 32% households reported self-employment as a primary income source, and yet another 33% reported this as a non-primary income source. Only 66% households had any salaried/regular wage source of income and for only 20% households was this regular wage also their primary income.

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[7] In comparison, the same data source cites an average loan balance for all Tamilnadu at Rs. 10,126 and all India at Rs. 10,258.

Figure 2 Stacked bar graph of household occupations
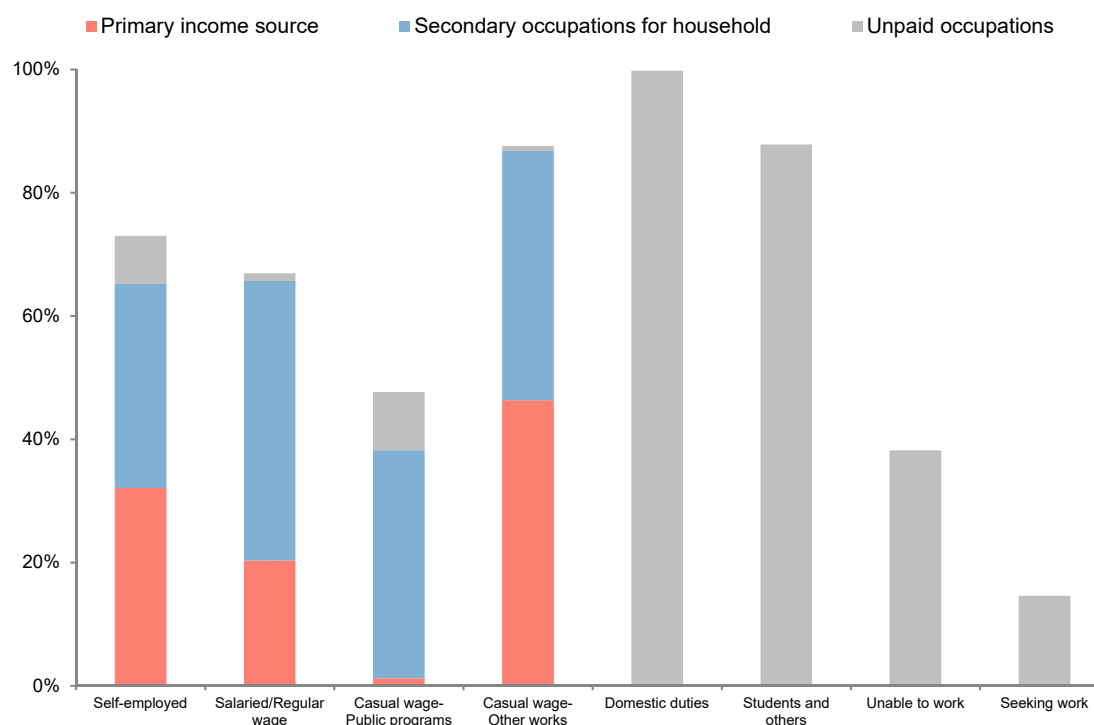
Total income for the household typically came from 2 or more sources, and median household monthly income was Rs. 12,773 or Rs. 2,770 per-capita (Rs. 1,757 for the poorest 40% households in the sample). We plot the distribution of per-capita household incomes and expenses (counting both adults and children) in Figure 3, against a reference line representing per-capita expenses required to preserve a minimum living standard[8]. We find that only 4% households' average income was too low to support the minimum living standard for all household members, whereas nearly 21% households' actual consumption was below the minimum standard, suggesting that at least 17% sample households may have needed to allocate resources away from essential consumption to meet other obligations.

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[8] Minimum living standard was estimated as the 10th percentile of the monthly per-capita expenditure (MPCE) reported for Tamilnadu, around Rs. 979 monthly per-capita (NSSO, 2011). We find this estimate is also roughly equivalent to the poverty line of Rs. 32 per-capita per day suggested by the Rangarajan committee in 2014 (GOI 2014) but a little higher than the World Bank's international poverty line ($1.9 per person per day, or Rs. 28 per person per day at 2011 PPP rate). However, using estimates from the nationally representative NSSO survey allows users to eventually customize the minimum living standard to local conditions, rather than assume a uniform living standard for all-India.

Figure 3 Distribution of per-capita income and expenses
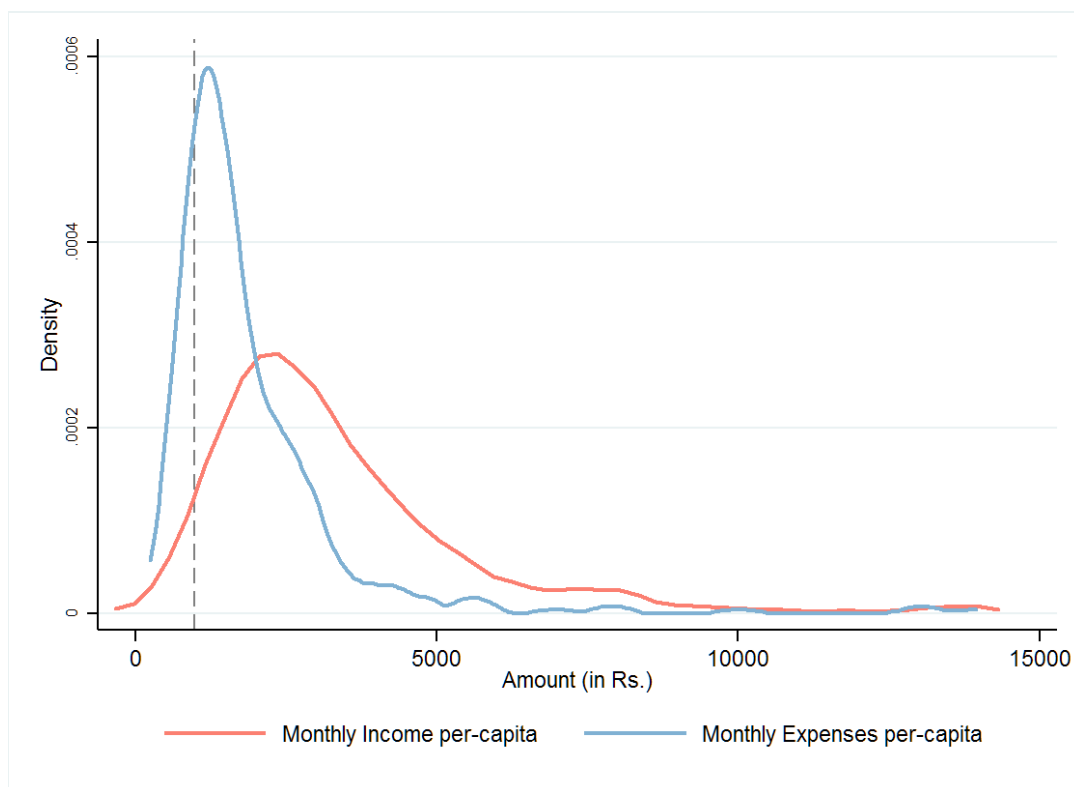
In Table 1 we report average expenditure and monthly variation in expenditure by category. We find that food expenditure is on an average just as volatile as income, with a co-efficient of variation around 0.48, which translates to average monthly swings of +/- 45%. For example, if the average household's total earnings was Rs. 12,000 this month, it might be anywhere between Rs. 6,240 to Rs. 17,760 in the next month. Non-food essential expenditure was more volatile as well as monthly expenditure on medical treatment and various celebrations, but higher volatility in the latter two is also linked to their infrequent incidence. We note that even relatively well-off households in the sample (monthly per-capita incomes around Rs. 6,050 or even higher) report the same average cashflow volatility (measured as the coefficient of variation) as the poorest, suggesting that income uncertainty is a near-universal experience for low-income households.

