

Community Currency and the Endogenous Development of Hilly and Mountainous Areas: A Case Study of Forest Volunteer Activities in Japan¹

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Abstract

Hilly and mountainous areas, which are quite important in Japan, are confronted with difficult problems whose solutions require major breakthroughs. Specifically, they can achieve sustainable development only if local residents take the initiative in recognizing issues and addressing them. In this study, we emphasize community currency as a means to associate various activities and to stimulate the intra-regional circulation of human beings (forest volunteers), materials (local products and wood), and money. Community currency has the potential of inducing or promoting endogenous development. We employ a case study to clarify the relationship between forest volunteer activities and community currency circulation. We demonstrate that community currency effectively connects forest volunteer activities and the rural economy and stimulates intra-regional circulation.

¹ This paper is based on Miyazaki & Kurita [2012].

Introduction: Circumstances and Issues of Hilly and Mountainous Areas in Japan

A “hilly and mountainous area,” an expression used in the field of agricultural administration, includes flatlands comparatively far from urban areas, and intermountain zones. Moreover, the percentage of forest area and the gradient ratio of land are high. Hilly and mountainous areas, where approximately 13.6% of the population resides, account for approximately 65% of the total area of Japan. They possess abundant natural resources and include 80% of country’s forest and approximately 43% of it cultivated acreage (Ministry of Agriculture Rural Development Bureau [2009] p.1). In promoting rural sustainability, it is enormously important to consider the livelihoods and life styles of the people living in these areas.

Previous research advances three perspectives on the value of hilly and mountainous areas (Niigata Prefecture Nagaoka City [2006], Teranishi, Yamakawa, Fujitani and Fujii [2010], Ohnishi, Odagiri, Nakamura, Ando, and Fujiyama [2011], others). First, these areas said to support natural resource-based industry. Their abundant natural resources are crucial for agriculture and forestry. Second, they permit the multifunctionality of agriculture and forestry, which not only produce crops and wood, but also conserve land, foster water resources, and preserve the natural environment (Science Council of Japan [2001]). Third, these areas promote the coexistence of human beings and nature. Beyond their specific value, they provide natural resources to urban communities. Therefore it is very important for Japan to sustain pluralistic value of hilly and mountainous areas.

However, there areas face difficult issues. Therefore, significant efforts and spending are required to sustain them. In particular, the decline of forestry and the degradation of communities because of population aging and depopulation are serious problems. Appropriate forest management and production activities are hampered by both these problems. In addition, it is increasingly difficult to sustain the lives of local residents and the functions of their communities. Some researchers have termed the phrases “marginal hamlet” (Ohno [2005]) to refer to these local societies and “hollowing out of population, land, and hamlet” to the process that they have undergone (Odagiri [2009]; [2012]). In the future, we address this crisis and regenerate these areas.

As we practice strategic regeneration, human resources, natural resources, and money are essential. In particular, we must discover the potential of local resources. We need sufficient funding to manage human and natural resources in intra-region. However, the stagnation of money flows or money outflows may make such management quite challenging. In order to promote regeneration, we must design a system of monetary circulation in the intra-region (Okada [2005]).

In this study, we focus on community currency in considering the intra-regional circulation model of human resources, natural resources, and money. Community currency, unlike normal money, is used not only for

exchange but also to express gratitude for volunteer activities, mutual aid, or regional contributions. By combining economic and social transactions, community agents create new relationships among local residents and change awareness. Community currency has the potential to promote the circulation of human and natural resources, money, and information; it can be said to be an “intra-regional circulation medium.”

In this study, we clarify the various roles of community currency in connecting human resources, natural resources and money or in promoting circulation; we focus on a case study of forest volunteer activities. Specifically, we show that community currency supports forest conservation activities by volunteers and contributes to community development in hilly and mountainous areas.

