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Social Capital and the Local Food Movement in Japan: The Case of the Chiba Prefecture

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ABSTRACT

This study investigates the relationship between social capital and local food movements in rural Japan, with the latter factor markedly leaning towards the goal,"Local Production for Local Consumption" (LPLC). Promoted by the central and local governments in Japan since the 1990s, LPLC was envisioned to increase food self-sufficiency, revitalize rural communities, address consumers' food safety concerns, and provide food education. A structured interview survey is conducted on 56 agricultural communities in Chiba Prefecture, Japan. The social capital indicators used represent both the structural and cognitive types of social capital. The scores measuring the level of social capital are compared against the presence or absence of LPLC activity in the household. The data collected yield several important findings. First, structural social capital at the community level contributes to both profit-oriented activities and socially oriented voluntary community activities. Second, structural social capital at the household level affects LPLC activities in various ways. The higher the farmers' level of participation in local social groups, the more actively they sell their products at farmers' markets. In contrast, the personal networks of those farmers who run agritourism tend to be limited within the same communities. Third, cognitive social capital at the household level indicates no particular relevance with LPLC activities.

INTRODUCTION

The local food movements in rural Japan have generally conformed to the principle advocating "Local Production for Local Consumption" (LPLC). LPLC has been promoted by the central and local governments in Japan since the 1990s, with the goals of increasing food self-sufficiency, revitalizing rural communities, satisfying consumers' food safety concerns, and providing food education (Kimura and Nishiyama 2008). LPLC broadly refers to efforts that aim "to connect producers and consumers through activities to consume locally produced agricultural and marine products". This definition suggests that LPLC-

related activities encompass production, marketing, processing, agritourism, rural-urban exchange programs, and dietary education.

A successful LPLC requires region-wide collective efforts involving a range of participants such as farmer groups, consumer organizations, private companies, and local governments. Networks inside and outside the communities, as well as the feelings of trust, the norms, and ideas shared among the stakeholders, are crucial for encouraging collective efforts. All of these social relationsships are deemed to be linked by common factors and have been recently conceptualized as social capital (Grootaert and Bastelaer 2002; Ostrom and Ahn 2004). In his review article, Pretty (2003) pointed out the importance of social capital in sustainable common resources management.

Studies have been done on the many roles that community factors and social networks play in revitalizing rural economies in industrialized countries. Pretty (2002) correlated the accumulation of social capital with local food movements in the United Kingdom and Italy. Although still limited, the number of empirical studies applying quantitative analyses to social capital and rural socioeconomic development has been increasing recently, as exemplified in the following examples.

Lee et al. (2005) examined the roles of social capital and identity in contemporary rural development based on case studies in six European countries. They drew attention to the dialectics of existing networks and those established for the purposes of development; in particular, the area-branding initiated by private tourism industries, thereby underlining the importance of social process in development, and the relationship between continuity and change. Cooke (2007) compared the performance of medium-sized enterprises and social capital usage across UK regions by using the data collected through a mail survey administered to 3,600 firms. It showed that good performance was correlated with the intensive use of social capital, and the level of social capital tended to be high in less favorable areas.

Based on a survey of US farm and non-farm residents in a rural-urban interface of the state of Ohio, Sharp, and Smith (2003), revealed that non-farmer support and tolerance for agriculture was stronger when there existed social capital (trust and interaction) between farmers and non-farmers. A farmer to non-farmer approach has appeared crucial in constructing social capital. Mathijs (2003) conducted a case study in Belgium to investigate the determinants of the willingness to adopt the Countryside Stewardship Scheme of the European Union. The study showed that farmers who were more open to both professional and nonprofessional contacts were more likely to adopt the scheme.

Kunimitsu (2007) examined a causal relation between the levels of social capital and the socioeconomic performances of municipalities in one prefecture of Japan. The covariance structure analysis revealed that municipalities with high social and cultural community activities achieved good economic performance, a high level of satisfaction from residents, and better regional resource management.

As the above literature illustrates, the form of social capital and the way it functions differs widely depending on the historical, social, and cultural contexts of an area. This study is an attempt to add new insight into the role of social capital for communal activities related to local food movements in highly industrialized countries.

LOCAL FOOD MOVEMENTS IN JAPAN AND OTHER INDUSTRIALIZED COUNTRIES

The philosophical origin of the local food movement in Japan extends back to the dietary regimen (*Shokuyodo*) advocated by Sagen Ishizuka in the late 19th century. It was believed that a healthy body and spirit was achieved by

a well-balanced diet consisting of staple grains that were locally grown (i.e., in an area within walking distance, or about 12 km in radius), supplemented with vegetables, fish, and other produce in season (Yamashita 1998).

The recent Japanese local food movement emerged in the early 1970s. There had been a growing concern with the excessive use of agrochemicals, mono-crop industrial farming, and the centralized interregional market system. Urban consumer groups, especially the mothers of small children, approached organic farmers for quality and trustworthy foods. A relationship based on mutual trust and assistance, known as *Teikei* (partnership), was gradually formalized into a standardized contract with principles that certify product quality, cost recovery, risk sharing, and consumer participation in field work and distribution. By 1990, the number of these voluntary citizen groups had increased by more than one thousand (Hill and Kubota 2007).

