Traditions and the Informal Economy in Uzbekistan: A Case Study of *Gap*s in the Andijan Region*

HIWATARI Masato

Introduction

This article investigates *gap*s, traditional associations in Uzbekistan, the members of which are bound together by commonly acknowledged ties of residential proximity, school alumni membership, kinship, friendship, etc. The recent *gap*s are characterized by regular get-togethers at the houses of group members on a rotational basis. The present study, which is based on field research conducted in the Andijan region of Uzbekistan, has the following two aims across both the fields of Central Asian studies and development economics.

First, this is an attempt to quantitatively examine several functional aspects of *gap*, by using first-hand data of the household budget survey that targeted a local community in the densely populated area. The traditional institutions and practices of reciprocity in Central Asia have begun attracting broader academic concern in the course of the post-socialist transition. While scholars from Central Asia tend to emphasize their cultural aspects serving as manifestations of their original ways of livings, values or identities, those from the Western world have recently paid attention to their practical aspects helping households to cope with economic difficulties during transition periods. In spite of increasing concern for these institutions, however, there have been very few attempts to examine the quantitative magnitude of their prevalence or their contribution to the informal economy due to the difficulties involved in conducting field surveys. This article will provide a unique quantitative analysis based on an original household budget survey that was designed to grasp the realities and dynamic aspects of the tradition.

Second, by drawing upon a specific viewpoint in development economics, this article intends to bring some of the distinctive features of *gap*s into sharp relief from the comparative perspective, along with providing theoretical implications. According to the discourse in the field of economics, the present Uzbek *gap*s can most likely be classified as the so-called "Roscas" (Rotating Savings and Credit Associations). However, by investigating the actual conditions and performance of the *gap*s, some discrepancy from the general

image derived from the economics theory as well as consistent aspects can be observed. The purpose of this article, therefore, is not claiming the function of *gap*s exclusively as Roscas, nor does it aim to construct a generalized view of *gap*s. Instead, by focusing on a specific facet of *gap*s, it attempts to shed light on their complex features in which socially originated affinity and rational motivation co-exist.

This article is organized as follows. I present an overview of *gap*s as well as the concept of the Rosca, followed by an explanation of the fieldwork process and providing basic information on the targeted community. Then, by using the survey data, I examine the differences among various types of *gap*s and their impacts on residents' economic life, focusing on their function as Roscas. The final sections consider some of the distinctive features of *gap*s and discuss their significance. Here I deal with sustainability issues and default problems, including focuses on multiple belonging to *gap*s and discusses its meaning from a network point of view. I conclude with some remarks on the implications of this research.

GAP

*Gap*s have been mentioned in the literature as one of the essential components in the traditional communal life of Uzbekistan.[1] As a rule, a *gap*, which comprises about a dozen members, has a leader (*jo'ra boshi*) and its own set of rules. Each *gap* holds regular get-togethers (once or a few times a month), and its members take turns to play the role of host or hostess, offering their houses as meeting places. The leader assigns substantial importance to attendance in regular gatherings and sometimes sets a rule that enables members' brothers or sisters to attend a gathering in case they are unable to attend it personally. The host or hostess usually prepares Uzbek traditional pilafs (*oshi*) and soup with meat and provides some refreshments. These get-togethers are held not only for feasts but also for discussing various topics related to social life and matters of mutual help. Even today, *gap*s are considered to consolidate members' social position in a *mahalla*[2] (a local community). *Gap*s have their own reputa-

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1 For example, *Арифханова З.Х.* Современная жизнь традиционной махалли Ташкента. Ташкент, 2000; *Арифханова З.Х.* Традиционные сообщества в условиях независимого этнокультурного развития // *Абдуллаев Ш.М.* (ред.) Современные этнокультурные процессы в махаллях Ташкента. Ташкент, 2005. С. 8-52; T. Toshlonov "Mahalla Jamoatchilik Fikri va An'analari," in O. Otamirzaev et al., eds., *O'zbekistonda Jamoatchilik Fikrini O'rganish va Shaklllantirishning Dolzarb Muammolari* (Tashkent: Tsentr Izucheniia Obshchestvennogo Mneniia "Ijtimoiy fikr," 2003), pp. 107-111; or T. Dadabaev, *Mahalla* [in Japanese](Tokyo: University of Tokyo Press, 2006), pp. 81-84.

2 *Mahallas* are neighborhood communities that have been reformed into formal institutions or lowest administrative units of local municipalities (*khokimiyats*) in 1990s and till present. *Mahallas* have existed since ancient times as traditional institutions in such areas as Bukhara, Samarkand, Tashkent and Ferghana valley. In some urban areas of Uzbekistan,

tion and serve to confirm the status system by making it a matter of prestige to belong to certain groups or displaying their status through conspicuous consumption. This traditional association that can reflect and influence people's thoughts and opinions have been often watched with keen interests by official authorities or research institutes.[3]

Originally, *gap*s had been associations of elderly men who would regularly meet in their houses or public places such as teahouses (*choikhona*) mainly during winter, which is the slack season for farmers. In the *mahalla* that I researched, the elderly informants often emphasized that *gap*s had provided them with valuable opportunities to acquire knowledge, such as the latest news or information regarding new fertilizers, at a time when television and radio were not common. At that time, a typical *gap* was a relatively large group comprising 30-50 members.

This practice of organizing get-togethers, which appeared to be on the wane by the 1950s, was revived remarkably in the 1970s – the era of "Soviet consumerism" under Brezhnev – when the limited access to scarce goods and service under the Soviet regime had led to the mobilization of a range of informal mechanisms. At that time, the types of *gap*s began to diversify considerably. *Gap*s began to be seen in urban areas as well and were no longer confined to men; they now involved *gap*s organized by and for women only or mixed-sex groups of married couples.

A Variety of Gaps

Thus far, the *gap*s in Uzbekistan have highly diversified membership, meeting styles, or purposes. In the following paragraphs, I will present a brief overview of various types of *gap*s by classifying them on the basis of three axes concerning their membership criteria: gender, generation, and preexisting social relationships.

First, most of the *gap*s are formed separately by and exclusively for males and females. As mentioned earlier, the traditional *gap*s were organized only for elderly men to make good use of the holidays or spend their free time gathering at the same place. However, at present in Uzbekistan, *gap*s organized only by women are even more popular. An Uzbek scholar refers to the emergence of women's *gap*s in relation to the matter of the changing position of women in the *mahalla*.[4] Women have come to utilize *gap*s as instruments to seek the

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mahallas do not have deep historical roots and have been recently created as lowest administrative units by the Uzbek government. See, for example, E.W. Sievers, "Uzbekistan's Mahalla: From Soviet to Absolutist Residential Community Associations," *The Journal of International and Comparative Law at Chicago-Kent* 2 (2002), pp. 91-158; M. G'ulomov, *Mahalla: Fuqarolik Jamiyatning Asosi* (Tashkent: Adolat, 2003); or Dadabaev, *Mahalla*.

3 See, Toshlonov, "Mahalla Jamoatchilik Fikri," pp. 108-109. These *gap*s could be once utilized by Soviet regime for ideology campaigns or propagandas of Russian life styles in 50s or 60s. See, for example, D.M. Abramson, "From Soviet to Mahalla: Community and Transition in Post-Soviet Uzbekistan." Ph.D. dissertation (Indiana University, 1998), p. 71.

4 *Арифханова.* Традиционные сообщества. С. 44-45.

moral support of the local community for assistance in case they face family troubles or other problems. It is plausible that the women's voices organized through the *gap*s could have led to the formation of public opinion at the local community level. In addition, it is notable that women's *gap*s are now organized not only among neighbors but also within various other types of social relationships such as relative groups or colleagues at the workplace, as seen in men's *gap*s.

Though the purposes of these women's associations are diverse, they appear to be rather practical in comparison with the traditional men's *gap*s. Not merely aiming at leisure or entertainment at the meetings, they tend to actively utilize *gap*s for mutual help such as exchanging information, sharing social experiences, or providing mutual support in daily life. For instance, women are often accompanied by their children to their meeting, with the intent of increasing cooperation and instilling moral education or discipline in their children. In addition, *gap*s often function just like Roscas as will be explained later in this section. Such financial benefits offered by women's *gap*s have often been emphasized by recent literature.