The non-profit organization Tosa-no-Mori Kyūentai (hereafter Kyūentai), which based in the Prefecture of Kochi, is the subject of this research. We focus, in particular, on the forest volunteer activities and the community currency or “Mori-ken” (hereafter MK) that Kyūentai has issued. As shown later in detail, Kyūentai has distributed community currency (coupons exchangeable local products) with the aim of supporting forest volunteer activities in forest management and natural environmental conservation and of contributing to the vitalization of rural economy. Therefore, we study how the community currency that is given in return for forest volunteer activities link human resources, natural resources, and money and aids in the endogenous development of hilly and mountainous areas.

The case study analysis proceeds as follow. Section 1 surveys the activities of Kyūentai. Referring to previous literature and statistical data, we show Kyūentai’s Organization, activity goals, and approach to the vitalization of hilly and mountainous areas. In addition, this research examines the awareness of forest volunteers through interviews and questionnaires. We distributed questionnaires to forest volunteers and local residents from August 25 to October 24, 2011. We received 49 responses from 176 people (response rate: 28%). The attributes of the respondents are indicated in Table 1. Data were analyzed by using SPSS 21.0. To complement the results of the questionnaire, we interviewed forest volunteers belonging to Kyūentai, shopkeepers, and bankers. In Section 2, we explain the currency’s role in an intra-regional circulation scheme, which links different actors and activities in order to regenerate the area. Section 3 offers a summary of the results and concluding remarks.

Table 1. Attributes of respondents

Items		N (ratio)
Sex (N=47)	Male	35 (74.5%)
	Female	12 (25.5%)
Age (N=44)	39 years and below	8 (19.9%)
	40 years and over	36 (6.2%)
Place of Residence (N=46)	Hilly and mountainous areas	17 (37%)
	Urban areas	20 (43.5%)
	Other areas	9 (19.6%)

1. Forest Volunteer Activities by the NPO Tosa-no-Mori Kyūentai

1-1. Background to Establishment of Kyūentai

The prefecture of Kochi has approximately 84% of its land area (710,000 km²) covered by lush forests, the large coverage in Japan. In all, 57% of privately owned, artificial plantations require thinning. In order to use lumber resources correctly and to sustain the multifunctionality of the forest, woodlands must be continuously managed in an appropriate way (Kochi prefecture [2012] p.1). Despite the abundant natural resources, the Kochi prefecture is the center of the tertiary sector of economy. Just 12.7% of the total number of employees works in this primary sector, which should be the key industry. As a result, the management of the forest is delayed. In order to solve the problem, many forest volunteer associations have been established. The former governor of the Kochi prefecture said that volunteers are needed to solve these the problem of the workforce leaving the forest. The declaration allows the prefecture staff to establish forest volunteer associations. One of them is Kyūentai, which was approved as a non-profit-organization in 2003. It now has 64 members (as of April 1, 2013) and supports forest practices.

The members of Kyūentai have very extensive knowledge and experience and draw on the expertise of professional foresters and local residents. In addition, supporting members, such as local shops, agricultural farms, fruit gardens, also assist the organization. Kyūentai collaborates with forest volunteer associations in Kochi, private firms (Shikoku Bank, Ltd, Mitsui & Co., Ltd, ToTo, and so on), local governments (Ino town, Niyodo town, Kochi city, Kochi prefecture, etc.), and other organizations (National land Afforestation Promotion Organization and NEDO or the New Energy and Industrial Technology Development Organization); it supports a wide-range of activities, including offering technical guidance, financial support, and knowledge. Thus, local governments, private firms, and NPOs take on forest project on the basis of the “cooperation of labor” in Kochi. Kyūentai seek bottom-up public participation and the development of an enlightened program. However, it

undertakes forest maintenance and natural environmental conservation, permits the interaction of urban and rural communities, and regenerates hilly and mountainous areas. Kyūentai renews traditional self-cutting, small forestry and strive to restore forests and rural areas.

