ROTATING SAVINGS AND CREDIT ASSOCIATION (*ARISAN*): IMPACT STUDY ON HOUSEHOLD-LEVEL ANALYSIS

Riska Dwi Astuti[1], Amirullah Setya Hardi[2]

Universitas Islam Indonesia[1], Universitas Gadjah Mada[2]

riska.dwi.astuti@uii.ac.id

Abstract

Despite the fact that informal financial service is one of the most important alternative solutions for those in need yet do not have the capability to access the formal ones, its role is understudied. This study aims to analyze the impact of one of the informal financial services that have been developing within communities, rotating savings and credit association that is popular in term of arisan in Indonesia, on household economy measured by its spending on food and non-food. Using information from two latest data of Indonesian Family Life Survey processed with the difference in differences and matching methods, results show that household participation in the arisan is able to increase food and non-food expenditure after adjusted with inflation. Robustness checking through controlling several covariates shows consistent output sign and significances. It demonstrates that, statistically, arisan is able to improve its participant economic capabilities.

Keywords: *arisan, impact, expenditure, household*

JEL Classification: *D14, G51, O12, R20*

INTRODUCTION

Rotating saving and credit associations (rosca) has been being a financial means to save and borrow money with certain mechanism since a long time. In Indonesia, it is more popular with the term of *arisan.* Although it might seem traditional, it is perceived to be a more practical solution to cope with financial problem especially for those who has limited access to formal financial institutions. In Taiwan, a*risan* is known as *Hui* while in Ethiopia it is popular in term of *Equb*. Basically it is an activity of savings and credit that uses term of participant instead of debtor-creditor. Arisan does not applied significant cost for the participants, yet it costs an indirect cost through depreciation due inflation since it typically has no additional money for participant who get the money in the last period. In a more general definition, the *arisan* is a set of activities in which every participant contribute the same amount of money in a regular time (for example weekly or monthly) for a predetermined period. Accumulated money in a regular time of meeting is given to selected participant commonly by randomization. However, several *arisan* applied auction and some other has arranged scheduled participant who will be the receiver of the money. Regular meeting is held until all participant receive the money. For those who got money in the beginning of period has a same role with the debtor because they receive the accumulation of money in initial period and they are obligated to pay a certain nominal of money in regular meetings until the arisan period is ended. In contrast, participants

who receive the money in the end of period are similar with creditor since they only deposit money in every meeting until the last meeting they receive their accumulation of deposited money.

Arisan might not play a role in protecting the value of money from inflation risk because the amount of money deposited and obtained is always the same throughout the period. The interesting part about arisan is its function as a fund mediation when access to formal financial institutions is limited. In addition, social gathering also reduces borrowing costs for recipients of funds at the beginning of the period even though the recipient of the final funds will bear the burden of reducing the value due to a decrease in the value of money. Levenson and Besley (1996) conclude that *hui* (Taiwan's rosca) is an alternative savings for the community besides saving in formal institutions. Household financial stability is one of the important factors in influencing hui participation. This study also explains that most of the hui conducted in Taiwan was in the form of an auction, not random. This system allows interested individuals to get the lottery results by submitting the auction nominal to later win the lottery (if there are several participants who submit the auction). This method provides more prices to hui participants who want funds at the beginning, such as borrowing funds that impose additional costs. However, in general, the cost of obtaining a hui fund at the beginning of the period does not exceed the costs incurred when borrowing money at a formal financial institution. For hui participants who choose the most recent fund acquisition, they benefit because they do not need to submit an auction to get a lottery so there are no additional fees. Hui plays an important role as financial intermediation in the informal sector especially for people who have limited access to formal financial institutions.

Kovsted and Lyk-jensen (1999) argue that rosca is able to improve the welfare of its participants, both random and auction methods. In East Africa, joining rosca is mostly driven by the needs for education, health, and consumption (Kimuyu 1999). A study conducted by Lasagni (2014) indicates that money received by the member of arisan was usually used for various needs such as consumer goods, durable goods, financing economic activity and travelling.

Generally, arisan in Indonesia are established by certain communities based on the similarity of profession, place of residence, kinship and certain associations. There are several types of social gathering that are developing such as arisan kantor (rosca for workers in a same office), arisan in market (typically traditional market), *dharma wanita* (women group), farmer groups, youth groups, and so on. In fact, it is difficult to define the pure motive from joining arisan since social and economic might be the two strongest factors. A research on equb by Bisrat, Kostas, and Feng (2012) stated that a person's main motivation to participate in large-scale equb (relatively large nominal of acquisition) is a financial motive whereas for small-scale equb is social motives such as the need to gather with community members. In addition, small scale equb usually starts from communities that have strong relationships such as friendships, coworkers, schoolmates and neighbors while for large-scale equb members do not always have close relations.

