Analysis of Social Relationships for Transferring of Farmland Rights in a Large-Scale Upland Farming Area, Hokkaido (English Translation)

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Abstract This paper aims to explain the mechanism of the transfer of farming rights in Japan’s large-scale upland farming belt by focusing on the social relationships among farmers. The mechanisms of farmers’ social relationships were analyzed by applying the concept of “multiplex-uniplex” that is used in the social network approach. The study area was Omaki and Kowa settlements in central Hokkaido Prefecture. This area was newly cleared and opened for settlement in 1950. The major agricultural enterprises in this area are upland, dairy, and vegetable farming. The main findings are as follows. 1) Various social relationships among farmers were observed behind the transfer of farming rights, including territorial relations, kinship and school connections. Some official agencies were also involved in these relationships. 2) The types of social relationships varied in the way the transfer of farming rights overlapped. Almost all transfers were influenced by multiplex relationships, such as a combination of territorial relations, kinship, and school connections. On the other hand, uniplex relationships existed in the transfer of farming rights when farmers did not have these social relationships. 3) Social relationships in the transfer of farming rights expanded spatially from the scale of the neighborhood or settlement to the scale of the home district, other districts, and outside of town. Many farmers accumulated most of their farmland within their settlements, but depending on farm management conditions, some late accumulated farmland was located outside their settlements.

Key words transfer of farming rights, social relationships, multiplex-uniplex, large-scale upland farming, Hokkaido

Introduction

Research background

Achieving enlargement of farming size (EFS) has been an issue in Japanese agricultural policies since the enforcement of the Agricultural Basic Law in 1961. A few farmers have grown up as large-scale farmers, but almost all farmers are continuing small-scale family farming (Rigg et al. 2016). Despite the repeated revision of laws, an enlargement of farm size has not yet been successful (Godo 2006). In particular, farmland accumulation is necessary for the enlargement of land use-type agriculture. Furthermore, although the authorities have implemented various measures for farmland accumulation, they have not smoothly promoted the transfer of farming rights (TFRs) for large-scale operations (Shimamoto 2001).

For this reason, despite the widespread use of TFRs for EFS, there have been reports that it cannot enhance profitability. Moreover, landowners are not renting out their farmland because they expect to gain capital with the conversion to another use and sale of their farmland (Godo 2006). Many previous research targets related to EFS have tended to focus on rice farming areas in paddy fields in Japan. For example, Miyatake (2007) noted a stagnation of farmland liquidities as a problem in carrying out an EFS through several empirical case studies. He concluded that buyers or borrowers have to work with landowners. In addition, the number of tenant farmers is increasing instead of buying farmland (Saito 2007). Onishi (1996) also reported that the borrowing and lending of farmland are increasing through verbal promises, which are based on social relationships between individual farmers. Tojo (1992) noted that social relationships forged through the daily lives of farmland consigners and tenants provide a significant opportunity for such promises. These researchers also discussed the economic aspects of farmland accumulation by analyzing the relationship between land rent and the acquisition of leased land. As mentioned above, social relationships among farms and social groups such as settlements have an impact on TFRs and farmland maintenance. In the case of rice production, there appears to be many TFRs based on territorial and kinship relations within settlements (Ito and Yamaki...
1993; Suzuki 1994). Kawakami (1985) highlighted the need for protected horticulture and Sakamoto (2002) for open field vegetable cultivation.

On the other hand, social relationships associated with farmland management have spatially advanced from the erstwhile ties centering on settlements due to developments in agricultural technology and transportation devices (Akitsu 1998). Sakai (2006) showed that in spite of the farmland maintenance skills of tenant farmers, landowners can demand the return of their land, and this is based on trust in social relationships concerning TFRs. Thus, tenant farmers need stable social relationships with landowners to continue stable large-scale farming (Hosoyama 2004). Previous studies have shown that TFRs have switched from selling and buying to lending and borrowing, and it appears that farmland is often sold and leased through negotiations between individual farmers based on territorial and kinship relations.