The concept of LPLC was taken up by the Ministry of Agriculture, Forestry and Fisheries (MAFF) and the Japanese Agricultural Cooperative (JAC) in the late 1990s. The MAFF incorporated in its mandate the aim of increasing food self-sufficiency, while local governments used it as a policy tool for revitalizing rural communities. The JAC adopted the concept as a niche marketing and local branding strategy. Since the early 2000s, a series of food scandals ─ such as the incidence of BSE (bovine spongiform encephalopathy), the accidental import of GM (genetically modified) maize from the US, and falsified food labeling by major Japanese food companies ─ has fueled consumers' fears over food safety (Kimura and Nishiyama 2008). The promotion of local and direct-marketed products, labeled with a certified "farmer face" in some cases, has been a common marketing strategy largely employed by both urban supermarkets and JAC local stores to warrant food safety.

It is difficult to estimate quantitatively how widespread the movement has grown. We have tried to grasp the current situation, as exemplified in the case of farmers' markets, based on the nationwide census survey conducted in 2005 by the MAFF; the total number of various types of farmers markets is estimated to be around 14 thousand, and the number of customers at 17 thousand per market a year. As for the regional distributional pattern, these markets are distributed nationwide, although they tend to be densely located in the central part of Japan.

Nearly half of the markets are managed by farmer groups, and the remaining by local agricultural cooperatives and/or the semi-public sector that is financially supported by local governments. The number of farmer- members shipping to the market ranges from 10 to 500, with an average of 100 farmer-members. The average trading zone of a market is within an hour's drive, approximately covering one municipality (city, town, or village). In rural tourist areas, about 30 percent of the customers are visitors from outside (Urban-rural Exchange Promotion Organization 2007).

Similar concepts and social movements are widely found in other countries (Table 1). The Slow Food Movement originated in Italy and was triggered by the fear of losing the cultural cuisine due to the fast-food invasion during the mid-1980s. In South Korea, the national agricultural cooperative started the campaign "Body and Soil Inseparable" to mobilize public support against trade liberalization in the early 1990s, while "Food Miles" in the UK focuses on the environmental effects of international food trading.

The concept of the family farm as the grassroots of American democracy, combined with the organic farming movement, is the basis of Community-Supported Agriculture in the US. In this arrangement, consumer members buy "shares" in the farm before planting and receive a mix of produce consisting of

Table 1. Comparison of local food movement by country.

Movement	Farmer-Consumer Partnership (Teikei) Local Product Local Consumption (Chisan-chisho)	Body-Soil inseparable (Shintobuli)	Slow Food	Food Miles	Community-Supported Agriculture
Country of origin	Japan	South Korea	Italy	UK	USA
Starting years	Mid-1970s	Early 1990s	Mid-1980s	Mid-1990s	Mid-1980s
Promoter	Initiated by organic farmers and concerned consumers group. Followed by Japan Agricultural Cooperative (JAC) and Ministry of Agriculture, Forestry and Fisheries (MAFF).	Korean Agricultural Cooperative (KAC).	Slow Food organization first founded by Italian gastronomists.	NGOs of environmental and sustainable agriculture	Initiated by organic farmers and concerned consumer groups.
Momentum	Declining food self-sufficiency and weakening of rural communities. Food safety concerns (BSE, GM food, falsified food label).	Mobilizing public support against trade liberalization.	Resistance against the opening of a McDonald's restaurant in Rome in 1986 to protect cultural cuisine.	Concern on the impact of food transport on global warming.	Increasing pressures from suburban development on small family farms and communities.
Current status	MAFF incorporated the concept for increasing food self-sufficiency. Local governments used it as a policy tool for revitalizing rural community. JAC adopted it as niche marketing and local branding strategy	Nation-wide promotion of Korean-made food in cooperative stores and restaurants.	The spread of international NPOs, with over 100,000 members in 132 countries in 2009.	Department for Environment, Food and Rural Affairs (DEFRAD) adopted it as a valid indicator of sustainable farming and food industry for policy measures. International groceries like Tesco work with the Carbon Trust to map the carbon footprint of foods.	Over 1,900 CSA farms in 2008. Densely clustered in the Northeast, the Upper Midwest, and the Bay Area of California. Most CSAs are organic or biodynamic. Cooperative Extension Services and universities provide technical assistance. USDA provides financial support.

Table 1. Comparison of local food movement ... (continued).