Table 1 Level and volatility of household cashflows

	Sample		Poorest 40%		Middle 40%		Richest 20%	
	Median	CV	Median	CV	Median	CV	Median	CV
Income	12,773	0.48	9,323	0.50	13,936	0.45	22,603	0.50
Expenses								
Food	2,987	0.45	2,442	0.46	3,122	0.45	3,541	0.45
Medical	423	1.64	322	1.59	409	1.72	764	1.59
Celebrations	1,212	1.51	909	1.58	1,308	1.48	1,514	1.47
Other non-food	3,043	0.76	2,412	0.80	3,301	0.74	4,410	0.76
Surplus	4,286	0.98	2,662	0.99	5,206	1.02	9,195	0.92

In our monthly surveys, we asked sample households if they experienced any major or unplanned events or expenses since the last visit—we included this set of questions to understand whether some of the causes of cashflow volatility were predictable to households. Nearly all households reported that in the past year they indeed experienced shocks, but some of these were perhaps predictable (in incidence, if not amount). For example, the most common "shocks" reported were birthdays, religious ceremonies and social events, illness or injury to a household member and travel for personal reasons or for seeking work. In total, each of these events came with significant financial costs and occasionally, loss of working days. Figure 4 reports the incidence of shocks and financial costs at the median and 95th percentile, and Figure 5 reports opportunity costs.
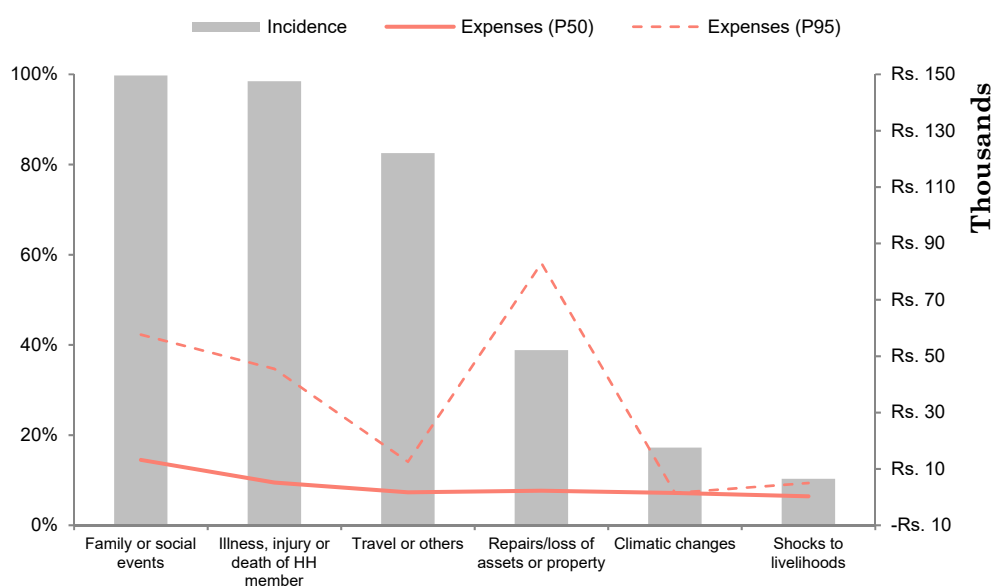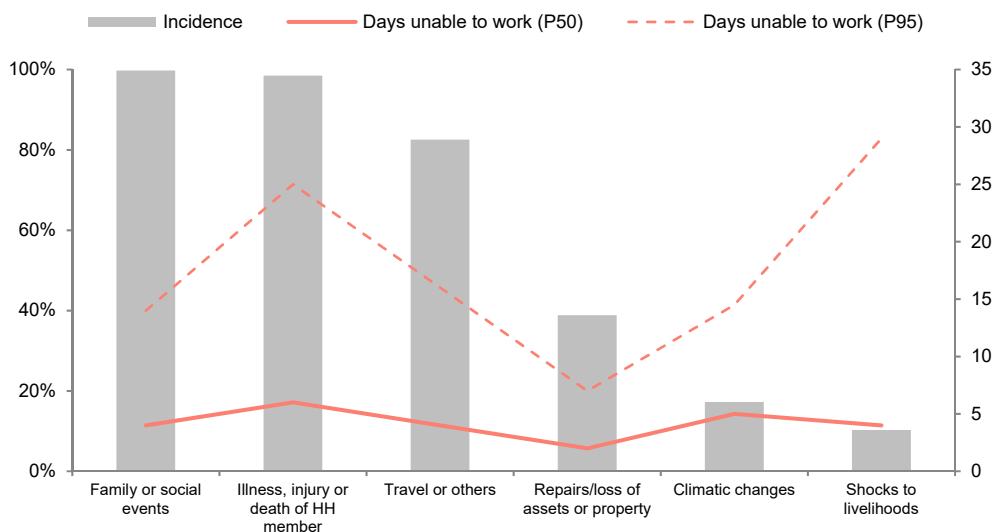
Figure 4 Financial costs of major events or shocks

Figure 5 Opportunity costs of major events or shocks

3.3 Use of financial services

Sample households reported moderate access and varied uses of financial services. Every household reported that atleast one member held a bank account, while 69% households were enrolled in the state government's health insurance scheme[9] and 22% held purchased insurance cover (for life, health, personal accident or vehicle). During the study's year-long observation, we noted one successful life insurance payout of Rs. 15 lakhs, one unsuccessful claim (a widow was unable to locate the policy document upon her husband's death and the claim was rejected), as well as a few health insurance claims but unfortunately, detailed data on insurance was not recorded.

On savings, we observe a clear trend of households earmarking accounts to certain types of use. While all households held an account at a bank, its' use was mostly transactional—wages or payments were received into the account and withdrawn, but seldom did users make deposits and account balances were kept low. Instead, households made larger deposits into SHG savings (often held as collateral against SHG borrowing), and chit funds, among other formal accounts. These avenues were preferred to accumulate larger sums and withdrawals were rare, even under financial distress. This behaviour is not unusual among low-income households (Zollmann 2015) and might also be further influenced by specific features of product design that encouraged or enforced commitment and illiquidity.

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[9] This scheme was launched in 2011 and provides cashless hospitalization upto Rs. 1-1.5 lakh and other benefits such as diagnostic tests and follow-up treatments for eligible families whose annual income is less than Rs. 72,000 (GOTN 2011).

Table 2 Savings and transaction accounts

	Bank	SHG	Other formal
			% households
Any household member holds an account	100%	78%	37%
Median savings balance (in Rs.)	2,583	11,700	22,750
Atleast one transaction in the past year			
Received a payment (G2P or P2P)	84%	0%	0%
Made a deposit	56%	77%	34%
Made a withdrawal	81%	4%	6%

Sample households also reported high incidence of institutional debt and loans from MFIs and SHGs were frequently reported as were loans received through domestic banks. Sample estimates of indebtedness are however not representative, since we over-sampled microfinance borrowers. In terms of informal borrowing, loans from friends or other non-kin social connections were more common than loans from relatives. We find that the incidence of non-group borrowing did not significantly differ between the JLG and non-JLG samples.