Second, *gap*s are generally formed by companies within the same generation. *Gap*s comprising members from school alumni are typical cases. Apart from schoolmate-based *gap*s, most of the *gap*s represent generation groups. With regard to women's *gap*s, for instance, the most commonly observed *gap*s are those of young brides, middle-aged women, or old women in a neighborhood. The *gap*s of the youth are also utilized for practical purposes such as exchanging information or cementing social connections. Nevertheless, on some occasions, some of the gatherings of the younger generations involve excessive entertainment with extravagant meals or the consumption of alcohol, belittling traditional activities such as moral education or knowledge acquisition. I have personally often attended the gatherings of young male *gap*s, where enjoying feasts throughout the night was the ritual. The deviations from the traditional style of the *gap*s, which have become distinctive, as the types of *gap*s have diversified during the late Soviet period, have been often criticized by the older generation.[5]

Third, it is indeed characteristic of the *gap*s that they are necessarily based on the adherence of the members to specific social relationships such as neighborhood residents, graduates of the same educational establishment, kinship relatives, colleagues at a workplace or a combination of these ties. This element of the *gap*s can distinguish them from other similar rotating associations that can be defined as Roscas. That is, an association called Roscas need not necessarily be accompanied by such close face-to-face interactions among members as neighbors, classmates, kin, or coworkers.[6] In the same vein, there also exist

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5 *Арифханова*. Современная жизнь. С. 26.

6 Regarding comprehensive surveys of Roscas all over the world, see, C. Geertz, "The Rotating Credit Association: A 'Middle Rung' in Development," *Economic Development and Cultural Change* 10 (1962), pp. 241-263, 260; and S. Ardener, "The Comparative Study of

rotating associations called "*chornaia kassa*" in Uzbekistan that are character-
ized by group saving among coworkers at the same office. This system of So-
viet practices is different from the *gap*s in that it does not necessarily require
visits to each member's house.[7]

The roles of the *gap*s necessarily depend on the types of preexisting social
relationships. For instance, the *gap*s of neighbors are expected to influence the
sense of participation in community activities, contributing to the formation
of a strong feeling of belonging to the locality and that is the reason why the
associations have been considered to be essential for communal living.[8] In the
other case, the *gap*s of female relatives are often intentionally organized for
maintaining regular contact with their own families.[9] This is because females
often have to live apart from their families after marriage, following the Uzbek
family custom. Furthermore, it will be expected that the characteristic of the
*gap*s of coworkers would be more like of those of *chornaia kassa*.

At the same time, the classification of the *gap*s in reality is rather compli-
cated and ambiguous in various respects. First, there are many activities com-
monly seen in any *gap*. For instance, outside the regular gatherings, most of the
*gap*s can operate as mutual aid unit in an emergency, irrespective of the type
of membership they are based on. In particular, the members join forces when
some of their fellow members conduct family rituals (*toi*) such as weddings or
circumcisions, which often involve huge amounts of money, materials, and la-
bor. In addition, they take it as their duty to visit him/her and offer their help,
especially, for example, when a member of their *gap* takes ill or meets with
an accident. Second, from the practical perspective, the three axes mentioned
above affect the characteristic of *gap*s in complex ways. For instance, we can-
not predict solely based on the predominance of neighbors' *gap*s that they are
essential for the communal life in that area. Other aspects of these neighbors'
gap such as gender ratio or generation types may more strongly characterize
the roles or positions of the *gap*s. Third, the *gap*s appear to be on the verge of
changing. Those *gap*s whose members always discuss the form and content
of their activities at each meeting have the potential to develop in many direc-
tions. One of the peculiar aspects of the changing function of the *gap*s should

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Rotating Credit Associations," *Journal of the Royal Anthropological Society of Great Britain and Ireland* 94:2 (1964), pp. 201-229.

7   On the other hand, the *gap*s did not necessarily involve any monetary changes until the late Soviet period. Thus, it is possible to consider that the financial uses of the *gap*s have appeared as relatively new phenomena by incorporating the function of the *chornaia kassa*. Kandiyoti pointed out in 1998 that "It is in the last five or six years that the role of the *chornaia kassa* appears to be combined with the *gap*s which are clearly proliferating." See, Deniz Kandiyoti, "Rural Livelihoods and Social Networks in Uzbekistan: Perspectives from Andijan," *Central Asian Survey* 17:4 (1998), p. 574.

8   See for example, *Арифханова.* Традиционные сообщества. С. 42-43; or Dadabaev, *Mahalla*, p. 82 et passim.

9   This is the view commonly shared by the informants of our research.

be financial use in the form of Roscas, which will be discussed in the paragraphs below.

Roscas

The function of *gap*s as Roscas has been recently pointed out by some scholars, mainly from the Western world. Their main concerns revolve around household strategies to cope with economic difficulties and uncertainties in the course of the post-socialist transition. Traditional institutions or informal associative networks that are deeply embedded in the local society in Central Asia were considered as social capital or collaterals that are helpful in the daily struggle to make ends meet and explain how a family with a monthly income of about fifty dollars can expend several thousand dollars on a wedding.[10] In this context, *gap*s have been reported as unique associations that have innovative potential in adapting to the new economic pressures faced by households during the transition.[11]

Here, the basic concept of Roscas should be explained. The Rosca, an informal financial institution widely reported in the developing world, has fascinated anthropologists for a long time and has recently attracted the theoretical attention of some economists.[12] Roscas can be categorized into several types in terms of their systems. However, they share a common basic principle: in every Rosca, all members agree to contribute a fixed amount of money or materials at each of a set of uniformly spaced dates toward the creation of a fund; this fund will then be allotted to each member of the group in turn, in accordance with some prearranged rule. The allotment is determined either through bidding, a lottery, or an arrangement by discussion.

This system is particularly effective for purchasing luxury or durable goods, rather than for small daily items of consumption. For instance, consider

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10 See, for example, E.W. Sievers, *The Post-Soviet Decline of Central Asia: Sustainable Development and Comprehensive Capital* (London and New York: Routledge Curzon, 2003), pp. 91-123; Kandiyoti, "Rural Livelihoods," pp. 561-578; or Victoria Koroteyeva and Ekaterina Makarova, "Money and Social Connections in the Soviet and Post-Soviet Uzbek City," *Central Asian Survey* 17:4 (1998), pp. 579-596. Regarding neighboring courtiers, see for example, C. Werner, "Household Networks and the Security of Mutual Indebtedness in Rural Kazakstan," *Central Asian Survey* 17:4 (1998), pp. 597-612; or J. Howell, "Coping with Transition: Insight from Kyrgyzstan," *Third World Quarterly: Third World Foundation* 17:1 (1996), pp. 53-68.

11 For example, Sievers, "Uzbekistan's Mahalla," p. 130; or Kandiyoti, "Rural Livelihoods," pp. 569-575.

12 For example, Geertz, "The Rotating Credit Association"; Ardener, "The Comparative Study"; T. Besley et al., "Economics of Rotating Savings and Credit Associations," *American Economic Review* 83:4 (1993), pp. 792-810; J. Kovsted and P. Luk-Jensen, "Rotating Savings and Credit Associations: The Choice between Random and Bidding Allocation of Funds," *Journal of Development Economics* 60 (1999), pp. 143-172; or S. Ambec and N. Treich, "Roscas as Financial Agreements to Cope with Self-control Problems," *Journal of Development Economics* 82 (2007), pp. 120-137.

a person who can afford to save only 10 dollars a month and now hopes to buy durable goods worth 100 dollars. If this person saves alone, he or she can acquire these goods only after 10 months. However, when there are 10 persons who also save 10 dollars per month for the same purpose, they can cooperate with each other through a Rosca. If a contribution of 10 dollars from each member is collected, then one member can receive 100 dollars just after one month. Over a ten-month period, a different member will receive 100 dollars for each month. In this manner, the Rosca has been interpreted as a system that can facilitate the earlier gain of utility from the use of durable goods compared with the case of an autarky,[13] and this hypothesis has been tested empirically in studies of economics.