Movement	Farmer-Consumer Partnership (Teikei) Local Product Local Consumption (Chisan-chisho)	Body-Soil inseparable (Shintobuli)	Slow Food	Food Miles	Community-Supported Agriculture
Country of origin	Japan	South Korea	Italy	UK	USA
Origin Philosophical background	Dietary regimen (*Shokuyodo*) advocated by Sagen Ishizuka in late 19th century. Healthy body and spirit are created by a well-balanced diet consisting of local staple grains (grown in an area within walking distance or about 12 km in radius), supplemented with vegetables, fish and other produce in season.	KAC traces the origin to 14th century Chinese Buddhist scripture, where the living being is bound up with its environment. According to a legend of the Three Kingdoms period, Korean soldiers drank a mixture of water and earth to re-energize themselves to fight foreign aggressors.	Anti-fastfood. Eco-gastronomy: combining gourmet and ecology. Everyone has a right to pleasure (and responsibility to protect) the heritage of food culture. By being informed about how food is produced and supporting those who produce it, consumers become a part of and a partner in the production process.	Life Cycle Assessment of carbon emission from food production to consumption. The longer the transport distance, the more energy is consumed and the more greenhouse gases are released, causing climate change. The solution is to source food from as close to where it will be finally consumed as possible.	Farmer-consumer partnership (*Teikei*) of Japan since the 1970s. Saving family farms as grass-roots of democracy.

Source: Brown and Miller (2008); Cho (2008); Henderson and En. (2007); Hinrichs (2003); Kirwan (2004); Paxton (1994); Pietrykowski (2004); Schnell (2007); Smith et al. (2005);Winter (2003).

whatever is available each week of the growing season. Members participate in either growing or distribution, as part of their payment. As such, consumers form a direct connection with local farmers with the aim of obtaining their food, revitalizing local farm economies, preserving farmlands, enhancing community food security, and learning about farming and the environment.

OBJECTIVES AND METHODOLOGY

The relationships between LPLC and social capital are interactive. Social capital promotes LPLC activities through harmonizing the different interests among farmers and non-farmers in the same community, strengthening their solidarity, bridging other neighboring communities and distant urban population, and linking with outsiders (either the governmental or private sectors). Furthermore, these collaborative activities facilitate the formation and accumulation of social capital among the stakeholders (Figure 1).

However, the formation and accumulation of social capital are said to take a long period of time (Putnam 1993). In the choice of variables to represent social capital and the local food movements, this study focuses on traditional social organizations, in the origins of which dated back to a hundred years or older and are still commonly found in today's rural Japan, as social capital variables, while selecting various recent LPLC activities (initiated approximately within a ten-year period), thus basically assuming the one-way causality from social capital to LPLC. However, to be fair, our quantitative analysis is confined to statistical correlation, not necessarily guaranteeing the causal relations.

The research site covers seven municipalities located in the southern end of Boso Peninsula, Chiba Prefecture, about 100 km southeast of the Tokyo metropolitan area. Since the 1990s, a diversified mix of agricultural and rural activities has increased across the regions; among them are direct marketing, the pick-your-own fruit gardens, farm guest houses,

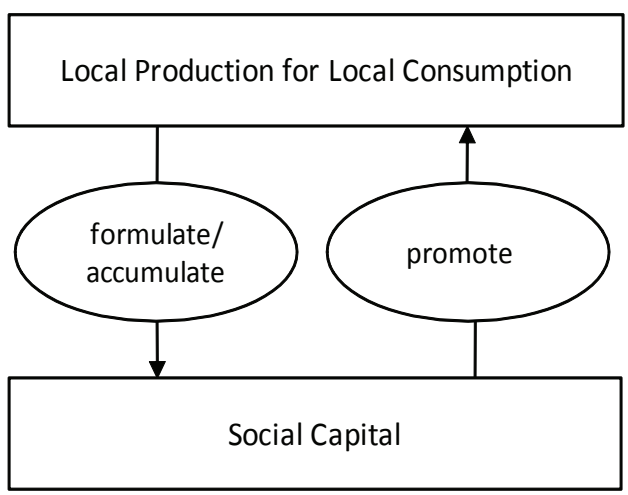

Figure 1. Relationship between Local Production for Local Consumption and Social Capital

and agricultural product processing. These enterprises reflect the various approaches to LPLC.[1] The area faces common problems shared by other mountainous areas in Japan, including an aging population, the dominance of part-time farming, the abandonment of farmlands, and the poor management of degraded local common resources (e.g., communal forests and pond irrigation systems).

The survey was conducted in two phases covering the community and household levels. The sample consisted of 56 communities selected randomly from the agricultural communities identified in the Agricultural Census 2000 (MAFF 2001), excluding those located in coastal areas (influenced by the local fishery) and those with 20 or fewer farm households (too small to organize collective activities). During the period April to October 2004, the study team visited each community leader and dropped off the structured questionnaires, which were collected after a two-week interval.

Subsequently, the respondents of the household survey were selected through the snowball sampling method.[2] Each community leader was asked to nominate up to five potential survey participants, including him/herself, from their communities. Among some 200 nominees, 104 households from 30 communities agreed to participate in the survey, which ran from October 2004 to February 2005. It should be noted that the process of sampling entailed a bias toward the more collaborative and active members of the population. The questions pertained to the attributes of the respondents and their families, a brief description of their farming, their participation in activities related to LPLC, and the indicators of social capital.

Social capital can be classified into "structural social capital" and "cognitive social capital" based on the constituents (Grootaert and Bastelaer 2002; 2004). Structural social capital consists of settings that connect people (e.g., social organizations and networks), formal institutions, and informal customs (e.g., procedures for electing the members of community associations). The existence and functions of such social capital are readily visible from the outside.