In Hokkaido, farm management sizes were enlarged earlier than the rice farming areas of Honshu Island since the Agricultural Basic Law in 1961. Moreover, the management sizes of farmland accumulations continue to increase in the present day (Hataken Kenkyukai 1998; Amano and Fujita 2005).

Japanese geographical studies on large-scale farm management in Hokkaido have been conducted on some agricultural types, such as upland farming, rice farming, dairy farming, beef cattle breeding, and more (Kasai 1970; Ishihara 1985; Sadamoto and Hirai 1991; Saito 2003; Umeda 2003; Nihei 2007; Oro 2007).

The regional characteristics of large-scale farm areas and individual management types were analyzed in these previous studies. However, these studies did not focus on the enlargement processes of individual farmers; nevertheless, a regional character consists of individual activities.

Research on EFS in Hokkaido has mainly been conducted in the field of agricultural economics. In particular, Sakamoto et al. (1994) revealed that TFRs have shifted from buying and selling caused by debt consolidation, to lending and borrowing caused by a labor shortage. In general, these TFRs were caused by negotiated transactions based on territorial relations and kinships between individual farmers in the Tokachi Plain (Yanagimura 1999; Takenaka 2004). In Hokkaido, the social relationships of territorial relations and kinship affect TFRs similarly to that of the rice farming areas of Honshu. These social relationships are channels of TFRs. This creates a barrier for setting land rent, and enlargement cannot therefore improve profitability (Yanagimura 1999).

Yanagimura noted that old relationships create conditions that make it difficult for borrowers to offer a lower rent fee or for landowners to make up the difference.

On the other hand, some farmers make an EFS by cultivating isolated farmland by analyzing the interactions between planting trends and enlarging their farming area (Hosoyama and Wakabayashi 2007). However, Hosoyama and Wakabayashi (2007) do not reveal how large-scale farming could be achieved by borrowing farmland outside of home settlements, or how large-scale farmers have achieved their farmland accumulations.

In addition, local government or Japan Agricultural Cooperatives (JA) agency contractors emerged from the second half of the 20th century. This was caused by an increasing number of landowners who continue to possess their farmland after retiring from farming in the Tokachi Plain (Tanimoto 1998). The relationship between a contractor and a consignor is constructed without social relationships. Farmland dealing types differ according to the attribute of social relationships with individual TFRs, and every dealing has different functions with respect to large-scale management. It is necessary to approach the research challenges posed by social relationships with TFRs through qualitative analysis to clarify the function of every deal with respect to large-scale management.

In addition, almost everyone knows one another and they belong to every clan simultaneously; in other words, almost all people have territorial relationships and kinships in Japanese rural areas. Therefore, the process of TFRs cannot be explained through territorial relationships and kinships alone. It is necessary to focus on detailed social relationships and relations as an economic activity among farmers with territorial relationships and kinships to clear the process of TFRs. This paper aims to explain the mechanism of TFRs in Japan’s large-scale upland farming belt in Hokkaido by focusing on social relationships among farmers. This will be done in particular by analyzing all records of TFRs from the opening of this study area to the present to reveal how large-scale farmers have achieved their enlargement by examining the roles played by TFRs in farm management. This study’s analysis is based on the social relationships among farmers that are involved in the process of TFRs for the purpose of enlargement.

**Methodology**

Social Network Analysis is one of the methods used to analyze the spread and connection of social relationships (Lewis 1979; Murdoch 2000, 2006). Social network analysis frequently analyzes human relations based on...
the presence or strength of ties between nodes and the distance between such nodes and the node parameters from a quantitative standpoint. However, economic activity and social life are inseparable in rural areas and settlements, and the ties between farms are characterized by various roles existing in a multilayered structure (Clout 1972). Therefore, it becomes necessary to perform a qualitative analysis of how ties connect nodes.