The function of Roscas should not be confined to matters of purchasing luxuries. It is theoretically analogous to utilize this system for any relatively large expense at one time such as small business investments or expenses for ceremonial events. Recent studies have also pointed out that Roscas can have psychological effects such as increased self-control and a restraint in easy expenses.[14] Furthermore, if flexible changes in the rotational turns are allowed, the fund can be utilized for the members' problems, facilitating urgent access to money. In this case, this financial system can also be regarded as a source of informal credit or insurance.

Concerning the Uzbek *gap*s, their effects as Roscas can be observed from several aspects. In one case, some of the recent *gap*s are organized with the main aim of seeking cooperation to purchase specific durable goods such as TVs, carpets, or jointly paying ceremonial expenses. In the other case, there is no concrete plan to purchase goods or spend for a common purpose through the *gap*s; however, *gap*s can fulfill an indirect function as Roscas. In gatherings, the leader by tradition collects membership fees to finance the host or hostess' expense; the remaining money is at the host or hostess's disposal to make any necessary purchases or to meet any other financial obligations. Since they are free to resort to any other source to add more capital, whether the funds from the *gap*s can accumulate to the level of the prices of targeted goods is not an important issue. It should be noted that in Uzbekistan, where the national currency or bank system is premature, there is a tendency for people to quickly convert them into objects such as accessories, domestic animals, or automobiles when they obtain a fairly large sum of Uzbek currency. Thus, whether or not the *gap*s actually fulfill the function of Roscas is not a matter of the intentions of the participants, and that is why this article should attach weight to examining non-subjective indices based on household budget survey.

Moreover, in Uzbekistan, this system of group savings has functioned quite effectively in coping with the intense inflation in the 1990s. The constant depreciation of Uzbek currency made it just a loss to keep them at hand for a

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13 For example, Besley et al., "Economics of Rotating Savings."
14 Ambec and Treich, "Roscas as Financial Agreements."

long time, urging people to consume them rapidly, instead of enlarging personal savings, while the acquisition of foreign hard currencies like U.S. dollars were strictly restricted by the law for ordinary people. In this situation, they used the prices of specific materials as an index when they decided the amount of money that each member must contribute in each gathering, not using the unit of Uzbek currency. In the Andijan region, there is a custom to use the current bazaar prices of meat (e.g., 2 kg. of sheep) – that are quite sensitive to the movement of real and nominal prices – as an index. In this manner, irrespective of when the members receive the fund money of Roscas, they could neither benefit nor suffer losses from the inflation.

FIELDWORK

The fieldwork was conducted in a *mahalla* in the Andijan region, which is located in the eastern part of Ferghana Valley. The Andijan region is the smallest in size, but most densely populated region of Uzbekistan. Nearly 10 percent of Uzbekistan's total population lives in what comprises only one percent of the country's total territory. The households in this region have been facing the highest population pressure for a long time and have been engaged in a combination of activities to acquire different sources of income for daily survival. For instance, Kandiyoti ethnographically illustrates the complex way in which rural households in the Andijan region are responding to the new economic pressure of the transition and highlights the importance of social networks such as kinship relations or *gap*s.[15] In this respect, this area appears to be in a relatively favorable situation for comprehending the vitality and prevalence of social networks in Uzbekistan. According to the government statistics for 2003, among 14 regions, the Andijan region stood at an average level of economic or social development, ranked seventh for per capita Gross Regional Product (GRP) and 6th for social infrastructure.[16]

The researched *mahalla*, henceforth referred to as *Oqmahalla*, is situated in Oltinkol District, one of the 14 rural districts of the Andijan region. Oltinkol District has a population of 125,000 and has few national minorities, with the exception of 4,000 Tajiks who constitute the majority in one village (*qishloq*). The land of Oltinkol has been known to be fertile. The region of Oltinkol was founded during the Qoqon Khanate in the seventeenth and eighteenth centuries, when the growing needs of its population had compelled the Khans to expand their agricultural land. At the time, Oltinkol was a shallow lake. Ac-

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15 Kandiyoti, "Rural Livelihoods."

16 See, *Uzbekistan National Human Development Report 2005,* UNDP and CER, p. 52, Table 3.9. The level of economic development is determined on the basis of per capita GRP, the level of social development on the basis of per income, presence of social infrastructure, turn-over of goods and paid services. Estimates based on data from State Committee of the Republic of Uzbekistan on Statistics.

cording to a legend, when people settled in the land surrounding the city of Andijan, they saw a beautiful moonlight reflection on the lake and began to refer to the land as "Oydinkol," which means "light lake." They began to grow wheat and cotton in the region near the lake and soon reaped rich harvests due to its fertility. Since then, the land has been called "Oltinkol," which means "gold lake."

The industry of Oltinkol is still heavily dependent on agriculture. Oltinkol has 12,000 hectares of irrigated land in the form of cooperative farms (*Shirkat*), 7,000 hectares of which is under cotton cultivation, and another 4,500 of which is under wheat cultivation, and the rest, under vegetable cultivation. More importantly, most of the households own private plots in their gardens (*tomorqa*), covering approximately 3,000 hectares in total. Private greenhouses are often set up on these plots and high-value products such as tomato, pepper, or tobacco are grown. These products are grown not only for self-consumption but also for sale in Tashkent or export to Russia. Moreover, Oltinkol has three large factories engaged in the processing of coats, textile and cotton; each of these factories employs more than 500 people.

The fieldwork in *Oqmahalla* began in 2002, spanning a total of six months and involving five visits to date. The survey on which this article is mainly based was conducted over August – September 2003. According to the investigation conducted by the *mahalla* committee in January 2003, the population of *Oqmahalla* comprised 486 households or 2,523 residents, which can be regarded as medium size given the size of the present *mahallas* in this country.

During the fieldwork, a one-shot household budget survey targeting 245 households or 1,344 residents was implemented. This survey began on September 12, 2003 and was completed on September 15, 2003, with the cooperation of eight interviewers. In recent years, household budget surveys meeting a certain methodological standard such as World Bank's Living Standard Measurement Survey have been increasingly implemented in developing or transition countries. Similar attempts are also made in Uzbekistan; however, this survey is different in that its sample is representative not at the national level, but at the community level.[17] That is, its priority is placed not on large-scale representativeness but on examining concrete examples and structures of residents' living environment. One of reasons for the scarcity of this type of economic survey in Uzbekistan will be political pressure or intervention by

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17 Apart from household budget surveys by State Committee on Statistics (Goskomstat), of which the first hand data do not have public access, there were several attempts of household budget surveys with sample sizes of 1000-2000 households level such as EESU (EUI/Essex University Survey in Uzbekistan) in 1995 or Expert Fikri-JICA Survey (see also footnotes 20) in 2003. However, the situation surrounding household budget surveys in Uzbekistan appears to be still backward, compared with neighboring countries such as Kazakhstan, Kyrgyzstan and Tajikistan where World Bank's Living Standard Measurement Surveys have already been conducted several times.

authorities. This survey is valuable in the sense that it could overcome this kind of obstacle.[18]

The household budget survey was conducted in the following manner.[19] First, half of the households were randomly selected from the list of the households maintained by the *mahalla* committee of *Oqmahalla*. Next, the interviewers, accompanied by residents who were familiar with the *mahalla*, visited each household to conduct face-to-face interviews with one or simultaneously with several members of the household aged over 18 years; however, only those who were fully aware of the household's budget were interviewed. Although the items of the questionnaire were varied, they basically focused on economic activity in the past one month. They included questions that sought information on household composition, individual income, education levels, employment status, private income transfers, household assets, durable goods, livestock, private plots, participation in specific customs such as *gap*s, etc. The interviewers and I would crosscheck our questionnaires every night, and in case some data were missing, we would visit the same households again the next day.

