



Indian Institute of Management,  
Ahmedabad

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# CHIT FUND PARTICIPATION AND SOURCES OF ECONOMIC VALUE

## FIELD SURVEY ANALYSIS REPORT

Indian Institute of Management Ahmedabad

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## List of key terms

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Term	Definition
Chit fund	A chit fund primarily involves raising a lump sum from the subscriptions of its members (subscribers) to be given away to one of its members by adopting a systematic procedure (allocation method) repeatedly over time. The periodic subscription from each of the subscribers (ticket size) is repeatedly raised until every member in the chit receives the lump sum (aggregate amount). The lump sum planned to be collected from the subscriptions is known as sala (number of subscribers $\times$ ticket size).
Lottery allocation	Allocation of the prize money randomly among the subscribers in each round through drawing of lottery.
Prize amount	The amount of money to be given to a single subscriber out of the lump sum collected through subscriptions of all subscribers in a round.
Prized subscriber	A subscriber who has either received or it entitled to receive the prize amount in a round.
Discount	Sum of money which a prized subscriber is agreed to forego out of the sala.
Foreman	The person who under the chit agreement is responsible for the conduct of the chit.
Foreman commission	The remuneration of the foreman out of the sala of a fund. It is limited to 5% of the sala by the regulation.
Social engagement	It is the product of the number of subscribers and the ticket Social bonding among chit fund members through interactions during the meeting and otherwise.
Commitment device	In a chit fund the subscribers pre-commit to the periodic subscriptions. The commitment reduces the chance of subscribers failing to save through periodic contributions as a result of their impulsive future spending.

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# Executive Summary

## Background and motivation

Chit funds (also known as Roscas) is popular among households and small businesses in many developing countries. It has high popularity among communities with limited access to formal channels of finance. Chits serve multiple economic and social functions. Research has documented four major factors behind its high participation - (a) a mechanism that allows faster acquisition of expensive goods (b) a commitment device for enhanced savings as it helps to alleviate problems of self-control (c) an insurance against risks faced by participants and (d) a platform for social engagement.

It appears that chits in India are an interesting context to re-examine its economic rationale. Firstly, the research so far has mostly examined chit funds in communities with relatively poor access to formal channels of finance. Most participants in our context employ various financial products offered by the formal sector. Secondly, most of the chit funds in the target region are institutionalized with standardized products. The formalization sharply contrasts with the hypothesized role played by the social process in regulating the entry and conduct of members and it could weaken the role played 'social contracts' in chits. The participant access to formal finance, the standardized product features, and the institutionalized offerings allow for a more reliable comparison with formal financial products on its economic role.

## Objectives

We examine the following questions, primarily through a large sample survey of chit fund users from the state of Kerala, which has a widespread presence of chit funds.

- What is the extent of chit fund participation of households with varying socio-demographic and economic profile and varying access to the formal financial sector?
- How does saving and borrowing through chit funds benefit the participants? How do participants compare chit funds with other popular financial products on key dimensions?
- How does the perception of value derived from the use of chit funds vary across households?
- Which are the most preferred chit fund features? How does the preference vary across households?
- How do the implicit cost and yield of chit funds compare with the formal financial sector?

## Sample profile

A majority of the respondent households have income and savings levels above the national average. 50% of the households have a monthly income in the ₹10,000 - 25,000 range and about 12% have an income above ₹25,000. Most of the respondents have a formal education with about half of them having higher secondary education or greater. Self-employed constitute about 40% of the sample. There is a nearly universal use product from the formal financial sector for their saving as well as borrowing needs.

## Key findings

### Chit fund participation

The degree of financial involvement, measured by the self-reported proportion of annual savings or borrowing targeted, suggests the economically significant involvement of participants. For instance, about 10% of the respondents have more than a quarter of their savings or borrowing through chit funds.

Chits are employed to a greater extent by wealthier households. The high-value funds are subscribed by the wealthier household in our sample. Older participants engage in chit funds to a greater extent than their younger counterparts. Chits account for a greater share of the savings/borrowings of self-employed, farmers and retired. Both the self-employed and farmers face volatile incomes and often find it hard to avail formal sector loans. There is evidence of the greater use of chits by sub-groups who are graduates or above as well as among those who have primary or no formal education.

When all the other factors are held constant, we find that participation in chit funds is increasing in (a) household income and (b) engagement with the formal financial sector. If the formal financial sector and chit funds were largely substitutable, as often assumed, greater engagement with the formal financial sector would have led to lower chit fund reliance. The finding suggests the possibility of chit funds offering unique functional features which are non-existent in the counterparts offered by the formal sector. For instance, the collection services at the door step of the households reduce their transaction costs and at the same time acts as a commitment mechanism in the savings effort of households.

Overall, the results indicate that households with greater chit fund participation have relatively higher income and transacts through the formal financial system.

### Formalization in chit funds

The success of chit funds is often attributed to the enforcement of social contracts, among a cohesive group of individuals. The social contracts ensure that the members agree upon the allocation and subscription to the fund without failure. We examine how far chit funds in the surveyed region reflect the influence of social contracts in their structure and functioning.

While most of the funds do not specify eligibility criteria for its members, most of them require members to apply using a formal application form. Members of chits do not

share a commonality in their nativity, occupation, and other social identities. Most of the funds have written rules related to periodic subscription, bidding, default and foreman benefits. Only in very few funds, members attend all the chit meetings. In most cases, only the bidding members attend the meetings. Nearly all of the funds demand some form collateral to credit the aggregate amount to successful bidders and are hence less reliant on informal social contracts. By the forman identity, only about 18% of the funds are informally organized and more than 50% of the funds are run by financial companies. The non-overlap of socio-economic identities among members and the presence of extensive written contracts weaken the potential role played by social bonding in determining the success of the funds. Chit funds in the surveyed region are closer to formal financial products.

## **Economic rationale for chit fund participation**

Chits are a hybrid savings-borrowing vehicle, but for some participants, it is largely a savings product and for some, it is a borrowing facility.

### **Chits as a saving vehicle**

About 58% of the households report saving as their motivation to employ chits. Nearly 30% of the households consider it as a vehicle for borrowing and saving, endorsing the view that it is a hybrid product which combines credit and savings together. Only about 6% of the households are motivated by the borrowing feature of chits.

As a saving vehicle, most of the respondents feel that chit funds help to achieve higher savings amount through periodic subscriptions. Possibly, chit funds enforce greater commitment to savings which leads to larger savings outcomes. Nearly one out of six respondents suggest that collection by agents from time to time contributes to the accumulation of the lump sum without failure. Very few respondents treat chits as a high return saving opportunity. As a saving instrument combined with borrowing, the participants value the flexibility to effectively withdraw the entire accumulated savings through bidding. Noticeably, very few respondents view that there is a direct gain in social engagement from the membership of chit funds. Overall, the popularity of chit funds despite their relatively low ranking on returns is possibly due to its role as a commitment device, which channels discretionary spending into savings.

### **Chits as a borrowing vehicle**

Borrowers value the flexibility to obtain the lump sum at any point in time over the tenure of the fund. The value placed on the flexibility endorses the economic role served by chits as an insurance. The insurance role is valued by self-employed who face volatile incomes, which constitute about 40% of the sample. The repayment flexibility in chit funds, as it can be paid off as an amortizing loan unlike many conventional bank loans at the retail level, is highly valued by the members. Despite the ability to time the borrowing, responses suggest that chit funds are not regarded as an informal borrowing opportunity, possibly due to the formal nature of chits in the sample. As a borrowing option, chit funds are among the top-three options which offer loans at the lowest interest rate, along

with banks and informal borrowing from family and friends. At the same time, it is not widely regarded as the cheapest borrowing option. However, as the maximum discount allowed in bids is limited to 30% of the sala by regulation, the effective interest rate would be capped at 30% in a fund with one year tenure, even for the prized bidder at the very first round. For longer funds, the interest rates decline in the tenure of the fund. Overall, it appears that the insurance role and the amortizing nature of chits are highly valued in chit funds.

## **Major factors shaping the primary use of chit funds**

We examine how the probability of enrolling in chit funds, primarily for savings or for borrowings relative to obtaining a chit fund membership to take advantage of its hybrid feature, vary across respondents belonging to various socio-demographic and economic groups. The likelihood of using chit funds as a savings vehicle increases with the household income. Relative to the educated reference group, households with lower education is less likely to regard it as a saving vehicle. It is found more women are likely to use chits as a saving opportunity than as a borrowing avenue. Similarly, the urban households are more likely to employ it as saving vehicle relative to rural households which possibly could be linked to the greater income stability of urban households. The self-employed and farmers, who would highly value the option to borrow feature of chit funds, are less likely to leverage it as a saving vehicle. Overall the results suggest that socioeconomic groups with lower or unstable incomes are more likely to value chits as an insurance mechanism through its option to borrow. On the other hand, higher income groups are more likely to use it as a saving vehicle.

## **Influence of various chit fund features on membership**

The product and process-related features are found to frequently influence the decision to select a particular fund along with trust in the foreman. Features such as the peer group seem to rarely influence the decision. The insignificance of the peer group influence suggests that among the different motives that underlie the participation in chit funds, the social engagement role through chit funds is rare for the respondent group. The contribution per round is the most prominent feature among the top-three which influence the decision to join a fund. It is somewhat intuitive given the compulsivity of the subscriptions, unlike other financial products such as a recurring deposit. Members highly favor a fund which matches their horizon of savings or borrowing. Lottery based allocation is not widely preferred, possibly as it weakens the insurance role of chit funds by crippling the ability to borrow by competitively quoting discounts. A majority of the participants prefer to join funds which are run by financial companies or cooperative banks. The widespread influence of the product and process-related features suggest that the participants value chit funds as a vehicle which essentially performs an economic role.

## **Comparison with the formal financial sector**

We compare (a) interest cost for the borrower (b) the yield for the saver and (c) the foreman commission with the formal sector based on a small sample of actual chit fund data. The effective interest cost for the costliest borrower, who is usually ‘prized in the

first round, is about 15% in the sample. The remaining borrowers face progressively lower interest costs. The interest cost is comparable to the borrowing cost from formal financial institutions, given the profile of the borrowers. At the same time, the yield for the savers is significantly below those offered in the formal sector and appears unattractive for any saver. Why are the savers ending up earning very poor yields in a mutual borrowing and saving arrangement? First, for each of the sample funds the effective interest rate at which the collected funds are loaned declines over the life of the fund, and the average lending rate works out to be low. Second, the foreman charges a commission of 5% of the sala in each round. The findings indicate that while the interest rates for the borrowers in chit funds possibly makes it attractive for them, the yield for savers is unattractive. It appears that the savers possibly place a high value on non-yield aspects of chit funds such as like option to borrow and its commitment feature.

Foremen take 5% of the sala as intermediation charges. Like banks, the foreman is expected to underwrite the losses associated with defaults. The intermediation cost of 5% appears to be high relative to the net interest margin of the Indian banks. However, the comparison of the intermediation cost of chit funds and banks must take into account the collection services offered at the premises of the members which save their time and resources.

## Contents

I	Background and motivation	9
1	Background	9
2	Economic rationale for chits	10
3	Motivation for the study	11
4	Research objectives	11
II	Survey Data - Sample profile	13
1	Geography	13
2	Income and savings	13
3	Education and employment	13
4	Access and use of formal financial sector products/services	14
5	Saving and borrowing habits of the households	15
III	Survey findings and discussion	17
1	Chitfund participation	17
2	Determinants of chit fund membership/participation	19
3	Degree of formalization of chit funds	22
4	Bidding behaviour	24
5	Economic rationale for chit fund participation	25
6	Major factors shaping the primary use of chit funds	34
7	Influence of various chit fund features	37
IV	Comparison with the formal financial sector	40
1	Interest cost and yield	40
2	Cooperative bank chit fund	40
3	KSFE chit fund	41

V	Conclusion and discussion	43
	Appendix	44
A	Use of formal financial products/services	44
B	Determinants of chit membership	45
C	Factors influencing the self-reported primary motivation to chit funds	46
D	Monthly cash flows of a chit fund	47
E	Monthly cash flows of a chit fund	48

## List of Figures

1	Type of banking services used . . . . .	14
2	Use of formal financial sector products/services . . . . .	15
3	Saving needs . . . . .	16
4	Borrowing needs . . . . .	16
5	Use of saving products . . . . .	16
6	Use of borrowing products . . . . .	16
7	Participation in multiple funds . . . . .	17
8	Reasons - multiple participation . . . . .	17
9	Participation and income . . . . .	19
10	Participation and age . . . . .	19
11	Participation and occupation . . . . .	20
12	Participation and education . . . . .	20
13	Participation and savings . . . . .	20
14	Participation and motivation . . . . .	20
15	Determinants of chit fund participation . . . . .	21
16	Membership eligibility . . . . .	23
17	Membership procedure . . . . .	23
18	Homogeneity of groups in the chit fund . . . . .	24
19	Written rules and agreements . . . . .	24
20	Payment method . . . . .	25
21	Security for the prized subscriber . . . . .	25
22	Range of sala . . . . .	26
23	Contribution per round . . . . .	26
24	Distribution of allocation type . . . . .	27
25	Foreman . . . . .	27
26	Range of sala - income groups . . . . .	27
27	Range of sala - Forman type . . . . .	27
28	Rate of return - Rank score . . . . .	30
29	Ease of operation - Rank score . . . . .	30
30	Based on interest rate . . . . .	33
31	Based on repayment flexibility . . . . .	33
32	Based on security required . . . . .	33
33	Based on ease of operating . . . . .	33
34	Likelihood of employing chits for savings relative to its use as a hybrid . . . . .	35
35	Likelihood of employing chits for borrowings relative to its use as a hybrid . . . . .	36
36	Rank score of features that influence decision to join . . . . .	38
37	Fairness of chit fund management . . . . .	39

## List of Tables

1	No. of households target districts . . . . .	13
2	Extent to which chit funds account for annual savings/borrowings of households . . . . .	18
3	Primary motivation to join the chit fund . . . . .	28
4	Advantages of using chits as a savings vehicle . . . . .	29
5	Reasons for chit funds offering the ability to save a greater amount . . . . .	29
6	Comparison of savings/return with own expectations . . . . .	29
7	Advantages of using chits as a borrowing vehicle . . . . .	31
8	Comparison of interest cost with own expectations . . . . .	32
9	Features of chit funds that significantly the influence decision to join chit funds . . . . .	37
10	Preference for chit funds based on type of ownership . . . . .	39
11	IRRs of chit funds . . . . .	41
12	Dimensions employed to capture the use of formal financial services . . . . .	44
13	OLS Regression of Chit Fund Participation . . . . .	45
14	Results logistic regression . . . . .	46
15	Vilvattom cooperative bank (figures in rupees) . . . . .	47
16	Chit fund run by KSFE (figures in rupees) . . . . .	48

## Part I

# Background and motivation

## 1 Background

Chit funds, which are also known as Rotating Savings and Credit Associations or Roscas is a popular financial product among households and small businesses in many developing countries in Latin America, Asia and Africa.<sup>1</sup> Its popularity is documented to be high among communities with limited access to formal channels of finance<sup>2</sup>. Chits primarily involve raising a lump sum in every round from the subscriptions of its members to be given away to one of its members in each round. The periodic subscriptions are repeatedly raised until every member in the chit receives the lump sum.