On the other hand, cognitive social capital concerns personal attributes such as norms, values, and beliefs that have been created and developed in a specific community or by social intercourse with members of an organization or a network. Such social capital is immanent in the relationships among individuals and is shared by members of a group.

Consequently, it differs from human capital which is embodied in individuals such as in their education and occupational skills. Structural social capital and cognitive social capital are, in many cases, thought to hold a complementary relationship of mutual reinforcement.

Further, social capital can also be broadly categorized into bonding and connecting types, according to its functions. Bonding social capital strengthens the unity of a community, while connecting social capital plays the role of articulating the relationships between a community or its members and external organizations or individuals. Connecting social capital can be divided further into three types, depending on the relationship with external parties, viz., "bridging" social capital for a horizontal relationship with an external party, "linking" social capital for a vertical

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[1] Karasaki (2005) cites "*Minnami No Sato* (Urban and Rural Community Center)" in Kamogawa City as an example of the diverse approaches to enhance communication between the urban and agricultural populations.

[2] For a description of the snowball sampling method, see May (2001).

relationship (with the government or other formal institutions), and "bracing" social capital for a partnership that embraces both horizontal and vertical relationships for a specific purpose within a specific community.[3]

This research has measured the structural social capital at the community level, and the structural and cognitive social capital at the household level.

DISCUSSION OF RESULTS

Social Capital and Communal Activities

Local social groups in the communities surveyed. Local organizations and their activity levels were investigated as indicators to measure the structural social capital of the communities.[4]

Such organizations take various forms as follows: (a) Formal organizations are directly involved in agricultural production, such as the Japan Agricultural Cooperatives (JAC), marketing cooperatives, and land improvement districts. (b) Farmers also join together spontaneously for the purpose of economic activities such as farmers' markets and pick-your-own fruit gardens, while others join purely for a social purpose, such as to engage in sports, hobbies, and other cultural activities.

The organizations formed for the purpose of production and economic activities are considered to be the result indicators of the effect of social capital, rather than the level of social capital. The organizations selected are therefore limited to those related to personal relationships and the communal life of the residents that more accurately reflect the level of social capital. Such organizations are collectively called local social groups in this study.

Two major local social groups were observed in the surveyed communities. The first consists of the traditional age and gender groups such as the elderly clubs, women's associations, youth organizations, and children's clubs constitute the traditional age and gender groups (Table 2). Among these groups, women's associations exist in only 29 percent of the surveyed communities, and youth organizations in 43 percent. In addition, even those that do exist are generally considered not very active, as the activity score of the women's associations is 1.4, and that of the youth organizations is 1.5. This could be explained by the women's increasing participation in economic activities, changes in people's lifestyles, and a decline in the traditional roles expected in local communities.

Elderly and children's clubs, on the contrary, exist in 80 percent of the communities. These two groups appear vital (the activity scores of the elderly and the children's clubs are 2.0 and 1.7, respectively), and their activities take place mostly within their respective communities. For elderly people and children, whose geographical range of activities is limited, local communities continue to represent the focal point of their daily lives.

Second, although functional groups such as fire brigades and PTAs (with activity scores of 2.2 and 1.9, respectively) are working well in many communities, the population decline and the changes in these groups' roles have expanded their geographical coverage. Children's sports clubs and hobby groups, which exist in a few

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[3] Refer to Grootaert and Bastelaer (2004) for the "bonding," "bridging," and "linking" types of social capital; and Rydin and Holman (2004) for the "bracing" type of social capital. Karasaki (2005) argues that the key to the success of "*Minnami No Sato* (Urban and Rural Community Center)" in Kamogawa City is the collaboration among residents, the government, and private businesses; this constitutes a typical case of "bracing" social capital.

[4] This section is largely based on the study by Sakurai, Yokoyama, Ono et al. (2006) with an emphasis on the activities that are relevant to local production for local consumption.

Table 2. Social organization in the 56 communities surveyed.

Organization	Number of communities observed	Single community confined ratio[1]	Expected function as social capital[2]	Activity score[3]
Elderly club	45 (80%)	0.7	Bonding	2.0
Women's association	16 (29%)	0.9	Bonding	1.4
Youth club	24 (43%)	0.9	Bonding	1.5
Children's club	45 (80%)	0.8	Bonding	1.7
Fire brigade	53 (95%)	0.1	Bracing	2.2
PTA of elementary school	51 (91%)	0.1	Bracing	1.9
PTA of junior high school	50 (89%)	0.0	Bracing	1.9
Children's sports club	29 (52%)	0.0	Bracing	2.2
Hobby group	17 (30%)	0.2	Bridging	2.1
Kou[4]	48 (86%)	1.0	Bonding	1.9
Others	8 (14%)	0.9	-	1.8

Source: Community survey data (April – October 2004).
1) Ratio in which activity is confined in a single community.
2) For function of social capital, refer to text.
3) Respondent's evaluation of activity level. Very active = 3, Moderate = 2, Not active =1.
4) Social groupings originating from religious activities.

communities, indicate an identical tendency with the above-mentioned functional groups, contributing to the formation of residents' networks in broad areas.