Based on Indonesian Family Life Survey (IFLS), nationally representative data, there were dramatic increases of arisan participation after 2 global crisis in 1998

and 2008. Regarding data in 2000, percentage of respondent who involved in arisan activity was 56.10 percent. This number is almost doubled compared with percentage participant in 1997 that was only 29.44 percent. Furthermore, data in 2007 provide information a jump percentage from 23.36 percent to 30.87 percent in 2014. A fact that arisan is mostly joined by women might indicate that arisan is used as one of mother's strategy to be economic buffer when access to formal institution is limited. In Indonesia, it is common that woman especially mother has a role as a buffer of many aspects in household including economy. This study aims to empirically analysis to what extend arisan affects household economy. Results of analysis is expected to contribute on bringing arisan into a new understanding that its role can be significant. Despite enrich the literature of informal club for financing, research-based analysis of arisan is expected to strengthen the role of this association to be alternative solution for household finance.

LITERATURE REVIEW

Rotating savings and credit associations (ROSCA) is well-known as *arisan* in Indonesia, *jum'iyyah al-muwazhzhin* or *al-qardhu al-ta'awumi* in Arabic, *hui* in Taiwan, and *equb* in Ethiopia. In general, all of the above terms contain the same meaning in which the activity of payment of the same amount of money by all participants in each period is then drawn by one participant who will get a collection of funds in the period concerned. There is an element of saving and debt at once. Participants who get the arisan lottery results (get the collected fund) at the initial of certain period, then the these participants are in debt at the beginning because in the period of subsequent draws they must continue to pay the same amount until the period ends. Conversely, the participants who get the lottery at the end of the period, they are like saving some money in each regular scheduled period. The difference with credit and savings held by formal financial services is that in arisan there is no significant cost to get the initial lottery or get excess funds due to getting a lottery at the end. In other word, participants who get rotating funds at the beginning of the period mean that they are indebted to all participants so they are obliged to pay nominal funds agreed upon in long the period.

Research on *equb* by Bisrat, Kostas, and Feng (2012) stated that a person's main motivation to participate in large-scale equb is a financial motives while for small-scale equb tends to social motives. The later motive is sometimes intended to gather community members. In other word, *equb* is used as only means for gathering members. Small scale *equbs* are usually conducted by communities that have strong relationships such as friendships, coworkers, schoolmates and neighbors while for large-scale equb members do not always have close relations.Since there has been limited numbers of informal financial institutions, *equb* remains popular for a long time.

Based on the mechanism of the lottery, equb consists of three types, namely random equb, auction equb or bid, and pre-deterministic equb. Random equb is done by allocating a collection of funds in one period to members randomly while allocations to the auction equb are done with more than one offer to its members. If

there are several members who want funds in the same period, then there is a special provision by the organizer to choose more members who are entitled to get the collection of funds. Pre-deterministic Equb, according to Sandsor in Bisrat, Kostas, and Feng (2012), is carried out like equb but when all members have obtained funds, the order of fund acquisition in the next round refers to the first round.

A study on *hui* in Taiwan, conducted by Levenson and Besley (1996), concluded that *hui* was an alternative savings for the community besides saving in formal institutions. It was explained that most of *hui* conducted in Taiwan was in the form of an auction, instead of random. This system allows interested individuals to get the lottery results by submitting the auction nominal (if there are several participants who submit the auction). This method provides more prices to hui participants who want funds at the beginning, just like borrowing funds that impose additional costs. However, in general, the cost of obtaining a *hui* fund at the beginning of the period does not exceed the costs incurred when borrowing money at a formal financial institution. *Hui* participants who choose the latest fund, they get benefit of the no auction needed to get a lottery. Thus, there are no additional fees. *Hui* plays an important role as financial intermediation in the informal sector especially for people who have limited access to formal financial institutions.

METHODS

This study uses data from Indonesian Family Life Survey (IFLS) that represent 83 percent of Indonesia's population at its first round. As an ongoing longitudinal data in Indonesia, IFLS has been conducted in 1993, 1997, 2000, 2007 and 2014 by the RAND Corporation in collaboration with several reputable universities and research institution in Indonesia. This study utilizes the last two waves of IFLS: wave four (2007) and five (2014).

In general, the participant of *arisan* is individual. Furthermore, regarding on data from IFLS 2014, more than 75 percent of participant are women aged above 26 years old. Naturally, it is widely known that *arisan* is more popular and dominated by mothers in Indonesia. We suspect an issue that women especially married women tend to share their resources with other household members. This spill-over effect might produce an under estimate result for participant as individual. In order to eliminate this issue, we use household as the unit of analysis. Panel dataset is arranged consists of 10,009 households for each time period (year).