The lump sum raised in each period is usually allocated either through bidding, where it is allocated to the lowest bidder (known as bidding chits) or through a lottery (known as random chits). The order of allocation in chits could also be decided by group consensus. In bidding chits, the amount of subscription in each period is decided based on the bid amount in the previous period. For instance, in a chit with 20 rounds and an agreed subscription of ₹1,000 per round (known as ticket size), if the prior period bid was ₹18,000, then subscription in the next round would be ₹900 per subscriber, including a dividend of ₹100 decided based on the discount amount of the bid in the previous round. In some chits, all the members who had successful bids (known as the ‘prized member’) would have to contribute the entire agreed subscription amount in each of the post-bid round, irrespective of the bid amount. For each member, the difference between the amount of their successful bid and their total contribution over the life cycle of the chit can be regarded as the interest cost of the borrowed amount (bid amount). The subscriber who does not bid at all can be regarded as a saver as he extends credit to all other members. On the other hand, the prized subscriber in the first period can be regarded as a borrower. Effectively, in chits, the members set the borrowing and saving interest rates themselves.

A chit can be regarded as a hybrid financial product which has features of both credit and savings. Chits require a mix of savers and borrowers; otherwise, auctions would fail. It is well documented that in bidding chits, the bid amounts gradually increase over the tenure of a chit, reflecting lower interest rates in later rounds. It is common to cap the maximum discount in a bid in order to control the credit risk of the fund. By barring individuals willing to offer very high discount (interest rates) from joining the chit, it limits overall default risk in the fund. In India, the discount is capped at 30%. The entity running the chit fund, known as the ‘foreman’ usually takes a commission. The commission of the foreman is capped by regulation.<sup>3</sup> Chits vary widely in terms of the (a) organization form (b) membership criteria (c) number of participants (d) cycle of payment and (e) management of default risk by successful bidders. The organizational form of chits could vary from a completely self-selected peer group with own rules and

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<sup>1</sup>It is also called ‘chitty’ and ‘kuri’ in India. Chits operating in India are regulated by the Chit Funds Act, 1982.

<sup>2</sup>Mudit Kapoor et al. “Chit Funds as an Innovative Access to Finance for Low-income Households”. In: *Review of Market Integration* 3.3 (2011), pp. 287–333.

<sup>3</sup>In India the Chit Funds Act, 1982 limits the foreman commission to 5%.

criteria for admission of members to one in which there is a high degree of formalization similar to formal financial market institutions.

Chits are proved to be better than self-sufficiency for acquiring indivisible goods as it makes everyone except the final recipient strictly better off<sup>4</sup>. He also found that the length of the chits will be inversely proportional to the rate at which the community saves and accumulates the durable good. While there is a strong incentive for successful bidders to stop their contribution to chit funds, this is not a major problem in chit funds. It is argued that one advantage of chits is the peer monitoring and enforcement where the incentive to default is curbed by social sanctions.

## 2 Economic rationale for chits

Chits are found to serve multiple economic and social functions.<sup>5</sup> Research has documented four major factors behind the high participation in chits - (a) a mechanism that allows for faster acquisition of indivisible goods (b) a commitment device for savings as it helps to alleviate problems of self-control (c) an insurance against the idiosyncratic risks faced by participants and (d) a platform for social engagement.

When a chit follows random allocation, the last member has little incentive to participate. Recursively, this would have led to the collapse of the chits. However, chits act as a commitment device that allows agents to address the self-control problems in saving for future<sup>6</sup>. The commitment device role of chits suggests<sup>7</sup> that (a) the membership in chits would be more popular among the middle-income group rather than among the rich or poor (b) the chit members would be homogeneous and (c) the chit contribution increases (decreases) with higher (lower) income levels. It is found that the household expenditure on non-essential and frivolous goods is significantly lower among chit members<sup>8</sup>.

As credit can serve as a substitute for insurance when market access is limited chits are also believed to act as an insurance.<sup>9</sup>

Chits also serve as an important vehicle for socializing<sup>10</sup> among migrant communities. It facilitates migrants to find lodgings and employment. Traders use chits as a platform for the exchange of market information, recruitment of new partners and eventually build

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<sup>4</sup>Timothy Besley, Stephen Coate, and Glenn C Loury. "The economics of rotating savings and credit associations". In: (1990).

<sup>5</sup>Frits JA Bouman. "Rotating and accumulating savings and credit associations: A development perspective". In: *World development* 23.3 (1995), pp. 371–384.

<sup>6</sup>Mary Kay Gugerty. "You can't save alone: Commitment in rotating savings and credit associations in Kenya". In: *Economic Development and cultural change* 55.2 (2007), pp. 251–282; Stefan Ambec and Nicolas Treich. "Roscas as financial agreements to cope with self-control problems". In: *Journal of development economics* 82.1 (2007), pp. 120–137.

<sup>7</sup>Ambec and Treich, "Roscas as financial agreements to cope with self-control problems".

<sup>8</sup>Olivier Dagnelie and Philippe Lemay-Boucher. "Rosca Participation in Benin: A Commitment Issue". In: *Oxford Bulletin of Economics and Statistics* 74.2 (2012), pp. 235–252.

<sup>9</sup>Charles W Calomiris and Indira Rajaraman. "The role of ROSCAs: lumpy durables or event insurance?" In: *Journal of development economics* 56.1 (1998), pp. 207–216; Hanming Fang and Rongzhu Ke. "The Insurance Role of Rosca in the Presence of Credit Markets: Theory and Evidence". In: *unpublished paper. Department of Economic, Yale University* (2006).

<sup>10</sup>FJA Bouman. "The rosca: financial technology of an informal savings and credit institution in developing economies/l'arec: la technologie financière d'une institution informelle d'épargne et de crédit dans les économies en développement". In: *Savings and development* (1979), pp. 253–276.

their network and reputation in society. Leaders use chits to showcase their leadership and administrative skills<sup>11</sup>.

### 3 Motivation for the study

It appears that chits in India present itself as an interesting context to examine its economic rationale for several reasons. Firstly, the research so far has examined the economic rationale for chit funds in communities with relatively poor access to formal channels of finance. A significant proportion of the households participating in chits in our context have access to financial products and services offered by the formal sector. This could help to deepen the understanding about the relative advantage of chit funds compared to products and services offered by the formal financial sector. Secondly, most of the chit funds operating in the target region are institutionalized with a significant element of the formalization and standardization of products. This could lead to a considerable weakening of the acclaimed socializing function of chits. This sharply contrasts with the hypothesized role played by the social process in regulating the entry and conduct of the members in the chits. Taken together, the context presents significant differences in terms of (a) the financial access of customers and (b) institutional and product format, compared to those examined in earlier studies related to chit funds.

### 4 Research objectives

The research attempts to deepen insights on the following aspects of chit funds:

- **Determinants of chit fund participation:** How does the participation differ for households with varying (a) socio-demographic and economic characteristics and (b) access to financial services from the formal sector.
- **Sources of economic value derived by chit fund users employing it for their saving and borrowing needs:** How does it compare with other popular financial products on various key dimensions. How the does the perception of value vary across households with varying (a) socio-demographic and economic characteristics and (b) access to financial services from the formal sector (c) chit fund characteristics, particularly, the degree of institutionalization of chit funds and (d) the characteristics of chit fund peer group?
- **Preferred features of chit funds:** How does the preference for various chit fund features change when (a) socio-demographic and economic characteristics and (b) access to financial services from the formal sector vary across respondents.

The other survey objectives are as follows:

- Profile the socio-economic and demographic characteristics of the chit users

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<sup>11</sup>Bouman, "Rotating and accumulating savings and credit associations: A development perspective"; Bisrat Agegnehu. "Why do members join indigenous informal financial institutions-RoSCAs?" In: (2012).

- Compare the economics of the products offered by related products in the formal and informal segments
- Understand the institutional problems addressed by the presence of the informal markets
- Document the key features of the products for the users such as (a) effective risk-adjusted return (effective interest cost) (b) indirect costs (c) allied services offered.

## Part II

# Survey Data - Sample profile

## 1 Geography

The target sample size for the study was 1,200 households with at least one adult member participating in chit funds. The sample is drawn from two central districts of Kerala, Thrissur and Kottayam, where the concentration of chits is believed to be greater. The target sample of 1,200 households is drawn equally from the two selected districts. It was further divided into urban and rural households in the same proportion as reported in the 2011 census data for the state. Nearly 80% of the final sample of households are drawn from rural areas, where the concentration of chits is believed to be greater.<sup>12</sup> The final usable sample employed in the analysis is as follows.

Table 1: No. of households target districts

District	Total.households	Urban	Rural	Unclassified
Kottayam	593	121	472	0
Thrissur	545	93	370	82
Total	1138	214	842	82

## 2 Income and savings

Nearly 50% of the respondents represent households with monthly income in the ₹10,000 - 25,000 range and about 12% households have income above ₹25,000. Only about a third of the respondents belong to households with income below the national average. Based on the average per capita income levels in India,<sup>13</sup> these households can be regarded as those with incomes significantly greater than an average Indian household. More than two-thirds of the households are also able to save some part of their income. The monthly savings of about 16% households are in the ₹5,001-10,000 bracket. Overall, the income and savings level suggest that majority of the households have income and savings levels above the national average.

## 3 Education and employment

Most of the respondents have a formal education with about half of them having a higher secondary education or greater. Self-employed constitute about 40% of the sample and about 36% are employed in private or public sector jobs. Most of the respondents are male (73%) and married are about 84%.

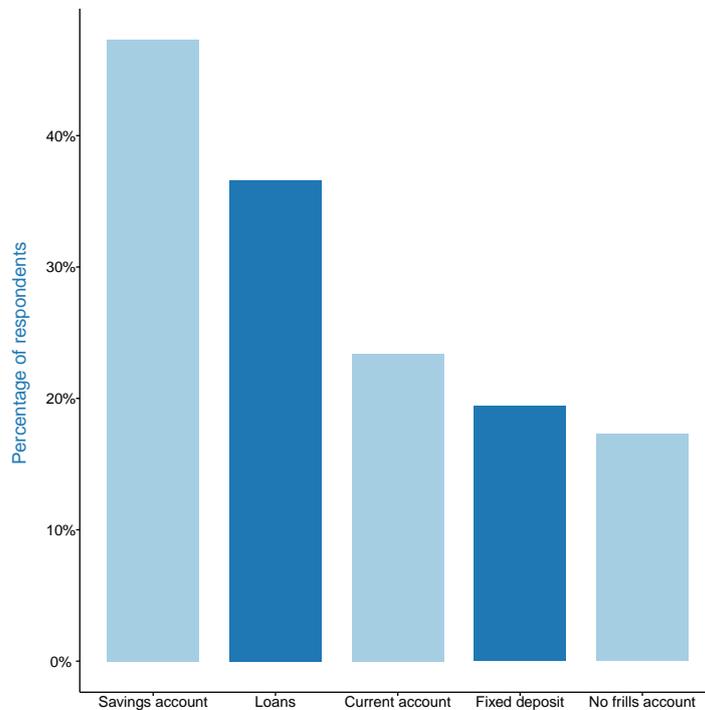
<sup>12</sup>The state has its population spread almost equally across urban and rural areas (source <http://www.census2011.co.in/census/state/kerala.html>)

<sup>13</sup>The per capita national income in the year 2014-15 is taken as ₹98,983.

## 4 Access and use of formal financial sector products/services

Almost all of the households (96%) with chit fund membership have access to banking services conveniently located close to either their home or office. Most of the chit fund members also avail some form banking services (98%), including the services of the local cooperative banks. Nearly half of the chit fund members (47%) use savings account services and about 37% have used bank loans. The use of various banking products, including FD and no frills account among the chit fund members are given in Figure 1. The non-users of banking services appear to be deterred by the formalities in bank transactions. The nearly universal use of banking services by the chit fund members indicates that the fund users are not households without access to the formal financial sector. Research from different parts of the world had found that primarily chit fund users are households without access to the formal financial system.

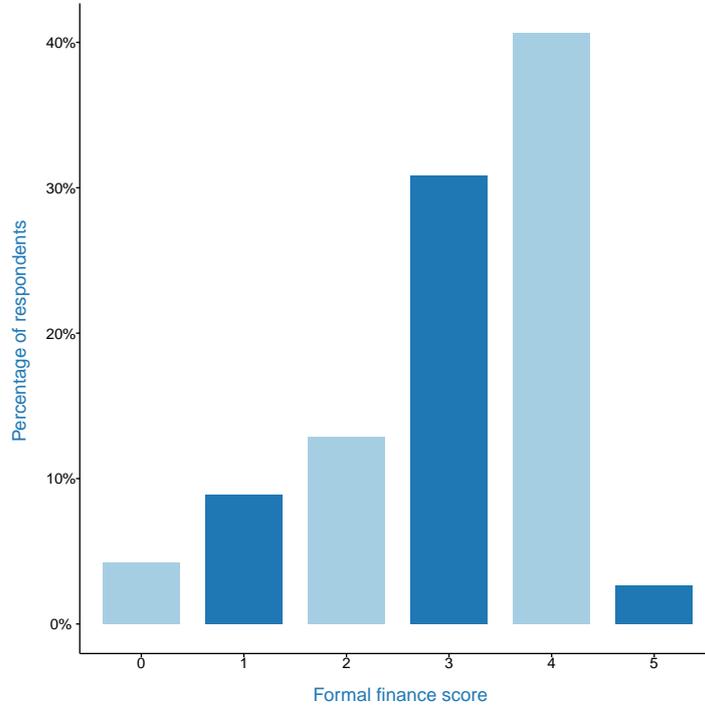
Figure 1: Type of banking services used



We employ a number of dimensions to capture to the extent to which households engage with the formal financial sector for their saving and borrowing needs. The details of the dimensions employed to capture the engagement with the formal financial sector are given in Table 12. Based on the responses of the items, we estimate a score of household participation in the formal financial sector. Respondents with a score of 0 can be regarded as non-participants and those with a score of 4-5 range can be regarded as high-participants. The non-participant households do not use any services of the formal sector and the high participant households on the other hand invest even in the stock market. The distribution of the respondent households on their participation in the formal financial sector is given in Figure 2. It is evident that a large number of respondents access banks for their saving as well as borrowing needs. Nearly, 2.6% of the participants also invests in the

stock market.

Figure 2: Use of formal financial sector products/services



## 5 Saving and borrowing habits of the households

The saving goals of the households are somewhat evenly spread across (a) precautionary needs, such as, medical and other exigencies (b) strategic needs, such as future investments in land and other durable assets and (c) future household expenditures, such as, education, marriage of children, and family functions etc. (Figure 3) They use a range of saving products to meet their goals. After chit funds, the most commonly used saving option is the saving products offered by banks (about 49%). Saving through self-help groups (40%) and investment in gold (30%) are the second and third most commonly used saving devices. Only one in ten of the members trusts their savings with the local money lenders. The different savings products used by the members of chit funds are given in Figure 5. Despite the access to formal financial channels, the widespread use of chit funds to meet various saving goals suggest that it probably serve some needs not provided by the formal sector.