1-2. An Outline of Kyūentai's Activities

Kyūentai seeks to manage properly natural resources and to make the community livable. Its three main activities are 1) the maintenance and conservation of forest, 2) the training of volunteers and the promotion of environmental education, and 3) other activities of forest management.

Forest volunteers build strip roads, thin trees, and carry out thinned wood. These activities are major tasks of the traditional forest industry but are now regarded in a multifunctional manner. The Tosa-no-Mori model is the core of the organization's activities. The model has three aspects. First, forest volunteers work together, since it is very difficult for a single or an aging person (forest holder) to maintain the forest. Volunteers effectively thin the forest and carry out of wood by taking advantage of light cables and other tools. In addition, thinned woods are classified for sale on the market. Those that cannot be sold are used for firewood, chips, and pellets. With the exception of necessary expenses, the profit of sales is distributed to forest holders and forest volunteers. Part of the expenses is funded by community currency.

Second, people with little or no experience can learn about the significance and methods of forest activities through research, symposiums, and green tourism. Kyūentai desires to spread knowledge and skills through training and environmental education. Conventional forestry has been entirely left to specialized workers, such as those of in forestry or forestry cooperatives. However non-specialized individuals (volunteers, supporting businesses, and so on) have started to participate through these activities. Kyūentai removes the entry barriers to forestry and thus augments the workforce available for the tending of woodlands. It promotes interaction between volunteers and outside participations through events and visits. Also, it undertakes projects, such as forest volunteer associations, in other prefectures, and offers technical support to newly founded groups.

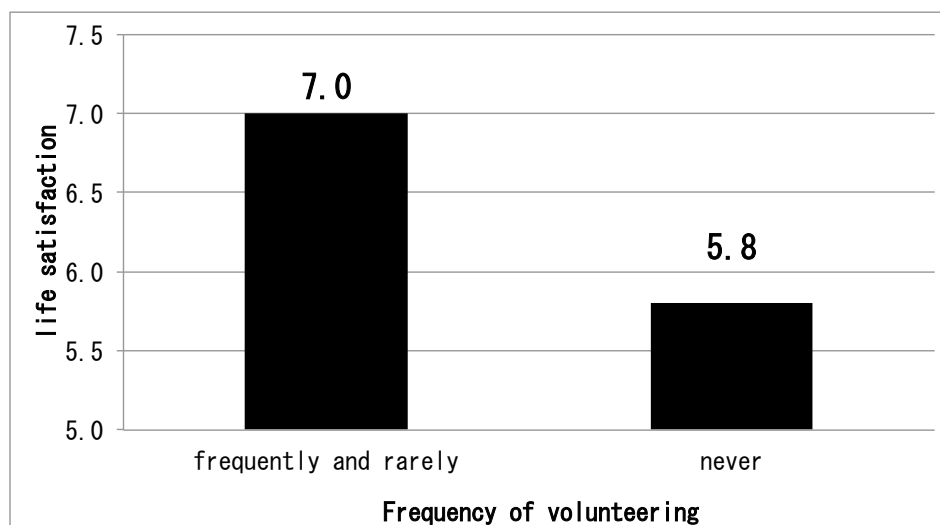
Third, Kyūentai has constructed a regional self-sufficient energy system, whose purpose is the creation of natural energy using local resources, such as the lumber from thinning. Through the effective use of local resources, the burdens on the environment can be lessened. As a part of this system, Kyūentai established the Tosa-no-Mori Firewood Club in November 2010. In this club, volunteer cut thinned wood to desirable sizes, which can then be used at home for stoves or to heat bathtubs. Kyūentai is supporting the reconstruction of regions affected by the Tohoku earthquake and tsunami of March 11, 2011. It supplied wood-fired bathtubs and launched a reconstruction support project.

