

Rule Preferences for Rotating Savings and Credit Associations (ROSCAs): Household Surveys from China

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Abstract: Rotating savings and credit associations (ROSCAs) are considered as one of the most prevalent forms of mutual financial aid in developing countries. As a traditional method for cooperation, ROSCAs demonstrate huge rule disparities temporally and geographically. In this paper, we attempt to understand whether and how people's preferences for a given ROSCA rule is related to their personal characteristics in a particular society. We conducted interviews in five Chinese villages and report how personal characteristics correlate with their ROSCA rule preferences. Narrative analysis is used to determine possible reasons behind the correlations. Based on the interviews, we found that: 1) more reciprocal groups/individuals tend to choose the ROSCA type without extra interest, while less reciprocal groups/individuals prefer the ROSCA type with extra interest charged; 2) in the villages where participants are less patient, the ROSCA rule tends to include negotiation-oriented elements when deciding the order of obtaining a money pot. On the other hand, where people are more patient, people tend to decide the order randomly. This paper reveals how different ROSCA rules have been formed in the interviewed areas and concludes that the fitness of a certain ROSCA rule can rationally be explained by the needs, patience and reciprocity of participants.

Keywords: ROSCA, rule disparity, cooperation, financial mechanism design.

1. Introduction

There is continued and intense interest in financial mechanism designs which are trying to involve more small and rural savers (Hamada, 2000). Despite the development of microfinance, based on recent data, it is estimated that 2.7 billion adults remain unbanked, especially in the developing world (Bauchet, 2018; Cull & Morduch, 2017). Numerous studies have stressed the importance of offering more inclusive and diverse financial services and have shed light on informal financial institutions (IFIs). One of the most

prevalent forms of informal financial institutions, rotating savings and credit associations (ROSCAs) usually happen among relatively homogenous people who live close to each other and have similar consumption abilities or preferences, with limited outside financial resources. As a self-managed organization, ROSCA is considered as a poverty alleviation tool, motivating local people to mobilize their own resources and finance growth from their profits (Seibel, 2001). Kovsted (1999) described the origin of a ROSCA as a "private borrowing-lending

club”, which highlights its mutual help function in its development history. In most cases, when someone had need of money for a single item expense such as for house construction, a wedding, treatment for disease, or other emergency use—i.e., lumpy consumption— (s)he could only rely on household savings or personal borrowing from relatives and friends in most cases. As an important social capital, a ROSCA may provide a solution to finance access issues in less developed areas and at the same time strengthen mutual trust in a community.

Basically, a ROSCA holds meeting regularly. At each meeting, everybody contributes to a common “money pot”, and the fund is given to one of the members until every member has received the funds once. Despite this common principle, ROSCAs can be found in most developing countries with different names and management structures. ROSCAs have appeared in different countries with various names, forms, and rules, for example, *paluwagan* in the Philippines, *mujin* or *tanomoshiko* in Japan, *hui* in China, *kei* in Korea, *pasanakus* in Bolivia, *djanggi* in Cameroon, *susu* in Trinidad, *ekubs* in Ethiopia, and *chit* in India. ROSCA rules also vary widely in terms of the amount of funds in the money pot, the number of members, frequency of meetings, and so forth.

The previous literature has mainly discussed ROSCAs from three dimensions. First, ROSCAs work as a substitute for insurance, especially in developing countries where markets for insurance do not function well (Ambec, 2007; Klonner, 2003). Second, ROSCAs enable the purchase of durable goods. In the work of Besley, Coate, and Loury (1993), their model shows that rather than autarky, ROSCAs enable participants to buy durable goods sooner. Third, ROSCAs can help people to cope with their self-control problems and serve as a commitment device (Ambec, 2007; Anderson & Baland, 2002). However,

limited research has focused on temporal and geographical differences in ROSCA rules. Research on how ROSCAs are organized, in terms of underlying individual preferences, may provide a clearer picture of the role of rural informal finance and increase financial diversities for developing countries. In this paper, ROSCAs in China, where they are called *Hui* or *Hehui*, are studied. *Hui* has a long history in China. Although they have disappeared in some developed areas, *Hui* is still a popular informal mutual aid financial institution in rural areas of China. *Hui* has survived until today suggests that it serves an economically useful function. There are reasons why a study on *Hui* may be attractive. First, *Hui* is still considered as an important informal financial mechanism in rural China. Despite the emergence of modern financial institutions, *Hui* continue to be popular in rural China since it is more flexible and familiar to the local. Second, *Hui* is an example of how human society forms cooperation and helps each mutually. Third, *Hui* are closely related to local economics, society, and culture. We hypothesize that the characteristics of the *Hui* are correlated with local situations and people’s preferences. In this study, we particularly focus on rule disparities in different villages. Basic household information is collected in the field and through recorded interviews and narrative analysis, this paper tries to illustrate local peoples’ preferences related to ROSCAs and to determine potential reasons for such preferences. The particular characteristics of each ROSCA probably respond in some way to the needs of the population living in the area.