One-fourth of the chit funds members have never borrowed (Figure 4). The commonly reported borrowing needs vary significantly such as (a) strategic needs such as purchase of durable assets including vehicles (58%), purchase of land or house (38%), and business/agricultural investments (22%) and (b) routine needs such as the education of children (23%) and healthcare expenses (20%). Interestingly, with only about 28% use chit funds as borrowing vehicle, it is not the most widely used option. The most commonly used borrowing devices are credit unions (59%) and banks (50%). The use of various borrowing vehicles among the members is given in Figure 6. The relatively lower degree

Figure 3: Saving needs

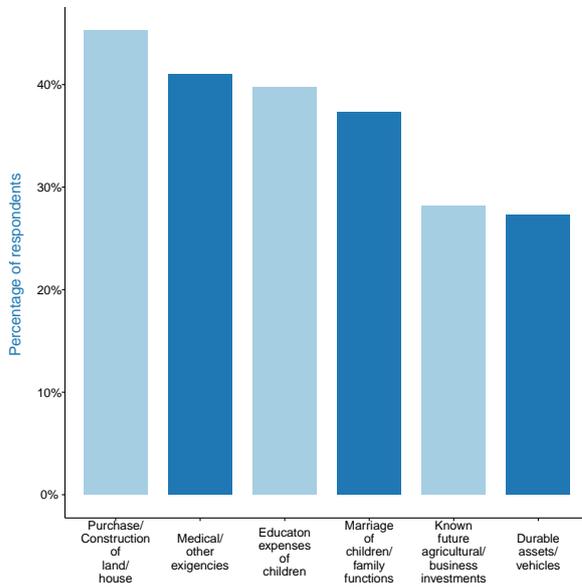


Figure 4: Borrowing needs

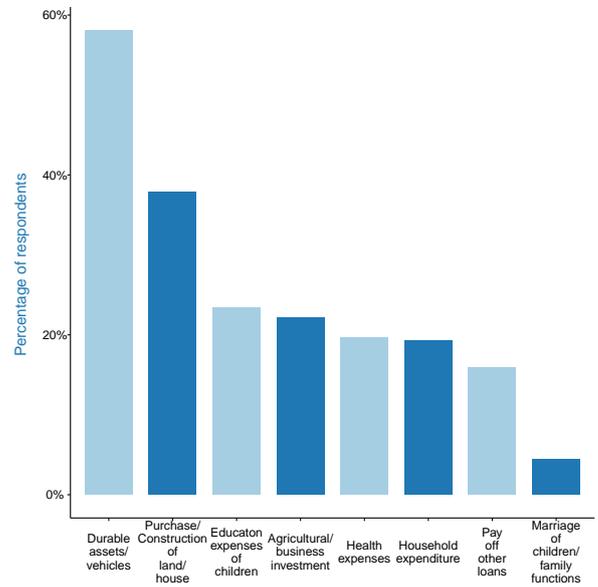


Figure 5: Use of saving products

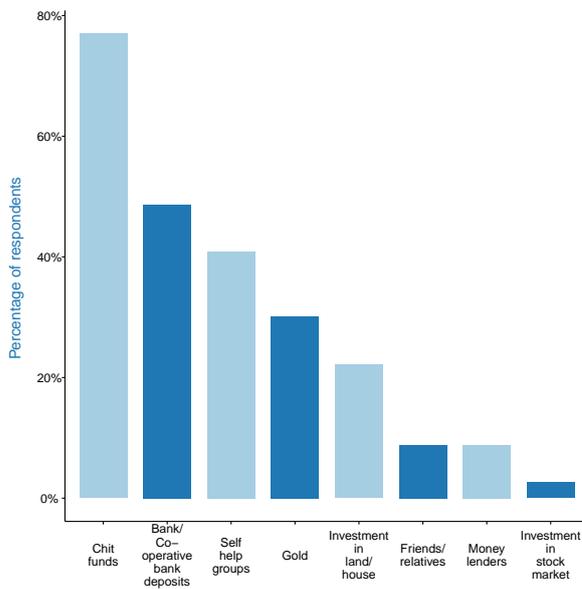
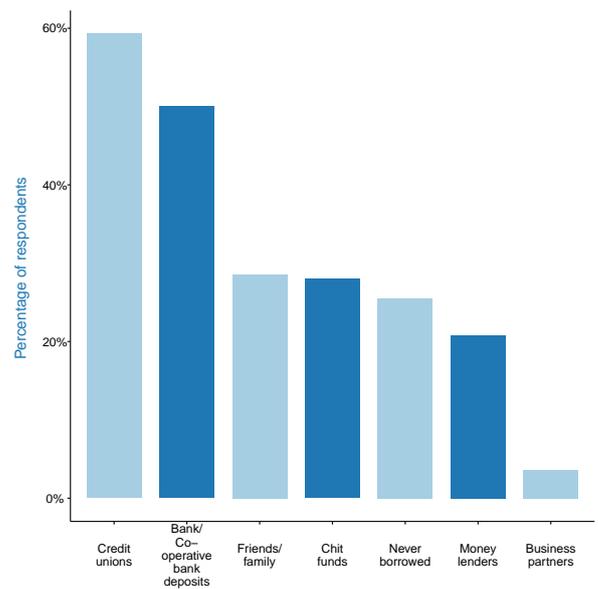


Figure 6: Use of borrowing products



of use of the chit funds as borrowing vehicle suggests that the most valued role of chit funds among the users is its role as a saving vehicle.

## Part III

# Survey findings and discussion

As the sample is limited to chit fund users, we are able to examine the extent of chit usage and the reasons behind its widespread use. We do not examine the determinants of non-participation in chits.

## 1 Chitfund participation

### Participation in multiple funds

Only one out of four members subscribe to more than one chit fund at a time (Figure 7). Multiple memberships are motivated by the perceived value derived from the unique features of the funds. This finding is in line with the evidence reported later in the report (section 7) that the product specific features, particularly the amount of periodic contribution, significantly influences the decision to join a specific fund (Figure 8).

Figure 7: Participation in multiple funds

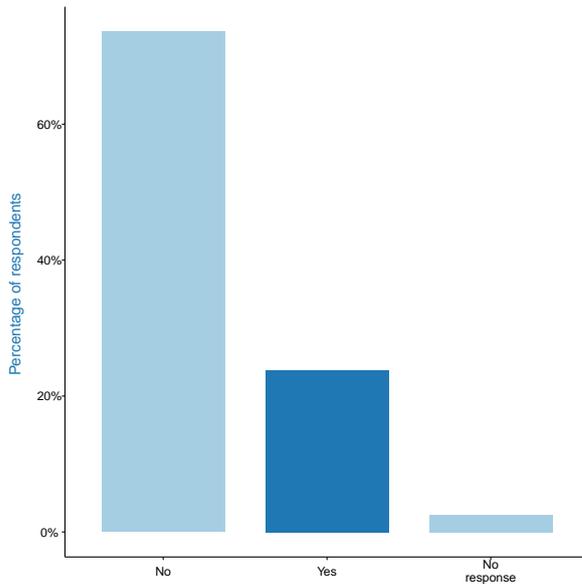
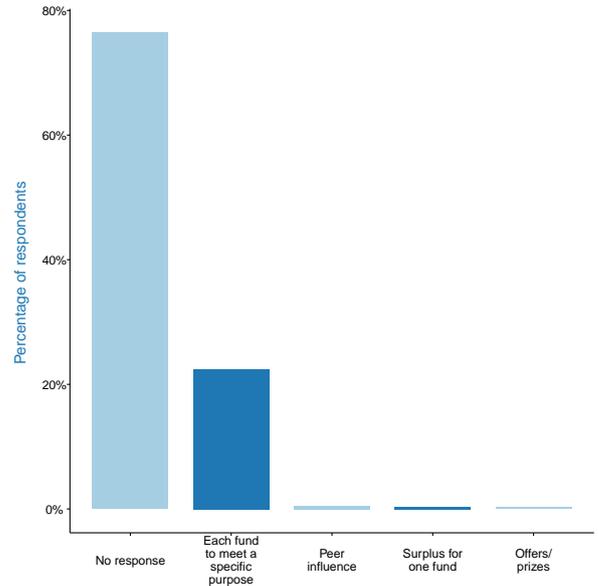


Figure 8: Reasons - multiple participation



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### Extent of financial engagement with chits

The degree of financial involvement in chits among the participants is measured by the self-reported proportion of annual savings or borrowing targeted by the respondents through

chit funds. Overall, the findings suggest the economically significant involvement of participants in chit funds. For instance, about 10% of the respondents has more than a quarter of their savings or borrowing through chit funds. Another 23% respondents use chit funds to the extent of 11-25%. More than 60% of the households engage chit funds to the extent of 0-10% for their annual savings or borrowings (Table 2). No household appears to be entirely dependent on chits for their financial solutions, which unsurprising as most of the sample households have reported engagement with the formal financial sector institutions.

Table 2: Extent to which chit funds account for annual savings/borrowings of households

Share of chit funds	No. of respondents	% of respondents
0-10%	729	64.1
11-25%	258	22.7
26-50%	116	10.2
51-75%	9	0.8
76-100%	0	0.0
No response	26	2.3
Total	1138	100.0

The details of the extent of participation across different socio-economic and demographic sub-groups within the sample households are given in Figures 9 to 13.

It appears that chit funds are employed to a greater extent by the wealthier households. For instance, whereas about 22% of the households in the ₹50,001-100,000 income bracket engage chits to the extent of 26%-50%, only about 18% households in the ₹25,001-50,000 income bracket have the same level of engagement. The corresponding figure for households in the lowest income bracket is only 5%. It is possible that the wealthier households engage chits relatively more than the low-income households largely for their saving requirements.

Older participants employ chit funds to a greater extent than their younger counterparts. For instance, about 4% of respondents with age 61 or above depends on chits to the extent of 51%-75%, which is significantly higher among the younger groups. The relatively higher involvement of the older group possibly is linked to their greater reliance in the earlier years.

By occupation, chits appear to accounts for a greater share of savings/borrowings among, self-employed, farmers and the retired. While about 20% of students also appear to employ chits to the extent of 26%-50%, the sample size of the sub-category is very small. Both the self-employed and farmers face volatile incomes and often find it harder to avail loans relative to others. Hence, the relatively greater use of chits of these groups may be attributed to credit restrictions by the formal sector.

There is evidence of the greater use of chits among, sub-groups who are graduates or above as well as among those who have primary or no formal education. While it is possible, the less educated depends more on the informal sector for their financial needs, the greater engagement of the relatively more educated is somewhat surprising. It is possible that the highly educated sub-group also overlaps with the higher income households.

The extent of savings / borrowings through chit funds is increasing in the savings amount of families up to monthly savings of ₹10,001-25,000 (Figure 13). Households with the

Figure 9: Participation and income

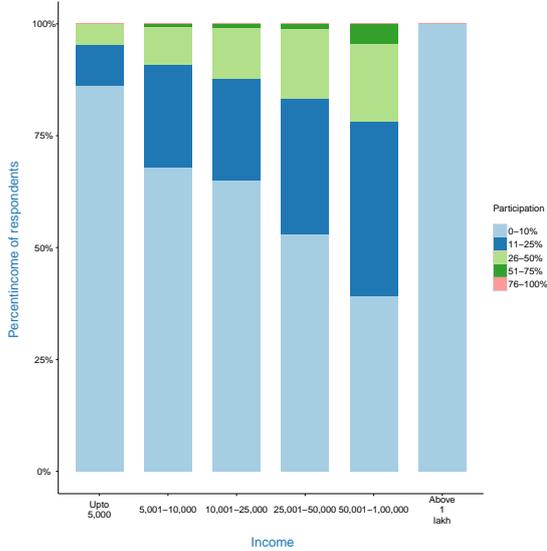
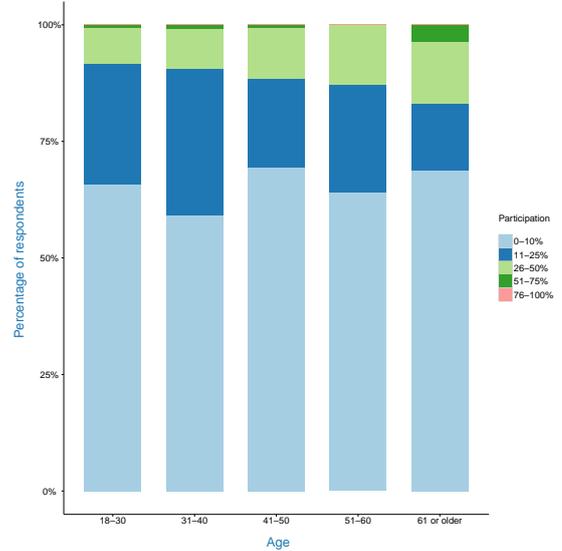


Figure 10: Participation and age



highest two brackets (savings above ₹25,000) of monthly savings have only a lower involvement with chit funds. Overall, the relationship between involvement with chit funds and savings for households somewhat follows a 'U' pattern. Possibly, the low-income households cannot take advantage of chit funds as one need to be a subscriber to use the option to borrow.

The wealthier households, on the other hand, may not find the borrowing option in chit funds attractive. There is a marginally higher participation among the subgroup who are motivated to use chit funds for both the borrowings and saving needs as compared to sub-groups which employ it primarily to meet only one of the needs (Figure 14).

Overall, the groups with greater involvement in chits are from households with relatively higher income, savings, older, and possibly employed in the informal sector or retired.

We also examine the marginal influence of the key socio-economic and demographic factors on the extent of chit fund use when all the other factors are held constant. This is achieved with the help of regressions as detailed below.