1-3. Participation's Awareness in the Forest Volunteer Activities

What about the awareness of forest volunteer? We analyzed life satisfaction, community awareness, and reward awareness. Forest volunteering is captured by the following question: "Did you participate volunteer work?" Individuals answered this question on a five-point scale (5 "monthly," 4 "once a couple of months," 3 "once or twice a year," 2 "once years," 1 "never"). Overall, 66.7% volunteered. Volunteers are divided into two groups, those who volunteered frequently or rarely ("monthly" and "less monthly") and those who never volunteered. 45.8% of the population did volunteer work frequently, 20.9% rarely, and 33.3% never. Life satisfaction is measured with a single-item question on an 11-point scale. "How satisfied are you with your life, all things consider?" Responses ranged on a scale from 0 "completely dissatisfied" to 10 "completely satisfied."

Figure 1 presents the correlation between the frequently of volunteering and life satisfaction. The descriptive statistics shows a positive relationship between the two factors. On average, people who never volunteer reported the lowest life satisfaction scores (mean of 5.8 points) and people who volunteer frequently or rarely high scores (7.0 points, or 1.2 points higher). The difference is sizeable and statistically highly significant. This result of this analysis is consistent with that of Meier and Stutzer (2008).

Figure 1. Frequently of forest volunteering and life satisfaction (p-value=.054*)



*p-value < .10, two-tailed test.

Next, we determined differences in community awareness among volunteer activists. Community awareness was captured by the following question, "How much are you aware of your community?" Seven responses were possible to it: "1) A tie exists in the community; 2) Cooperation exists among organizations; 3) Local residents aid each other; 4) Affection exists in the community; 5) It is necessary to activate people; 6) I would like to continue to live in the community; and 7) I would like to contribute something." Responses are rated a scale from 5 "high

level” to 1 “low level.” Table 2 presents the correlation between forest volunteering and community awareness. On average, people who volunteered frequently or rarely reported high scores on responses 4 and 7, which concern community affection and the wish to contribute. The mean community awareness of those who never volunteered was 3.57 points for responses 4 and 7, while that of those who volunteered frequently or rarely was 4.16 points (0.59 points higher) and 4.26 points (0.69 points higher), respectively. The differences are sizeable and statistically highly significant. Thus, forest volunteers have high levels of community awareness of community and involvement.

Table 2. Frequency of forest volunteering and community awareness

	Frequently and rarely	Never	Difference	p-value
1. A tie exists among people.	3.81	3.57	0.24	.503
2. Cooperation exists among organizations.	3.23	3.43	-0.2	.541
3. Local residents aid each other.	3.68	3.43	0.25	.495
4. Affection exists in the community.	4.16	3.57	0.59	.095*
5. It is necessary to activate the community.	3.94	3.93	0.01	.983
6. I would like to continue to live in the community.	3.97	3.71	0.26	.487
7. I would like to contribute something.	4.26	3.57	0.69	.008**
N	31	14		

Note : **p-value < .0.5; *p-value < .10, two-tailed test.

Last, we considered the relation between volunteering and reward awareness. This relation is captured by the question, “Do you think regular volunteering (or forest volunteering) needs rewards?” Table 3 shows the descriptive statistics. Of those questioned, 46.9% felt that regular volunteering and 67.7% that forest volunteering required rewards. In contrast, 21.9% did not believe that the former activity should be rewarded, versus only 12.9% for the latter activity. Thus, the perceived necessity of reward differed by the type of volunteering. The time and labor of forest volunteering are both greater than those of regular volunteering. Therefore, those who engaged in forest volunteering were seen as needing some sort of reward.

Table 3. Volunteering and Necessity of Reward

	General volunteering	Forest volunteering
Yes, I need.	46.9%	67.7%
Yes and No.	31.3%	19.4%
No, I need not.	21.9%	12.9%
Total	100%	100%

2. The Impact of Intra-Regional Circulation on Human Beings, Materials, and Money

2-1. Various Circulation Schemes of Mori-ken

In terms of forest practices, Kyūentai's activities are of great significance but not sufficient to ensure the sustainability and regeneration of hilly and mountainous areas. The key to success is the community currency MK that has been issued by Kyūentai since its inception. The design is shown in Figure 2.