Table 3 Credit use

	Sample	Poorest[*] 40%	Middle 40%	Richest 20%
		% households with atleast one outstanding loan		
Informal				
Kin	34%	38%	36%	23%
Non-kin	63%	69%	65%	44%
Institutional				
Bank	37%	41%	32%	38%
Co-operative society/ bank	14%	17%	11%	14%
Microfinance institution	52%	50%	47%	65%
Self-help group	39%	49%	32%	35%
Other	25%	32%	20%	21%
Cross-borrowing				
Both informal and institutional	64%	70%	62%	54%
More than one institutional type	55%	64%	47%	54%

* Wealth quintiles were estimated from household per-capita income, and the cut-offs were Rs. 2500 (P40) and Rs. 4570 (P80) respectively.

In total, we recorded the contract features and repayments of more than 1700 formal and informal loans. Across the sample, borrowers reported that the largest loans they received were from banks, bank-linked SHGs (Rs. 50,000 and Rs. 30,000 respectively). The median loan received from an MFI was Rs. 22,000. More than half the sample borrowed from multiple

formal institutions while for the subset of MFI borrowers, the extent of cross-borrowing was as high as 72% of borrower households. 36% MFI borrowers also had a loan outstanding from banks, 47% from a bank-linked SHG and 15% from co-operatives. Recall that credit information for each institutional type is mostly held separately.

MFI and SHG loans were unsecured, while approximately half of the loans from banks and co-operatives were secured either by gold jewellery, co-operative shares or other documents, including property titles. Most informal loans were unsecured, but not necessarily interest-free.

We note three types of repayment structures—fixed tenure and regular repayment schedules, fixed tenure and "bullet" repayment schedules (where both interest and principal are paid one-time at the end of the contract, or a moderate rate of interest alone is serviced through frequent payments but principal is paid down at the end of the contract) and third, flexible repayment schedules where either tenure or payment frequency or both were left unspecified. Purely flexible payment schedules were largely limited to informal lending whereas bullet repayments and the flexibility to pay anytime within a fixed period was available through the widespread success of the jewel loan product[10].

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[10] A jewel loan is a loan against collateral and is typically marketed as providing short-term liquidity relief and widely offered at both rural and urban bank branches. Several features explain the popularity of the product—many low-income households own gold jewellery, interest rates are much lower than other institutional loans, and the loan often requires only one lump-sum payment within a year to redeem the jewellery or alternatively, a settlement of the interest to-date wherein the loan is 'rolled-over', or simply renewed, both of which are very attractive to borrowers who might not have imminent income inflows to commence regular repayment.

Table 4 Features of formal and informal loan agreements

		Kin	Non-kin	Bank	Co-op	MFI	SHG	Other
Access & Use	*% households*	33%	61%	37%	14%	50%	38%	26%
Loan principal	*Median (in Rs.)*	18,000	10,000	50,000	27,000	22,000	30,000	10,000
Transaction costs								
Incurred costs > Rs. 50	*% Loans*	5%	5%	40%	23%	54%	18%	20%
Average costs	*Median (in Rs.)*	150	100	100	100	100	50	100
Interest is charged	*% Loans*	54%	58%	98%	89%	99%	100%	88%
Collateral required	*% Loans*	2%	5%	52%	59%	1%	0%	51%
Type of collateral given								
Immovable property	*% Collateralized loans*			3%	4%			4%
Movable property	*% Collateralized loans*			3%	10%			13%
Gold, ornaments and jewelry	*% Collateralized loans*			53%	50%			36%
Shares	*% Collateralized loans*			30%	25%			33%
Others, including documents	*% Collateralized loans*			10%	10%			13%
Fixed repayment period	*% Loans*	31%	36%	87%	81%	99%	95%	67%
Loan tenure								
1-6 months	*% Fixed-tenure loans*	42%	62%	4%	3%	4%	4%	37%
7-12 months	*% Fixed-tenure loans*	44%	25%	59%	80%	53%	33%	53%
13-24 months	*% Fixed-tenure loans*	14%	8%	33%	12%	41%	59%	8%
More than 24 months	*% Fixed-tenure loans*	0%	5%	4%	5%	2%	4%	2%
Repayment frequency								
Fixed, at regular intervals								
Weekly	*% Fixed-tenure loans*	1%	3%	-	7%	4%	1%	6%
Monthly	*% Fixed-tenure loans*	7%	7%	30%	14%	45%	43%	13%
Others	*% Fixed-tenure loans*	8%	11%	31%	32%	49%	54%	45%
One-time payment	*% Fixed-tenure loans*	8%	10%	20%	28%	-	-	11%
Whenever money is available	*% Fixed-tenure loans*	73%	67%	18%	19%	1%	2%	24%

4. Results

This section presents the analysis in five parts. First we examine a variety of uses for credit during the year-long observation of borrowers and find that borrowing for consumption smoothing and repayment smoothing dominated all formal and informal borrowing in this sample. In the second and third parts we classify borrowers by the affordability of their institutional loans and test for systematic correlations between borrower characteristics, debt affordability and debt management strategies. Across the board, we find that all borrowers had a higher level of intra-year volatility and loan delinquency and a lower willingness or ability to withdraw financial assets than expected. Borrowers with highest levels of unaffordable debt were also the most likely to sacrifice essential expenditure, have a lower living standard and be highly debt-dependent. We hypothesize that this is possible for sample households because of certain weaknesses' in lenders' due diligence process, in interaction with the presence of multiple access points and other market features. In the fourth part we examine the specific effects of income volatility to find that having an unsteady income was just as likely to cause distress as almost not having an income surplus at all. Together with the previous results we find that patterns in borrowers' cashflows hold important information about how they might experience repayment and financial distress.

We find that more MFI clients reported unaffordable levels of debt, and sought to understand if patterns of unaffordability were in some way correlated with MFIs' due diligence or other features. In the fifth part of the analysis we simulate the functioning of credit bureaus using data from the survey and find that in the presence of multiple borrowing and a fragmented bureau system, lenders will unknowingly over-estimate borrower eligibility. We return estimates similar to Jariwala and Mehta (2015) although ours are not nationally representative. We also present evidence that a segment of MFI clients experiencing upward income mobility will find the lending caps set by current regulation restrictive unless they are also able to access other means of credit. We highlight this as concern for improved regulatory design, even as we otherwise recommend the harmonization of customer protection regulation across banks and non-banks.

4.1 Formality, flexibility and loan use

A review of loan features in Table 4 reveals varying degrees of repayment flexibility in loan contracts. In terms of loan use, we find across the board that the top reported uses in the sample were to meet repayment or expense obligations, including human capital investments. Of the remaining loans, more borrowers used institutional loans for expenses or investments in agriculture, business or property, while informal loans were more often used to finance social events and health expenses. However, we find no lender preference when loans were used to meet consumption expenses or repay old debt. Of those who borrowed from institutions to meet consumption expenses, significantly more borrowers reported that they often used rather inflexible, short-term institutional loans to do so. Borrowers also reported using inflexible loans to finance business expenditure (both institutional and informal loans) and for expenses incurred during social events.

On the other hand, flexibility in repayment was available to borrowers in two forms—as the ability to make a one-time payment, or to pay whenever money was available (often only available from an informal lender). Borrowers used flexible loans for a variety of purposes, but significantly more only when borrowing to pay for health expenses. Here as well, there was no lender preference when the loan was used to make repayments on older loans.