## 2 Determinants of chit fund membership/participation

We attempt to identify the determinants of the extent of participation in chit funds by respondent households. We examine the linkage between the extent of self-reported annual savings/borrowing targeted by the households through chit funds and (a) various socio-demographic and economic factors of the respondent family and (b) the extent to which respondents avail services of the formal financial institutions. It is possible that respondents with lower engagement with the formal sector rely on chit funds more for their financial requirements. The analysis is carried out through a regression with the degree of self-reported annual savings/borrowings targeted by the households through chit funds as the dependent variable and various socio-economic and demographic variables as the

Figure 11: Participation and occupation

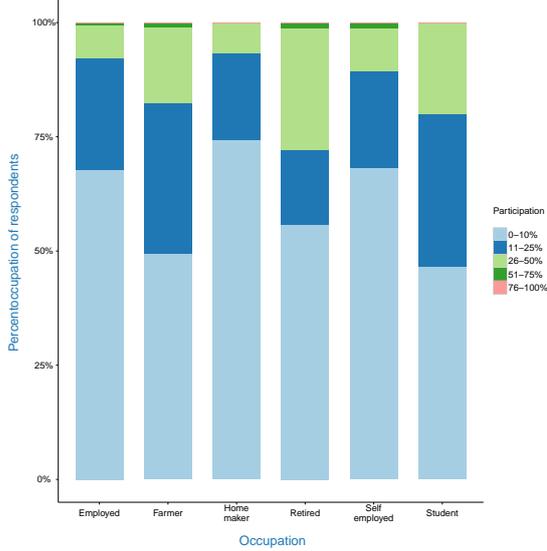


Figure 12: Participation and education

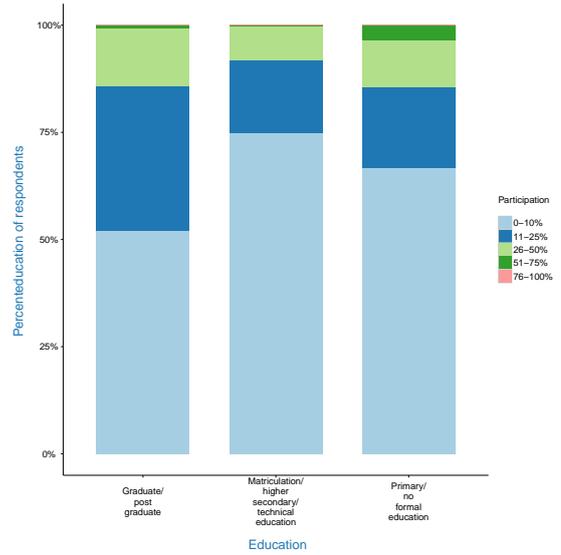


Figure 13: Participation and savings

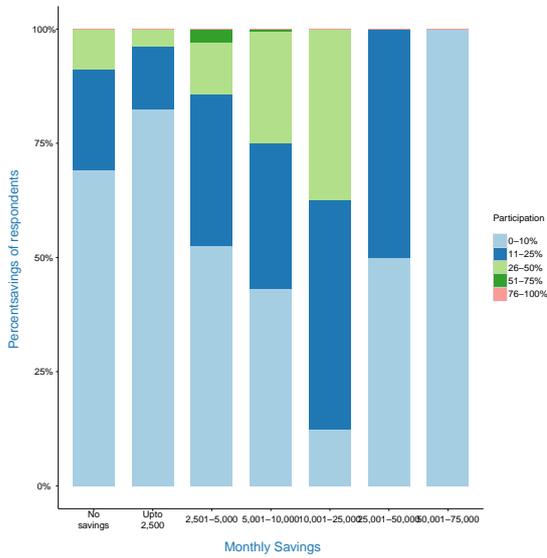
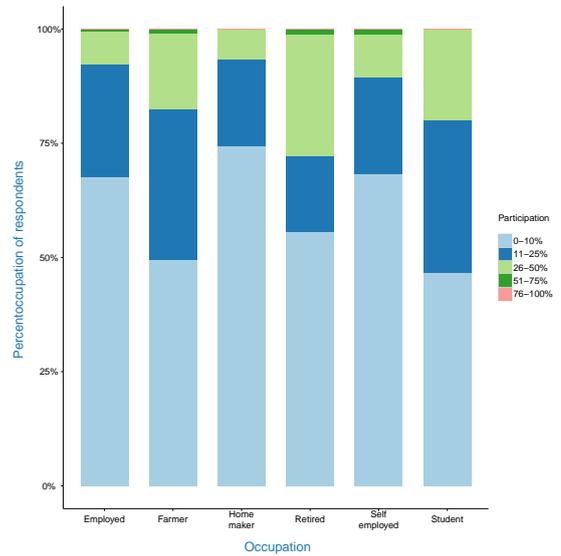
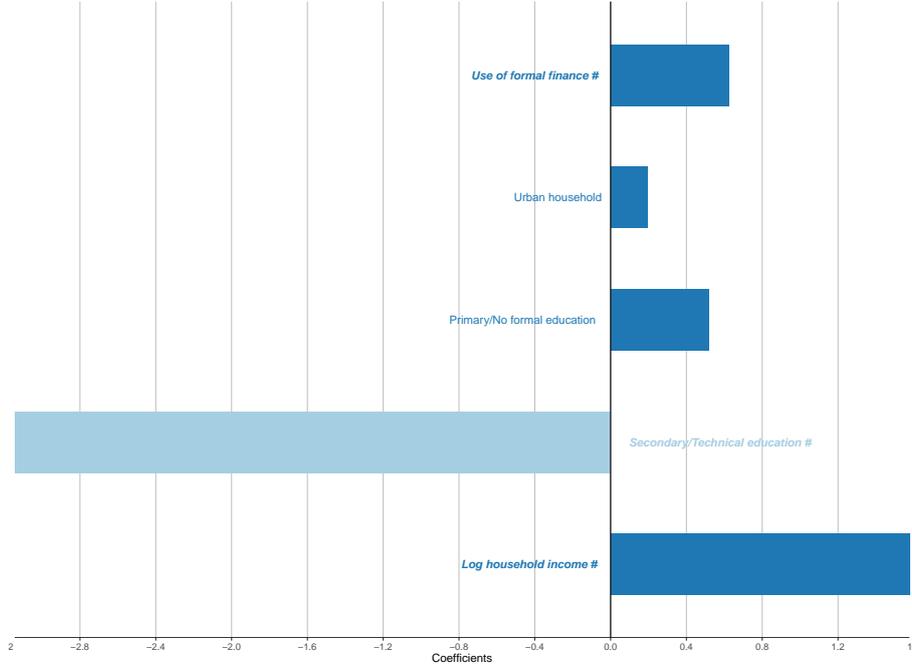


Figure 14: Participation and motivation



explanatory variables. The extent of the influence of each of the variable, represented by the regression coefficient is given in the following figure. The detailed results of the regression are given in Table 13 in the Appendix.

Figure 15: Determinants of chit fund participation



*Notes:* Each bar, given against a variable, represents the coefficient obtained from the regression. Bars to the left reduce participation and bars to the right increase participation. The statistically significant coefficients at 5% level or higher are identified with a hash mark to the right of the variable label. Annual household income is the self-reported figure of household income. The extent of use of formal sources of finance is calculated from the responses to a set of items to understand the use of formal saving and borrowing products ranging from no-frill accounts (lowest level of the use of formal financial services) in banks to investment in stock markets (highest level of the use of formal financial services). Households in municipal and corporation areas are classified as urban.

Our results indicate that participation in chit funds is increasing in household income level. This is not entirely surprising as households with higher income levels are more likely to have an investible surplus. The results indicate that compared to participants with lower education, those with secondary education have a lower reliance on chit funds, given otherwise similar profiles. Possibly, those with relatively higher education are able to identify savings and borrowings opportunities other than chit funds. We observe that households which have greater engagement with the formal financial sector depend more on chit funds. If the formal financial sector and chit funds were largely substitutable, as assumed by the earlier research from elsewhere in the world, greater engagement with the formal financial sector would have led to lower reliance on chit funds. However, our results suggest that the engagement with chit funds increase for households with greater reliance on banks and other financial institutions. The result suggests the possibility of chit funds offering functional features which are non-existent in the counterparts offered

by the formal sector. For instance, chit funds offer collection services at the door step of the households, which in turn leads to savings on the transaction costs and at the same time acts as a compelling mechanism in the savings effort of households. The closest saving product offered by banks in the region, recurring deposits, does not have any of the two features. Further, borrowing through chit funds provides an amortizing loan as against loans with one-time settlement feature offered commonly by the formal sector to the self-employed and farmers. The amortizing feature offers an opportunity to match the periodic cash flows with the chit fund subscriber households. Although not captured in the survey data, many of the cooperative banks which run chit funds<sup>14</sup>, offer recurring deposits which offer higher yields than chit funds and the popularity of chit funds is despite the recurring deposit facility. As discussed later in the report, we observe from a small sample of chit funds that the effective return for savers is very poor. It is possible that investors are trading off higher returns to achieve a greater amount of savings, as indicated in the survey response on the most valued features of chit funds as a saving mechanism. Overall, it appears that some of the unique product features of chits perform economically valuable functions for the subscriber households.

Overall, the results indicate that households with greater chit fund participation have relatively higher income transacts through the formal financial system and lower education levels.

### 3 Degree of formalization of chit funds

The success of chit funds which operate without strict regulatory oversight has been attributed to the enforcement social contracts, among a group of tightly knit individuals. The social contracts ensure that the members agree upon the allocation and subscription to the fund without failure. We examine how far chit funds in the surveyed region reflect the influence of social contracts in their structure and functioning. Specifically, we examine chit fund features to determine the degree to which a fund reflects as one which is informally organized and managed through social contracts among a cohesive group of individuals. The features examined are as follows:

- (i) Eligibility and procedure used to select members to the fund
- (ii) Homogeneity in the background of members as reflected in the (a) location of residence (b) occupation (c) religion /caste and (d) gender
- (iii) The extent of formal contracts which govern the functioning of chit funds related to (a) payment of subscription amount (b) security requirements to credit the aggregate amount to the prized subscriber and (d) the handling of defaults by the foreman.

#### Membership

Most of the chit funds do not admit members using a formal eligibility criterion (about 70%). Only about 14% of the funds have strict criteria such as income and assets (Figure 16). While most of the chit funds do not specify eligibility criteria for the members,

<sup>14</sup>The chit funds run by cooperative banks are called Monthly Deposit Schemes.

only in about 15% of the funds follow an informal process of admitting members unaccompanied by an application form. Most of the chit funds require the members to apply using a formal application form (Figure 17).

Figure 16: Membership eligibility

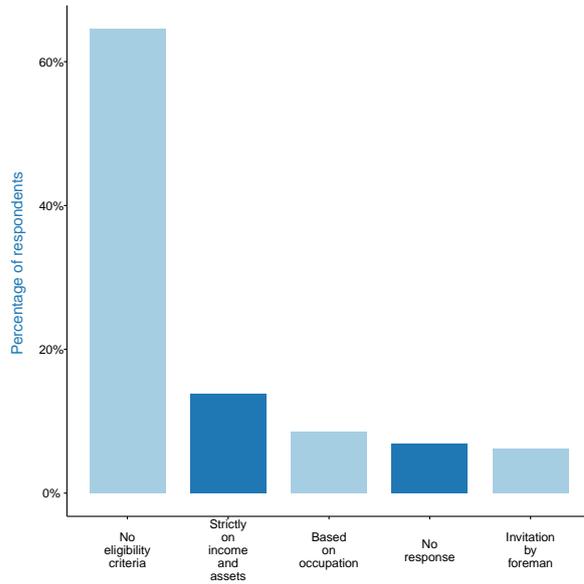
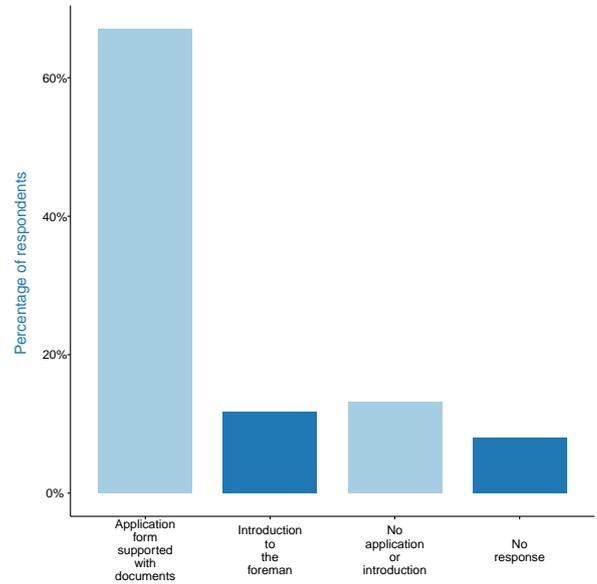


Figure 17: Membership procedure



## Homogeneity of membership

Only in one-third of the funds members share the same locality, and in about one-third cases, members are unsure about the locality of the other members. The occupation of the members also varies in most of the funds. Further, chit fund members do not commonly share identities based on religion, caste or gender (Figure 18). The heterogeneity reported among members in their nativity, occupation, and other identities suggest that the social bonding among the group may not play a key role in the chit fund outcomes for its members.

## Contracts and collateral

Most of the funds have written rules related to the periodic payments, bidding, default and foreman benefits. Nearly 66% of the funds demand some form of collateral, such as third party guarantee, post-paid cheques, or fixed assets like land to credit the aggregate amount to the prized subscriber than being reliant on informal social contracts (Figure 19). The presence of extensive formal written contracts in chit funds in the surveyed region weakens the potential role played social processes in determining the success of the funds.

## Meetings

Only in very few funds (20%) the members attend all the meetings throughout the life of the chit fund. In most cases, only the bidding members attend the meetings. It is also

Figure 18: Homogeneity of groups in the chit fund

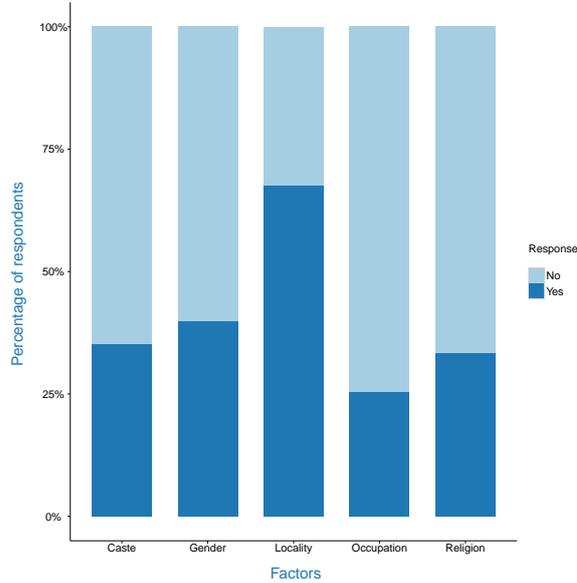
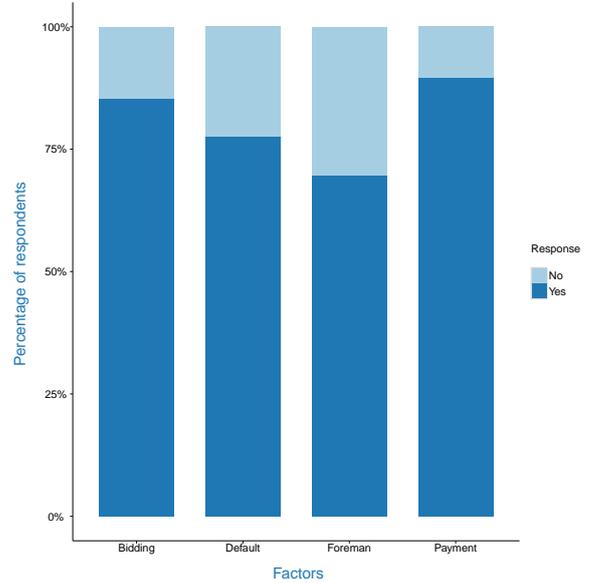


Figure 19: Written rules and agreements



very common (50% respondents) to send the bids in advance or send a proxy (about 31%) without physically attending the meetings. The meeting dynamics further reinforce the weak role of social process in determining the chit fund success. Moreover, as the meetings are poorly attended, the socialization gains of members through chit fund participation are also almost non-existent among the chit funds.