Tables 1 and 2 present the household income structure and employment status of *Oqmahalla* based on the results of this survey. For comparison, the results of the household budget survey conducted in February 2003 for 1,000 sample households all over Uzbekistan are shown in the right-hand side column of each table.[20] Table 1 shows that the average income per household

18 Unlike a large-scale sample survey, this type of community-intensive survey becomes such a big event in the researched community that it is impossible to complete the survey without a notice of the local municipalities or SNB (National Security Service) in the current political regime of Uzbekistan. Thus, I visited the local municipalities (Andijan *khokimiyat* and Oltinkol *khokimiyat*) earlier with my colleague and explained that our concern is purely academic. Thanks to a letter of the director of the Republic Mahalla Charity Funds in Tashkent, other social connections and my own nationality, we were on good terms with municipalities and obtained necessary permits for the survey. As a result, we had no external intervention in any step of designing questionnaire, selecting samples and interviewers or conducting the survey. Graduates of the University of World Economy and Diplomacy in Tashkent who had a good understanding of the objective of this research participated in this survey as interviewers. During the survey, residents were surprisingly cooperative with us, since I often attended ceremonial events in the *mahalla* and was well known to all residents. To my sorrow, however, it is uncertain that this procedure can work again in present time when the radical change occurred in the personnel and attitude of local municipalities after the event of Andijan in May 2005.

19 Household means a group of individuals who live at the same dwelling and are involved into common revenues or expenses (budget).

20 This household budget survey over Uzbekistan on "Revenues, expenses and loans of people living in mahalla" was conducted in February-March of 2003 by "Expert Fikri" Center on Sociological Surveys according to the contract with Japanese International Cooperation Agency (JICA), to which the author offered the draft of the questionnaire. Households were selected using two-step PPS (proportional probabilistic sampling) procedure. At the first step, 78 sample *mahallas* were selected out of the total list of *mahallas* of the country. On the second step, 1,000 sample households out of those mahallas were selected for interviews, which were conducted by 57 interviewers.

Table 1. Household Income Structure in *Oqmahalla*

	Oqmahalla 2003.9		Uzbekistan 2003.2	
	soum	ratio	soum	ratio
Wage at main place of work	24625.8	28.6%	20040.4	43.2%
Wage at second place(s) of work	1065.6	1.2%	388.0	0.8%
Temporary or seasonal income	5524.6	6.4%	1724.2	3.7%
Maternity benefits from workplace	493.4	0.6%	145.2	0.3%
Benefits for unemployment or invalidity	786.4	0.9%	26.4	0.1%
Income from craft work	3561.5	4.1%	1086.7	2.3%
Alimony	22.5	0.0%	104.9	0.2%
Gifts from workplace or other organization	245.9	0.3%	332.9	0.7%
Pension	8955.1	10.4%	11519.6	24.9%
Other	7679.5	8.9%	3156.0	6.8%
Mahalla committee poverty benefits	131.6	0.2%	150.3	0.3%
Mahalla committee child benefits under 16 yrs.	1197.1	1.4%	1435.1	3.1%
Mahalla committee child benefits under 2 yrs.	1001.8	1.2%	1036.7	2.2%
Mahalla committee other assistance	45.1	0.1%	70.4	0.2%
Subtotal	55335.8	64.3%	41217.0	88.9%
Income from private plots	30783.6	35.7%	5131.5	11.1%
Total income received	86119.4	100.0%	46348.5	100.0%
Private transfers (cash or kind)				
Received	17857	20.7%	6883.4	14.9%
Given	31428	36.5%	5400.6	11.7%

Notes: The soum is a monetary unit of Uzbekistan. The exchange rate was approximately 1,000 soums per 1 U.S. dollar in 2003 (The unofficial rate was 1,020 soums/USD in 2003.2 and 980 soums/USD in 2003.9). An outliner was excluded from the observations in *Oqmahalla* (244 observations in total).

Sources: *Oqmahalla* is based on author's field research. Uzbekistan is based on Expert Fikiri – JICA survey (See note 20).

received from the main workplace in *Oqmahalla* is only 24,525 soums (approximately 25 U.S. dollars); however, the total income reaches 86,119 soums. The latter amount is somewhat higher than the average figure for this county. This difference is mainly caused by the two components of income: temporary or seasonal income and income from private plots. Taking the following two operational factors into consideration, the living standards in *Oqmahalla* should be regarded as average or as slightly higher than that in Uzbekistan. First, since the survey in *Oqmahalla* was conducted in the harvest season and that in Uzbekistan was conducted in winter, the demand for temporary or seasonal labors in *Oqmahalla* must have been abundant. Second, we conducted elaborate research on the income from private plots and also attempted to grasp the amount of production used for self-consumption, considering its importance in rural households.[21] The lower part of Table 1 indicates the information on

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21 Note that there is a difference in the methodology. In the survey in *Oqmahalla*, the income from private plots was calculated by dividing by 12 the estimated annual income from the private plots, while all other income was income received in the last one-month.

Table 2. Employment Status in *Oqmahalla*

	Oqmahalla 2003.9		Uzbekistan 2003.2	
	number	ratio	number	ratio
Work	352	100.0%	1,368	100.0%
of which:				
cooperative farm（*shirkat*)	58	16.5%	465	34.0%
private farm, full-time farmer	20	5.7%	90	6.6%
state enterprise, institution, organization	168	47.7%	526	38.4%
private firm, joint company	44	12.5%	239	17.4%
small business, crafts, household industry	39	11.1%	30	2.2%
government organization, military, other	23	6.6%	19	1.4%
Do not work	992	100.0%	3,935	100.0%
of which:				
cultivating private plots	89	9.0%	78	2.0%
student or children	554	55.8%	2,116	53.8%
pensioner	120	12.1%	521	13.2%
housewife	128	12.9%	462	11.7%
seeking a job, invalid, other	101	10.2%	758	19.3%

Sources: *Oqmahalla* is based on author's field research. Uzbekistan is based on Expert Fikiri – JICA survey (See note 20).

private or inter-household transfers.[22] Private transfers involve various types of items such as cash, food, durable goods, or clothing; all these have been converted into an equivalent amount in terms of soums. The transfers received were up to 20% and those given were 36% of the average income per household, which indicates the considerable significance of the reciprocal exchange among the households in *Oqmahalla*.[23]

Table 2 indicates that the proportion of state enterprises, institutions, and organizations is higher in the employment status of *Oqmahalla*. This category includes employees in the social sector, which includes schools and hospitals, and those employed in state factories as laborers. *Oqmahalla* is in charge of one brigade of the cooperative farm; however, its significance in the daily lives of the residents is not very high with regard to the number of regular workers and their salaries (the income from the cooperative farm is included in "wage at second place(s) of work" in Table 1). The results presented in Table 2 do not reflect the proportion of laborers working on private plots, since these occupa-

22 Private transfers seem to be important source of mutual aid in less-developed countries. See, for example, Jonathan Morduch, "Between the State and the Market: Can Informal Insurance Patch the Safety Net?" *The World Bank Research Observer* 14:2 (1999), pp. 187-202. With regard to Uzbekistan, some econometric analysis indicates that the private transfers were utilized as informal safety nets mainly to make up for the temporary income shocks under the transition period. See, Masato Hiwatari, "An Analysis of Private Transfers in Uzbekistan: From the Viewpoint of Social Security," [in Japanese] *Ajia Keizai* 46:4 (2005), pp. 21-46.

23 However, we should consider the effects of family rituals (*toi*) that occur frequently in the harvest season.

tions are usually not recognized as jobs; however, it should be noted that most of the households in *Oqmahalla* are engaged in production on private plots, and the income from this comprises 35% of the total income, as shown in Table 1.

TYPES AND PURPOSES OF *GAP*S

To begin with, we attempt to obtain the overview of the general characteristic of *gap*s in *Oqmahalla* by examining their variety in membership criteria or purposes. We collected information on *gap*s concerning each member of the households during the household budget survey, accepting that different households would provide information on the same *gap*s. The information on *gap*s includes the number of members, amount of contribution, frequency of gatherings, purpose of *gap*s, systems of rotation, experience of defaults, etc. The survey data reveal that 81.6% of the sample households of *Oqmahalla* have at least one family member who belongs to a *gap*. The households belonging to *gap*s participate in 2.47 *gap*s on an average. These numbers clearly confirm that most of the households in *Oqmahalla* are intertwined in a dense web of *gap* networks. The meaning of this density of prevalence will be reexamined further below.