Figure 6 Repayment flexibility and loan use—Institutional loans
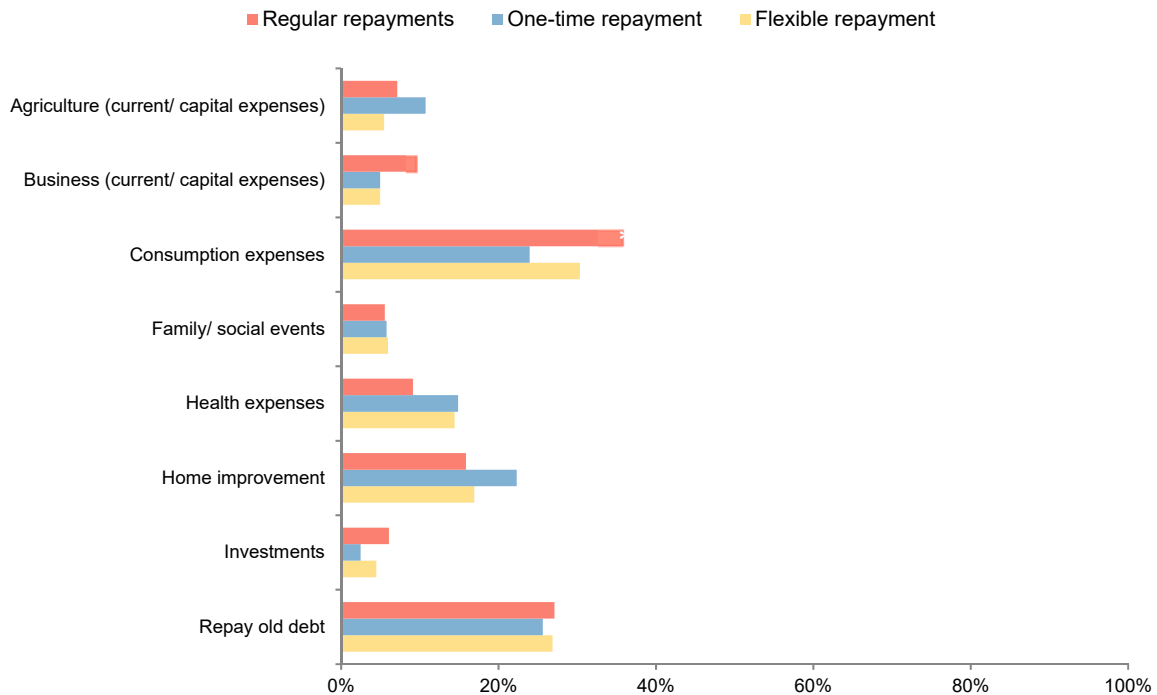
Figure 7 Repayment flexibility and loan use—Informal loans
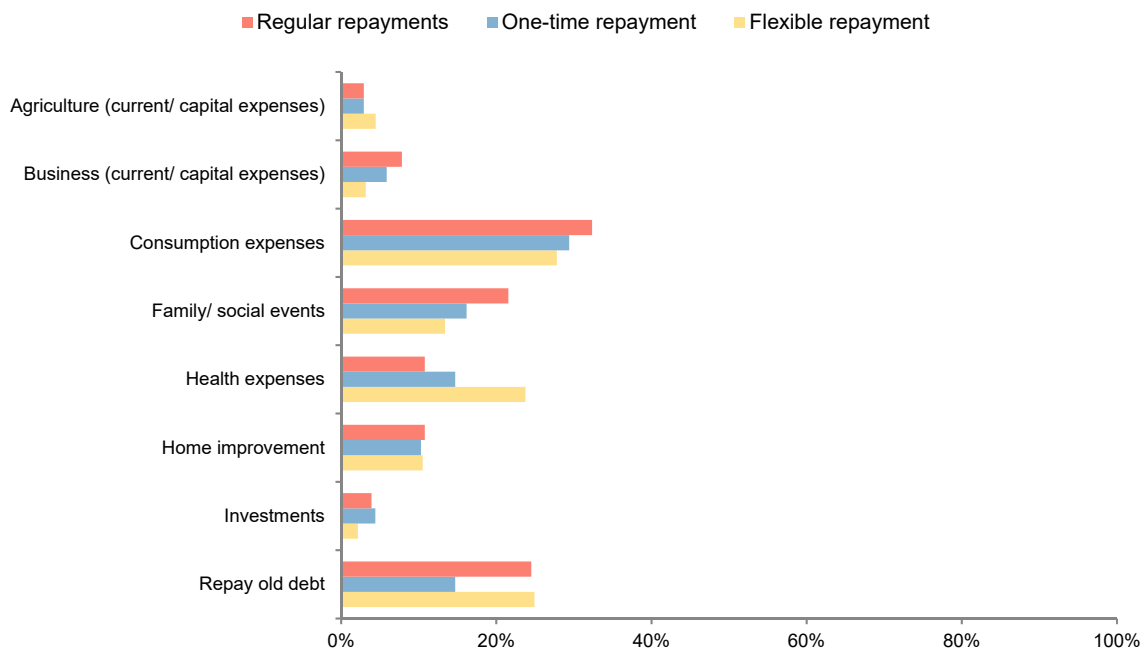
4.2 Measuring debt affordability

While debt-to-income ratios are popular in practice (Schicks 2012), it is unclear whether they can be appropriately applied to underwrite loans for low-income households. The poor in developing countries face significant income volatility and lack access to reliable formal safety nets and affordability assessments might therefore need to include a buffer to cover minimum living expenses, and prevent borrower impoverishment through over-indebtedness (DeVaney 2006).

The survey collected detailed information on all loans each month, including what payments were due and whether they were made on-time. From this data we compute households' average monthly debt burden as the total[11] of estimated monthly payments on loans outstanding in each month. Figure 8 is a scatterplot of households' average debt burden alongside a measure of maximum disposable income, i.e. income less minimum living expenses. Households appearing above the reference line reported monthly repayment obligations in excess of maximum disposable income and may be classified as distressed. In the second panel, we include only institutional loans, to find that only 68% households held formal debt that could reasonably be serviced from their income. We use this measure of maximum disposable income as a generous estimate of debt servicing capacity (DSC), while the ratio of monthly average institutional loan repayments to DSC is used as a Debt-to-Service capacity ratio (DSR). It follows that a DSR lower than 1 is desirable.

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[11] Where the loan tenure was fixed but repayment amounts or frequencies are not specified, such as in bullet repayment loans, we assumed that the burden of repayment be evenly distributed over the tenure. Where loan tenure was not specified, such as in some types of informal loans, we assigned a reasonable tenure (12 months for loans smaller than Rs. 15,000 and 24 months otherwise) and assumed the burden of repayment to be evenly distributed over the tenure. Both assumptions, while limiting, were necessary to compare households.