This paper is organized as follows. Section 2 introduces the historical background and local mutual aid organizations in the fieldwork site. In section 3, we show the investigation results in terms of ROSCA rule disparities based on narrative analysis, and the rules of the ROSCA in each village where interviews

were conducted are summarized. Section 4 concludes the paper.

2. Fieldwork in China

2.1 Field Background

The fieldwork site, Tunbao, is an area located in the center of Guizhou Province in China. The Tunbao culture originated from the southern expedition of the troops of Emperor Zhu, the founder and first emperor of the Ming Dynasty (1368–1683). After the troops suppressed rebellion and conquered southern China, Emperor Zhu ordered troops to be stationed there and to farm the wastelands in order to stabilize the south. He also forcefully moved craftsmen, civilians, and criminal officials from central China to this area. Before the arrival of Zhu's troops, the area was occupied by minorities whose cultures were different from those of the troops. Thus, the reclaimed troops lived in this enclosed area, surrounded by mountains, and refused to communicate with those outside for a very long period. After hundreds of years, a unique Tunbao culture formed and, in particular, mutual aid organizations were established widely. Based on the information from our pre-investigation, we concluded there were three mutual aid organizations in the region as follows.

1) The exchange of labor force – *Huanqi*

In the busy farming season, deficit of labor happens in almost all households. Instead of asking their husbands to help, who need to step away from the family business, women in these villages usually form into eight-person groups which share the labor and rotate to help each household during the busy period. Normally, group members are composed of relatives or friends. The basic rule of the group is that the labor recipient should serve group members lunches during their service.

2) Buddhist organizations – *Fotou Hui*

In the 1940s, Tunbao women started to join local Buddhist organizations. Their regular activities included prayer and eating vegetarian food in the temple. The organizations collected funds used for the pilgrimage traveling fee and the betterment of temples. Compared to the Buddhist spirit of the women, the men tended to believe in *God Wang*, who was a successful bureaucrat and business man in Ming Dynasty. Despite the pragmatic nature of the men's beliefs, they support the women's Buddhist activities by paying the necessary fees and allowing their absence from home for several days.

3) ROSCA – *Hehui*

ROSCAs are called *Hehui* in this area and have developed over hundreds of years. As observed in real cases and related research, one important characteristic of ROSCAs is that they originally emerged among people who lived in isolated areas and who had limited access to formal financial institutions. In the Tunbao area, almost all households are involved with at least one *Hehui* group. Although accessibility of formal finance and contacts with outsiders have increased, the Tunbao people are still keen to participate in *Hehui* to solve their money problems.

Seibel (2001) reports the trends of informal institutions to evolve “from labour, kind or pre-monetary currency, to cash; from non-financial to financial groups; from short-lived to permanent groups”. In our fieldwork, a similar phenomenon was observed in terms of ROSCA organization and rule varieties.

2.2 Investigation and Descriptive Data

In January and February 2019, interviews were conducted in five villages of the Tunbao area where ROSCA groups currently exist or once did. With the help of local government officials, interviewees were

randomly chosen from villager lists and 60 households were interviewed in each village. Around 80% valid questionnaires are collected of each village. The descriptive statistics about the five fieldwork villages, identified as villages A to E, are given in Table 1.

Table 1 Descriptive data of villages A–E

	A	B	C	D	E
Total number of villagers	1,531	1,692	1,461	2,023	2,350
Total number of respondents	50	46	48	50	50
Main industry/income sources	Tea factory Agriculture	Store Tourism Agriculture	Tourism Agriculture	Business Tourism Agriculture	Sugar factory Agriculture
Monthly household income (<i>yuan</i>) (mean)	6,980	6,554	7,510	10,120	6,794
Age (mean)	44.9	44.5	38	42.2	42.3
Gender (mean)	0.58	0.50	0.43	0.62	0.62
Years of education (mean)	7.5	5.5	7.5	9.4	6.5
Household number (mean)	5	7	5	5	6
Age <18 yrs	1	1	1	0.76	1
Age >60 yrs	0.9	1	0.7	0.74	0.7
Bank account (1=yes)	0.9	0.87	0.97	0.94	0.88
Bank loan (1=yes)	0.54	0.22	0.48	0.58	0.22
Alipay Finance (1=yes)	0.6	0.67	0.86	0.8	0.68

In the interviews, we specially focused on the villagers’ financial activities, including main income source, usage of bank account, bank loan, Alipay Finance, and, most importantly, ROSCA participation. According to the data of Chinese government, rural per capita disposable annual income was 13,066 yuan in 2018¹ and the average income of interviewees in Table 1 is higher than the national level. The main income sources are agriculture and related industries, such as tea and sugar factory work. A new phenomenon is that, since the Tunbao area was listed among conservation districts of historic sites in China, the tourism industry has become another pillar of the local economy. A nine-year compulsory education policy started in China in the 1990s. In Table 1, the

average number of years of education among the study subjects in each village is less than nine years in all villages but one (village D).