Analysis in this study uses household expenditure as a measurement of household welfare. Furthermore, we use food expenditure in a month and non-food expenditure in a year as outcomes of analysis. Variable of food expenditure was also used as an outcome on a research conducted by Bazzi, Sumarto, and Suryahadi (2015) and Islam and Maitra (2012) as a proxy of changes in household welfare.

The main independent variable is arisan participation by a household formed as a dummy variable which recorded as "1" if there is at least 1 household member join(s) arisan. We make effort to minimize the potential omitted variable bias by adding several control variables namely, household income, number of household members, dummy of ownership of non-farming business, dummy of farming activities

in household, highest education in the household, status of the house occupied (self-own or otherwise), and the utilization of certificates of poor status (SKTM). Descriptive statistics is displayed in table 1 as follows.

Table 1 Descriptive Statistics

Variable	Participant		Non-participant	
	mean	st. dev	mean	st. dev
Non-food expenditure	9,066,439	31,300,000	5,386,850	24,600,000
Food expenditure	1,389,567	1,262,661	1,017,094	2,032,332
Household income accumulation	38,300,000	73,400,000	22,900,000	60,100,000
Household size	2.774671	1.245405	2.328652	1.128572
Non-farming households	0.4700438	0.4991261	0.3423231	0.4745091
Farming household	0.3168047	0.4652532	0.310239	0.4626129
Highest education in household	11.05202	3.670072	8.800428	4.197657
Self-owned House	0.797662	0.4017625	0.724635	0.4467188
SKTM utilization	0.1607404	0.3673092	0.1620013	0.3684691

This study employed a method that comparing the difference in outcome before and after arisan for the participant to the difference in outcome before and after arisan for household who did not join arisan at all. The method is difference in differences (DiD) method that is also able to eliminate the unobserved confounding which do not vary over time. The DiD method basically compares intervened groups and comparison groups in terms of changes in results from time to time relative to the results observed for the pre-intervention baseline (Khanker, R. Shahidur, Koolwal, Gayatri B, Samad 2010). Panel data consisting of two periods with settings $t = 0$ is the period before intervention and $t = 1$ is the period after the intervention and Y_t^T and Y_t^C are treatment and control group outcomes, then the DiD equation can be written as follows:

$$DiD = E(Y_1^T - Y_0^T | T_1 = 1) - E(Y_1^C - Y_0^C | T_1 = 0) \quad (1)$$

Where $T_1 = 1$ means treated household at $t = 1$ and $T_1 = 0$ represents untreated household. In this study the intervention in question is the minimum participation of one household member in the arisan program. The advantage of the DiD method is that it allows for differences in factors that cannot be observed as long as the heterogeneity is constant throughout the study period. By adding control variables and by using a regression framework, the equations in this study can be written as follows:

$$\text{pengeluaran}_{it} = \alpha + \delta arisan_{it}t + \sigma arisan_{it} + \theta t + \beta covariats_{it} + \varepsilon_{it} \quad (2)$$

The coefficient of the social gathering interaction variable and t (δ) is the average effect of DiD from arisan. According to Khanker, R. Shahidur, Koolwal, Gayatri B, Samad (2010) there are 3 important requirements for applying the DiD method. First, the equation model is correctly specified. For this reason, this study includes several control variables in the form of several factors that are likely to influence household expenditure into the model. Second, the assumption that error terms do not correlate with explanatory variables. Third, unobserved characteristics that influence program participation status do not vary during the study period.

Figure 1 Parallel Trend Assumption
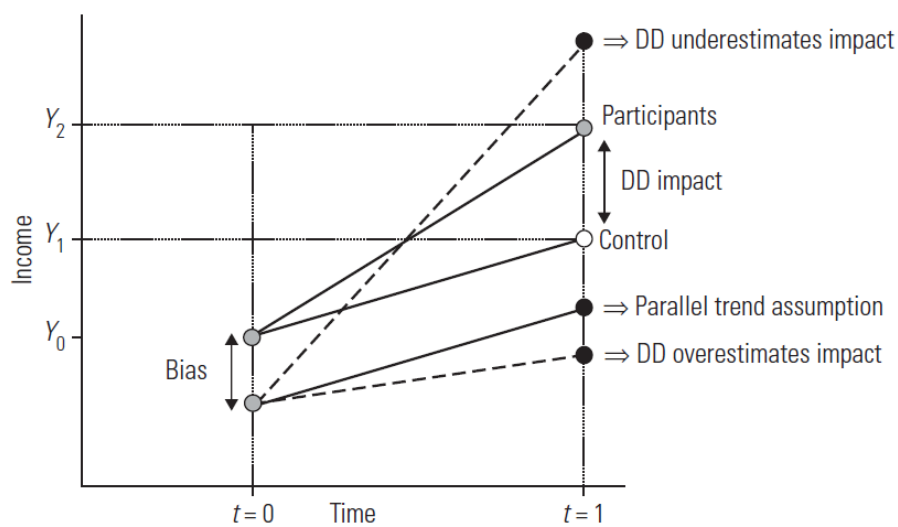
Source: Khandker et. al., 2010