It should be noted that numerous traditional associations of local residents still exist in the study site. Agricultural communities in Japan used to have various forms of associations based on religious beliefs, mutual economic support, and other intentions, which are known to have played an important role in the development of horizontal networks among local residents.[5] The communities studied in this research also had such associations. The "*Kou*," for example, was derived from religious beliefs. However, all of them rarely function as religious groups today. Rather, they proved in interviews to be providing important opportunities to enhance personal relationships and generate impartial discussions among individuals of different social and occupational backgrounds.[6]

When these groups are categorized according to the social capital functions described earlier, those carrying out all activities within a single

[5] Takeuchi (1957) and Torigoe (1985) have produced studies on the organizational characteristics and social functions of such traditional associations of local residents.

[6] At Ise Shrine, which became a very popular pilgrimage site during the Edo period (1603–1868), seed exchange was performed, and information on products and production technology was collected (Hayami and Kito 1989: 310). In the study site, where commercial agriculture had developed since early times, the pilgrimage to the Ise Shrine was thought to have made a significant contribution to local economic development. Takeuchi (1957) also described the process by which pilgrimage associations originated from religious beliefs that had survived through history, while gradually developing into groups that emphasized mutual benefit and personal relationships as the system of pilgrimage delegation was established. In addition, Kondo et al. (2007) described traditional rotational credit associations, one type of Kou, organized by common people to provide mutual financial assistance; the authors explained that although such associations no longer function today as financial service providers, they help strengthen ties among members and enhance psychological benefits to the elderly, presumably on account of the increase in their physical abilities. For the role of Kou in the rural finance of pre-modern Japan, refer to Izumida (1992).

community are generally considered to have a "bonding" function. Hobby groups comprising members with the same interests who gather beyond the boundaries of communities form "bridging" social capital. Fire brigades (disaster measures), PTAs (education), children's sports clubs (sports promotion), and other groups in which residents and governmental agencies are engaged in cooperative activities for a specific purpose constitute "bracing" social capital (Table 2).

Relationship between structural social capital at the community level and activities in LPLC. Previous works have used various indicators of social organizations to function as proxy variables of structural social capital. Among these are the number and size of organizations, the similarity of members, activity levels, decision-making mechanisms, hierarchical structures, and aggregating/integrating factors.[7] This study uses the simple sum of the activity levels of local social groups (excluding PTAs) in each community as the social capital score of the community.[8] In this analysis, five of the activities carried out in the communities that seem to be related to LPLC were selected; the relationship between the presence of these five activities and the social capital scores was then examined. The types of LPLC activities in the study site are presented in greater detail in the Appendix Table.

As revealed by the findings, all social capital scores of the communities engaged in LPLC activities are significantly higher than those of non-engaged communities, except in the case of "preserving natural/cultural heritage" (Table 3).[9] In other words, structural social capital is considered to contribute to activities related to LPLC by encouraging the gathering of information, exchange and sharing, fostering a consensus of opinion, and supporting cooperative behavior. This finding is consistent with the case of the Shizuoka prefecture in Central Japan, reported by Kunimitsu (2007), which confirmed that traditional social and cultural community activities could be the basis, not only for conserving natural rural resources, but also for fostering community members' entrepreneurships.

LPLC Activities and Social Capital at the Household Level

Characteristics of LPLC active households. The following analysis pertains to the individual and household levels.[10] Table 4 presents the types of LPLC-related activities carried out by the respondents and their family members. The most common activity is shipping agricultural products to farmers' markets, which is engaged in by approximately 40 percent of the sample households in the survey. A high level of farmers' marketing activity reflects the fact that this region has a number of tourist facilities that primarily target visitors from surrounding cities (see Appendix).

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[7] Refer to Grootaert and Bastelaer (2004).

[8] The activity levels of PTAs of elementary and middle schools and that of children's clubs have an extremely high positive correlation. This is thought to be attributable to the fact that parenting is the center of the activities of all such organizations, which represent the same factor. Simple summation of the scores of all these groups would result in overestimation; therefore, the children's clubs that most clearly reflect the uniqueness of each community were adopted, and the parenting factor and PTAs were excluded.

[9] No statistically significant differences were identified in the conservation of natural and cultural resources, probably because few communities were without involvement in such activities.

[10] This section is based on the study by Sakurai, Yokoyama, Shimoura (2006) with a focus on the activities relevant to local production for local consumption.

Table 3. Community LPLC (Local Production for Local Consumption) activity and structural social capital.

Type of LPLC activity	Engagement	Number of communities	Social capital score[1]	
Environmentally friendly farm practices	Yes	38	8.5	*
	No	17	6.4	
High-value addition to farm products	Yes	19	9.2	*
	No	36	7.1	
Rural-urban exchange program	Yes	40	8.4	*
	No	15	6.3	
Preserving natural and/or cultural heritages	Yes	48	8.1	
	No	7	5.9	
Community agreement for direct payment	Yes	21	9.4	**
	No	34	6.9	

Source: Community survey data (April – October 2004).
1) Sum of activity scores of Elderly club, Women's association, Youth club, Children's club, Fire brigade, Children's sports club, Hobby group, *Kou* and others in Table 1.
2) ** Significant at 5%. * Significant at 10% (t-test).