Figure 2. Mori-ken



The Kyūentai distribute “Forest Bill” MK to express gratitude to volunteers. The MK is composed of “coupons given to people who have taken part in activities to maintain the forest (either with their labor or with money).” These coupons can be exchanged for local products. Thus, they have a slightly different implication than regular local coupons (gift certificates) or community currency. Through MK, direct participants and indirect participations are praised for their support of Kyūentai's activities. These coupons are designed to encourage cooperation in the revitalization of hilly and mountainous areas. The following is an overview of the specific circulation scheme of MK (Figure 3).

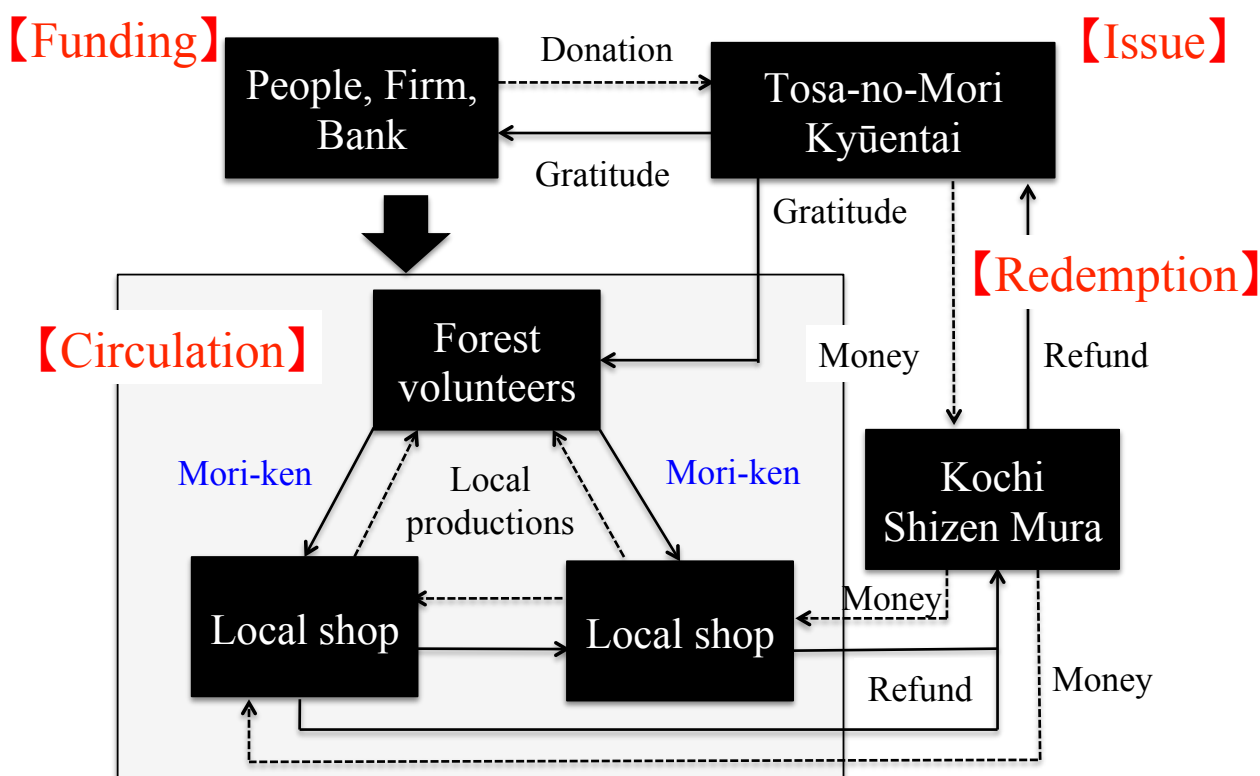


Figure 3. Circulation flow of MK

MK is mainly issued on the basis of the funds received as investments and donations from individual members and companies. Kyūentai issues them freely, with the limits of these received funds. Approximately 2,500 to 3,000 coupons are distributed a year. For instance, 3286 coupons were issued in 2009 and 2703 in 2010 (Table 4). The unit of MK is 1 “mori,” and users can exchange 1 mori for a local product (made and sold in the area) within 1,000 yen. MK is different from community currency or local coupons and is recognized as an exchange coupon for local products.