Overall, the structure of contracts, functioning of chit funds and the social interaction among chit fund members in the surveyed region does not suggest that they are informally organized. Instead, it fits with structure and nature of formally organized financial firms with well-documented rules. Further, most of the chit funds are regulated, where the conduct and benefits of the foreman and the required documentation for running a chit fund are specified. In three out of the four funds, members have to formally submit an application form in a prescribed form. The existence of formal contracts, non-overlap of socio-economic identities and low social interaction through chit funds among the members suggest that (a) chit funds as a financial product powered by informal social contracts for enforcing discipline among members do not fit well.

## 4 Bidding behaviour

In bidding chits, the prized subscriber is decided by competitive bidding among the subscribers. Generally, the bidder quoting the maximum discount would be the prized subscriber. Nearly four out of 10 participants do not bid in any of the rounds. It suggests that a significant chunk of chit fund members are driven by the need to accumulate savings rather than to use it as a borrowing vehicle. The most aggressively discounted bid occur at the early rounds in the lifecycle of the fund. The higher discount in the initial periods is intuitive as the bidder is effectively taking a loan for a longer period, relative to bidders at the subsequent rounds and therefore would pay higher interest amount. The timing

Figure 20: Payment method

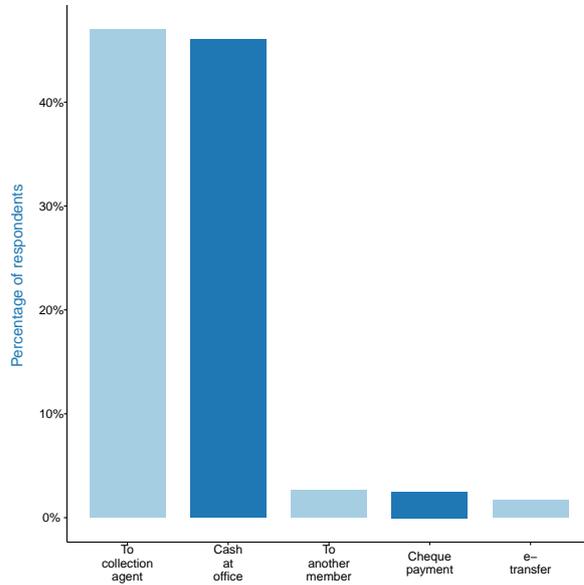
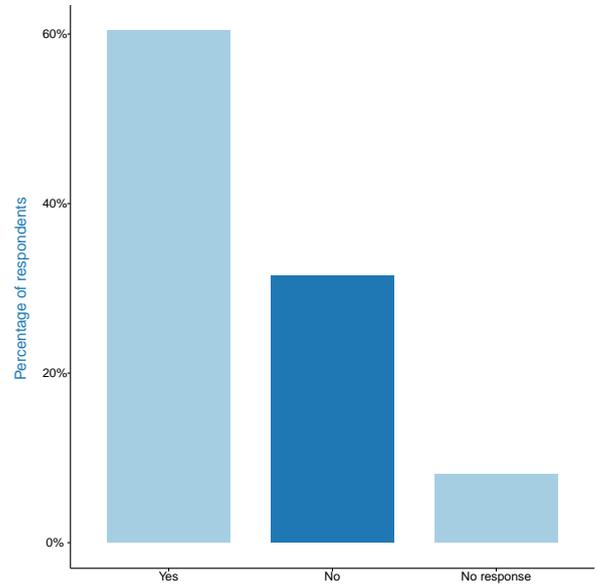


Figure 21: Security for the prized subscriber



of the bid is mostly influenced by one's need for funds (nearly 50%). It appears that members also target days with a minimum discount to time their bid (about 13%). The estimation of the bid amount is not commonly influenced by the financing cost/returns from other avenues and the bids by the other members.

## 5 Economic rationale for chit fund participation

The economic rationale for chit fund membership is examined based on the experience of respondent households which have participated in at least one chit fund over its entire tenure. The respondent households, therefore, have the experience of borrowing and saving through chits. The range of chits covered in the survey varies in terms of the number of rounds, sala, ticket size, allocation method and the type of foreman.

### Characteristics of underlying chit funds

The distribution of the chit funds on (a) sala (b) ticket size (c) tenure and (d) allocation type and (e) type of foreman represented in the responses to the questions on the economic motivation are given in Figures 22 - 25. More than 75% of the funds have a sala of ₹100,000 or lower. The lowest sala is ₹1,000 and the highest is ₹50,00,000. The per ticket contribution varies from ₹100 to ₹50,000 in the sample of funds. About one-third of the funds have per round contribution of about ₹1,000. A majority of funds (about 60%) have a combination of bidding and lottery for the allocation of funds. Lottery allocation is often used to decide the prized subscriber when the foreman runs multiple divisions of the same chit fund. For instance, a fund with a sala of ₹100,000 and 20 rounds could be offered as two divisions of 20 subscribers each with sala of ₹100,000 each, with one division

following competitive bidding and lottery in the other. The lottery acts as a sweetener for the members.<sup>15</sup> Only about 18% of the funds are informally organized. Nearly half of the funds are run by financial companies<sup>16</sup> or cooperative banks. As would be expected, most of the lower sala funds are invested by the relatively low-income households (Figure 26).

Figure 22: Range of sala

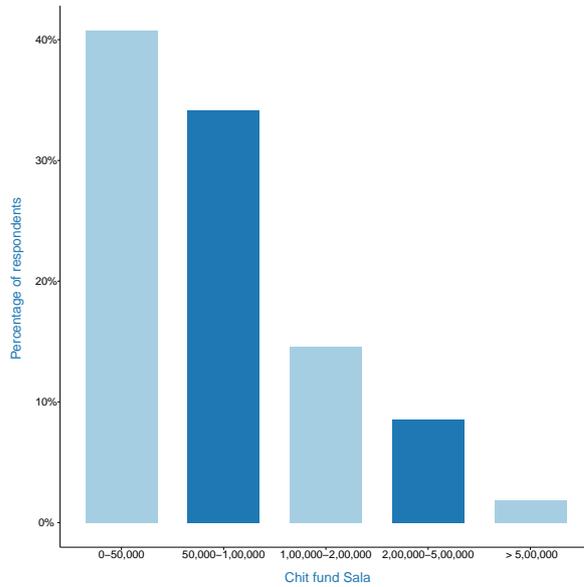
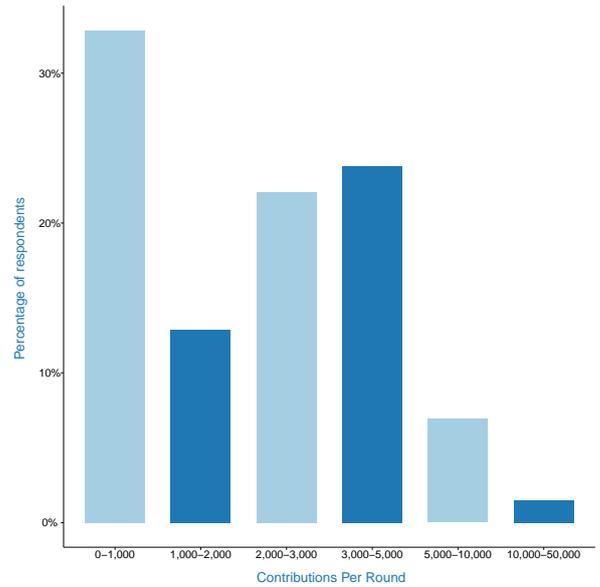


Figure 23: Contribution per round



The high-sala chits are run by financial companies which are regulated under the Indian Chit Funds Act. The relatively low value chits run by individuals concentrate more in low-sala chits up to ₹100,000 (Figure 25). The pattern of chit fund formant type and sala suggest that the high-sala chits are closer to the other financial products in their institutional and regulatory structure.

<sup>15</sup>Details of such a fund is analyzed in section 2

<sup>16</sup>Defined as chits run by affiliates of SEBI registered Non-Banking Financial Companies.

Figure 24: Distribution of allocation type

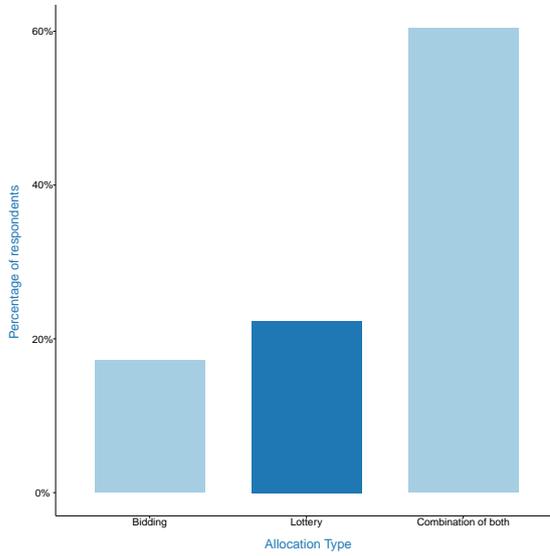


Figure 25: Foreman

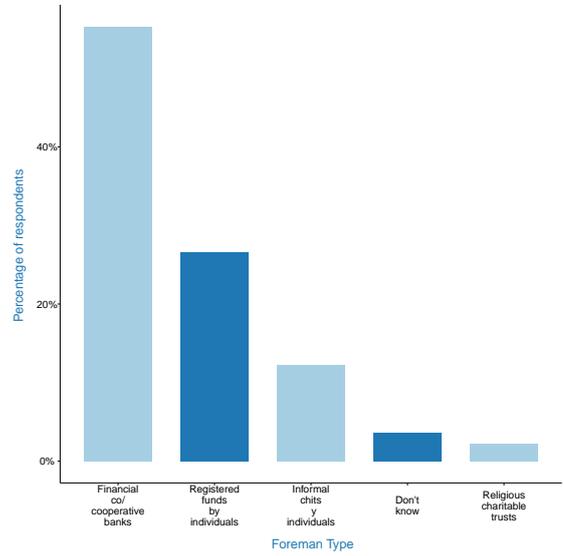


Figure 26: Range of sala - income groups

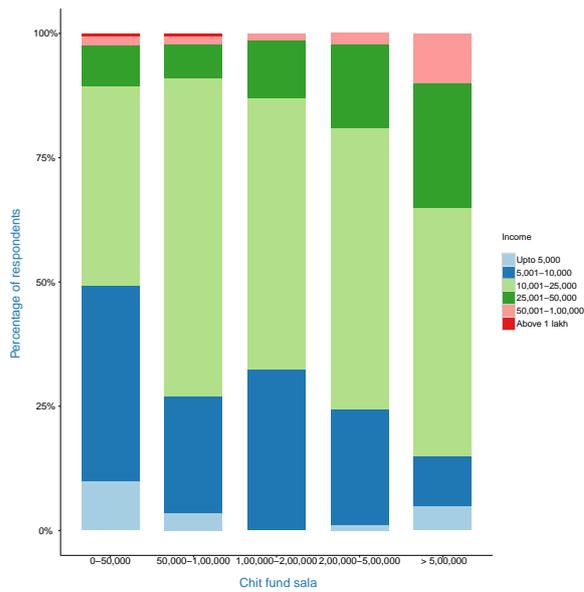
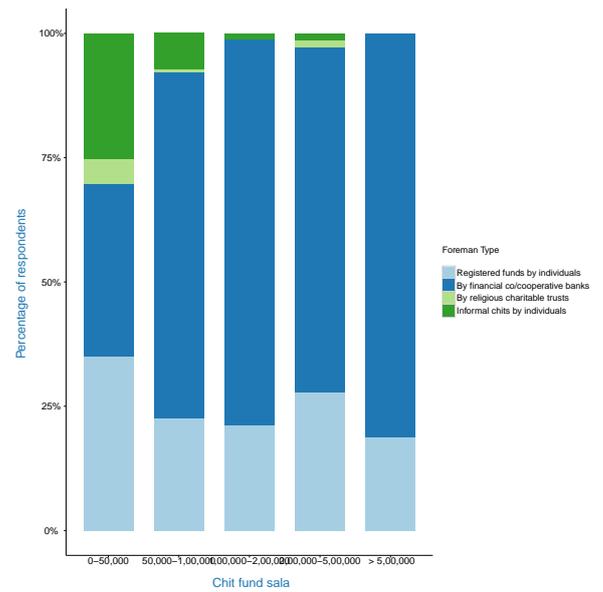


Figure 27: Range of sala - Forman type



## Motivation to join chits

We examine whether the households are primarily motivated by savings or borrowings in their use of chit funds <sup>17</sup>. About 58% of the households report saving as their motivation to employ chits. Nearly 30% of the households consider it as a vehicle for borrowing and saving, endorsing the view that it is a hybrid product which combines credit and savings together. About 6% of the households is motivated by the borrowing feature of chits (Table 3). Given the evidence of the greater use of chit funds as a saving vehicle, it would be interesting to examine, whether, it offers superior outcomes relative to the saving avenues offered by the formal channel.

Table 3: Primary motivation to join the chit fund

Motivation	No. of respondents	% of respondents
Saving	657	57.7
Borrowing	68	6.0
Saving and borrowing	331	29.1
No response	82	7.2
Total	1138	100.0

As discussed as earlier (Figure 14), we do not observe substantial differences in the extent of involvement with chit funds by users motivated by its saving, borrowing, and hybrid features.

## Chits as a savings vehicle - Role and valued features

In its role as a saving vehicle, most of the respondents feel that chit funds help to achieve higher savings amount (85%), which suggests that members value the ability to accumulate a lump sum through periodic subscriptions. Possibly, chit funds instill a greater commitment to savings which leads to larger savings outcomes, relative to other saving avenues. On the other hand, only about 16% of the respondents feel that the returns through chit funds are greater as compared to other saving avenues. The ability to access the accumulated savings any time through bidding is cited by about 14% respondents as an attractive feature of saving through chit funds. On comparison, in a recurring deposit, the accumulated savings are accessible only on maturity. The perception of respondents on the role of chits as a vehicle is given in Table 4.

Taken together, these findings indicate that the savings role of chit funds is less likely to be associated with a high interest rate on savings. On the other hand, respondents endorse its role as a commitment device, which channels discretionary spending into savings.

Most of the respondents perceive a greater commitment to achieving the targeted savings when it is routed through chit funds (68%). On the perceived ability of chit funds to achieve greater savings, about one out of six respondents suggest that collection by agents from time to time contributes to accumulation of the lump sum without failure. It is possible that the collection agent multiplies its role as a commitment device and at the same time reduces the transaction costs for subscribers.

<sup>17</sup>We also take into account the responses from those who are motivated by the hybrid feature of chits.

Table 4: Advantages of using chits as a savings vehicle

Advantage	No. of respondents	% of respondents
Ability to save a greater amount	841	85.1
Higher returns due to the discount bids	155	15.7
Greater transparency	222	22.5
Social value	73	7.4
Flexibility to bid	139	14.1
Tax exemption	32	3.2

*Notes:* The overall gains from chit funds are taxable under the Income Tax Act. However, most of the respondent subscribers do not seem to pay any tax on their income from chit funds. Their income may be below the taxable limit and the limit for tax deduction at source. Probably, they do not pay tax on bank interest either.