Figure 8 Scatterplot of debt to income surplus
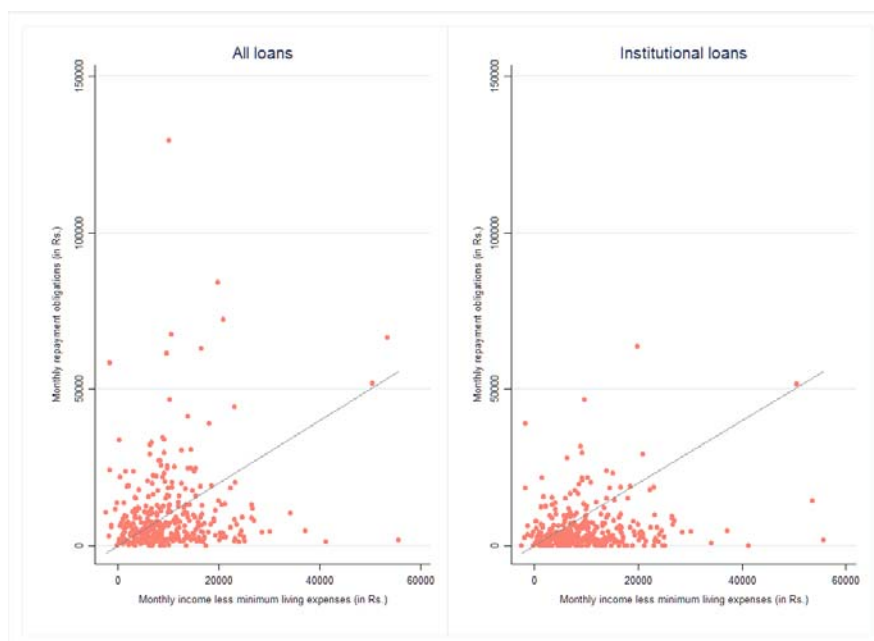
Comparing the two panels, it is evident that considering only institutional loans underestimates overall household debt burden for the whole sample and likely misclassifies some households as 'healthy' when in-fact they might be distressed by high informal debt. While the rest of this analysis remains limited to institutional loans as a reflection of what data might be accessed or verified from a credit report, prudent lenders undoubtedly should acknowledge all of borrowers' debt (including any informal loans) in an independent assessment of repayment capacity.

Table 5 Distribution of sample households by the affordability of institutional debt

Category	Description	% households
Surplus DSC	Monthly debt obligations upto 0.8 times surplus	68%
Borderline DSC	Monthly debt obligations 0.8 - 1.2 times surplus	10%
Deficit DSC	Monthly debt obligations greater than 1.2 times surplus	19%
Deficit Income	Income lesser than minimum expenses	2%

For 68% of sample households their overall monthly repayment obligations on institutional loans was within 80% of their DSC, suggesting that these borrowers should have been able to make loan repayments on-time and also incur additional expenditure above the minimum living standard. Note that even households with comfortable DSR status carry moderate to high levels of flexible debt. To pay down those loans borrowers would need to save-up lump sums or mobilize funds from other sources when those payments fall due.

For yet another 10% households, their monthly repayment obligations appeared to deplete their DSC, leaving little excess (or a small deficit) to manage any expenses above an absolute minimum that may arise during these loans (such as higher school fees, travel, celebrations or ceremonies). Should these borrowers face a health shock or an adverse event, or if one of their

informal creditors ask to be repaid, or even if they wish to raise their standard of living, they might struggle to find the necessary resources while also making timely loan repayments.

The DSR of remaining households (21% of the sample), seems to indicate that they might experience significant financial distress during the loan tenure, for as long as current institutional loans remain outstanding and income sources remain unchanged. These households also carried high levels of informal debt (nearly thrice as much as borrowers with surplus repayment capacity), and were likely to struggle to raise resources for regular repayments and to save ahead for bullet repayments.

For a small number of these households, it appeared that they were in overall *income* deficit, regardless of their debt level. They did have income sources but none were regular and this created extremely volatile and infrequent monthly surpluses. Earlier we had discussed income and surplus volatility as a monthly phenomenon. Here, we observe that for 2% indebted households in the sample much of this volatility was persistent for a large part of the year we observed them, if not longer.

Borrowers in each of the four categories reported varying socioeconomic characteristics and financial behaviour. For example, borrowers with surplus repayment capacity earned higher incomes on average, while borrowers with deficit repayment capacities earned the lowest incomes and spent significantly lower amounts on food and non-food essentials every month.

Table 6 Income and expenses by debt affordability

	(1) Surplus DSC	(2) Borderline DSC	(3) Deficit DSC	(4) Deficit Income
				Amount in Rs.
Income	13693[a]	11506	8545[b]	4994[b]
Expenses				
Food	2727[a]	2366[b]	2122[b]	1893[b]
Medical	898[a]	752	722	1160
Celebrations	1580[a]	1128	1323	572
Other non-food	3429[a]	2923	2686[b]	2865

[a] Null hypothesis of equality with zero rejected at 5%

[b] Null hypothesis of equality with corresponding column 1 estimate rejected at 5%

4.3 Indicators of repayment difficulty

During the year-long survey of borrowers, we observed their borrowing and repayment behaviour regularly and in detail. For approximately 1700 loans that we tracked during this period, we asked what payments were due and when these payments fell due we observed whether and how they were made. It should be noted that repayment data was self-reported by respondents and triangulated to ensure that all inflows and outflows were accounted for but

subjective measures were harder to verify[12]. Nevertheless, self-reported delinquency remains a primary indicator of repayment difficulties in our analysis. In addition, we also measure and estimate a variety of simultaneous savings deposits, withdrawals and borrowing that act to stretch household budgets in times of need. An excessive reliance on 'negative' coping mechanisms to avoid delinquency also count as indicators of repayment difficulties.

We use estimates for the group of borrowers with surplus repayment capacity to represent a sort of baseline, and compare whether incidents of adverse coping are more frequent for borrowers who appear to be in financial distress due to unaffordable debt vs. borrowers with affordable debt. Accordingly, the tests of significance for estimates in Column 1 test whether the estimate is significantly different from zero, while the tests for Col. 2-4 test for difference from the corresponding Col. 1 estimate.

We find that the 'baseline' level of delinquency for low-income borrowers was around 3-4% for institutional loans and up to 6 percentage points higher for informal loans. We also find that among groups of borrowers with lower repayment capacity, significantly more households reported delinquency. Estimates of delinquency on microfinance loans in the sample (unsecured loans) were around 15% but there is little public information available to benchmark these estimates against.

We also find evidence that measures of loan delinquency may under-estimate underlying financial distress. Borrowers with borderline or deficit repayment capacity reported that nearly 40% of them received support from their social networks to get by and notwithstanding, nearly 50% persisted below an objective minimum living standard (defined in Footnote 8), while only 10-15% reported delinquency. The incidence of these coping mechanisms was also significantly higher than corresponding estimates for borrowers with surplus repayment capacity. In contrast, behaviours such as asset withdrawals or sales did not significantly vary with the level of debt-related distress although even at the baseline, 37% low-income borrowers reported withdrawals from savings accounts during the study's observation. Recall that 84% sample households received government transfers or wages into bank accounts and frequent withdrawals may be necessary to receive payments thus explaining the high incidence of net withdrawals for the comparison group.

Many borrower households reported continuously borrowing from multiple sources through the study's observation and as expected by definition, borrowers with unaffordable debt also reported higher and more frequent borrowing. We do not consider borrowing in itself as an indicator of distress—it has been well documented that credit is a valuable financial tool to finance lumpy expenditure and enable investments in business or human capital that would otherwise not be possible for low-income households. However, we do record the multiple uses of each loan and by tracking the uses of loans as they are borrowed and spent instead of relying

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[12] Borrowers were inconsistent in whether small delays in payments (say, within 2 days) counted as on-time payments. For this reason, our estimates of delinquency on institutional loans may not match administrative estimates of MFIs or banks. For informal and flexible loans, we find borrowers even less consistent in reporting delinquency status— on a flexible loan from a friend the borrower may initially report that they could make repayments anytime for upto a year. Yet she might also consistently report in monthly follow-ups through this tenure that she was behind on her repayments. It is likely that flexible creditors employ frequent reminders to stress upon the borrower an outstanding obligation to repay, which also shows up as self-reports of delinquency.

on longer-term recall, we are able to construct a reasonably reliable picture of loan use (see Section 4.1). Here, we find that borrowers with borderline or deficit repayment capacity or deficit income reported a much greater incidence of using new loans to repay old ones (15%, 31% and 28% respectively in comparison to 5% among borrowers with surplus capacity) and consistently so across a variety of loan sources—smaller informal loans helped to manage monthly repayments, while larger institutional loans may be used to make a large one-time payment, or settle multiple debts incurred over time in one go.