This paper adopts the “multiplex and uniplex” concept (Boissevain 1974). This concept analyzes the relationships among nodes from combinations of multilayered ties by distinguishing every role of all nodes. A “multiplex” is regarded as the presence of any overlapping social relationships, for example, kinships, territorial relations, and other social relations among the nodes. On the other hand, when farmers have relations based on dealing with farmland only, this condition is regarded as “uniplex”. In Japanese empirical studies, this concept has been used to measure the difference between urbanity and forms of personal relationships (Otani 1995). Otani revealed that multiplex relationships, such as a “small range and high density”, can dominate rural areas. On the other hand, uniplex relationships are “large range and low density” and result in “individualities” occurring in urban areas. Applying this concept, we can analyze the qualitative factors of multilayered social relationships with TFRs.

First, all the farms in Omaki and Kowa were interviewed to obtain the following data: the farming management system practiced, the location of farmland, the year of acquisition of each piece of farmland, from whom it was acquired, and the process of acquisition. Furthermore, the domicile data of the farms that left their settlements and the year of leaving were acquired from the commemorative publications of settlements, primary and junior high schools, and a list of farmers who had left their settlements. The characteristics of the farm management system in Omaki and Kowa were determined based on this data. Next, the reasons for the TFRs in Omaki and Kowa from the period of development until the present were analyzed, revealing an uneven pattern of the time during which such transfers were conducted. Thereafter, the nature of the social relationships behind each such transfer is examined. Based on these materials and data, farms are classified into categories according to the characteristics of the social relationships associated with the transfers. The study then analyzed how each type of farm had accumulated its farmland and the characteristics of the transfer associated with each type.

**Farm Management and Social Relationships in the Study area**

**Overviewing a feature of farming**

Omaki and Kowa settlements were selected as the study sites (Figure 1). Otofuke Town is located in the center of the Tokachi Plain: most of the area is flat and agricultural land use dominates. The accumulation of snow begins in early November and is usually around one meter high. The snow begins to melt in March, and farming can begin in late April.

The population of Otofuke Town was 42,452 in 2005, the number of farms was 16,021, and the population den-

![Figure 1. Study area (Tokachi Plain, Hokkaido Prefecture).](image-url)
sity was 91.1 persons per square kilometer (the total area of the town was 466.1 km²). Since the densely inhabited district of the southern area of Otofuke Town constitutes a commuter town of the Obihiro urban area, its population has increased rapidly in recent years. The number of farms decreased after peaking at 2,252 in 1960 (Figure 2). The average management area per farm has increased, mainly because the existing farms have continued farming on the accumulated farmland of other households that have abandoned farming. Hence, the average management area per farm increased from 7.8 ha in 1955 to 28.1 ha in 2005. Upland farming and dairy farming predominate in the Tokachi Plain, while rice farming and open-air vegetable farming are also found (Uchida 1997). In Otofuke Town, small-scale open-air vegetable production dominates near the central area of town. In most parts of Otofuke Town, the large-scale farming of four upland crops (wheat, beans, potatoes, and sugar beet) as the main farm products is prominent.

Farming and social relationships

The provision of land grants, combined with the partial opening of the Hokkaido North Stud Farm (now known as Tokachi Station National Livestock Breeding Center) in 1950, initiated the settlement of Omaki and Kowa. The newly opened land measured 1,800 ha, which is equivalent to the area of the current Omaki, Kowa, and Nishi Omaki settlements combined (hereafter, these settlements are included under the Omaki Development Area), and 141 households settled in these three settlements. At that time, these three settlements, namely, Omaki, Shin Omaki (in the southeastern regions of the current Kowa settlement), and Nishi Omaki, differed from the current settlement area. After 1950, these settlements were split and merged on four occasions, and in 1999, the Kowa settlement was established by merging Koei, Shin Omaki, and Minami Omaki to form the current settlement area.

As of 2007, 31 households resided in Omaki and Kowa (12 in Omaki and 19 in Kowa), and 27 of these were farms (11 in Omaki and 16 in Kowa). All of them were full-time farms. 19 farms cultivate only upland crops, two farms combining upland crops and dairy husbandry, one farm concentrates on vegetable cultivation, and five farms concentrate on dairy husbandry. The major products of these farms include wheat, potatoes, red beans, soybeans, beets, yam, dent corn for feed, orchard grass, and green-cut oats.