One more essential assumption that must be addressed for using DiD namely parallel assumption seems hard to be meet. Considering that arisan is less likely joined by poor and near poor households, the different trend of consumption might happen. For these reason, we combine matching method to overcome the issue of dissimilar trend. With sufficient data, matching method can be combined with DiD to obtain better match treatment households and controls based on household characteristics in the period before the program (t = 0). Furthermore, the calculation of program impact (arisan) is calculated based on treatment and control households that are in the area of common support. The estimated effect of DiD for each household in the panel data with 2 time periods t = {1, 2} can be calculated by an equation below:

$$DiD_i = (Y_{i2}^T - Y_{i1}^T) - \sum_{j \in C} \omega(i,j)(Y_{j2}^C - Y_{j1}^C) \qquad (3)$$

Where ω (i, j) is the weight (using the matching approach) that is given to the control household paired with the participant's household.

RESULT AND DISCUSSION

Based on data from the Indonesia Family Life Survey (IFLS) in wave 4 (2007) and wave 5 (2014), there are many types of arisan that have been developing in the communities. There are several types of arisan which are generally conducted such as arisan of: office, RT, RW, village, dharma wanita (female *dharma*), market, family, religious groups, friends, retirees, farmer groups, youth groups and motorbike. The average number of social gathering participants in one round was 57 people with a median of 30 and an average round period of 22 months. The five most followed arisan are: arisan of office members, family, friendship-based, neighborhood, and religious groups. Regarding information from IFLS, these five types of arisan displayed occupy 77% of the whole arisan that develop in the community in which arisan of friends has the largest portion. It is very reasonable considering that the friendship community is the most ideal community for mutual bearing and mutual trust. In general, the friendship community is formed from the similarity of hobbies to the convenience of communication so that arisan becomes the most ideal activity to realize financial support for its circle.

It is inevitable that community participation in the arisan program is not always motivated by economic factors. Social reason is also one of factors that encourage individuals to participate in this program. In reality, it is not easy to distinguish between social and economic motives of individuals in joining arisan. From an economic standpoint, arisan participants can get loans (for participants who get funds at the beginning of the period) and deposits (for participants who get funds at the end of the period) at a relatively low cost. From a social standpoint, arisan participants benefit from regular meetings so that it becomes part of their social capital. Regardless of the motives, *arisan* still always provide economic benefits for its participants.

Impact of arisan participation on household non-food expenditure

In order to measure to impact of *arisan* participation on household welfare, we do quantitative analysis using impact evaluation tools: difference in differences (DiD) as well as matching method. Before DiD regression was conducted, matching method was applied for data in the base period (2007). The score of propensity resulted from matching process for each observation is used to pair observations in the group of participants with non-participants so that we can eliminate respondents who do not have a match. In other word, we drop the observations whose different behavior. The next analysis will only involve observations that are in the area of common support. After the observations are selected in the baseline period, the next step is to manage the next period data and then analyze the diff-in-diff method. Fixed effects method is also done to check the consistency of results and robustness checking. The former regression analysis was carried out using non-food expenditure for one year as outcome. Meanwhile, the later analysis replaced the outcome with variable of food expenditure for one month.

Table 2 Output Regression using Non-Food Expenditure as Outcome

	Using DiD (1)	Using DiD (2)	Fixed Effects (3)	Fixed Effects (4)
DiD (arisan*year)	5300862.7*** (778936.3)	4701116.5*** (768196.4)	5897909.8*** (928346.2)	5623537.4*** (928244.1)
Income accumulation in HH		0.0533*** (0.00295)		0.0254*** (0.00447)
household size		-68922.8 (173242.5)		679164.2* (356130.0)
business HH		1516387.0*** (395719.8)		1051565.1 (709693.5)
farming HH		730950.3* (427875.6)		2011605.9** (955064.2)
highest education in household		614547.5*** (51775.2)		128430.9 (140350.7)
self-owned house		1120451.1** (481045.3)		1818888.5** (893649.5)
SKTM utilization (poor certificate)		-1897386.9*** (528293.6)		-858560.4 (809394.0)
N	21,018	21,018	21,018	21,018