Table 7 Methods of coping with financial distress, by debt affordability

	(1) Surplus DSC	(2) Borderline DSC	(3) Deficit DSC	(4) Deficit Income
	% households, atleast once in the last year			
Delinquency or delayed payments				
Institutional and secured loans	3.2[a]	10.5	11.4[b]	14.2
Institutional and unsecured loans	3.6[a]	15.7[b]	14.2[b]	0.0
Informal and with interest loans	9.6[a]	23.6[b]	14.2	28.5
Informal and interest-free loans	9.2[a]	10.5	10.0	28.5
New borrowing				
Institutional and secured	14.0[a]	34.2[b]	40.0[b]	28.5
Institutional and unsecured	52.8[a]	84.2[b]	78.5[b]	85.7
Informal and with interest	33.2[a]	44.7	58.5[b]	71.4[b]
Informal and interest-free	34.0[a]	52.6[b]	55.7[b]	85.7[b]
Other mechanisms				
Consumption below minimum living standard	24.4[a]	47.3[b]	51.4[b]	57.1
Received net transfers from social networks	20.4[a]	36.8[b]	44.2[b]	85.7[b]
Net withdrawals from financial assets	37.6[a]	26.3	40.0	42.8
Sale of livestock	9.2[a]	7.8	15.7	14.2
Sale of land	0.4[a]	2.6	1.4	0.0

[a] Null hypothesis of equality with zero rejected at 5%

[b] Null hypothesis of equality with corresponding column 1 estimate rejected at 5%

We find a similar reliance on new borrowing to meet household expenses, and that this behaviour is consistent with borrowers trying to stretch household resources and budgets when under distress—new loans served to expand available resources, allowing borrowers to spend more than they could otherwise afford in that time period, and allocate resources towards both household expenses and repayments, among other things. However, if distressed borrowers were to resort to new borrowing at every instance of need and if such credit was always available, it's easy to imagine how borrowers with low or uncertain incomes might quickly rack up multiple, unaffordable loans.

Table 8 Loan use as an indicator of financial distress, by debt affordability

	(1)	(2)	(3)	(4)
	Surplus DSC	Borderline DSC	Deficit DSC	Deficit Income
	% households, atleast once in the last year			
Institutional and secured				
Repay old debts	5.2[a]	15.7[b]	31.4[b]	28.5[b]
Consumption	6.4[a]	15.07	20[b]	14.2
Health	2.8[a]	7.8	4.2	14.2
Institutional and unsecured				
Repay old debts	18.4[a]	42.1[b]	60.0[b]	71.4[b]
Consumption	32.0[a]	55.2[b]	52.8[b]	57.1
Health	7.2[a]	13.1	10.0	28.5[b]
Informal and with interest				
Repay old debts	9.2[a]	21.0	32.8[b]	28.5
Consumption	16.0[a]	26.3	31.4[b]	57.1[b]
Health	8.0[a]	5.2	14.2	42.8[b]
Informal and interest-free				
Repay old debts	9.2[a]	23.6[b]	22.8[b]	42.8[b]
Consumption	17.2[a]	23.6	22.8	28.5
Health	12.0[a]	7.8	25.7[b]	42.8[b]

[a] Null hypothesis of equality with zero rejected at 5%

[b] Null hypothesis of equality with corresponding column 1 estimate rejected at 5%

The estimates in this paper are not intended to evoke a causal relationship between credit access and harmful financial behaviours, in either direction. However, we present evidence to suggest the co-incidence of debt-induced distress and certain financial behaviours and coping mechanisms that might prove self-defeating in the medium term. Even while abstaining from a causal interpretation, the observation that borrowers with deficit repayment capacity were also the types of borrowers who rely heavily on new borrowing to smooth financial difficulties has critical implications. First, the absence of liquid savings that households are able and willing to draw upon under distress is stark. Second, a cycle of debt dependence is evident for some low-income borrowers, amidst weak mechanisms for recourse. Third, the evidence suggests that some of the loans observed in this study were mis-sold, i.e. they were lent to borrowers who did not have the reasonable means to afford repayments. The ambit of this type of mis-sale is not small—in this sample, 21% households were carrying unaffordable loans made by regulated institutions, many of whom already had specific measures in place purported to prevent exactly this outcome.

4.4 Intra-year volatility and debt affordability

The analysis thus far treated the group of borrowers with surplus repayment capacity as a comparison group, and as one that was not expected to face debt-related financial distress. Repayment capacity, in turn, was estimated from average monthly incomes and initially specified loan terms. However, the incomes for most low-income borrowers in our sample were not earned in a uniform stream (see Table 1) and therefore even among households with an overall surplus repayment capacity, some may experience temporary but significant resource constraints. These types of resource constraints may not affect the repayment of flexible loans but rather, have implications only for loans with fixed and regular repayment schedules.

When an affordability assessment inputs annual income or average monthly income, it implicitly assumes that households have the perfect ability to invest surpluses and tide over deficits in the short-term. In the absence of a perfect liquid savings mechanism, households' minimum assured income may emerge as critical determinant of repayment capacity. Figure 9 illustrates, using data from a sample household with mean income of Rs. 6,427, but recorded income lower than the mean for 6 months of the year. The coefficient of variation in income was 0.29, while standard deviation was Rs. 1,845. One way to estimate the steady component of household cashflows might be to deduct downward volatility from the average (which works out to Rs. 4,581), but a more appropriate method in practice might be to understand underlying income sources and opportunities directly from the customer. In this example, we consider the crude estimate of Rs. 4,581 to represent the steady component of household's income[13].

We then use this estimate to measure whether repayment obligations were affordable in every month— regular repayments and EMIs would always be affordable if they were matched by steady income inflows— or occasionally unaffordable. Note that because we only include the portion of household income that is steady, household repayment capacity is significantly diminished by this estimate. Such an estimate is therefore best used alongside an assessment that counts all household income, and not as a replacement.

At the extreme, it may be deemed irresponsible for lenders to count the full extent of occasional upward income swings particularly when borrowers do not have the necessary means to invest and protect surpluses for later use. In this situation, lending may eventually be further constrained by that portion of income that is assured each month, unless the design of repayment schedules accounts for the variability in income.