There are four non-farms in the settlements under consideration; three of them have retired from farming, while one household has relocated to this region from outside Hokkaido. While three of the non-farm households are pensioners, one household runs a business for its livelihood.

The average area under management per farm in Omaki and Kowa is 42.9 ha, which represents a larger size than the corresponding averages of 18.6 ha, 31.9 ha, and 27.1 ha in Hokkaido, Tokachi Region, and Otofuke Town, respectively. However, the management area of each farm varies from approximately 2 ha to over 100 ha, and it is believed that different farms have carried out farmland accumulation using different methods.

The social relationships between farms in Omaki and Kowa can be classified as shown in Table 1. Social relationships can be divided into two major categories. The first category comprises the “binding relations” based on settlement, and it is impossible to enter into or withdraw from these relations (Ueno 1994). Territorial relations, kinship relations, and “group ties” (hereafter referred to as “kessha”) based on school associations and other historical background can be included in this category. With regard to territorial relations and kessha, there is a spatial range between each relation. Although kinship relations are binding, there is no clear spatial range for these relationships; hence, they have different characteristics than territorial relations and kessha. The second category comprises certain “social relationships” that cannot be explained as territorial relations, kinship relations, or kessha. Such relations form “the basis of the urban social relationship,” and since these relationships are selected by each individual, it is possible to both enter into and withdraw from them (Ueno 1994). In Omaki and Kowa, the relationships formed through official bodies such as
Table 1. Classification of social relationships in Omaki and Kowa

| Attribute          | Classification     | Note                      |
|--------------------|--------------------|---------------------------|
| Territorial Relations | A Neighborhood     |                           |
|                    | B The Same Settlement |                          |
|                    | C Naka Otofuke District |                          |
|                    | D Other District in Otofuke |                     |
|                    | E Outside Otofuke |                           |
| Kessha             | F Before Pioneering | Settled in 1950–1955     |
|                    | G Pioneering Farmer | Settled in 1956–        |
|                    | H Second Pioneering |                           |
|                    | I Alumni Association of Primary School |         |
|                    | J Alumni Association of Junior High School |         |
| Kinship            | K Kinship (2 Degrees) |                          |
|                    | L Kinship (Over 3 Degrees) |              |
|                    | M Marriage Relations |                          |
| Kansetsu           | N Agriculture Committee |                      |
|                    | O Public Institutions |                          |
|                    | P Other Relations |                           |

Sources: Interviews, Ueno (1994).

agricultural cooperative, the agriculture committees of the town office, and associations for other opportunities belong to this category. In this paper, such relations are called “indirect relations” (hereafter referred to as “kansetsu”) because they occur due to the intervention of a third-party organization.

Binding territorial relations also have differences in degree depending on the physical distance between the farms. Tabata (1986) acknowledges the presence of ties between settlements in Hokkaido; moreover, it is said that the “neighborhood relations between farms situated along the same road are the most natural relations within settlements”. This is also applicable in the case of Omaki and Kowa, where we can find relations between farms residing on the same road as well as ties forged through settlement activities within settlements. In addition, Naka Otofuke District Association (hereafter referred to as “Naka Otofuke district”) serves as a unit of wide territorial relations. Besides Omaki and Kowa, the Kyoshin settlement (hereafter referred to as “Kyoshin”), which touches the northeastern borders of Omaki, and the Higashi Naka Otofuke settlement (hereafter referred to as “Higashi Naka Otofuke”), which is located in the southeast of Omaki, belongs to e Naka Otofuke district. Therefore, this territorial connection is included in “Naka Otofuke district”. However, Nishi Omaki, which was established at the same time, belongs to Nishi Naka Otofuke district and is not grouped together with Omaki and Kowa with regard to settlements and districts. Due to the postwar development, few farms in Omaki and Kowa have relationships based on kinship relations. In the study areas, six farms still maintain relations with relatives within the second degree, four maintain relations with relatives beyond the third degree, and four maintain relations with their relatives by marriage.