3 ROSCA Rule Preferences and Analysis

As a widely used method of cooperation, ROSCAs comprise various schemes with temporal and geographical disparities. In this paper, we focused on the potential factors that may influence people’s rule preferences. Detailed ROSCA rules in the five villages are firstly presented in this section.

3.1 Two Main ROSCA Types in Tunbao

Two main ROSCA types are observed in the Tunbao area, as shown in Tables 2 and 3; the

¹ http://www.stats.gov.cn/tjsj/zxfb/201901/t20190121_1645791.html

payments and number of group members vary depending on group needs. The first row in each table demonstrates the order in which the members obtain the money pot, and the first column is the index of regular meetings. The amount in the money pot at each meeting is indicated as the total income, and the amount of money paid by each participant by the end of the round of meetings is shown as the total payment.

In the *Traditional* ROSCA type shown in Table 2, each member pays the same amount at each meeting, whereas in the *Interest* ROSCA type shown in Table 3, payment structure is different, which members need to pay extra money after (s)he obtained the money pot.

According to our investigation, the *Interest* ROSCA type in Table 3 is currently more popular in the five villages, even though earlier obtainers are charged extra money as a compensation for latter obtainers while the *Traditional* ROSCA type shown in Table 2 remains only for a limited number of people.

We interviewed several participants who belong to the above two ROSCA types. The following answers show their potential motivations in choosing different types.

Interviewer: Which kind of Hehui types have you joined and why?

Interviewee 1 (male, 65 years old): “I’m in the type where everyone pays the same money until the end, no matter what the order is [Traditional type shown in Table 2]. Our group has been more than 20 years with the same members. No matter what age you are, you always need lumpy money...money for building a house, for a son’s wedding, and for a parent’s funeral ...recently, young people prefer the type with interest; it’s difficult for our elder people to calculate. We’ve already gotten used to this system. In our lives, there is always some time when you need this help. It’s not necessary to charge extra interest.”

Table 2 *Traditional* ROSCA type in Tunbao area

Meeting/order	Leader(1)	2	3	4	5	6	7	8	9	10	Total income/Each member
1st meeting	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	10000
2nd	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	10000
3rd	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	10000
4th	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	10000
5th	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	10000
6th	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	10000
7th	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	10000
8th	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	10000
9th	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	10000
10th	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	10000
Total payment	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	
Net income	0	0	0	0	0	0	0	0	0	0	

Table 3 *Interest* ROSCA type in Tunbao area

Meeting /order	Leader(1)	2	3	4	5	6	7	8	9	10	Total income/Each member
1st	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	10000
2nd	1100	1000	1000	1000	1000	1000	1000	1000	1000	1000	10100
3rd	1100	1100	1000	1000	1000	1000	1000	1000	1000	1000	10200
4th	1100	1100	1100	1000	1000	1000	1000	1000	1000	1000	10300
5th	1100	1100	1100	1100	1000	1000	1000	1000	1000	1000	10400
6th	1100	1100	1100	1100	1100	1000	1000	1000	1000	1000	10500
7th	1100	1100	1100	1100	1100	1100	1000	1000	1000	1000	10600
8th	1100	1100	1100	1100	1100	1100	1100	1000	1000	1000	10700
9th	1100	1100	1100	1100	1100	1100	1100	1100	1000	1000	10800
10th	1100	1100	1100	1100	1100	1100	1100	1100	1100	1000	10900
Total payment	10900	10800	10700	10600	10500	10400	10300	10200	10100	10000	
Net income	-900	-700	-500	-300	-100	100	300	500	700	900	

Interviewee 2 (male, 40 years old): “Now I’m in two *Hehui* groups. In both of them, you need to pay extra money after obtaining the money pot [*Interest* type shown in Table 3]. I’m in the first and twelfth orders of the groups. I think *Hehui* is quite good because it can help us to solve the urgent need for money. Yes, even if we have to pay extra interest. I think it’s natural because it is the same as when other people lend you money. I wouldn’t join if I was in a late order without extra money, and I’d rather save the money in Alipay.”