Standard errors in parentheses
Variable of arisan (dummy) and year (dummy) are included on analysis but are not displayed.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Variable of DiD in the table 2, interaction of year and arisan participation dummy variables, indicate that participants had statistically higher expenditures, both food and non-food. Specifically, households participating in arisan in 2014 had a higher household economic activities as indicated by the average difference in non-food expenditure by IDR 5,300,863 compared with non-participant. After involving a number of control variables in the model, the significance remained at the level of 1% and the coefficient stayed the same even though the magnitude of the coefficient has decreased slightly to IDR 4,701,116. Similar results were also obtained from the analysis using fixed-effects method in which arisan participation in 2014 increased household food and non-food expenditure.

A positive coefficient of 0.0533 in the income variable means that, on average, an increase in household income of 1 IDR raises household expenditure by IDR 0.053. In other words, an income increase by 1 million will increase non-food expenditure by IDR 53,000. The number of household members is not significant in influencing non-food expenditure. Several non-food items are stuffs that can be consumed collectively, such as fridge, washing machine, car, and so on. So that if the household already has

met these needs, the addition or reduction of household members does not always require them to increase or decrease the expenditure on it. Ownership of non-farm businesses by households obviously affect their expenditure. Statistically, non-farm businesses have a significant positive effect with a coefficient of 1,516,387. This implies that, on average, households that run non-farm businesses have a greater non-food expenditure by IDR 1,516,387 than households without business activities. Additionally, farming activities in households also has a significant positive effect with a coefficient of 730,950. This can be interpreted that the existence of farming activity in the household will increase their non-food expenditure by IDR 730,950.

Statistically, one year of increase on years of schooling among members within a household significantly improve non-food expenditure by IDR 614,547. While, households living in self-owned houses have higher non-food expenditure by IDR 1,120,451. Maintenance and renovation cost are needed when having a private house. It might explain why having self-owned house cost them more. Last but not least, utilization of SKTM (certificate issued by local government that indicate an economically poor status) has a significant negative effect on household expenditure. SKTM is only owned by poor households and is used to access various subsidies and assistance for living needs from the government. So it does make sense for a household to spend less when they utilizes their SKTM. The positive coefficient of 1,897,386 means that households with SKTM users on average have lower non-food expenditures by IDR 1,897,386 within one year compared with households that do not use or do not have SKTM.

Impact of arisan participation on household food expenditure

This analysis was carried out using food expenditure in a month variable as outcome, the rest, method and independent variable in the right hand side, are same with the previous analysis. Reason for using food expenditure as one of the outcomes is to analyze the consistency of results if the model uses another proxy for household welfare. However, we did not equalize the time unit of food expenditure and non-food expenditure since the aggregation of food expenditure might lead bias. The data available for food expenditure has a monthly unit, while for expenditures not food units are years. Although it can be compared by multiplying the food expenditure variable by 12 (months), it must be noted that there are certain months such as Shawwal where food expenditure is greater than the other months so that the multiplication of 12 (months) may not represent actual annual food expenditure. Regardless of the problem, the difference in unit time will only affect the interpretation of the results so it does not really matter if the two dependent variables have different time units. Table 3 presents the estimation results of regression analysis.

Table 3 Output Regression using Food Expenditure as Outcome

	Using DiD (1)	Using DiD (2)	Fixed Effects (3)	Fixed Effects (4)
DiD (arisan*year)	279052.6*** (46530.2)	241063.3*** (45477.0)	225441.3*** (53641.7)	215175.0*** (53487.8)
income accu-		0.00248***		0.00102***

mulation in HH		(0.000175)		(0.000257)
household size		110029.0*** (10255.9)		163116.0*** (20521.1)
business HH		130258.9*** (23426.5)		75953.7* (40894.4)
farming HH		-108791.4*** (25330.1)		75220.3 (55033.3)
highest education in HH		51698.4*** (3065.1)		-1467.7 (8087.4)
self-owned house		-47331.7* (28477.8)		113698.5** (51494.4)
SKTM utilization		-140151.5*** (31274.9)		-48998.5 (46639.4)
_cons	809630.2*** (21494.3)	110625.3*** (41409.6)	854492.1*** (25145.5)	342220.5*** (82505.4)
N	21018	21018	21018	21018

Standard errors in parentheses

Variable of arisan (dummy) and year (dummy) are included on analysis but are not displayed.