Ties between households who led the way in developing the area at the same time during the pioneering period (hereafter referred to as “pioneering farmers”) can be included under the kessha category, which constitutes the broadest spatial range in the developed areas in Omaki. Other kessha ties have been forged in the associations of tenant farmers in the Hokkaido North Stud Farm and between classmates of school relations, their alumni, and Parent–Teacher Association (PTA) members (hereafter referred to as “primary and junior high school relations”). Both Omaki and Kowa are located in the same junior high school district. However, the primary school district is determined depending on when that particular household entered the settlement and its relation to the establishment of the primary school; hence, the primary school district exists as a different regional unit than these settlements and districts.

History of TFRs in the Study Area

During the pioneering period, one plot measured 10 ha in the Omaki development zone, and a total of 141 plots were sold in this zone. The price of one plot at that time was 2,049 yen (a hairdresser charged 95 yen in 1950) (Kowa 2002). The agricultural settlements were established in 1950 and almost completed by 1955.

The first TFRs after the establishment of the settlement occurred when a farm in Omaki migrated to Paraguay in 1957 (Figure 3). A farmer in Shikaoi Town took over the abandoned farmland in 1958. The price of one plot was 1.5 million yen at that time, since the land prices had sharply increased following the pioneering period (Higashi Naka Otofuke Shogakko 2000).

Emigrations from both settlements began to increase in the 1960s after the first farm’s emigration to Paraguay. In all, ten farms left their settlements in 1962. Such emigration continued until the end of the 1970s, and a total of 79 farms abandoned their farmland and left their settlements.

Most of the TFRs from 1960 to the mid-1970s occurred in the form of trade. “The JA’s balance system”, a financial system unique to Hokkaido, is noted as the reason behind this trend. According to Ushiyama (1989), the JAs balance system is a system whereby JA Otofuke Town “provides a short-term loan that includes the farming
operation cost and a living fund in the range of 80% of the planned income of the annual farming plan, and acts as a "government fund used as a long-term investment fund" for farmland purchase and investment in agricultural facilities. Under this system, farm products were regarded as security for the short-term fund, while the farmland itself was used as security for the long-term fund. In the event of the failure of farm management, farm households were advised to abandon farming. JA Otofuke Town collectively managed the farming fund. It was common for the cooperatives to foreclose the farmland of farms advised to abandon farming, since this farmland was held as security; the farms then left their settlements (Tenma 1980). Furthermore, the poor road conditions in Omaki and Kowa at that time made it difficult for residents to take up part-time jobs that required commuting. Hence, rather than attempting the impossible task of debt redemption, many farms chose to sell their farmland and emigrate from their settlements.

In contrast, the farmers who continued farming (hereafter referred to as "surviving farmers") attempted to expand by accumulating farmland that had belonged to the emigrating farms. The First Improvement Project of Agriculture, implemented from 1960 to 1969, replaced old-fashioned farming systems in Otofuke Town with modern ones characterized by the use of large agricultural machines. Eventually, only those farms who were able to handle a long-term plan of farm management based on the newly established financing system were able to continue their agricultural operations (Otofuke Cho Nogyo Kyodo Kumiai 1999). As a result, the use of larger agricultural machines was further promoted in the Second Improvement Project of Agriculture enforced from 1970 onward. Naka Otofuke district used 279 million yen of the project cost "to construct wheat-drying facilities under the direct management of JA Otofuke Town and to introduce 25 tractors, 2 combines, and 117 operating machines, all of which were used and managed by the utilization union" (Otofuke Cho Nogyo Kyodo Kumiai 1999).

However, even farmers who had decided to continue farming had to take additional loans for EFS and the purchase of large agricultural machines; following this, they had to carry out further EFS in order to repay these loans. In addition, it became necessary for them to purchase large machines to cultivate larger farmland areas, which led to increased debt. In this way, EFS was carried out with no fixed objective until the end of the 1970s, and only the farms who continuously expanded their farms could survive in the industry. This competitive scale expansion involving all the farmers in Omaki and Kowa was brought to an end only with the conclusion of the Second Improvement Project of Agriculture.