Table 5: Reasons for chit funds offering the ability to save a greater amount

Reason	No. of respondents	% of respondents
Collection agent ensures periodic savings	180	18.2
Greater commitment to savings	668	67.6
Peer pressure	34	3.4
No response	106	10.7
Total	988	100.0

We examine further how the chit fund members rate the effective return on their savings.<sup>18</sup> It appears that the members are able to generate returns on their savings in line with their expectation or above (nearly 90%).

Table 6: Comparison of savings/return with own expectations

Comparison	No. of respondents	% of respondents
Significantly greater than expected	6	0.6
Greater than expected	83	8.4
As expected	813	82.3
Lesser than expected	13	1.3
Significantly lesser than expected	59	6.0
No response	14	1.4
Total	988	100.0

While the returns on chit funds match the subscriber expectations, it is not clear how does it compare with alternative opportunities. We obtain the relative ranking of chit funds among a range of popular saving vehicles, such as (a) bank deposits (b) investment in gold (c) investment in land and real estate (d) savings with local money lenders and (e) investment in the stock market, etc.

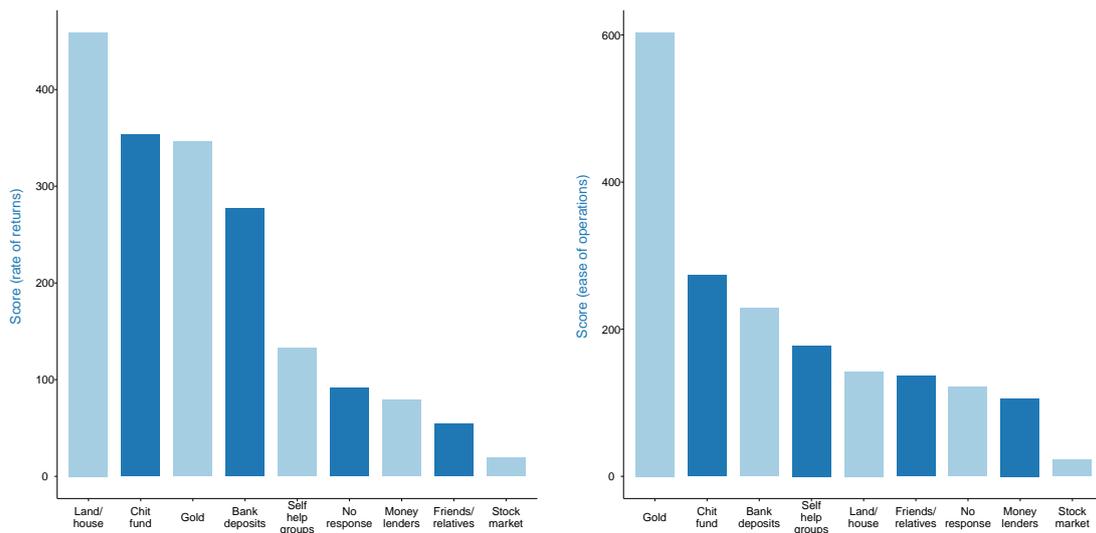
<sup>18</sup>While the chit funds do not explicitly offer an interest on savings, in bidding chits, the discounted bids and the associated dividends work out as interest on the savings

The top-three rankings are obtained on (a) rate of return and (b) ease of operating for each alternative. As a saving vehicle, chit funds are not perceived to offer the highest rate of return, as reflected in the combined rank of chit funds. It corroborates with the findings that the most valued feature of chit fund as a saving vehicle is its perceived ability to accumulate a larger lump sum than the rate of return. However, it is among the top-three saving options, along with investments in gold and land and real estate. The combined rank-based score<sup>19</sup> of the saving alternatives on each dimension is given in Figure 28 and Figure 29.

The popularity of chit funds despite their relatively low ranking on returns is interesting. It is possible the high participation, and valued status of chit funds as a vehicle are contributed by its other features. In terms of ease of using it as saving vehicle, the members regard chit funds among the top-3 but it is not the most favored. On the ease of using, it clearly ranks after gold and is very close to bank savings. The lower ranking of chit funds can be understood as it does not offer any flexibility in the payment of the monthly subscription unlike the recurring deposit in a bank.

Figure 28: Rate of return - Rank score

Figure 29: Ease of operation - Rank score



Noticeably, very few respondents view that there is a direct gain in social engagement from the membership of chit funds. The insignificance of the socialization role of chit fund membership reported here is a departure from the documented evidence of significant social engagement derived from chit fund membership elsewhere in the world. It is possible that the chits offered by formally organized entities are used by the members purely to meet their financial needs of savings and borrowings.

<sup>19</sup>Each respondent ranks the top-3 options out of the 8 saving options given. The combined rank-based score is computed by multiplying rank 1 with 1, rank 2 with 1/2 and rank 3 by 1/3. We have also validated the rank order of the options with Kemeny distance method (Sonia Amodio, Antonio D’Ambrosio, and Roberta Siciliano. “Accurate algorithms for identifying the median ranking when dealing with weak and partial rankings under the Kemeny axiomatic approach”. In: *European Journal of Operational Research* 249.2 [2016], pp. 667–676) by assuming ties for all the options which are not among the top-3 ranked options for each respondent.

Overall, it appears that while chit funds are very popular as a saving vehicle and its valued status can be attributed more its role as a commitment device, which helps to enhance the savings of households.

### Chits as a borrowing vehicle - Role and valued features

We examine the various aspects of chit funds as a borrowing vehicle based on responses from those who use chits primarily as a borrowing vehicle.<sup>20</sup> Those who join chit funds to use it as a borrowing avenue value the flexibility to obtain the lump sum at any point in time over the tenure of the fund through bidding (Table 7). The value placed on the flexibility endorses the economic role served by chit funds as insurance by providing an option to borrow. The high rating of the insurance role through its option to borrow can be understood as the self-employed who face volatile incomes, constitute about 40% of the sample. The value of chits as a contingent borrowing is also documented from elsewhere in the world.

Table 7: Advantages of using chits as a borrowing vehicle

Advantage	No. of respondents	% of respondents
Flexibility to bid	317	79.4
Lower effective rate	94	23.6
Greater transparency	117	29.3
Formalities and security requirements	106	26.6
Social value	17	4.3

While the lack of formality is believed to be a valued feature of chits in many parts of the world, the respondents in the present study are members of highly institutionalized and formalized chits. In line with the formal nature of the funds, we find that ‘Formalities and security requirements’ of chit funds are valued by only about 27% of the members. While borrowing through chit funds involve no explicit interest cost, the excess of the sum of periodic payments over the amount of the successful bid by a member leads to implicit interest cost. Only about one in four members feel that the chit funds provide credit at low interest rates compared to other borrowing avenues (Table 7).

On the other hand, data from the field indicate that chit funds organized by cooperative banks and non-banking financial institutions have much lower interest rate than informal channels such as local money lenders (as discussed in Part IV of the report). As the maximum discount allowed in bids is limited to 30% of the sala, the effective interest rate is capped at 30% in a chit fund with one year tenure, even for the prized bidder at the very first round. For longer term funds, the interest rates significantly decline along with the length of the fund life cycle (details in Section IV).<sup>21</sup> It is also possible that those who use chits primarily for borrowing have lower credit quality to be able to borrow from banks and other financial institutions at low rates, but yet use the rate offered by formal

<sup>20</sup>In the analysis, we also take into account the responses from those who are motivated by the hybrid feature of chits.

<sup>21</sup>Hence, the borrowers would place greater value on interest rate in long-term funds and savers would find shorter funds more attractive on assuming that there is enough borrower demand.

channels in their comparison. Overall, it appears that the insurance role is valued more commonly in chit funds than the interest cost.

We examine further, how the respondents rate the implicit interest rate with their own expectations and with the other borrowing avenues. Relative to their own expectations, most of the borrowing motivated members of chits feel that the effective interest in chit funds is either in line with their expectations (53%) or significantly lower than the expected rate (28%). Hence, it appears that the interest rate in chit funds is not perceived as unreasonable by the members.

Table 8: Comparison of interest cost with own expectations

Comparison	No. of respondents	% of respondents
Significantly greater than expected	1	0.3
Greater than expected	14	3.5
Significantly lesser than expected	113	28.3
As expected	210	52.6
Lesser than expected	27	6.8
No response	34	8.5
Total	399	100.0

We examine the relative ranking of chit funds among a range of popular borrowing vehicles such as banks, money lenders, credit unions, borrowings from business partners and loans from family and friends. The ranking is obtained on (a) interest rate (b) repayment flexibility (c) collateral requirements and (d) ease of borrowing. The rank score of chit funds<sup>22</sup> among the top-3 borrowing vehicles on each dimension is given in Figure 30, Figure 31, Figure 32 and Figure 33. The highlights from the relative ranking of chit fund users on its various features as a borrowing vehicle are as follows:

- (a) As a borrowing option, chit funds are among the top-three options which offer loans at the lowest interest rate, along with banks and informal borrowing from family and friends. The high ranking of chits on interest cost is in line with the anecdotal evidence from the field on the low effective interest cost of chits operated financial institutions and banks.
- (b) The repayment flexibility in chit funds is also highly valued by the members. It appears to be among the top-three preferred options on this dimension of borrowing along with bank loans and borrowing from family and friends. Unlike many conventional bank loans with bullet repayment at the retail level, such as loan against pledge of gold or agricultural loans, it can be paid off as an amortizing loan.
- (c) Chit funds do not rank among the top-3 in terms of the collateral to be offered against the borrowed amount. While chits are regarded worldwide as an informal

<sup>22</sup>Each respondent ranks the top-3 options out of the six borrowing options. The combined rank-based score is computed by multiplying rank 1 with 1, rank 2 with 1/2 and rank 3 by 1/3. We have also validated the rank order of the options with Kemeny distance method (Amodio, D’Ambrosio, and Siciliano, “Accurate algorithms for identifying the median ranking when dealing with weak and partial rankings under the Kemeny axiomatic approach”) by assuming ties for all the options which are not among the top-3 ranked options for each respondent.

mechanism, most of the respondents in this study, operate in chits which are highly formalized. In the formalized chits, the foreman controls the default risk by imposing the requirement of collateral from prized members. It is also possible that compared to the credit quality of average borrower from a bank, the borrowers in chit funds are riskier, and therefore would face rationally require higher collateral.

- (d) In terms of the ease of borrowing, chit funds are not among the top-three preferred vehicles. The lower status of chit funds on this dimension is possibly due to the fact that while it acts as an option to borrow, the timing of the borrowing depends on a successful bid, unlike the other options.

Figure 30: Based on interest rate

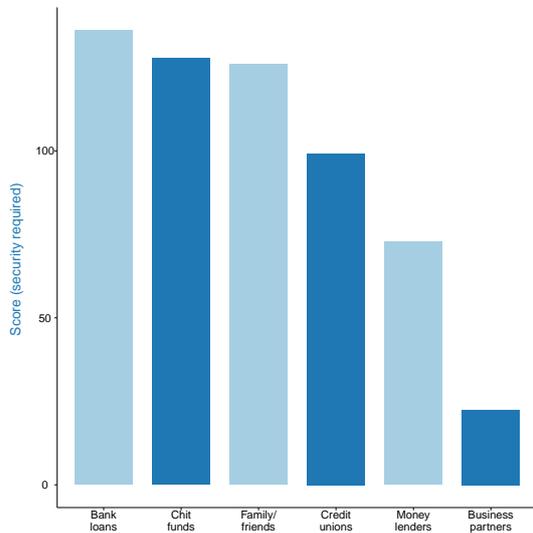


Figure 31: Based on repayment flexibility

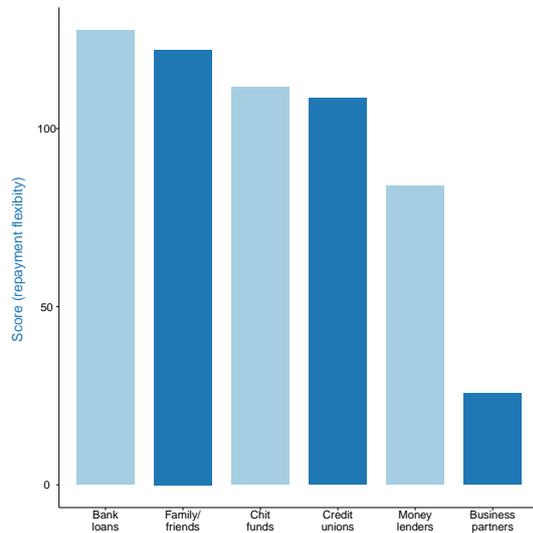


Figure 32: Based on security required

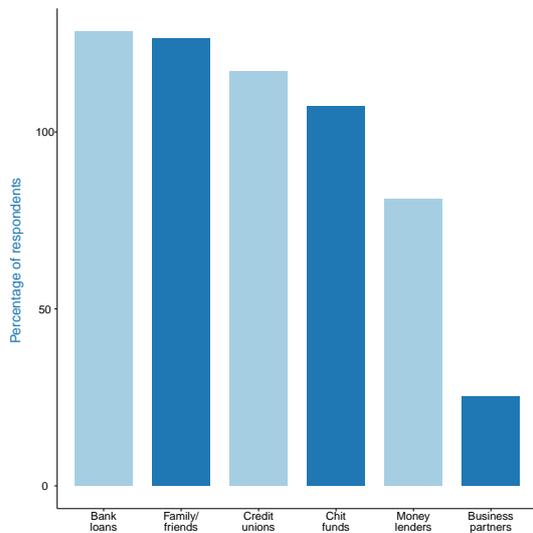
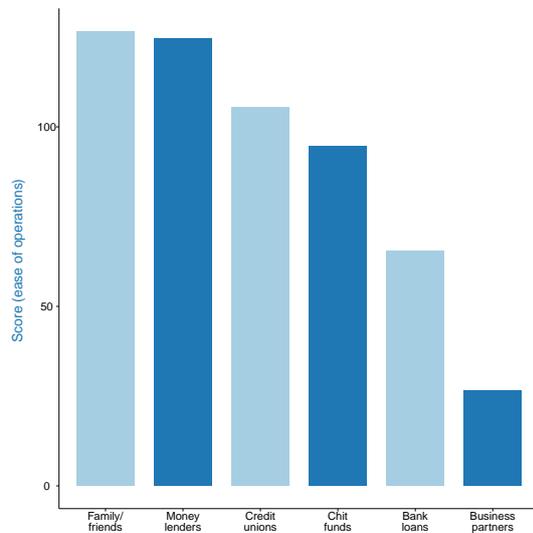


Figure 33: Based on ease of operating



In summary, chits are highly valued for its insurance role by acting as an option to borrow during its life. Users do not view the interest cost of chit fund borrowing as excessively high. The repayment flexibility implicit in chits, where it can be suitably paid off in installments, unlike conventional bank loans is also a highly valued feature of chit funds. Respondents perceive that borrowings through chit funds are easier to operate.

## 6 Major factors shaping the primary use of chit funds

As chit funds combine features of saving and borrowing vehicles into a single product, as discussed the motivation of participants to join chit funds vary. It is documented that many of them employ it as a saving mechanism largely due to its role as a commitment device. Some of the users treat it as a borrowing vehicle, especially given its feature as an amortizing loan. It also offers an option to borrow which acts as insurance. Chit is also regarded as a hybrid product in which the savings and borrowing features are combined. As discussed, the survey identifies three major motives among households to join chit funds - (a) saving (b) borrowing and (c) use it as a hybrid product where one accumulates savings up to a point of time and then draw a larger amount than accumulated. Those who regard it as a hybrid product place a high value on its option to borrow.