The economic literature of Roscas has paid considerable attention to the manner in which the order of the allocation of the lump sum fund is decided.[24] In *Oqmahalla*, the members decide the order by "drawing lots" or through "discussion," and not by "bidding." The high proportion of "discussion" implies that the *gap*s can also function as informal insurance to meet emergent needs.

Below, I classified the data of the *gap*s into several categories based on their membership criteria and examined their differences. Table 3 reports the frequency and proportion of the *gap* prevalence according to membership criteria. We can observe that both males and females participate actively in *gap*s. In this table, those who participate in multiple *gap*s are counted repeatedly, while the numbers counted only once for every participant are shown within parentheses. In the case of the left-hand side, a chi-square test of independence revealed that the age structure of *gap*s is not independent of gender difference, at the 1% level of significance. This result is mainly due to the difference in participation in the age group of less than 30 years. The lack of participation among young females implies that they may be in a weak position in the households and find it difficult to spend money on *gap*s. In addition, the tendency of females to rarely organize *gap*s among their classmates might be one of the reasons why there are few *gap*s of young females, as can be verified from the right-hand side of Table 3.

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24 In theory, the lottery is preferred when the members are homogeneous (in respects of valuations of the durable or returns from contributions to the pool) and the bidding is preferred when credits from other sources are not costly. See, Besley et al., "Economics of Rotating Savings"; and Kovsted and Luk-Jensen, "Rotating Savings and Credit Associations."

Table 3. Types of *Gap*s in *Oqmahalla* (gender, age and social relationship)

Age	Male	Female	Total	Relationship	Male	Female	Total
less than 30	85(70)	41(30)	126(100)	Mahalla	56	131	187
31-40	78(64)	77(65)	155(129)	Classmate	153	32	185
41-50	69(49)	74(46)	143(95)	Relative	12	38	50
more than 50	26(19)	44(32)	70(51)	Workplace	16	21	37
Total	258(202)	236(173)	494(375)	Other	21	14	35
				Total	258	236	494

As percent of Total

Age	Male	Female	Total	Criteria	Male	Female	Total
less than 30	32.9%	17.4%	25.5%	Mahalla	21.7%	55.5%	37.9%
31-40	30.2%	32.6%	31.4%	Classmate	59.3%	13.6%	37.4%
41-50	26.7%	31.4%	28.9%	Relative	4.7%	16.1%	10.1%
more than 50	10.1%	18.6%	14.2%	Workplace	6.2%	8.9%	7.5%
Total	100.0%	100.0%	100.0%	Other	8.1%	5.9%	7.1%
				Total	100.0%	100.0%	100.0%

Notes: The chi-square test of independence yields a P-value of 0.0002 and 0.0000 for age and relationship.

Sources: The author's field research.

The right-hand side of Table 3 classifies the *gap*s by social relationships that determine the qualification for the membership of *gap*s. The majority of *gap*s are organized according to the criteria of "living in the same *mahalla*" (37.9%) or "graduates of the same school" (37.4%), followed by "kinship relations" (10.1%) and "colleagues at work" (7.5%). The category "other" includes "friends" or "people of the same age." It can be observed that males tend to organize classmate *gap*s more often and that females tend to organize *mahalla* *gap*s and relative *gap*s to a greater extent. Regarding relative *gap*s, female informants often emphasized that *gap*s are very useful for maintaining regular contact with their own families after marriage. A chi-square test of the hypothesis that the criteria of *gap*s are independent of the gender difference is easily rejected, which confirms the above findings.

Table 4 and Table 5 categorize the purposes of *gap*s by their membership criteria. We inquired about the purposes of each *gap*, accepting multiple answers, all of which are counted in the Tables. At first glance, it is obvious that a variety of purposes to attend *gap*s were reported. The column "Total" in Table 4 shows that the purposes of "just meeting members (56%)" and "refreshment and leisure (46%)" comprise one half of the total answers. This supports the idea that the *gap* is not merely a financial institution. On the other hand, the purposes related with the functions of Roscas such as "purchasing durable goods (29%)," "saving money (4%)," and "insurance for the future (44%)" comprise about 40% of total answers.

From the other columns in Table 4, it is apparent that any type of *gap* can have various proposes and these purposes are not explicitly defined by criteria such as gender or generation. Nevertheless, we can recognize some tendency. For instance, the females tend to utilize *gap*s for the Roscas-related purposes

Table 4. Purpose of *Gap*s in *Oqmahalla* (gender and age)

Purpose	Male	Female	Total	Male (age)				Female(age)			
				-30	31-40	41-50	50-	-30	31-40	41-50	50-
Just meeting members	172	107	279	63	51	45	13	23	28	32	24
Refreshment or leisure	135	90	225	54	39	31	11	11	34	23	22
Purchasing durable goods	55	86	141	19	14	16	6	12	28	28	18
Saving money	10	8	18	2	3	5	0	0	3	4	1
Insurance for the future	99	118	217	37	34	20	8	13	42	38	25
Discussing problems	61	40	101	18	15	26	2	6	12	15	7
Barter	0	2	2	0	0	0	0	0	1	1	0
Keeping social positions	4	2	6	1	0	1	2	0	0	2	0
Other	7	13	20	0	3	3	1	3	5	5	0
Total number of answers	543	466	1009	194	159	147	43	68	153	148	97

In percent of total number of Gaps

Purpose	Male	Female	Total	Male(age)				Female(age)			
				-30	31-40	41-50	50-	-30	31-40	41-50	50-
Just meeting members	67%	45%	56%	74%	65%	65%	50%	56%	36%	43%	55%
Refreshment or leisure	52%	38%	46%	64%	50%	45%	42%	27%	44%	31%	50%
Purchasing durable goods	21%	36%	29%	22%	18%	23%	23%	29%	36%	38%	41%
Saving money	4%	3%	4%	2%	4%	7%	0%	0%	4%	5%	2%
Insurance for the future	38%	50%	44%	44%	44%	29%	31%	32%	55%	51%	57%
Discussing problems	24%	17%	20%	21%	19%	38%	8%	15%	16%	20%	16%
Barter	0%	1%	0%	0%	0%	0%	0%	0%	1%	1%	0%
Keeping social positions	2%	1%	1%	1%	0%	1%	8%	0%	0%	3%	0%
Other	3%	6%	4%	0%	4%	4%	4%	7%	6%	7%	0%
Total number of *Gap*s	258	236	494	85	78	69	26	41	77	74	44

Notes: The chi-square test of independence yields a P-value of 0.00002 for gender difference in the left-hand side of the table.
Sources: The author's field research.

Table 5. Purpose of *Gap*s in *Oqmahalla* (social relationship)

Purpose	Mahalla	Classmate	Relative	Workplace	Other	Total
Just meeting members	65	136	35	17	26	279
Refreshment or leisure	70	97	23	15	20	225
Purchasing durable goods	61	35	17	14	14	141
Saving money	10	7	0	1	0	18
Insurance for the future	98	63	21	18	17	217
Discussing problems	36	47	8	7	3	101
Barter	0	1	1	0	0	2
Keeping social positions	2	1	2	1	0	6
Other	16	1	3	0	0	20
Total number of answers	358	388	110	73	80	1009

In percent of total number of Gaps

Purpose	Mahalla	Classmate	Relative	Workplace	Other	Total
Just meeting members	35%	74%	70%	46%	74%	56%
Refreshment or leisure	37%	52%	46%	41%	57%	46%
Purchasing durable goods	33%	19%	34%	38%	40%	29%
Saving money	5%	4%	0%	3%	0%	4%
Insurance for the future	52%	34%	42%	49%	49%	44%
Discussing problems	19%	25%	16%	19%	9%	20%
Barter	0%	1%	2%	0%	0%	0%
Keeping social positions	1%	1%	4%	3%	0%	1%
Other	9%	1%	6%	0%	0%	4%
Total number of *Gap*s	187	185	50	37	35	494

Notes: The chi-square test of independence yields a P-value of 0.00000 for differences in social relationships.
Sources: The author's field research.

mentioned above such as "purchasing durable goods (36%)"or "insurance for the future (50%)," while males tend to attend *gap*s for more leisurely purposes such as "just meeting (67%)" or "refreshment or leisure (52%)." A chi-square test of independence confirms this idea, rejecting the hypothesis that the purposes of *gap*s are independent of gender difference. This is consistent with our expectation mentioned above. From the left-hand side of Table 4 that classifies *gap*s further by using age differences, we can observe that the tendency to utilize the *gap*s for practical purposes such as "insurance for the future" is stronger particularly for females over 30 years of age. It appears that those women who have a certain responsibility for their household budgets attend *gap*s with their family's living strategies in mind. With regard to male *gap*s, differences in purposes according to generations cannot be clearly observed. The serious attitude of the relatively elderly generation toward *gap*s can possibly be recognized in the high proportion of "discussion problem (38%)" in male *gap*s of the age group of 41-50.