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[13] Only in Section 4.4, we re-defined repayment capacity to consider only payments that were due on fixed and regular schedule, ignoring loans with flexible repayment schedules. Flexible loans impose no burden on borrowers to make payments every month, although it is true that weak savings practice may also impact borrowers' ability to save-up surpluses to make occasional repayments. Sections

Figure 9 Implications of incomplete savings for a sample household
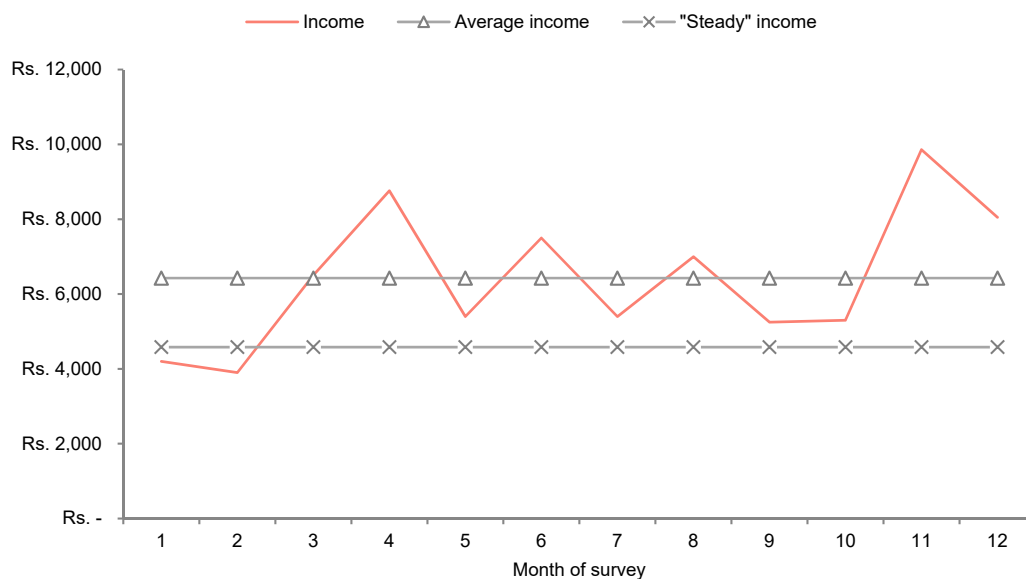
Even within the group of borrowers who had surplus repayment capacity over the year, borrowers who experienced significant volatility in their repayment capacity[14] during the year reported a lower overall living standard and a higher dependence on new loans to make repayments. Notably, we find them no more likely to use savings accounts or social transfers to manage volatility (Table 9).

The point estimates for this subset were found to be similar to those for the borderline repayment capacity group, indicating that attention to intra-tenure volatility may play as significant a role in mitigating financial distress as overall affordability. Products and markets that fail to address income volatility may leave even relatively well-off borrowers just as vulnerable as more indebted counterparts, wiping out potential gains to borrowers from moderate income mobility or even responsible borrowing.

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[14] Because repayment capacity is defined here as income minus minimum living expenses, it ignores the effect of shocks on borrowers' repayment capacity. If one were to account for borrowers' vulnerability to shocks and the inadequacy of liquid savings to independently manage adverse events, one would likely find many more borrowers facing occasional unaffordability.

Table 9 Implications of income volatility for households with overall affordable debt

	(1) Regular repayments always affordable	(2) Regular repayments occasionally unaffordable[*]
	% households, atleast once in the past year	
Delinquency or delayed payments		
Institutional and secured loans	1.8	5.7
Institutional and unsecured loans	3.0[a]	4.5
Informal and with interest loans	8.5[a]	11.4
Informal and interest-free loans	8.5[a]	10.3
New borrowing		
Institutional and secured	11.0[a]	19.5
Institutional and unsecured	38.0[a]	80.4[b]
Informal and with interest	30.0[a]	39.0
Informal and interest-free	30.6[a]	40.2
Other mechanisms		
Consumption below minimum living standard	19.0[a]	34.4[b]
Received net transfers from social networks	19.6[a]	21.8
Net withdrawals from financial assets	39.2[a]	34.4
Sale of livestock	7.9[a]	11.4
Sale of land	0.6	0.0
Purpose of new borrowing		
Institutional and secured		
Repay old debts	3.0	9.1[b]
Consumption	3.6	11.4[b]
Health	3.0[a]	2.2
Institutional and unsecured		
Repay old debts	11.6[a]	31.0[b]
Consumption	23.3[a]	48.2[b]
Health	6.7[a]	8.0
Informal and with interest		
Repay old debts	7.3[a]	12.6
Consumption	15.3[a]	17.2
Health	9.2[a]	5.7
Repay old debts	6.1[a]	14.9[b]
Consumption	15.9[a]	19.5
Health	11.6[a]	12.6

[*]Repayments were deemed occasionally unaffordable if the steady component of borrowers' income was lower than their monthly obligations on loan requiring fixed payments every month.

[a] Null hypothesis of equality with zero rejected at 5%

[b] Null hypothesis of equality with corresponding column 1 estimate rejected at 5%

4.5 Inadequacies in credit reports

In Section 3.3 we discussed the extent of cross-borrowing[15] among sample households, and the average size and features of loans from different sources. In this section we study the implications of cross-borrowing for loan-making protocols and the infrastructure required to support prudent decisions in this regard. It perhaps merits to clarify that research has shown and regulators have acknowledged that multiple borrowing within certain limits is not harmful and in general, wider access, consumer choice and competitive markets are desirable features of a healthy financial system. However, specific inadequacies in credit reporting coupled with absence of independent underwriting and the presence of multiple borrowing creates a faultline that, unless appropriately remedied, causes lenders to significantly underestimate portfolio credit risk (see page 7).

In this section, we consider all institutional loans reported by MFI borrowers. In addition to JLG loans from 7+ MFIs serving the region, loans from scheduled commercial banks, regional rural banks, co-operative banks and societies, bank-linked SHGs and chit funds were reported. Following Jariwala and Mehta (2015), we assume that all loans from MFIs would have been captured in the "MFI bureau" or "MFI-only bureau"[16], while loans from commercial banks and rural banks were recorded in the "retail bureau". We assume that SHGs and co-operatives' loans remain unreported to either bureau during the survey period, even as the RBI has required SHG data to now be reported to the MFI bureau in a phased manner.

Table 10 Estimates from survey data on level of debt recorded in the MFI bureau

	Monthly repayments (in Rs.)
	Median
MFI-only bureau	1,972
All loans	4,835

74% MFI borrowers in our sample were also borrowing from atleast one other institutional *type* or channel in the same year (and one or more loans within each type). For these borrowers we simulate from survey data what information might be recorded in each bureau, and find that even if, in compliance with regulation, lenders institutionalized a process wherein every applicant's outstanding debt was collected by the MFI bureau and the loan was made only if the bureau returned a number of loans or a total outstanding lower than allowed, this process would likely under-estimate borrower indebtedness and leave lenders exposed to immeasurable risk. In this sample, using only the MFI bureau on an average missed 42% of sample households' total institutional debt, and the differences at the household level were both large and statistically significant in paired t-tests. Jariwala and Mehta (2015) used aggregate industry estimates for all-India but also returned similar results (47%). Further, because the

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[15] Cross-borrowing represents the practice of borrowing from different institutional channels (say from MFIs but also from banks, or from banks but also from moneylenders) and differs slightly from multiple borrowing in that a borrower with multiple loans but all from the same institutional type does not engage in cross-borrowing. The distinction between the two is only salient when institutional types differ in say, lending practices or regulation.

[16] In practice, however, there are 2 MFI bureaus and anecdotal evidence indicates that reports from both do not always match in certain regions, or specifically for certain MFIs that may not uniformly report to both.

MFI-only bureau consistently under-estimated debt for all cross-borrowers, we find that using only this bureau to qualify MFI clients would have led to 33% clients being wrongly classified as eligible for a new loan, even while they had other active loans in excess of limits permissible by regulation. A prudent lender would therefore need to collect and verify detailed loan information directly from clients or consolidate reports from every bureau, unless the consolidated reports themselves were made available by bureaus at a reasonable price.