A total of 109 TFRs took place from the beginning of the pioneering period in Omaki and Kowa to the end of the 1970s; 69 of these transfers occurred between either adjacent farms or those in the neighborhood. A total of 45 such transfers were between farms characterized by all of the following relationships: territorial relationships such as neighborhood (A) and the same settlement (B), pioneering farmers (G), and members of the same primary school alumni association (I) (ABGI, as shown in Table 1) (Figure 4). One common reason for such transfers was that JA Otofuke Town possessed the farmland of farmers who had left the settlement as collateral. However, the cooperatives gradually sold this farmland to neighboring farms that were able to repay the redemption expenditures of the principal and the debt interest from their economic surplus. On the other hand, 55 TFRs took place between farms in the neighborhood (A) and those in different settlements. Despite the strong effect of neighborhood relations, it should not be assumed that the relationships between farmers in the same settlement and those forged through Kessha and other ties within Naka

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Figure 3. Changes in the number of moving out farmers in Omaki and Kowa.
Sources: Tenma and Sasaki (1979), Kyosankai (1980), Higashi Naka Otofuke Shogakko (2000), and Kowa (2002).
Otofuke district (C) are also important.

Two farms in Omaki and Kowa abandoned farming in 1985. One of them sold its farmland and left the settlement, while the other continued to reside within the settlement (Minami Omaki) even after abandoning farming. The latter had cultivated wheat, potatoes, soybeans, and red beans on the land under management until it abandoned farming. However, its successor had no intention of taking over the farming, and a subsequent shortage of labor led to farm retirement. Consequently, the household sold its land, except for the land on which the house was situated, and its surrounding farmland to a farm in Koei (at present, due to the merging of the settlements, this plot is a part of Kowa). This kind of farm retirement after TFRs differed from the other cases until the 1970s in two aspects: the farm did not sell all of its farmland, and the seller household selected the buyer itself.

Since 1985, only four out of the 17 farms have sold all their land before leaving the settlement. The rest have sold only part of their farmland, while continuing to own farmland even after farm retirement, and have either rented out this land or have continued to cultivate it near their residence; hence, there have been various types of TFRs. In all, there have been 50 TFRs since 1985, and in 23 of these cases the farmland was leased. With regard to the types of transfer, sellout and lease, 25 of these farms either sold or rented out their land in lots to multiple farmers.

There were also 24 cases of TFRs between neighboring farms; this number is considered to be high (Figure 4). However, the combination of neighborhood, the same settlement, pioneering farmers, and primary school relations (hereafter referred to as "ABGI", corresponding to Table 1), which was frequently seen before 1978, significantly decreased to eight cases. This implies that a significant amount of farmland was either sold or leased out to farms from outside the settlement. These purchasing or borrowing farms came from other settlements in Naka Otofuke and Nishi Naka Otofuke districts, such as Nishi Omaki, and even from settlements within Otofuke Town, which were not adjacent to the area in which the farmland was situated. Furthermore, some farms even came from beyond the borders of Otofuke Town, such as farms in Shihoro Town. In addition, TFRs within settlements were increasingly implemented between not only territorially related or neighboring farms, but also between farms that were situated far from the owned farmland. A stronger tendency for sellers and lenders to select their buyers and borrowers after 1979 transformed the characteristics of social relationships related to such transfers.

Types of TFRs

A total of 53 farms purchased and borrowed farmland in Omaki and Kowa from the period of land development to 2007. Of these, 31 households were located in Omaki and Kowa as of 2007; 27 of them were farms, and four were non-farm households. Of the remaining 22 households, 14 were farms of tenant farmers from other areas, while the rest had already left the settlement. Each TFR by the 53 households involved multilayered social relationships between the concerned households. Based on the characteristics of these social relationships, the farmland accumulation of the 53 farms can be divided into three types as follows.

The first is the *kinrin* type, which applies to farms that accumulated farmland only within their own settlement through social relationships, such as neighborhood and the same settlement ties. The second is the *kessha* type, wherein farms accumulated farmland through their ties within Naka Otofuke district or *kessha* ties as well as their *kinrin* type ties. The third is the *kansetsu* type, where, in addition to the above-mentioned farmland accumulation types, farms acquired farmland from the Agriculture Committee of Town office or the Agriculture Development Public Corporation. Let us now examine the process of TFRs of each type based on the characteristics of the farms that chose to continue farming.