Table 5 categorizes the purposes of *gap*s by the social relationships on which the *gap*s are based. We can recognize the tendency that Roscas-related practical purposes are more popular in *mahalla* and workplace *gap*s, than in classmate or relative *gap*s. A chi-square test of the hypothesis that the purposes of the *gap*s are independent of the criteria of *gap*s is easily rejected. This popularity of *mahalla gap*s may somewhat contradict our impression, though we could expect that of workplace *gap*s to some extent. Here, the effect of the high proportion of female participants in *mahalla gap*s that can be recognized in Table 3 must be taken into account. In addition, the popularity of practical purposes of *mahalla gap*s and workplace *gap*s can be explained by the view that in the situation wherein members meet each other almost daily, there is little necessity of maintaining regular contact through non-practical gatherings.

Gaps and Roscas

Thus far, we dealt with the data of answers to the questions regarding *gap*s, in which informants' values or thoughts about their traditions or economic motivation may be well reflected. Henceforth, we attempt to examine the effects of *gap*s as Roscas based on non-subjective indices. The result of totaling the survey data reveals that the average amount of contribution in a gathering is 4,760 soums per capita. Here, as amounts of money to be contributed were often reported in the form of materials,[25] they were converted into the equivalent amount in soums by refereeing to their bazaar prices at that time. It also reveals that the average size of a *gap* is 13.68 members, the average frequency of gatherings in a month is 1.21 times, and the average life of a *gap* is 6.88 years. Thus, the average amount of lump sum funds allocated to a member at every gathering is

4760 × (13.68 – 1) = 60,357 soums.

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25 They often use a specific amount of meat as an index. See, p. 50.

Table 6. *Gap* Participation and Prevalence of Durable Goods in *Oqmahalla*

Number of *gaps* participating	0	1	2	3	4	more than 5	Co-efficient	t-statistics	Marginal effect dF/dx
Color Television	6.7%	16.7%	17.2%	40.0%	31.8%	39.1%	0.156***	0.043	0.043
Black and White TV	77.8%	86.4%	92.2%	80.0%	86.4%	91.3%	-0.003	-0.040	-0.001
Refrigerator	15.6%	22.7%	42.2%	40.0%	63.6%	56.5%	0.212***	3.780	0.078
Music player	0.0%	15.2%	17.2%	36.0%	40.9%	47.8%	0.243***	4.330	0.063
Washing machine	6.7%	10.6%	18.8%	32.0%	22.7%	60.9%	0.256***	4.180	0.066
Microwave oven	6.7%	19.7%	25.0%	36.0%	31.8%	30.4%	0.132**	2.430	0.066
Gas cooker	93.3%	97.0%	95.3%	100.0%	95.5%	91.3%	-0.168	-1.450	-0.006
Automobile	0.0%	18.2%	20.3%	40.0%	45.5%	39.1%	0.184***	3.120	0.051
Durable goods index	2.11	3.00	3.55	4.48	4.50	5.13	0.377***	7.340	-
Num.of households	45	66	64	25	22	23			
Size of household	4.64	5.36	5.38	6.12	5.82	6.78			
Income per household	48802	72596	83457	108506	112123	130822			
Income per capita	13598	14242	16116	18091	20863	21103			

Note: ***Significant at 1%, **Significant at 5%.

The following model was estimated for each durable good.

Pr (*Di=1*) = *F* (*GAP, INCOME, AGE, MEMBER*)

where, if household *i* owns the durable good, *Di* = 1, if not, *Di*=0. *GAP* indicates the total number of *gaps* that the household participates in, *INCOME* the household income, *AGE* the age of the household head and *MEMBER* the total number of members in the household. *F* is the standard normal cumulative distribution function. Based on the estimated results, the estimated parameter of *GAP*, the value of t-statistics, and the calculated marginal effects are shown in the table. The durable goods index is calculated by taking 1 if the household owns a durable good and 0 if it does not, and summing up the numbers for eight durable goods. The OLS was applied to the durable goods index, using the same explanatory variables.

Sources: The author's field research.

This amount accounts for 70% of the average total monthly income per household (86,119 soums) in *Oqmahalla*. Here, it is important to recognize that although each contribution is never big, the total amount of the fund becomes fairly large against our impression. As the average frequency of gatherings in a month is 1.21 times, the fund will be allocated to each member almost once a year (1.21 × 12 ÷ 13.68 = 1.06). In addition, a household participates in 2.47 *gaps* on average. In other words, households whose members belong to *gaps* are expected to receive 70% of the monthly household income 2.5 times a year. Although the funds are used not only for Roscas but also to pay for meals and the entertainment expenses incurred for the gatherings, this fairly large amount of money should be expected to change household behavior toward expenditure or purchase.

As an attempt to investigate whether these funds could contribute to purchasing durable goods from the non-subjective indices, we examine the correlation between *gap* participation and the prevalence of durable goods. Table 6 categorizes households by the number of *gaps* in which they participate and calculates the prevalence ratio (%) of various durable goods in each category. For instance, 39.1% of the households that belong to more than five *gaps* own

color televisions, whereas only 6.7% of the households that do not belong to any *gap* do. The durable goods index is calculated by taking 1 if the household owns a durable good and 0 if it does not, and summing up the numbers for eight durable goods. The index increases with the number of *gap*s in which a household participates, as shown in Table 6. The overall results reveal that there is a positive association between *gap* participation and durable goods acquisition.

As can be recognized from the lower part of the table, however, household size and household income also tend to increase when households participate in more *gap*s. Thus, I estimated the probit models for each durable good, after controlling for the differences in the observed income or the number of household members. The results are shown on the right-hand side of Table 6. The coefficients of *gap* participation were positive at the 1% level of significance for 5 durable goods, and at the 5% level for 1 durable good.

The above results provide some support to the view that *gap*s are as well utilized as Roscas in the acquisition of durable goods. This analysis, however, has a limitation in clarifying the pattern of durable goods diffusion and cannot deny the possibility that the causation would run in reverse. In order to tackle the endogeneity issues, the panel or cohorts data should be collected in further research on this topic.[26]

SUSTAINABILITY CONSTRAINTS AND DEFAULT PROBLEMS

As an attempt to clarify a distinctive feature of the *gap*s, we deal with the issues of sustainability and default problems in this section. The literature has unanimously emphasized that for long-enduring institutions managing common pool resources, small-sized groups or clearly defined boundaries are a necessity.[27] In a larger group where the costs of monitoring and enforcement are high, it becomes more difficult to keep track of defecting members.[28] Moreover, if the entry of new participants is not restricted, group members face the risk of any benefits they produce being reaped by others who have not contributed to the benefits.[29] The issues of sustainability are typically similar for Roscas. Restricting group sizes and fixing clear boundaries appear to enhance the sustainability of Roscas.

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26 See, for example, T. Besley and A.R. Levenson, "The Role of Informal Finance in Household Capital Accumulation: Evidence from Taiwan," *Economic Journal* 106 (1996), pp. 39-59. I also estimated a probit model, after dividing the *gap* participation variable into the male participation variable and the female participation variable to check the difference between male *gap*s and female *gap*s. From the results, the coefficients of both variables are significant as well and the gender difference couldn't be found from this type of analysis.

27 See, for example, E. Ostrom, *Governing the Commons* (New York: Cambridge University Press, 1990); or J.M. Baland and J.P. Platteau, *Halting Degradation of Natural Resources: Is There a Role for Rural Communities?* (Oxford: Oxford University Press, 1996).