The survey also finds that 10–20 percent of the farming households participate in educational farm experience courses and farmer-consumer exchange programs that aim to facilitate the interaction between urban and rural populations. Support for educational farm experience courses is often requested by local governments or related organizations as part of one-day trips or overnight stays of school children from local and urban areas. Gatherings are held to establish communication between farmers and consumer-members of organic farming groups. The number of respondents engaged in agricultural product processing is small, which is attributable to the large percentage of males in the sample, and the fact that the activities of their female family members are not considered to form part of the activities of the respondents themselves. Those farm households that provide products to farmers' markets tend to contribute to education, social gatherings, and agritourism to a greater extent than others, suggesting their intention to enter into new types of commercial farming (Table 4).

Table 5 shows the characteristics of farm households participating in LPLC activities. Those households that do not take part in such activities are also shown for comparison. First, compared with nonparticipant households, the participants tend to have a larger number of household members engaging in farming per household that are younger and with slightly higher level of education. Those households involved in the activities have nearly twice as large an area of farmland and larger gross sales than the nonparticipating households. These findings imply that those households practicing LPLC tend to have better physical and human resources.

As for farm types and LPLC activities, many of the households taking part in rural-urban exchange programs and educational courses raise livestock (primarily dairy and poultry). Contact with animals is often preferred as an extra curricular activity of school children. In addition, some poultry farmers have already established *Teikei* (partnership) networks with urban consumer groups (Table 5).

Measurement of social capital at the household level. Grootaert and Bastelaer (2004) proposed a specific format to measure social capital at the household level. Based

Table 4. Household LPLC (Local Production for Local Consumption) activities.

Type of LPLC activity	Number of respondent participation	Number of respondent or other family member's participation
Shipping to farmers' markets	33	40
Support for educational program	18	19
Farmer-consumer exchange program	13	13
Pick-your-own fruit garden	12	13
Farm products processing	5	16

Source: Household survey data (104 households, October 2004 – February 2005).

on this format, this study sought responses to the following pieces of information, adjusting them to the context of Japan's agricultural communities. Number 1 corresponds to structural social capital, and numbers 2–5 correspond to cognitive social capital.

1. *Organizations and networks*: The number of organizations to which the respondents belong and the level of their participation in each organization. The extent of personal networks is inferred based on the attributes of five friends and acquaintances that the respondents consider important in their daily lives.
2. *Trust and solidarity among community members*: Level of general trust in neighbors.[11]
3. *Gatherings and cooperation*: Willingness to cooperate in events held by local communities.
4. *Cohesiveness*: Similarity in the attributes and behavior of the residents.
5. *Trust in outsiders*: Level of trust in local government officials.

On average, the respondents belong to 4.4 agricultural organizations, and 1.9 social organizations. Activity scores indicating the willingness to participate in organizations (3 points for the maximum, 2 points for the moderate, and 1 point for the minimum levels) are 2.4 for agricultural organizations, and 2.6 for social organizations. Although the number of agricultural organizations in which respondents participated is larger than the social organizations, the activity score per organization is slightly higher for the social organizations. The attributes of acquaintances and friends (up to five) of the respondents representing the network indicator consist of 93 percent of the same sex, 59 percent of similar age (within a 10-year difference), and 59 percent of the same occupation, implying that such networks comprise homogeneous members. As for the residential areas, however, nearly 75 percent of the acquaintances live outside the communities of the respondents, which signifies the geographical extension of personal networks.

In terms of their trust in their neighbors, 76 percent of the respondents selected the answers

[11] The level of general trust might be assessed by combining responses to two or more questions or allowing a typical single question to represent the alternatives. Both methods have advantages and disadvantages (Yamagishi 1999); this study has employed the latter, asking the respondents to select between two choices, namely: "most people can be trusted" and "you must be careful when interacting with others."

Table 5. Characteristics of farming households participating in LPLC (local production for local consumption) activities.

LPLC activity	Number of households	Average family size	Number of farm family labor[1]	Average age of respondents	Respondents' educational years	Have successor[2] (%)	Farm size (ha)	Have livestock (%)	Annual farm sale (Million yen)
Farmers' market	40	3.8	2.3	60	13	85	2.2	18	6.15
Educational farming	19	4.0	2.4	56	13	68	2.0	46	8.38
Exchange program	13	4.4	2.4	60	12	69	2.5	62	7.61
Pick-your-own fruit garden	13	3.5	2.1	56	13	76	2.1	8	6.20
None	41	4.0	1.9	63	11	76	1.2	17	4.34

Source: Household survey data (104 households, October 2004 – February 2005).
1) Counting as 1 the annual workdays of 150 or more; and as 0.5 the workdays less than 150.
2) This refers to the presence of children who can take over their parents' house, but may not necessarily engage in farming.

that indicated a high level of trust, signifying a pervasive atmosphere of general trust among the residents. The respondents also demonstrated a strong willingness to cooperate in community events; most of the respondents answered positively, and nearly 50 percent stated they would definitely provide their contributions (Table 6).

The assessment of the cohesiveness of the community residents, on the other hand, is not consistent. Some communities appear to have diverse views and behaviors among the residents because of a declining farmer population, a shift from full-time to part-time farming, and increasing numbers of new non-farmer residents in the communities (Table 7).