Table 4. Outline of Kyūentai’ s activities

Year	2009		2010	
Activities	Regular meeting	Special Activities	Regular meeting	Special Activities
Number of times	12	236	12	189
Number of participations	373	1933	180	2268
Number of issued MK	3286		2703	

(Source) NPO Tosa-no-Mori Kyūentai “Financial Statement”

There are three ways to obtain MK: 1) taking part in the forest maintenance of Kyūentai; 2) taking part in the making of firewood with the Firewood Club; and 3) investing (sponsoring) Kyūentai. MK is distributed as a proof that people have taken part in forest volunteering. In addition, the special MK (color MK) issued to those who take part in special activities can be used at specific gas stations. Forest volunteers can exchange MK for local products many times, until the executive office pays them off. Therefore, MK can be used in transactions among shops and will possibly help to revitalize the economic activities of the area, just like community currency coupons.

Ultimately, supporting shops will give MK back to the Kochi Shizen Mura (voluntary association for the adjustment practice of MK) or MK fund; at the same time, they will gain money. The amount of money equals the amount of local products exchanged for MK. For example, when paying for an exchanged local product that costs 700 yen, they will receive 700 yen from the Kochi Shizen Mura when the MK is returned. These MK will be given back to Kyūentai through the MK fund. Subsequently, 1,000 yen per MK will devolve from Kyūentai to the MK fund. As a result, the difference between 1,000 yen and the price of local products remains as a donation to the MK fund, which can be used for issuing new MK.

MK support many activities in hilly and mountainous area through multiple circulation flows. Kyūentai's forest volunteer activities are the savior of the forestry world. It has become possible to develop new types of forestry, such as small-scale dispersive, side businesses, and low investment types, such as new bearers or a new way to promote bearers. The MK has supported this system. Kyūentai circulates MK as gratitude to participants in forest volunteer activities, or companies, banks, and others that support them. Then the participants exchange MK for local production for local consumption. Kyūentai has taken over the knowledge and skills of the traditional forest industry through these practices. Moreover, it has sustained forest conservation activities thanks to the interaction and cooperation within and out of area and has encouraged intra-regional circulation by involving local stores. It is this circulation that is important for the regeneration of hilly and mountainous areas. At that time, community currency has played the role of a medium that connects human beings, materials, and money.

2-2. Awareness of Mori-ken Users

How do forest volunteers feel about these coupons? According to Figure 5, most respondents answered, "I would like to participate in forest volunteering more and obtain MK." The second most frequent response was "I would like to exchange many goods and services for MK." In contrast, only one person answered, "Getting and using MK is troublesome, honestly." Other research indicates that people have negative impressions of community currency (Nishibe et al [2006] p.29). In our study, forest volunteers freely accepted MK. Although it is not necessary to compare these findings, it is important to know if community currency smoothly circulates.

Table 5. Mori-ken user' s general impression

	Frequency	%
1. I thought using MK more, and I would like to ask people to do something.	7	21.2
2. I would like to participate in forest volunteering more and obtain MK.	14	42.4
3. I feel like finding the connection among people, which is different from the past.	8	24.2
4. I would like to exchange many goods and services	12	36.4
5. Getting and using MK is troublesome, honestly.	1	3.0
N	33	