The *kinrin* type

The most common type of farmland accumulation in Omaki and Kowa is the *kinrin* type, followed by 24 farms, which accounts for 45% of the total number of buying and borrowing farms (Figure 5). Farms 1, 2, and 4 abandoned farming and left their settlement after farm
Although farms 3 and 5 abandoned farming, left the settlement, and took up residence in other areas, they still possessed some part of their farmland and commuted there for farming. Farms 8 and 18 rented out their farmland to farms 11 and 22, respectively, after farm retirement and continue to reside in the area. Farm 19 is a non-farm household that moved into this settlement from Gifu Prefecture in 1997 and runs a furniture studio. The remaining 16 farms, who still reside in the area, have continued farming. One characteristic of the kinrin-type transfer is that 2.2 TFRs have taken place per farm. The average cultivated land under the management of the farms that have continued farming is 31.6 ha, which is smaller than the corresponding average (42.9 ha) for the other types in Omaki and Kowa. Furthermore, with regard to the type of crop, only two farm cultivate all four

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**Figure 5.** Social relationships of the transfer of farmland rights by “kinrin type” in Omaki and Kowa (2007).

Note 1: “Social Relationships” correspond to Table 1. Note 2: “(figure)” is age after “●▲.” Note 3: “U&D” is diversified farming of upland crops and dairy husbandry. Sources: Interviews and those which are referred to in Figure 3.
upland crops. Moreover, farms of this type generally ship out most of their farm products to JA Otofuke Town and have not developed their own distribution routes.

From among the total number of farms, nine farms (managing farms 1, 3, 5, 6, 7, 10, 11, 15 and 17) aspire to maintain their management size. The ages of farmers are as follows: farms 1, 6, 7 and 10 are managed by farmers in their forties; farms 5, 11 and 17 by farmers in their fifties; and farms 3 and 15 by farmers over the age of 65. While farm 5 is currently being managed by a successor, the sons of the respective farmers of farms 11 and 15 are planning to engage in farming in the future. All nine farms have accumulated their farmland after the high economic growth period (1955–1973). To be more specific, the cultivated land of farms 5, 10 and 15 measures over 50 ha, which constitutes the upper limit for EFS6. Farms 6, 7 and 17 specialize in dairy husbandry; farmland accumulation has no direct connection with their management EFS.

The TFRs for all nine of these farms were completed within the settlement7. Moreover, since most such transfers were based on neighborhood relationships (A, corresponding to Table 1), the cultivated land under management is relatively well organized. The TFRs for farms 1, 5, 7 and 10 after 1990 took place based on kinship relations barring two cases. Farms 1, 5, 10, 11 and 17 were associated with pioneering farmers and all of these transfers, except for farms 11 and 15, share the relationship of primary school ties.

Among the other farms, farms 2, 4, 9, 12, 13 and 16 have downsized their farming after 1990, while farm 14 is currently planning to do so. In addition, all the farms that have already abandoned their farming operations can be included in this category. With regard to the farms that are still farming, the household of farm 12 is in his forties; those of farms 4, 9, 14 and 16 are in their fifties; the household of farm 13 is in his sixties; and the household of farm 2 is in his seventies. None of these farms have successors interested in continuing farming, and the householders are relatively old.

These farms also suffer from a shortage of labor. To deal with this problem, farm 9 changed its cultivation system from the rotation cropping of wheat, potatoes and beets to a single cropping of wheat in 2000, and farm 4 changed from diversified farming of upland crops and dairy husbandry to cultivating only upland crops. In addition, farms 2, 12, 13 and 16 downsized their management sizes by selling off or lending their cultivable land to other farmers.