$^{*} p < 0.1,\ ^{**} p < 0.05,\ ^{***} p < 0.01$

Table 3 provides information that arisan participation in 2014 was significant on influencing household food expenditure. The use of DiD combined with matching method as well as fixed-effects method give a consistent results in which it is positive at confident level 99%. In the first model (1), the coefficient of variable of DiD, interaction of arisan with year, indicates that the participation of arisan was able to increase household food expenditure by IDR 279,052 within one month. When a control variable is added, model (2), its coefficient becomes IDR 241,063. This means that, when other factors that influence food expenditure are included in the model, household food expenditure increases by IDR 241,063. Performing panel regression using fixed-effects method (model 3 and 4) did not change the significance level and sign of the coefficient.

Control variables involved in the regression include: income, number of household members, non-farm business, farming activity, the highest education in the household and utilization of SKTM. All of these variables have a significant effect with 5 variables having a positive effect while the rest are negative. Positive coefficient of 0.00248 in the income variable shows that, on average, an increase in household income of IDR 1.00 would increase household food expenditure by 0.00248 or an increase in income of 1 million would increase monthly food expenditure by 2,480. Coefficient on the household size shows that, on average, an additional of one member will increase food expenditure by IDR 110,029.

Running non-farming business and farming activities statistically affect food expenditure by IDR 130,258 and -108,791 respectively. This means that households whose non-farming business activity have higher food expenditure while farmer household have smaller food expenditure around IDR 108,791 compared with non-farmer household. In general, farmers will not sell all of their crops to the market. A portion of the harvest will be saved to meet household needs. So that the expenditure for food will be less because some of the food consumption is taken from the harvest itself. In addition, the other variables that support on increase of household expenditure are educational factor and self-owned house. On the other hand, household who utilize SKTM have smaller food expenditure. As explained in the previous discussion, SKTM is only owned by poor households and is used to access various subsidies and assistance for living needs. One of the subsidies obtained with SKTM is the Raskin program formed as subsidized rice. This becomes an explanation why the SKTM variable coefficient is negative. Based on the regression, the amount of food expenditure due to the use of SKTM has been reduced by IDR 140,151.

Arisan on affecting household expenditure

Based on the results of the analysis above, household participation in arisan program gave a positive effect on household expenditure both food expenditure and non-food expenditure. Although statistically the results have been tested, a deeper explanation is needed to find out how the mechanism of participation in arisan can increase expenditure both directly and indirectly.

In terms of the amount of arisan acquisition, there are several possibilities where households allocate arisan funds. Purchasing electronic equipment that supports daily life can be one of the possibilities of spending on income. This is based on the assumption that when humans are able to fulfill their primary needs, the needs that will be fulfilled next are secondary needs. One indicator that can be used to determine the increase in electronic objects in the household is the amount of electricity expenditure per month. Changes in electricity expenditure will represent the use of electronic objects in a household. However, there are some disadvantages of using electricity expenditure data. The first, the results of the analysis will be biased if the household has several electronic devices but only partially used. So that electricity expenditure does not really represent the amount of ownership of electronic objects in the household. Secondly, the government's electricity subsidy policy in the span of 2007 to 2014 has changed, so electricity expenditure in 2007 and 2014 is not easy to compare. Other variables that might be better alternatives to be analyzed are household expenditure for non-urgent needs (exclude: clothing, household appliances, health, traditions and taxes) such as purchasing a car, house, television, cellphone, bed, and livestock.

Meeting the needs of goods mentioned above (tertiary goods) can be one measure of improving household welfare. Based on a number of previous studies, several studies argued that most households spend social gathering (Roscas) to purchase livestock, vehicles and other needs other than primary needs. Figure 2 shows the change in the amount of expenditure of the items mentioned above (tertiary goods) from 2007 to 2014 between arisan participants and non-participants:

Figure 2 Expenditure of Tertiary Goods in 2007 and 2014
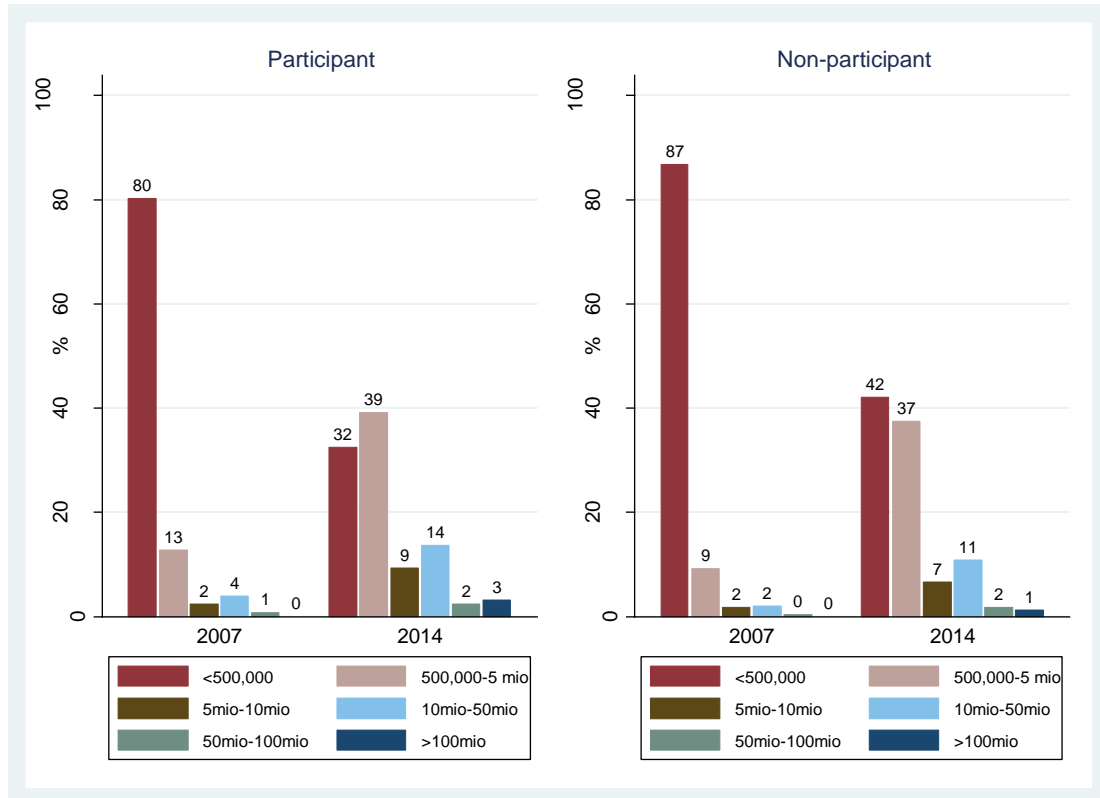
Source: Indonesian Family Life Survey wave 4 and 5

Visualization showed in figure 2 suggests that there is a similar pattern between the groups of arisan participants and non- participants in 2007. However, in the following period, the percentage of quintile 2 (light purple) in the arisan participant group was greater than the percentage of quintile 1 at the same group. This shows that quintile 2 (expenditure of tertiary needs between IDR 500,000 - 5,000,000) becomes the largest portion out of the 5 existing quintiles. On the other hand, group of quintile 1 (expenditure of tertiary needs under IDR 500,000) still dominates in the non-participant group. This can be attributed to arisan where the majority of the acquisition of arisan money is in the range of IDR 1,000,000 to IDR 5,000,000. Although not necessarily all households will spend the acquisition of arisan for tertiary needs, it might be reasonable when households are likely to experience increases in welfare through increased consumption of primary goods.

CONCLUSION

Arisan might not play a role in protecting the value of money from inflation risk, however, it might be one of best alternative financing solutions for households especially those who have limited access to formal financing scheme. Regarding data in 2000 from Indonesian Family Life Survey, percentage of respondent who involved

in arisan activity was 56.10 percent. This number is almost doubled compared with percentage participant in 1997 that was only 29.44 percent. Furthermore, data in 2007 provide information a jump percentage from 23.36 percent to 30.87 percent in 2014. Roughly, there were dramatic increases of arisan participation after 2 global crisis in 1998 and 2008. This study employed difference in differences analysis combined with matching method to empirically investigate the role of arisan on affecting household welfare. In general, we found that household participation in the arisan program is able to improve the economy of these households. This is represented by food and non-food expenditure variables as a proxy for economic improvement in which arisan was able to increase non-food expenditure in one year by IDR 4,701,116 and food expenditure in one month by IDR 241,063.

Regarding the results of this study, there are several suggestions addressed to various parties. First, for households it is recommended to take part in arisan activities if there is an arisan program in their social community when self-insurance is needed. In addition to economic benefits, arisan participants will also obtain social capital from the interaction of fellow arisan participants. Secondly, advice to financial service authorities related to supervision and protection of organizers and participants in arisan program. One form of support from the government is the protection of consumers (social gathering participants) and supervision of social gathering organizers.

REFERENCE LIST

Ambec, Stefan & Nicolas Treich. 2007. *Roscas as financial agreements to cope with self-control problems*. Journal of Development Economics 82(2007) 120-137.