28 Baland and Platteau, *Halting Degradation*, pp. 298-302.

29 Ostrom, *Governing the Commons*, pp. 91-92.

In the case of the present *gap*s in *Oqmahalla*, we obtained a notable result that any experience of a serious default problem was not reported throughout the survey. This fact is quite uncommon in terms of the situation in other countries where defaults in Roscas often cause major problems such as suicides or demands for governmental regulations.[30] In *Oqmahalla*, most of the respondents agree with the view that the inability of a member to pay for his or her obligation in a gathering is unlikely to lead to a major problem. *Gap*s are never disbanded and the defaulter is not banished from the group on the grounds of his or her default. Instead, the other members are tolerant of the defaulter's delay and often consider some favorable arrangements for him or her. In other words, unlike markets, *gap*s are neither simple financial organizations nor anonymous institutions. As mentioned earlier, *gap*s are always based on primary networks such as close friendships or kinship relations, and this affinity among members might serve to enhance their sustainability, thereby resolving the problems of imperfect information or enforceability.

Nevertheless, it would be misleading to completely ignore the sustainability issues. In practice, the average number of members in a *gap* is relatively small, such as 13.68 persons in *Oqmahalla*; however, the expected utilities of Roscas generally increase with an increase in the group sizes. Sustainability considerations appear to be a key to understanding this fact. According to Besley et al., a Rosca cannot be sustainable if the benefit to the first fund recipient of default exceeds the default costs that represent social sanctions, such as discomfort, loss of dignity, and other costs associated with having to confront the other members each day. This leads to the idea that the benefit of default could be reduced by lowering the number of members, if the contribution amount is kept fixed. In the case of a fixed number of members, the Rosca members would be deterred from defaulting by reducing the contribution amount per specific period. Hence, if the sustainability constraint of the Rosca is binding, the size of *gap*s may be inversely related to the size of the contributions per specific period.[31]

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30 Ardener, "The Comparative Study," p. 216; and Besley and Levenson, "The Role of Informal Finance," p. 43.

31 We can easily obtain this association from the following consideration (For details, see, Besley et al., "Economics of Rotating Savings," p. 806). Consider a Rosca of length *t* among *n* identical individuals to purchase the durable good that costs *B*, then it meets at {t/n, $2t/n$, ...t}. The sustainability constraint of the Rosca can be written as,

$$\left(\frac{n-1}{n}\right)t(e)\left[v(y) - v(y-e)\right] < K \quad (1)$$

where *y* denotes a exogenous flow of income, *e* a fixed amount of contribution per specific period, *v* individual's instantaneous utility, *K* the default cost caused by social sanction and $t = B/e$. The left-hand side of (1) indicates the benefit to the first recipient of defaulting. Assuming the sustainable constraint is binding, the implicit-function theorem directly yields the expression of $\partial n / \partial e < 0$, which is plotted in Fig1, under the condition that *v* is increasing, strictly concave and *e* is not too small (*e>1*). To analyze more strictly this association using cross-section data, the differences in *y* and the assumption of constant *B* may be reconsidered.

Figure 1. Association between Size of *Gap* and Size of Contribution in *Oqmahalla*

Size of contribution in a month (soum)
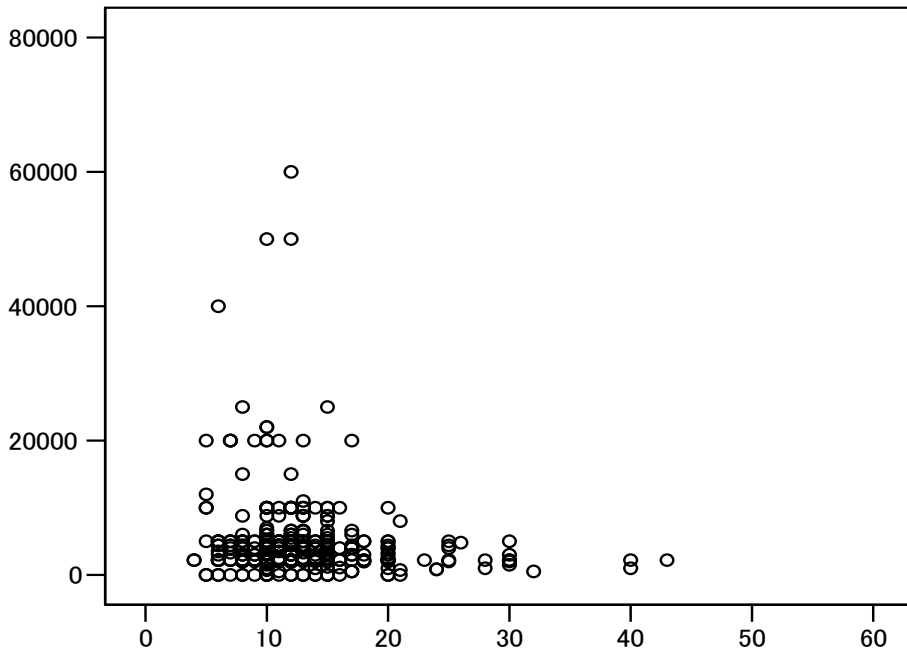
Note: Pearson's correlation coefficient is –0.136 with a P-value of 0.004.
Four observations over 80,000 soums or over 80 persons were excluded as outliners.
Sources: The author's field research.

Figure 1 plots the relationship between the size of *gap*s and that of the contribution per month from our survey data in *Oqmahalla*. There appears to be an inverse association as predicted above, although the relationship appears to be non-linear. At least, there are no *gap*s whose size and amount of contribution are similarly large, which prevents them from launching businesses or making large investments through *gap*s. The functions of the *gap*s seem to be somewhat restricted under the consideration of sustainability. This finding leads to the idea that the infrequent occurrence of default problems in the *gap*s of *Oqmahalla* might be the result of a well-monitored and restricted selection of members rather than the peculiarity of *gap*s as non-economic institutions.

Thus, it seems to be insufficient to regard *gap*s as simply being organized based on primary networks such as classmates, neighbors, or kinships; it is likely that they might select more restricted members from those primary networks under the consideration of sustainability issues. In other words, socially originated affinity and rational motivation appear to co-exist in *gap*s. This mixed view seems to be required to comprehend the dynamic aspects of the *gap*s. In the historical perspective, for instance, it was obvious from interviews that the sizes of *gap*s have been shrinking since the Soviet time, while the num-

ber of *gap*s themselves has been increasing. In light of the foregoing consider-ations, this fact implies that the common interests of members have gradually strengthened such that they might be required to reduce the sizes of their *gap*s in order to lighten the burden of contract enforcement. In the present time of radical change in social and economic surroundings, particularly symbolized by the intrusion of the market economy, this mixed angle of viewpoints might need more attention in comprehending the changes of traditional institutions that are underway.

MULTIPLICITY OF NETWORKS

This section considers the multiplicity of networks. Thus far, we have dealt with each *gap* individually; however, we lack a network point of view. The interactions or relationships among *gap*s have been neglected. In *Oqmahal-la*, residents often stated that there is no restriction to belong to multiple *gap*s, and a considerable number of people did participate in multiple *gap*s. In ad-dition, in territory as small as a *mahalla*, we could observe a lot in a number of *gap*s. Based on these facts, we can assume that the *gap*s are forming a complex structure of participation network with a high density. This is the other feature of *gap*s that this article will consider.

The viewpoint of multiple belonging is, in fact, important in consider-ing the sustainability issues of Roscas, though such examples regarding Roscas have rarely been observed in the literature. The logic is considered to be analo-gous to the previous discussion about the size of the group. In general, belong-ing to multiple groups must raise default risks not only due to the increasing obligations of the participant but also as a result of increasing monitoring and enforcement costs or making boundaries of membership ambiguous. Never-theless, in *Oqmahalla*, there are few problems of defaults or other destructive conflicts in each *gap*.