The impressions of officials working in the local areas are generally positive. However, the evaluations of agricultural extension workers and agricultural cooperative personnel are remarkably divided, with the variances of 1.4 and 1.3, respectively. This seems to have resulted from differences in the expectations of farmers for technical services and marketing advisory, reflecting the heterogeneity of farm enterprises among the sample households (Table 8).

In summary, various organizations are carrying out their activities both in agriculture and daily life to build structural social capital; in addition, personal networks are generally formed by homogeneous members while they expand geographically. Regarding cognitive social capital, although normative consciousness and the trust of the respondents in their communities are extremely high, their opinions tend to be divided when they are asked about the similarity of neighbors and their evaluation of public agencies.

Relationship between social capital and LPLC at the household level. The factors of social capital that were individually examined above were developed into indicators to compare social capital and LPLC activities quantitatively at the household level. The activity scores of participation in organizations were used directly to assess the organizations. The scores for personal networks were compiled, showing higher scores for those with geographically expanded networks. The willingness to cooperate in community events, cohesiveness, and trust in public agencies were coded into scores separately. Then the average of each score is presented in Table 9 for both participants and nonparticipants in the LPLC activities (Table 9).

Findings show a significantly high score in structural and bonding social capital among participants in farmers' markets, which means that the more motivated the farmers are in their daily organizational activities, the more actively they tend to engage in direct retailing. This result is consistent with the results at the community-level analysis.

Meanwhile, the score of personal networks indicates a significantly lower score for those engaged in agritourism, suggesting that their networks are confined in a small area. This observation is reflective of the fact that tourist farms are concentrated in a small area that is equivalent to one community to allow for more efficient management of their family business, making it more likely for neighboring farmers to be selected as important acquaintances.

The indicators of cognitive social capital yield no statistically significant difference between participation and non-participation in LPLC.

CONCLUDING REMARKS

This study documented the characteristics of various organizational activities in LPLC based on surveys conducted in agricultural communities and households in Chiba Prefecture, Japan. This study also analyzed the relationships between social capital and efforts toward LPLC. The following summarizes the study's findings (Table 10).

Table 6. Willingness to participate in community activities.

	Number	%
Certainly, yes.	52	50
Probably, yes.	47	45
Hard to say.	4	4
Probably not.	1	1
Certainly not.	0	0
Total	104	100

Source: Household survey data (104 households, October 2004 – February 2005).
Answer to the question: "Will you participate in community activities which benefit most of the community members but may not benefit you?"

Table 7. Community member cohesiveness.

	Number	%
Quite different.	12	12
Slightly different.	29	28
Hard to say.	24	23
Nearly the same.	31	30
Mostly the same.	8	8
Total	104	100

Source: Household survey data (104 households, October 2004 – February 2005).
Answer to the question: "What do you think about your neighbors' social and economic characteristics, such as income level, social status, religion, political attitude?"

Table 8. Trust in local governmental officials.

	Average score	Variance
Municipality officials	4.1	0.84
Police officers	3.9	1.10
Agricultural extension workers	3.7	1.37
Agricultural cooperative personnel	3.5	1.25
Other officials	3.4	0.70

Source: Household survey data (104 households, October 2004 – February 2005).
Answer to the question: "To what extent do you trust the listed local officials? 1 = None at all. 2 = Slightly trustable. 3 = Hard to say. 4 = Somewhat trustable. 5 = Trustable."

Table 9. Household social capital level and LPLC (Local production for local consumption) activities.

LPLC activities	Number of respondents		Structural Social Capital		Cognitive Social Capital			
			Social organization (Bonding/bracing/ bridging)[1]	Network (Bridging)[1]	Trust in neighbors (Bonding)[1]	Willingness to cooperate (Bonding)[1]	Cohesiveness (Bonding)[1]	Trust in governmental officials (Linking)[1]
			Activity score[2]	Residential score[3]	Trust level[4]	Cooperative score[5]	Cohesive level[6]	Trust level[7]
Farmers' market	Participant	33	6.3**	9.9	0.78	4.3	2.7	3.7
	Non part.	71	4.3	9.9	0.78	4.5	3.1	3.7
Educational farming	Participant	18	4.1	10.1	0.77	4.5	2.8	3.5
	Non part.	86	5.1	9.8	0.79	4.4	3.0	3.7
Exchange program	Participant	13	5.9	9.9	0.85	4.6	2.8	3.7
	Non part.	91	4.8	9.9	0.77	4.4	3.0	3.7
Pick-your-own fruit garden	Participant	12	4.4	8.3*	0.83	4.4	2.6	3.9
	Non part.	92	5.0	10.1	0.76	4.4	3.0	3.7

Source: Household survey data (104 households, October 2004 – February 2005).
1) Social capital function.
2) Averaged sum of activity level (1 = Inactive, 2 = Moderate, 3 = Active) of social organizations shown in Table 1.
3) Averaged sum of residential score (1 = Same agricultural community, 2 = Same municipality, 3 = Same prefecture, 4 = Within Japan, 5 = Abroad) for five close friends.
4) Ratio of "Yes" answer to the question, "Are people in your community trusted? Yes/No/D.K."
5) Average of willingness to participate in communal activities (1 = Certainly not. 2 = Probably not. 3 = Hard to say. 4 = Probably yes. 5 = Certainly yes.) in Table 5
6) Average of community member similarity (1 = Quite different. 2 = Slightly different. 3 = Hard to say. 4 = Nearly same. 5 =Mostly same.) in Table 6.
7) Averaged sum of trust level in officials (1 = None at all. 2 = Slightly trustable. 3 = Hard to say. 4 = Somewhat trustable. 5 = Trustable) in Table 7.
8) *** 1%, ** 5%, * 10% Significance (t-test).