Table 11 Potential misclassification of debt affordability by bureaus, as identified from survey data

Type of misclassification	% MFI clients in sample
False positives	
Compliant as per MFI-only bureau, but not including all formal loans	33%
Compliant as per MFI-only bureau, but not as per debt servicing capacity	21%
Compliant as per combined bureau data, but not as per debt servicing capacity	6%
False negatives	
Non-compliant as per combined bureau data, but having surplus debt servicing capacity	21%

Even where credit information was complete, estimates of affordability based on total outstanding debt (such as ones that the regulation currently imposes) may be at odds with more wholesome measures that incorporate both debt, income and the quality of repayment experience. To understand the extent of misclassification by using different measures, we compare borrower classification by the debt service capacity approach against classification along the lines of total debt outstanding as prescribed in RBI regulation (estimated from total institutional debt reported in the survey[17]). Assuming perfect reporting and bureau integration, we find that 27% MFI clients were misclassified—only 6% were at risk to be tagged eligible to receive debt that they would eventually find unaffordable but nearly 21% MFI borrowers were tagged ineligible to receive higher debt commensurate to their repayment capacity and the regulatory threshold was found restrictive.

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[17] NBFC-MFI lending regulations restrict total borrower indebtedness to Rs. 1 lakh. Assuming 22% APR and a full tenure of 24 months for all outstanding debt, this works out to essentially cap monthly MFI repayments at Rs. 5188 which we loosely interpret to mean a healthy level of microfinance debt in the eyes of the regulator. In Table 11 we tag all households with monthly repayment obligations higher than Rs. 5188 as non-compliant.

5. Implications

This paper outlines the determinants of suitability in lending to low-income households—at the very least, this requires a comprehensive view of the level and features of outstanding debt and a reasonable assessment of borrowers' ability to make repayments from their income. There is an urgent need to deliver comprehensive credit information to lenders and for lenders to integrate such information into loan-making decisions. However, alongside comprehensive credit reports, lenders will also need to consider borrowers' ability to make repayments given not only their income but also cashflow volatility and uninsured risk.

Measuring income and features of cashflow are challenging and even more so when incomes are largely informal. Traditional group lending has not required lenders to develop this capacity, instead delegating the underwriting function to groups of clients themselves. However, this subjects the function to bias and capture and has thus far proven ineffective from a customer protection perspective—as evidenced by high incidence of unaffordable debt among clients in borrowing groups. More research and technical innovation is required to develop reliable income assessments for the lending toolkit, and such assessments should replace, at least in part, lenders' dependence on peer-affirmation and (the absence of) negative credit information as the go-to measure of repayment capacity. This is also in line with recommendations for sustainable microfinance from a long-term risk management perspective (Firth 2014).

Specifically, on regulation, the evidence suggests that high misclassification of borrowers might occur from implementing lending limits, even under perfect compliance. In an evolving marketplace with multiple access points and a wider choice set beyond standard microcredit, absolute caps on lending will prove both impractical and ineffective. Instead, we recommend a focus on strengthening lenders' ability to implement suitability requirements at the point of sale, and to respond responsibly to indicators of repayment distress during the loan tenure.

Finally, the successful implementation of suitability in lending depends quite critically on commensurate developments in savings, insurance and investment markets. A co-ordinated effort to improve low-income households' access to high-quality insurance and savings products is essential, in the absence of which all lending-focussed financial inclusion efforts will remain hugely inadequate.

Specific recommendations on all the above follow.

5.1 Urgent need for credit bureau integration

A well-functioning and comprehensive credit information system can prevent mis-sale, improve compliance with suitability requirements, and greatly reduce the costs of compliance for lenders. The RBI has acknowledged the need for a comprehensive credit view and issued specific directives to all institutions to report their data to all four credit bureaus (RBI 2015b, RBI 2015c, RBI 2015d). These directives were issued and their implementation still in-process during this study's fieldwork. However, it does appear—from our results as well as other reports—that the cleave between MFI-only and retail bureaus continues to persist (IFMR

2016, Jariwala and Mehta 2015) and might require urgent regulatory oversight to close gaps and ensure full compliance.

Lenders must also upgrade their internal capacity to fully make use of comprehensive credit information. The typical use of credit reports by MFIs involves a quick check of the number of outstanding loans (to ensure compliance with regulatory lending limits) and any history of defaults but further details and features of indebtedness are seldom used. In order to meaningfully incorporate this information into borrower assessments, they might also depend on bureaus to provide additional data points. Aside from the total number of loans and amounts outstanding, features of individual loans such as their tenure and repayment schedule may also be helpful to understand repayment burden and how new loans might be made suitable.

5.2 Implementing suitability at point of sale

Implementing meaningful assessments at the point of sale are a critical *ex-ante* measure to mitigate financial distress for low-income borrowers. The minimum components of such an assessment are:

1. All lenders should ensure that loan amounts are appropriate and the agreed repayment terms are affordable for every borrower given their income flows, outstanding loan repayments (including self-reported informal loans) and critical payment obligations.
   To do so, lenders will require sufficient frontline capacity to conduct borrower assessments as well as technical capacity to use comprehensive credit information alongside their own risk assessments of clients.
2. Lenders must also evaluate the harms of selling standardized products to those borrowers with highly volatile cashflows or those with unique liquidity or flexibility constraints. Uninsured cashflow risk must be provisioned for in the assessment, product design or terms of repayment.
   Our results suggest that loans that fail to address income volatility may leave even relatively well-off borrowers just as vulnerable as their more indebted counterparts, wiping out potential gains from income mobility and even judicious borrowing.

These requirements for suitability in lending must be supported by a clear, universal regulatory directive as there are few market incentives for lenders to do so on their own. Suitability assessments should also eventually replace lending caps and other restrictions on consumer choice in the current regulatory framework.

5.3 Delinquency management and access to recourse

Ex-ante measures to ensure debt affordability must be complemented by ex-post measures to appropriately handle delinquency and effectively mitigate unforeseen customer financial distress. A large and growing body of evidence documents the vulnerability of low-income households to high income volatility and frequent shocks of varying magnitude, which could greatly affect their ability to make timely repayments on volatility-agnostic debt. There is thus an urgent need for financial services providers to institute fair practices for managing

unforeseen borrower delinquency to ease temporary financial distress. Timely debt counselling, contract renegotiation and frequent monitoring of at-risk borrowers could mitigate the escalation of distress. A systematic assessment of delinquency management practices in microlending would be a critical first step in this direction.

The advent of a new bankruptcy framework in India will allow insolvent borrowers to file for personal bankruptcy and avail a 'fresh start' which would entail discharging of borrowers from qualifying debts and accord them an opportunity to start afresh financially. This is an important development in the light of our findings that new borrowing is a go-to coping mechanism in environments where there is ready access to credit. The provisions for both personal bankruptcy and fresh start in the Insolvency and Bankruptcy Code, 2016 must be well understood by lenders and consumer advocates and implementation must receive high priority among financial inclusion efforts.

5.4 Balanced market development and comprehensive financial services

Our results suggest that market-prevalent savings products were not used for savings-led smoothing and that even households with surplus income were needlessly dependent on expensive credit to manage liquidity and shocks. This financial behaviour could have been influenced by the disjointed expansion of financial services with access to credit having risen rapidly, while reliable savings, adequate insurance, pensions and investments lag.

Commensurate access to adequate risk protection is essential. Most of the products distributed through MFIs are only available for borrowers, capped at loan value and only valid for the loan tenure. Co-ordinated regulatory action is required to enable multi-product originators while lenders, in particular, should be encouraged to enter into partnerships that make a comprehensive suite of high-quality financial services available to low-income borrowers. Implementing suitability or indeed, applying any restrictions in lending in the absence of reliable and adequate access to savings and insurance might eventually act to greatly limit the benefits of financial inclusion.

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