The above conversation reveals different considerations when participating in a ROSCA. Although they all agree the existence of ROSCAs are necessary for mutual financial aid, Interviewee 1 who chooses the *Traditional* type considers that, because everyone has money problems in their lifetime, it is not necessary to charge extra interest to an earlier obtainer in a single ROSCA out of mutual-aid spirit. However, Interviewee 2 who chooses the *Interest* type thinks that even if it is for the purpose of helping others, the helpers should not suffer the loss due to late obtaining; thus, extra interest payments can motivate people to join.

Despite the rule differences, the capacity of one ROSCA group normally ranges from 10 to 50 persons. The money pot is flexible and changes with the numbers of members and their needs; the frequency of meetings is usually once a month. In each ROSCA group, at least one leader exists and is responsible for organizing and collecting money. These rules are

based on common sense and are similar in every village.

3.2 Rules for Deciding ROSCA Orders

Generally, the order of obtaining the money pot is decided by lottery before the whole ROSCA starts or before each meeting (random ROSCA), given to the person who gives the highest bid in that meeting (bidding ROSCA), or decided by negotiation before beginning (negotiation ROSCA). In the field, we observed that random ROSCA and negotiation ROSCA are adopted in different villages. For villages B and D, ROSCA groups tended to decide the obtainment order by ex-ante negotiating, whereas villages A, C, and E preferred the more random method of throwing dice in advance. In either case, the leaders are responsible for organizing the meetings. The ROSCA rules in villages A~E are shown in Tables 4, and we provide two answers from group leaders in villages D and E in terms of how the obtaining rule is decided.

Interviewer: How does the group decide the obtaining order and why this rule is chosen?

Interviewee in village D: “Of course, the order will be negotiated and decided in advance. Only when everyone is satisfied with the order can a ROSCA start operating. This is natural, I think - otherwise no one would join a ROSCA if the obtaining point couldn’t satisfy their needs since some join it for an extra interest and some for earlier money use.”

Table 4 ROSCA rules in villages A-E

	Village A	Village B	Village C	Village D	Village E
Throwing dice	○		○		○
Negotiation depending on needs		○		○	

Interviewee in village E: “We decided the order by rolling dice. Yes, sometimes participants can exchange the order by themselves; but still, rolling dice is fair for everyone. It’s acceptable even we couldn’t get the most desirable order. We can utilize money pot earlier if we get earlier order and obtain extra interest when get later order.”

Based on the above quotes, we found that the willingness to wait of the participants affects the obtaining order rule significantly. In the villages where participants are less patient, the ROSCA rule tended to include negotiation-oriented elements when deciding the order of obtaining a money pot. On the other hand, where people are more patient, people tended to decide the order randomly.

4 Results and Discussion

Although facilitating access to credit and formal financing among the poor has been high on the agenda for governments and institutions, success has been limited in most rural financial institutions in developing areas for a long period (Jain, 1996; Yaron, 1992a). Certain traditional institutions, such as ROSCAs, have worked better in some areas. In this paper, fieldwork and interviews about ROSCA rule diversities were conducted in five Chinese villages and we have explored their possible reasons in relation to the participants’ ROSCA rule preferences.

Based on the investigation results, ROSCA members in villages B and D prefer to include negotiation-oriented elements when deciding the order of obtaining a money pot. In these villages, we found that the levels of participants’ patience are relatively low. On the other hand, in villages A, C, and E, people show more patience when joining a ROSCA group; therefore, they relied on a more random way, such as throwing dice, of deciding the obtaining rule. This result can be also interpreted intuitively. When

most of people are impatient, they will decide to join a ROSCA group only the obtaining orders satisfy their needs (according to a negotiating way). When groups members are more patient, they can accept the random orders more and more fair to everyone.

Our previous research (S Zhao & M Horita, 2019) established an agent-based model and simulated people’s choices among different ROSCA types with the consideration of reciprocity value, which is considered as how much you care about other’s utility. The simulation results showed that altruistic people prefer *Traditional* ROSCA type; otherwise, they tend to choose *Interest* ROSCA type. According to our investigation in the five villages, the empirical data supports the above simulation results. Interviewees who choose to join *Interest* ROSCA type care more about the contribution and income than people who join *Traditional* ROSCA type who think “you help me, and I will help you back in the future” which is the typical reciprocal spirit (Nowak, 2005).

Understanding the decision-making rationale underlying informal financial institutions such as ROSCAs is critical to economic development because there is a great deal of evidence implying that financial markets in developing countries are highly imperfect. An abundance of previous research shows that various motivations stimulate people to choose ROSCAs instead of formal institutions. In this paper, we analyzed the culture in which ROSCAs are rooted and try to reveal how different ROSCA rules were formed in various groups and areas. In the Tunbao area, ROSCAs act as a financial intermediary and show a good ability to adapt to people’s different needs and preferences. This research demonstrates possibilities in understanding how to design better financial instruments available to the rural economy where the influence of cultural dimensions and

specific habits, beliefs and values should not be underestimated.

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