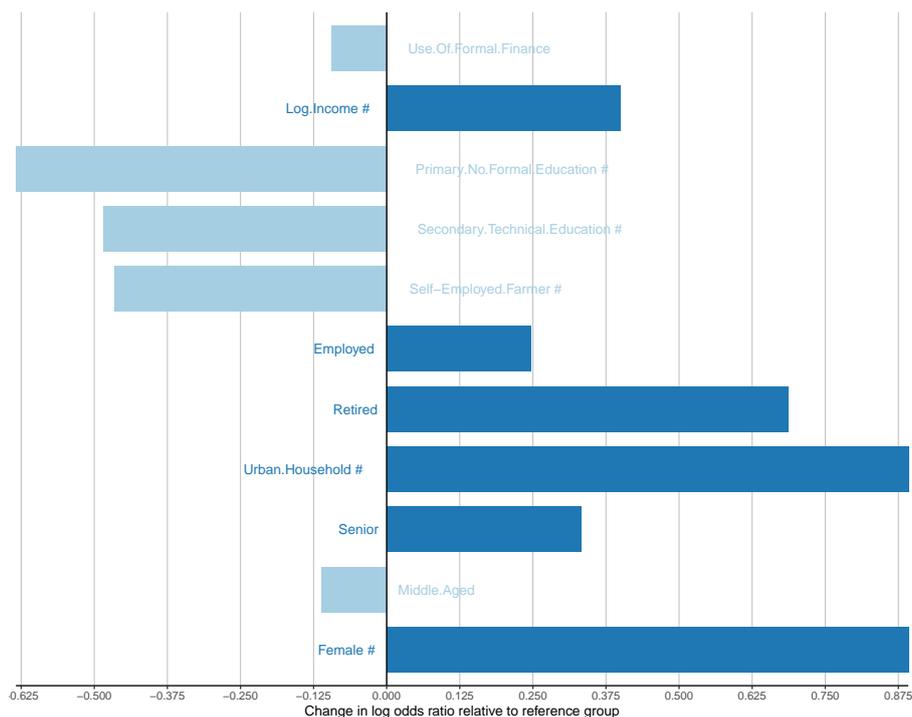
We attempt to identify the extent to which (a) demographic and socio-economic factors and (b) access to formal financial services influence the self-reported primary motive to join chit funds. The analysis is carried out using a multinomial logistic regression with the three self-reported motivations as category dependent variables. We examine how the probability of enrolling in chit funds, primarily for savings or for borrowings relative to chit fund membership to take advantage of its hybrid features, vary across respondents belonging to various socio-demographic and economic groups.

The change in the probabilities is measured relative to a group represented by employed, young, males, who are either graduates or post-graduates hailing from rural households. The change in probability, measured as log odds ratio<sup>23</sup> obtained from the logistic regression, for various groups, for primarily viewing chit funds as a saving avenue is given in Figure 34. Corresponding figures for regarding chit funds as a borrowing vehicle is given in Figure 35. In the figures, bars to the left reduce the log odds-ratio and bars to the right increase the log odds-ratio. Detailed results of the estimation of the logit are given in Table 14 in the Appendix.

Figure 34 suggests that more women are likely to use chits as a saving opportunity than as a borrowing avenue. For instance, the log odds ratio of using chit funds as a saving vehicle increases by 0.892 for women compared to the reference group of men. Similarly, the urban households are more likely to employ it as saving vehicle relative to rural households. The likelihood of the urban households using it as a borrowing opportunity is greater than as against its use as a savings avenue (Figure 35). The increase in the log odds ratio for savings among the urban households could be linked possibly to greater stability in their incomes. At the same time, its employment as a borrowing vehicle among the urban households could be prompted by urban businessmen. The self-employed and farmers are less likely to leverage it as a saving vehicle. Farmers and the self-employed generally face lower and more volatile income, therefore are more likely to place a high value on the

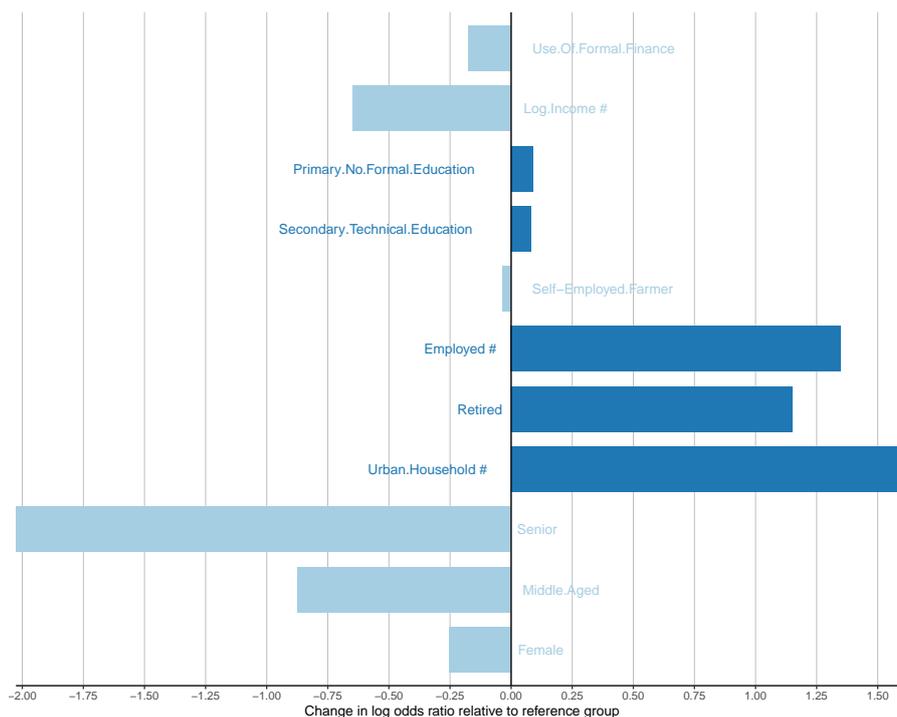
<sup>23</sup>Odds ratio is defined as  $\frac{p}{1-p}$ , where  $p$  is the probability of the occurrence of an outcome.

Figure 34: Likelihood of employing chits for savings relative to its use as a hybrid



*Notes:* Each bar, given against a variable, represents the coefficient obtained from the logistic regression. Bars to the left reduce the log odds-ratio and bars to the right increase the log odds-ratio. The statistically significant coefficients at 5% level or higher are identified with a hash mark to the right of the variable label. Annual household income is the self-reported figure of income. The extent of use of formal sources of finance is calculated from the responses to a set of items to understand the use of formal saving and borrowing products ranging from no-frill accounts (lowest level of the use of formal financial services) in banks to investment in stock markets (highest level of the use of formal financial services). Households in municipal and corporation areas are classified as urban. Respondents in the 18-30 age group are defined as young, those who are 61 years or older are grouped as senior, and the remaining respondents are bracketed as middle aged. The detailed results of the logistic regression are given in Table 14.

Figure 35: Likelihood of employing chits for borrowings relative to its use as a hybrid



*Notes:* Each bar, given against a variable, represents the coefficient obtained from the logistic regression. Bars to the left reduce the log odds-ratio and bars to the right increase the log odds-ratio. The statistically significant coefficients at 5% level or higher are identified with a hash mark to the right of the variable label. Annual household income is the self-reported figure of income. The extent of use of formal sources of finance is calculated from the responses to a set of items to understand the use of formal saving and borrowing products ranging from no-frill accounts (lowest level of the use of formal financial services) in banks to investment in stock markets (highest level of the use of formal financial services). Households in municipal and corporation areas are classified as urban. Respondents in the 18-30 age group are defined as young, those who are 61 years or older are grouped as senior, and the remaining respondents are bracketed as middle aged. The detailed results of the logistic regression are given in Table 14.

option to borrow feature of chit funds. The likelihood of using chit funds as a savings vehicle increases with the household income. On the other hand, richer households are less likely to regard it as a borrowing vehicle (Figure 35). Relative to the educated reference group, households with lower education are less likely to regard it as saving vehicle. The engagement with the formal financial service does not affect the probabilities at all.

Overall the results suggest that socioeconomic groups with lower or unstable incomes are more likely to value chits as an insurance mechanism through its option to borrow. On the other hand, higher income groups are more likely to use it as a saving vehicle.

## 7 Influence of various chit fund features

We examine the influence of various chit fund features on the decision to subscribe to a fund. The features examined include (a) product features (b) allocation method and (c) the type of foreman involved. The survey responses are based on the general experience of participants in chit funds, rather than based on any single fund. Specifically, the respondents are asked list the features which significantly influenced their decision to join funds. The percentage of respondents who identify the different features are given in results are given in Table 9.

Table 9: Features of chit funds that significantly the influence decision to join chit funds

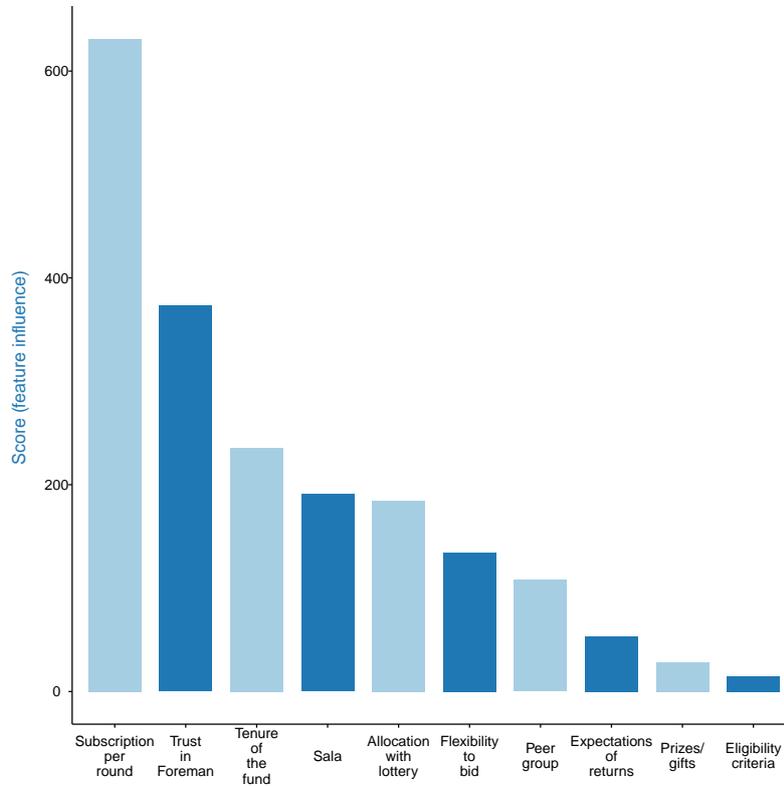
Characteristic	No. of respondents	% of respondents
<b>Product features</b>		
Subscription per round	1018	89.5
Sala	766	67.3
Tenure of the fund	813	71.4
Expectations of returns	569	50.0
Prizes/gifts	84	7.4
<b>Process features</b>		
Allocation with lottery	618	54.3
Flexibility to bid	372	32.7
<b>Other features</b>		
Eligibility criteria	40	3.5
Peer group	255	22.4
Trust in Foreman	775	68.1

The product and process-related features are found to frequently influence the decision to select a particular fund. The trust in the foreman or the chit fund company also frequently influences the membership decision. Features such as the eligibility criteria or the peer group seem to rarely influence the decision. The significance of the product and process-related features and the relative insignificance of the peer group influence suggest that among the different motives that underlie the participation in chit funds, the social engagement role through chit funds is rare for the respondent group.

We obtain the participants' ranking for the top-three features which influence their decision to choose a certain fund. The rank scores of features<sup>24</sup> which feature among the

<sup>24</sup>Each respondent rank the top-3 options out of the 10 features given. The combined rank-based score

Figure 36: Rank score of features that influence decision to join



top-three is given in Figure 36.

The contribution per round is the most influential feature among the top-3 which influences the decision to join the chit fund. The influence of the contribution per round is somewhat intuitive given the compulsivity of the subscriptions, unlike other financial products such as a recurring deposit. Another product feature among the top-3 features is the tenure (duration) of the fund, implying that members highly favor a fund which matches their horizon of savings or borrowing. The perceived trust in the foreman is also among the top-3 influential features of chit funds. Allocation by way of lottery also features among the top-three features for about quarter of the respondents. It is interesting to notice that lottery based allocation is not as widely preferred as others as it weakens the insurance role of chit funds by crippling the ability to borrow by competitively quoting discounts. It is possible that the saving- and borrowing motivated values the lottery option differently

The weak influence of social engagement is also reflected in the preference for chit funds run by financial companies as given in Table 10. It appears that majority of the participants (52%) prefer to join funds which are run by financial companies or cooperative

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is computed by multiplying rank 1 with 1, rank 2 with 1/2 and rank 3 by 1/3. We have also validated the rank order of the options with Kemeny distance method (Amodio, D’Ambrosio, and Siciliano, “Accurate algorithms for identifying the median ranking when dealing with weak and partial rankings under the Kemeny axiomatic approach”) by assuming ties for all the options which are not among the top-3 ranked options for each respondent.

banks. The funds run by the financial companies are highly formal with written agreements covering almost all the aspects of the governance of the funds, such as eligibility, bidding, security, and default. The formal funds also have a larger number of subscribers. The widespread influence of the product and process-related features suggest that the participants value chit funds as a vehicle which essentially performs useful economic roles.

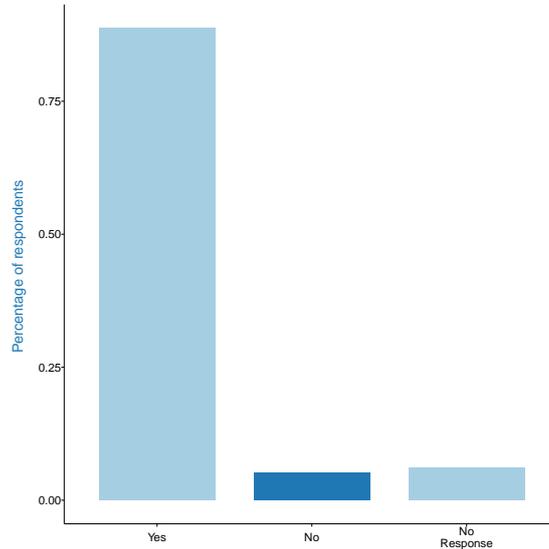
Table 10: Preference for chit funds based on type of ownership

Type of fund	No. of respondents	% of respondents
Registered funds by individuals	189	16.6
Operated by religious charitable trusts	113	9.9
By financial companies/ cooperative banks	608	53.4
Informal chits by individuals	124	10.9
Don't know	15	1.3
No response	89	7.8
Total	1138	100.0

In summary, chit fund users attempt to frequently choose funds where (a) the periodic contribution match their income levels (b) the sala meets their targeted requirements of borrowing / saving (c) the tenure of the fund matches their horizon and (d) the foreman is trustworthy.

