

Project update (20/3/2023)

1 Background

Rotating savings and credit associations, or Roscas, are the most prominent informal financial arrangements in developing countries. Fundamentally, these associations are a voluntary grouping of individuals, most likely connected within their social networks, agreeing to periodically pool a pre-determined fixed sum into a collective 'pot', which is then allotted to each of the members in turn. Upon receiving the pot, that member is excluded from collecting the pot in future rounds but is still obliged to contribute. Once every member has already collected the pot, the group either disbands or starts a new cycle. Roscas are observed world-wide in both rural and urban areas, across all genders and income groups, and in societies with and without established formal credit markets.

This project provides an empirical analysis regarding the economic incentives of Roscas and how they interact with the development of formal credit markets. The traditional view of Roscas is that they exist because of a lack of access to formal credits. However, in societies with a well-established formal credit market, Rosca membership remains common. Using a large microcredit reform which improves access to formal credits for rural households, our empirical analysis provides the first causal relationship between access to formal credits and participation in Roscas. In order to understand the mechanisms driving these relationships, we then build and estimate a structural model of Roscas participation where individuals face income uncertainty and also have access to savings and potentially formal credit markets. From the model we conduct welfare and policy analysis, where we emphasize how the presence of informal credit institutions may affect policy makers' valuation of formal credit arrangements such as micro-finance program.

2. Progress report

Data. This project uses data mainly from the Townsend Thai Project's monthly surveys of rural households conducted in four Thai provinces distinct in economic conditions. The panel dataset is a clustered, stratified, random sample of around 45 households from each of four villages distributed across each of the four provinces, totalling approximately 720 households. The dataset contains 24 different modules including rich information on household composition, consumption, borrowings in various forms, income, agricultural activities and investments, and detailed records of each household's rosca participations.

Together with my PhD student (Benjapon), we have finalized the sample used for the empirical analysis. Our final sample therefore constitutes a panel of 551 rural households spanning 100 months. Note that the Townsend Thai data also collect annual rural household data of a larger sample of around 960 households, a third of which are the same households as in our sample. Unfortunately, due to the lack of detailed rosca data important for our estimation in the annual sample, we cannot exploit this larger annual sample.

Empirical analysis. I estimate the impact of formal credit access on Roscas participation, employing the Townsend Thai monthly panel survey dataset and a micro-finance reform implemented by the Thai government in 2001 called the “Million-Baht Village Fund” program. In the spirit of Kaboski and Townsend (2012), I exploit the fact that the reform uniformly injected a fund of one million baht into each of the 77,000 villages country-wide to establish a village bank which then provided credits for households regardless of the village size. Along with the reform’s rapid introduction, this strong variation in the intensity of credit injection across villages gave the transfers a plausible degree of exogeneity and can be used as an instrument for consistently estimating the effects of households’ village fund amount (formal credits access) on various Roscas outcomes richly available in the data.

I have completed a preliminary empirical analysis of the data. Overall, I find that the effects of Village Fund credit on rosca are positive across all the outcomes both in the short and over the long run. The effects on whether household participated in rosca and the payments made by households into rosca are statistically significant with the long-run effects sizing slightly larger. The results are robust to the addition of household-level controls and fixed effects.

Mechanisms and welfare. The next step of the project will develop a theoretical model to illustrate individual/household’s motives for joining Roscas and to disentangle potential channels through which Roscas participation may have interacted with formal credit arrangements. On the one hand, access to formal credit market can complement participation in Roscas in that it allows Roscas members to hedge against risks induced by the uncertainty in allocation of the pot and thus may ex ante improve welfare through the reduction in the cost of participating in Roscas. On the other hand, formal credit arrangements may crowd out Roscas participation as it enhances the value of outside option and thus would lead to both ex ante and ex post improvements in welfare only if the formal credit market is imperfect or when there exists a gap in borrowing-saving rate. These two competing forces are first incorporated and discussed in a model proposed by Fang, Ke, and Zhou (2015) but virtually no empirical support is provided. The richness of information observed at high frequency in the long Townsend data, combined with the exogenous Million Baht micro-finance arrangement, therefore allows us to contribute and validate the model and theories. Furthermore, policy-makers can be informed of the value of micro-finance program in presence of informal credit arrangements pervasive in developing countries.