Table 10. Effectiveness of SC (social capital) on LPLC (local production for local consumption) activities by its function and form.

Form of SC \ Function of SC	Bonding	Bridging	Linking	Bracing
Structural SC				
Community level	+	NA	NA	+
Household level	+	-	NA	NA
Cognitive SC				
Household level	NS	NA	NS	NA

Source: Compiled from Tables 2 and 8.
+ : Positive effects on LPLC activities.
- : Negative effects on LPLC activities.
NS: Not significant.
NA: Not applicable.

First, structural social capital at the community level contributed not only to profit-generating efforts such as farm product processing, direct marketing, and agritourism, but also, towards organizational activities that do not necessarily result directly in household income generation. Examples of the latter type of activities are the adoption of environmentally friendly agricultural practices, the promotion of communication between urban and agricultural communities, and the community agreement on direct payments for mountainous areas. This finding was similar to the results of the Belgian study (Mathijs 2003) that revealed structural social capital in the form of a network with outsiders that facilitated farmer participation in the EU's countryside stewardship program.

However, our community-level social capital was constructed by simply aggregating the activity levels of different local organizations such as elderly clubs, women's associations, youth clubs, and so on, regardless of the perceived corresponding relation between certain groups and certain LPLC activity. There is need to further examine which aspect of social organizations is more strongly associated with certain LPLC activity, and the dynamic process of social capital formation and synergetic relations among different social groups, because these are issues that have remained unresolved.

Second, the structural social capital at the household level affected LPLC activities in various ways. The higher the level of participation in local social groups, the more actively the farmers sold their products at farmers' markets, while the personal networks of those farmers who engaged in agritourism tended to be limited to those in the same communities. In contrast to the case of agritourism in some EU countries (Lee et al. 2005), the presence of outside private companies was not observed in our study site. The tourism activities engaged in by the survey respondents were confined to pick-your-own fruit/flower gardens which were operated as family businesses.

Third, cognitive social capital at the household level indicated no particular relevance with the activities in LPLC. This finding, however, does not necessarily imply the unimportance of cognitive social capital. This study did not investigate the farmers' attitudes toward LPLC. Whether the farmers participated in various activities for the deliberate purpose of promoting LPLC is therefore not clear. The philosophical aspects of LPLC are thought to form strong relationships with cognitive social

capital. Therefore, future studies could very well attempt to investigate such relationships in association with the specification of the function of social capital.

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Appendix Table. Major LPLC facilities and their activities by municipality.

Municipality	Name of facility	LPLC- related activities
Tateyama	*Michinoeki* [1] "South Boso Paradise"	Local fish restaurant; Local product sale
	JAC [2] shop "Green Tateyama"	Farmers' market
	Fureai (friendly) shop Hirasuna	Farmers' market; Pick-your-own flower garden
	Fresh vegetable shop	Farmers' market
	Healthy farm shop	Farmers' market
Kamogawa	Minnnami No Sato (Urban-rural community center)	Farmers' market; Local restaurant; Farm educational program
	JAC [2] shop "Kamogawa"	Farmers' market
	Kamogawa Nature School	Buckwheat trust farm [3]; Farm educational program; Local cuisine cooking class
	Senmaida Rice Terrace Preservation	Rice terrace trust farm [3]; Farm educational program
Tomiyama	*Michinoeki* [1] "Tomiyama"	Farmers'/fishermen's market; Local restaurant Farm educational program
Tomiura	*Michinoeki* [1] "Tomiura"	Farmers' market; Pick-your-own fruit garden Fruit tree owner program
	Michinoeki [1] "Flower club"	Pick-your-own flower garden; Flower arrangement school
Miyoshi	*Michinoeki* [1] "Miyoshi"	Farm restaurant; Local cuisine cooking school Farm educational program
	Tuchi No Megumi (Bounty of earth)	Farmers' market
Maruyama	Tokimeki (Exciting) Plaza	Farmers' market
	Iki-Iki Kan (Active club)	Farm educational program
Wada	Nature lodge "Kushunoki"	Agritourism; Community farm; Food processing school
	Kamu-kamu shop	Farmers' market

1) *Michinoeki* (roadside station) is a facility located along the highway which provides information and other amenities for tourists. Many *michinoeki* facilities have community-run shops of local specialties, including local food (Yokota 2006).
2) Japan Agricultural Cooperative.
3) A type of Community-Supported Agriculture.

Source: Compiled from various documents of the Chiba prefecture's government and municipality offices.

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