### Perception about fairness of chit fund management

Figure 37: Fairness of chit fund management



The despite anecdotal evidence of the misconduct of foremen from different parts of the country, the respondents in the surveyed region feel that the foremen follows fair practices in managing the chit funds. Our finding is unsurprising, as most of the survey respondents are members of highly formalized and regulated chits.

## Part IV

# Comparison with the formal financial sector

## 1 Interest cost and yield

We attempt to compare the outcome of chit funds with similar products offered in the formal financial sector. The data source for the comparison is the bid data of chit funds over the full life cycle for funds run by (1) Kerala State Financial Enterprises (KSFE), Thrissur, Kerala, an institution in the public sector, which specializes in chit funds and (2) Vilvattom Cooperative Bank, Thrissur<sup>25</sup>. Based on the bid data and other information about the chit funds, such as the number of tickets, sala, foreman commission, we estimate the interest cost and savings rate for various users from these funds by computing their IRRs<sup>26</sup>. The sala of both the funds is ₹100,000. The maximum discount that can be quoted by bidders of both the funds has a regulatory cap 30% to limit the default risk in the funds. The foreman commission also has a regulatory cap of 5% of the sala in both the funds. However, there are important differences between the funds as described later.

We compare (a) interest rate for the borrower (b) the yield for the saver and (c) the foreman commission with the formal sector products.

## 2 Cooperative bank chit fund

The chit fund run by the Vilvattom cooperative bank had a total of 60 participants grouped into three divisions of 20 each. The per round contribution was ₹5000. The sala for each of the division was ₹100,000 ( $5000 \times 20$ ). The amount accumulated in every round is allotted to three individuals, out of which one is allocated based on lottery and the remaining two on competitive bidding. The prized bidder based on lottery gets the sala. The other two prized bidders were paid their respective bid amount. In the first round, the subscribers contribute the full amount and in all the following rounds, the contribution is linked to the discount quoted in the two bids. More specifically, the discount would be averaged between the bids and then divided equally across the 60 participants to decide the next round contributions. For instance, if each of the two bids quotes a discount of ₹30,000, then the next round collection would include a per member discount of ₹1000 and the collection would be ₹4000, instead of the agreed per round contribution of ₹5000. Typically, the bid amount increases gradually through the lifecycle of the fund.

The two first round bids were ₹91,900 and ₹91,200. Net of their own subscription of ₹5,000 each and the foreman commission of ₹5,000, the prized subscribers were paid ₹81,900 and ₹81,200 respectively. The lottery winner was paid off ₹90,000 net of her own subscription of ₹5,000 and the foreman commission. The effective rate of return of chit

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<sup>25</sup>The data of the chit run by the cooperative bank is given by the bank management. The data of the KSFE fund is directly taken from the record shared by a member.

<sup>26</sup>Known as internal rate of return, where the present value of the money deposited in different rounds equals the present value of the prized amount

fund subscription for prized subscribers for various illustrative rounds in both the funds are given in Table 11. The rate of return for a (saver) borrower would be the annualized IRR of the prized subscriber who takes amount at the (last) first round.<sup>27</sup>

The borrower who successfully bid in the first round (Bid 1) at 8.1% discount to the aggregate amount for the 20-month long cooperative bank chit fund (left panel of the table), effectively faces an interest cost of about 14.5% per annum. The second successful bidder in the first round pays an effective interest rate of 15.8%. The borrowing cost is significantly lower, at about 2.25% when the allocation is through a lottery. The lower borrowing cost under lottery allocation is due to the allocation of a higher amount (larger borrowed amount), which is just sala net of foreman commission of 5%. The effective interest rate in the neighborhood of 15%, paid by the borrowers, is comparable to the borrowing cost from formal financial institutions, given the profile of the borrowers. As the cash flows underlying the IRRs of the intermediate rounds (5 and 15) are not pure borrowings they cannot be directly compared with other borrowing vehicles.

On the other hand, the yield for the savers (20<sup>th</sup> round prized subscriber) is negative for the fund (-2.25%).

Table 11: IRRs of chit funds

Cooperative Bank				KSFE	
Round	Prized bid 1	Prized bid 2	Lottery recipient	Round	Prized bid
1	14.54	15.76	2.25	1	18.64
5	41.19	38.62	3.90	10	15.13
15	-9.66	-9.52	-4.81	30	1.53
20	-2.25	-2.25	-2.25	40	1.81

### 3 KSFE chit fund

The sample chit fund run by KSFE is also has a sala of ₹100,000, but has lower per round contribution of ₹2,500 and runs for 40 months (3 years and 4 months). It has forty subscribers and the allocation is entirely based on bid, where the discount is capped at 30%. The IRR for various subscribers similar to that the cooperative bank chit fund is given in the right panel of Table 11.<sup>28</sup>

The borrower in the first round bids at a maximum discount of 30% at ₹70,000 and net of their own subscription of ₹2,500, they get a cash flow of ₹67,500. The effective interest rate for the borrower in the KSFE fund is about 19%. It is higher than in the chit fund run by the cooperative bank. The saver (prized subscriber in the 40-th round) earns a higher yield, at about 1.8% for the KSFE fund, compared to that of the fund run by the cooperative bank.

The savings rate appears to be significantly below for both the funds as against those offered in the formal sector. This is at odds with the perceived returns revealed in the

<sup>27</sup>The monthly net cash flows of the Cooperative bank chit fund for (a) the first round prized subscriber (borrower) and (b) the final round successful bidder (saver) are given in Table 15 in the Appendix

<sup>28</sup>The cash flows for a borrower (prized subscriber in the first round) and a saver (prized subscriber in the last round) of the chit fund run by KSFE is given in Table 16 in the Appendix

survey, where chit funds were ranked above bank savings in terms of return. Why are the savers ending up earning very poor yields in a mutual borrowing and saving arrangement? First, for each of the funds, the analysis presented here gives the effective interest rate at which the collected funds are loaned in the first round. The effective lending rates progressively decline during the subsequent rounds. Towards the last quarter of the life cycle of the fund, the lending rates very low. Hence, at the average lending rates work out to be low. Second, from the gross yield earned by the fund, the foreman charges a commission of 5%. The findings indicate that while the interest rates for the borrowers in chit funds possibly makes it attractive for them, the yield for savers is unattractive. It appears that the savers possibly place a high value on non-yield aspects of chit funds such as like option to borrow and its commitment feature.

### **Intermediation cost**

Chit fund foremen take 5% of the sala as intermediation charges. Like banks, the foreman is expected to underwrite the losses associated with defaults. The intermediation cost of 5% appears to be high relative to the net interest margin of the Indian banks. However, the comparison of the intermediation cost of chit funds and banks must take into account (a) the collection services through agents from the premises of the members which save their time and resources and (b) the lower average ticket size of chit fund subscriptions.

## Part V

# Conclusion and discussion

Households in Kerala have significant involvement with chit funds despite their engagement with the formal financial services, for their saving and borrowing requirements. The participation in chit funds is increasing in household income and engagement with the formal financial sector. The findings on participation in chits do not indicate that the formal financial sector and chit funds are largely substitutable, as often assumed.

Chit funds are more frequently employed by households for their savings than borrowings. Chit funds are also treated as a hybrid vehicle with the options to borrow, which adds to its popularity. As a saving vehicle, most of the respondents feel that chit funds help to achieve higher savings amount through periodic subscriptions. Possibly, chit funds enforce greater commitment to savings which leads to larger savings outcomes. At the same time, chits are not perceived as a product to maximize return on the savings. The popularity of chit funds despite their relatively low ranking on returns is possibly due to its role as a commitment device, which channels discretionary spending into savings. Borrowers through chits value the flexibility to time the lump sum at any point in time over the tenure of the fund. The value placed on the flexibility endorses the economic role served by chits as insurance. Participants also value the amortizing structure of repayment of chit borrowings.

The likelihood of employing chits for savings rises with household income. Socio-economic groups with lower or unstable incomes are more likely to value chits as an insurance mechanism through its option to borrow.

Potential subscribers in chits highly favor a fund which matches their horizon of savings or borrowing. Lottery based allocation is not widely preferred, possibly as it weakens the insurance role of chit funds. A majority of the participants prefer to join funds run by the formal institutions operating chits such as financial companies and cooperative banks. The widespread influence of the product and process-related features suggest that participants value chit funds as a vehicle which essentially performs an economic role.

While the success of chit funds is often attributed to the enforcement social contracts among a cohesive group of individuals, chit funds in the surveyed region resemble formal financial products, with a considerable degree of formal contracts. Noticeably, very few respondents perceive any direct gain in social engagement from the membership of chit funds.

The widespread participation in chits suggests chit funds are offering valuable functional features which are non-existent in the counterparts offered by the formal sector.

# Appendix

## A Use of formal financial products/services

Table 12: Dimensions employed to capture the use of formal financial services

Item	Response	Score
Use of banking services	No	0
Type of banking service:		
No frills account	Yes	1
Bank loan	Yes	2
Bank savings account & fixed deposit	Yes	3
Bank savings, current account & bank loan	Yes	4
Savings in the stock market	Yes	5

The maximum score on the use of formal financial sector products is 5. We classify respondents with Score = 0 as 'Non-participants', those with score 1 and 2 as 'Low-participants' and those with score 3 or above are classified as 'High-participants'. Implicitly, we assume that stock market savers use all the bank vehicles.

## B Determinants of chit membership

Table 13: OLS Regression of Chit Fund Participation

Intercept	-3.607 (5.340)
log of annual household income	1.577** (0.565)
Secondary education	-3.144** (1.152)
Higher education (graduate or post graduate)	0.519 (1.222)
Extent of use of formal sources of finance	0.623* (0.314)
Urban household	0.194 (0.904)
Adj. R <sup>2</sup>	0.038
Num. obs.	1005

\*\*\* $p < 0.001$ , \*\* $p < 0.01$ , \* $p < 0.05$ ,  $p < 0.1$

The dependent variable is the extent of self-reported annual savings/borrowing targeted by the households through chit funds. Annual household income is the self-reported figure of income. The extent of use of formal sources of finance is calculated from the responses to a set of items to understand the use of formal saving and borrowing products ranging from no-frill accounts (lowest level of the use of formal financial services) in banks to investment in stock markets (highest level of the use of formal financial services). Households in municipal and corporation areas are classified as urban. Respondents in the 18-30 age group are defined as young, those who are 61 years or older are grouped as senior, and the remaining respondents are bracketed as middle aged.

## C Factors influencing the self-reported primary motivation to chit funds

Table 14: Results logistic regression

	Saving	Borrowing
Intercept	-2.627* (1.285)	5.128* (2.327)
Female	0.892*** (0.206)	-0.254 (0.416)
Middle aged	-0.111 (0.268)	-0.872 (0.447)
Senior	0.332 (0.435)	-2.026 (1.185)
Urban household	0.892*** (0.225)	1.625*** (0.363)
Occupation - retired	0.687 (0.434)	1.150 (0.909)
Occupation - unemployed	0.246 (0.363)	1.349* (0.576)
Occupation - self-employed/farmer	-0.446** (0.165)	-0.033 (0.363)
Secondary/technical education	-0.484** (0.180)	0.081 (0.391)
Primary /No formal education	-0.634* (0.265)	0.089 (0.540)
Log of household income	0.399** (0.129)	-0.648** (0.240)
Use of formal financial vehicles	-0.094 (0.071)	-0.173 (0.133)
AIC	1469.786	1469.786
BIC	1586.341	1586.341
Log Likelihood	-710.893	-710.893
Deviance	1421.786	1421.786
Num. obs.	950	950

\*\*\* $p < 0.001$ , \*\* $p < 0.01$ , \* $p < 0.05$

Annual household income is the self-reported figure of income. The extent of use of formal sources of finance is calculated from the responses to a set of items to understand the use of formal saving and borrowing products ranging from no-frill accounts (lowest level of the use of formal financial services) in banks to investment in stock markets (highest level of the use of formal financial services). Households in municipal and corporation areas are classified as urban. Respondents in the 18-30 age group are defined as young, those who are 61 years or older are grouped as senior, and the remaining respondents are bracketed as middle aged.

## D Monthly cash flows of a chit fund

Table 15: Vilvattom cooperative bank (figures in rupees)

Round	Per round cashflows of saver			Per round cashflows of borrower		
	Bid 1	Bid 2	Lottery	Bid 1	Bid 2	Lottery
1	-5000	-5000	-5000	81900	81200	90000
2	-4719	-4719	-4719	-4719	-4719	-4719
3	-4621	-4621	-4621	-4621	-4621	-4621
4	-4584	-4584	-4584	-4584	-4584	-4584
5	-4643	-4643	-4643	-4643	-4643	-4643
6	-4623	-4623	-4623	-4623	-4623	-4623
7	-4655	-4655	-4655	-4655	-4655	-4655
8	-4817	-4817	-4817	-4817	-4817	-4817
9	-4785	-4785	-4785	-4785	-4785	-4785
10	-4806	-4806	-4806	-4806	-4806	-4806
11	-4801	-4801	-4801	-4801	-4801	-4801
12	-4950	-4950	-4950	-4950	-4950	-4950
13	-4875	-4875	-4875	-4875	-4875	-4875
14	-4933	-4933	-4933	-4933	-4933	-4933
15	-4948	-4948	-4948	-4948	-4948	-4948
16	-4944	-4944	-4944	-4944	-4944	-4944
17	-4999	-4999	-4999	-4999	-4999	-4999
18	-5000	-5000	-5000	-5000	-5000	-5000
19	-5000	-5000	-5000	-5000	-5000	-5000
20	90000	90000	90000	-5000	-5000	-5000
Monthly IRR	-0.19%	-0.19%	-0.19%	1.14%	1.23%	0.19%
Annualized IRR	-2.26%	-2.26%	-2.26%	14.56%	15.77%	2.25%

## E Monthly cash flows of a chit fund

Table 16: Chit fund run by KSFE (figures in rupees)

Round	Saver	Borrower	Round	Saver	Borrower
1	-2500	67500	21	-2383	-2383
2	-1875	-1875	22	-2413	-2413
3	-1875	-1875	23	-2437	-2437
4	-1875	-1875	24	-2450	-2450
5	-1875	-1875	25	-2450	-2450
6	-1875	-1875	26	-2438	-2438
7	-1875	-1875	27	-2448	-2448
8	-2024	-2024	28	-2432	-2432
9	-1975	-1975	29	-2445	-2445
10	-2106	-2106	30	-2450	-2450
11	-2163	-2163	31	-2460	-2460
12	-2370	-2370	32	-2500	-2500
13	-2275	-2275	33	-2475	-2475
14	-2342	-2342	34	-2500	-2500
15	-2324	-2324	35	-2500	-2500
16	-2320	-2320	36	-2500	-2500
17	-2275	-2275	37	-2500	-2500
18	-2363	-2363	38	-2500	-2500
19	-2380	-2380	39	-2500	-2500
20	-2420	-2420	40	92500	-2500
Monthly IRR				0.15%	1.43%
Annualized IRR				1.82%	18.64%

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