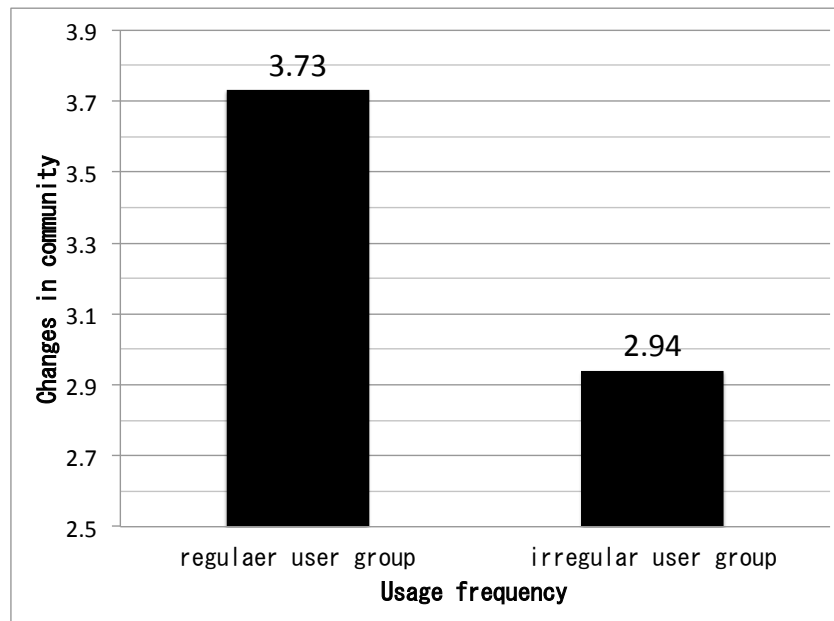
We also ascertained the responses of MK users to the question, “Did you feel a change after MK was introduced into the community?” According to Table 6, 45.2% of people answered, “ Yes, I feel big change” or “Yes, I feel a little change” and only 16.1% “No, I feel little change” or “No, I don’t feel at all.” As a result, some people felt that something has changed. We interpret this finding to indicate that MK has an effect on the local community.

Table 6. Feelings of Mori-ken users

	Frequency	%
1. Yes, I feel big change.	4	12.9
2. Yes, I feel a little change.	10	32.3
3. Yes and No.	12	38.7
4. No, I feel little change.	6	12.9
5. No, I don’t feel at all.	1	3.2
Total	33	100

Is there difference between usage frequency and awareness? People who use MK frequently may take a positive view of its community impact. Therefore, we separated the regular user group (almost every day, several times a week, and a few times a month) from the irregular user group (a few times a year or never) and verified the difference of awareness. Figure 4 presents the mean of the difference between usage frequency and awareness of community change. The regular user group has high scores compared with those of the irregular user group. As a result, it is appears that the more people use MK, the more they realize change in the local community. In other words, people attain close ties with the local community by regularly using MK in local shops. We can infer thus that people realize changes in local community.

Figure 4. Usage frequency and community changes (p-value=.024*)



*p-value < .05, two-tailed test.

MK has therefore not been refused by recipients and has not created a negative image of the local community. Thus, it is seen as an appropriate reward for forest volunteers. Furthermore, many people are aware of the change in the local community following MK's introduction. In particular, people who use MK regularly realize such change. The key to regeneration and endogenous development of hilly and mountainous areas is how much MK is used in the local community.

3. Concluding Remarks

It is important to pioneer circulation paths and involve a variety of organizations in intra-regional circulation scheme in order to encourage MK. We found that Kyūentai's forest maintenance and other activities and the circulation of MK are closely connected. Their relations are like toothed wheels that mutually promote forest volunteer activities and local shops. MK has become an indicator of the progress of the Kyūentai's activities. By the number of MK issued, we can estimate the number of volunteers and the amount of money received from individuals, companies, and banks. MK has become a standard for these activities, and it is the key for active engagement in various pursuits. It is important to explain the concept, features, and scheme of MK to potential users and to gain the comprehension and sympathy of as many people as possible. By expanding the reach of MK, they will possible not only help to maintain forests but also regenerate hilly and mountainous areas.

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