Anderson, Siwan & Jean-Marie Baland. 2002. *The economics of roscas and intrahousehold resource allocation*. The quarterly journal of economics, August 2002

Agarwal, Sumit & Bhashkar Mazumber. 2013. *Cognitive abilities and household financial decision making*. American Economic Journal: Applied Economics, Vol.5, No.1 (January 2013), pp. 193-207

Aggarwal, Shilpa., Eilin Francis & Jonathan Robinson. 2018. *Grain today, gain tomorrow: Evidence from a storage experiment with savings clubs in Kenya*. Journal of Development Economics 134(2018) 1-15.

Ardener, Shirley. 1964. *The comparative study of rotating credit associations*. The journal of the royal anthropological institute of great Britain and Ireland, Vol. 94 No. 2 pp. 201-229.

Bazzi, Samuel, Sudarno Sumarto, and Asep Suryahadi. 2015. J*ournal of Economic Behavior & Organization It's All in the Timing : Cash Transfers and Consumption Smoothing in a Developing Country &*. Journal of Economic Behavior and Organization 119: 267–88.

Berloffa, Gabriella & Francesca Modena. 2013. *Income shocks, coping strategies, and consumption smoothing: An application to Indonesia data*. Journal of Asian Economics 24(2013) 158-171.

Bisrat, Agegnehu, Karantininis Kostas, and Li Feng. 2012. *Are There Financial Benefits to Join RoSCAs ? Empirical Evidence from Equb in Ethiopia*. Procedia Economics and Finance 1(1994): 229–38.

Bouman, F.J.A. 1995. R*otating and accumulating savings and credit associatios: A development perpective*. World development, Vol. 23, No. 3, pp. 371-384.

Burlando, Alfredo & Andrea Canidio. 2017. *Does group inclusion hurt financial inclusion? Evidence from ultra-poor members of Ugandan savings groups*. Journal of Development Economics 128(2017)24-48.

Calomiris, Charles W. & Indira Rajaraman. 1998. T*he role of ROSCAs: lumpy durables or event insurance?* Journal of Development Economics, Vol.56(1998) 207-216

Ebrahim, M. Shahid. 2009. C*an Islamic model of housing finance cooperative elevate the economic status of the underprivileged?* Journal of economic behavior & organization 72(2009)864-883.

Handa, Sudhanshu & Claremont Kirton. 1999. *The economics of rarting savings and credit associations: evidence from Jamaican 'Partner'*. Journal of development economics Vol. 60(1999) 173-194.

Islam, Asadul, and Pushkar Maitra. 2012. *Health Shocks and Consumption Smoothing in Rural Households : Does Microcredit Have a Role to Play?* Journal of Development Economics 97(2): 232–43.

Kast, Felipe., Stephan Meier & Dina Pomeranz. 2018. S*aving more in groups: Field experimental evidence from Chile*. Journal of Development Economics 133(2018) 275-294.

Khanker, R. Shahidur, Koolwal, Gayatri B, Samad, Hussan A. 2010. *Handbook on Impact Evaluation: Quantitative Methods and Practices*. Washington, D.C.: THE WORLD BANK.

Kimuyu, Peter Kiko. 1999. *Rotating Saving and Credit Associations in Rural East Africa*. World Development 27(7): 1299–1308.

Kovsted, Jens, and Peter Lyk-jensen. 1999. *Rotating Savings and Credit Associations : The Choice between Random and Bidding Allocation of Funds*. Journal of Development Economics 60: 143–72.

Ksoll, Christopher et al. 2016. *Impact of village savings and loan associations: Evidence from a cluster randomized trial*. Journal of Development Economics

12092016) 70-85.

Lasagni, A. 2011. *Participation in Rotating Savings and Credit Associations in Indonesia : New Empirical Evidence on Social Capital*. Serie: Economia e Politica Economica Working Paper 5/2011

Levenson, Alec R, and Timothy Besley. 1996. *The Anatomy of an Informal Financial Market : Rosca Participation in Taiwan*. Journal of Development Economics 51: 45–68.

Miski. 2016. *Studi atas Fatwa Pengharaman Serban dalam Konteks Indonesia*. Riwayah: Jurnal Studi Hadis Volume 2 Nomor 1 2016.

Polain, Maite Ie., Olivier Sterck & Marthe Nyssens. 2018. *Interest rates in savings groups: Thrift or Threat?* World development 101(2018) 162-172.

Sigala, Rachel Jactan & Stephen Carney. 2012. *Poverty reduction through entrepreneurship: Microcredit, learning and ambivalence amongst women in urban Tanzania*. International Journal of Educational Development 32(2012)546-554.

Scholten, Ulrich. 2000. *Rotating savings and credit associations in developed countries: The German-Austrian Bausparkassen*. Journal of comparartive economics 28, 340-363.

Steel, William F. et al. 1997. *Informal financial markets under liberalization in four African countries*. World Development, Vol.25, No.5, pp.817-830