To consider this feature of the *gap*s, the multiplicity of networks seems to be a key factor. The simplest picture is as follows. A and B belong to a Rosca, but B belongs to another Rosca. From the general point of view regarding Roscas, the multiple belonging of B puts the former Rosca at risk by making it difficult to keep track of B's defecting. However, in the case of the *gap* that has a high density of prevalence, the following situation can frequently occur: A also belongs to the other *gap* that has a member, say C, who belongs to B's *gap* that A does not belong to. Here, C can function as a monitor, and B's behavior against A's interests will be restricted even in the *gap* without A. This type of restriction through indirect relationships has been referred to as the dyadic constraint in sociological literature.[32]

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32 More specifically, the dyadic constraint on vertex u excised by a tie between vertices u and v is defined as the extent to which u has more and stronger ties with neighbors who are strongly connected with vertex v. See, for instance, W.D. Nooy et al., *Exploratory Social Network Analysis with Pajek* (Cambridge and New York: Cambridge University Press, 2005), p. 147.

Figure 2 *Gap* Participation Network of the Mahalla Committee Members in *Oqmahalla*
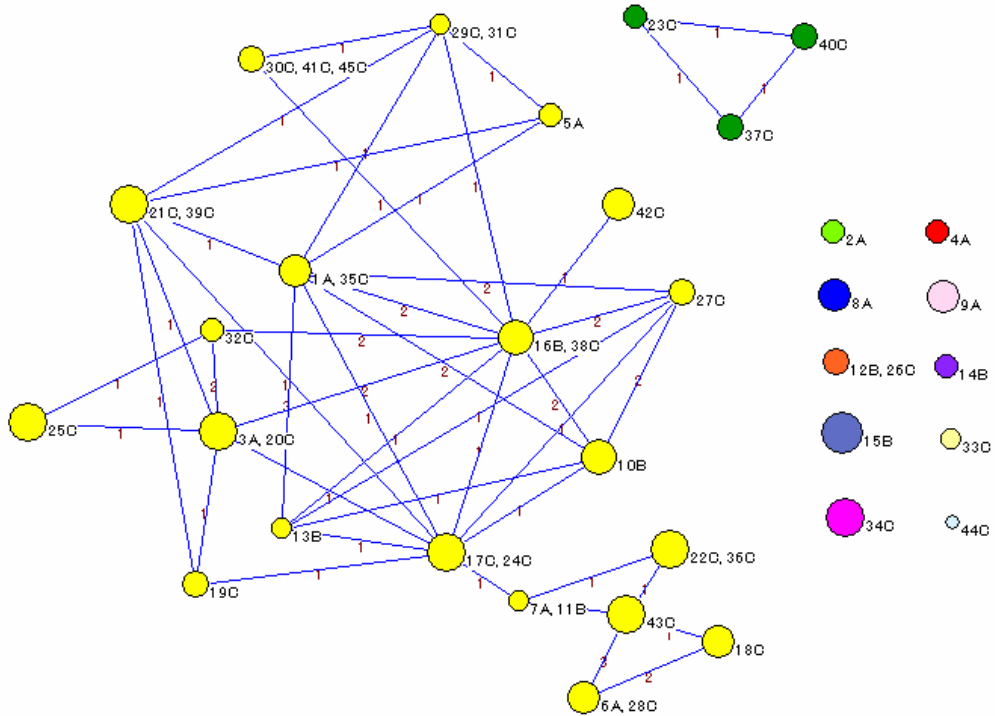
Note: The line indicates the connection through the common *gap*, the figure in the line indicates the number of the *gap*s. The figure in the circle indicates committee member number, and alphabets posts; A denotes a member of council (*kengash*), B advisor (*maslahatchi*), C a member of subordinate commissions that work on specific tasks.

Sources: The author's field research.

To view the relational structure formed by *gap*s, we need to examine the network data that could identify those who are connected with each other through common *gap*s. Since the household survey that collected data on the basis of a household or person unit is lacking in this type of relational data, in September 2004, I conducted another survey targeting members who belong to a *mahalla* committee. The *mahalla* committee is a representative organ of the *mahalla* formed by its residents and those people who are expected to be leaders or influential persons in the *mahalla* are targeted.

Figure 2 presents the participation network of *gap*s for 45 persons who are in charge of any post of the *mahalla* committee. Here, the network data was converted into a one-mode network; the circles indicate persons and lines, *gap*s. The numbers below the circle represent the number of member and the alphabets, posts in the committee; A denotes a member of council (*kengash*); B advisor (*maslahatchi*); C a member of subordinate commissions that work on specific tasks. Those members who belong to a common household or a close a paternal kinship group are unified as a same circle whose size represents the

size of paternal kinship group in the community, considering that this type of relationship is much stronger than that of *gap*s.

Our main concern should be based on the fact that a considerable number of relationships of complete triads can be observed in the network of Figure 2. From the network point of view, this implies that members must be highly controlled by dyadic constraints. This relationship structure was realized under the peculiar condition of the *gap*s mentioned above; however, it must be considered that activists in the *mahalla* committee tend to participate in a considerably greater number of *gap*s than do ordinary residents. We can also observe isolated members who are not connected with any member by *gap*s on the right-hand side of the figure. Nonetheless, when considering other members' roles outside the *mahalla* committee or other social relationship apart from the *gap*s within the *mahalla*, we can imagine the extent to which the residents are connected with each other by the multiplicity of the networks and even simultaneously restricted by dyadic constraints.

Thus, the generous attitude towards participation in multiple associations is not necessarily irrational with regard to their sustainability issues, if we broaden our scope to the overall structure of the network. Again, we can assume a rational motivation for active participation in *gap*s. It seems that the discussion in this section should not proceed without sufficient explication or space and other approaches to this unusual but imaginable phenomenon of the *gap*s should be adopted. In any case, the meaning of a "close-knit network," a terminology often observed in the literature of the Central Asian society, should be examined further in order to understand what is really special.

CONCLUDING REMARKS

This article investigated *gap*s based on a field survey in the Andijan region in Uzbekistan. We attempted to recognize differences among various types of *gap*s from our statistics, as well as to examine the quantitative magnitude of their prevalence. The survey data revealed that 81.6% of the sample households of *Oqmahalla* had at least one family member who belongs to a *gap* and participated in 2.47 *gap*s on an average. These numbers clearly confirmed that most of the households in *Oqmahalla* were intertwined in a dense web of *gap* networks. While each *gap* has a variety of purposes, some tendency affected by membership criteria such as gender, generation, and type of social relationships could be certainly observed.

In comparison with the living standard data collected through the household budget survey, we clarified the impacts of *gap*s on residents' economic life. Households whose members belong to *gap*s were expected to receive 70% of the monthly household income 2.5 times a year. We could also recognize the positive correlation between *gap* participation and the prevalence of durable goods. The correlation appeared to be strong even after controlling household incomes or size effects; however, the issue of causation still remains to be observed due to the lack of time-series data.

The latter half of this article focused on some of the distinctive features of the *gap*s and attempted to show the manner in which they are noteworthy. I dealt with sustainability issues and default problems and discussed the meaning of the high density of the *gap* participation network. The scarcity of default problems or generosity toward multiple belongings should draw more attention as peculiar features of *gap*s from theoretical aspects.

The findings of this article provide implications in both the fields of economics and area studies. First, the discussion in the latter half provides an insight into the network approach in economics studies, in which they have conventionally treated a household or a person as a separate unit. More specifically, household budget surveys increasingly utilized by development economists for their analyses appear to be indifferent to the network point of view. This article, however, implied that a relational viewpoint could be essential even in a simple logic of collective action. This seems to give rise to the need for an integrated approach based on household and network data, in order to obtain well-balanced standpoints.

Second, this was an attempt to grasp a relatively new phenomenon that can be seen in the traditional institutions in Uzbekistan. As Uzbek scholars often emphasize, it would be quite correct to state that *gap*s are strongly originated in the local culture and society. At the same time, in order to grasp the rapid changes occurring in every aspect of the traditional institution, we should be more aware of how relatively new elements such as the trend of the financial use of *gap*s affects people's behaviors and perceptions.

Last, this article shed light on the distinctive feature of the *gap*s from the comparative perspective; however, it only alluded to their origin or the reason why such a difference could arise in *gap*s. These matters should be thoroughly discussed in a broader context that comprises sociological and historical perspectives. In this sense, the findings in this article should be regarded as preliminary results.