The following constitute cases where the sellers and lenders are from the neighborhood and the buyers and borrowers are from the settlement: farm 2 is leased out to farm 4, farm 12 to farm 24 and farm 13 to farm 10. The relationship between farms 13 and 10 is that between the head and branch families. Farm 16 accumulated all the farmland within the same settlement from the 1960s to the 1970s and thereafter sold its farmland to farm 26 in Omaki and farm E-1 in Higashi Naka Otofuke. The householders of these two farms as well as that of farm 15 were all tenant farmers of the Hokkaido North Stud Farm, where they formed intimate friendships with each other. Consequently, although they live in different residential settlements, they maintain their school relationships in addition to those that were established before the pioneering period. Therefore, most of the cultivable land of farm 16 was sold, relying on such social relationships.

These cases reveal the multilayered nature of social relationships that are formed through a household’s residence in a particular settlement and subsequently appear to influence all the kinrin-type TFRs. In addition, the multilayered relationships are constructed with combinations such as neighborhood, the same settlement, pioneering farms, and primary school relations (ABGI, as shown in Table 1). These relationships are multiplex in nature, “small range and high density”, and this type of farmland transfer is based on traditional “Japanese rural community”. Thus, we can say that TFRs are based on the social relationships between the transferring parties, where economic activities and social lives are closely connected. In the event that a farm has kinship relationships with another farm residing within the same settlement, this relationship will most likely be accorded the highest priority. Of all the three types of transfers, the kinrin type has the fewest TFRs cases, and the area of cultivated land under management is rather small. Hence, such farmland shows very little proactive expansion, development of distribution routes, or the introduction of new kinds of crops, and most of their farmers express a strong desire to maintain the status quo or even downsize their farming.

The kessha type

A total of 12 farms have followed the kessha type of farmland accumulation; of these, the farm 20, 21, 22, 23 and 24 have continued farming; the farm 25 has continued to reside in Kowa after retirement; those of farms L-6, L-7, and L-8 left their settlement after retirement, and those of farms E-1, E-2, and V-3 reside in areas other than Omaki and Kowa (Figure 6). The kessha type of transfer shows an incidence of 3.4 transfers per farm8, and the average cultivated land of farms that continue
farming in Omaki and Kowa is 40.2 ha; both the incidence and the area are greater than those seen in the kinrin type. The farm products of farms belonging to this type are shipped out to the JA Otofuke Town.

The five farm householders who have continued farming are of the following ages: the householder of farm 21 is in his thirties, that of farm 24 is in his forties, those of farm 22 and 23 are in their fifties, and the householder of farm 20 is in his seventies. On farm 22, a successor is already engaged in farming, and on farm 21, the current householder has only recently taken over the farm’s management. Farm 24 employs two employees year-round, and farm 23 is managed throughout the year by the younger brother of the householder. If farms, except for farm 20, have a sufficient labor force, they increase the number of dairy cattle in husbandry or introduce yams in addition to the four upland crops in order to attempt EFS and further diversify their farm’s production.

The surviving farmers of this type have continued accumulating farmland from the pioneering period to recent years. While these farmers have accumulated most of their farmland from farmers in the neighborhood or the same settlement, they have accumulated only some farmland from other settlements. The TFRs between farmers from different settlements in the Naka Otofuke district is peculiar to this type. TFRs including entering farms occurred from 1958 to 2004 and were not concentrated in a specific time period. Moreover, the following relationships were involved in these transfers: all were pioneering farms and had some relations with each other from before the pioneering period, including those based on the same primary or junior high schools. In particular, if a pioneering farm decided to abandon its farm and leave the settlement, the surviving farms who used to be its pioneering associates took it as their mission to continue farming the vacant lot even under poor cultivating conditions. Since 2002, due to the labor shortage, farm 20 has rented out some of its land to the householder of farm 27, who is the brother of the former householder. In this type of transfer, the kinship relation is given higher priority than all other social relationships.

As mentioned above, the farms of the kessha type have accumulated their farmland mainly through their neighborhood (A) and the same settlement (B) relations, in addition to the farmland accumulated from other settlements in Naka Otofuke district through other relations, such as pioneering farmers or school ties. The number of transfers between the settlements of Naka Otofuke district (C, corresponding to Table 1) by farm of this type is 18, and seven of these cases are a combination of A
and C, which are also neighborhood relations. Although the remaining 11 cases are not characterized by neighborhood relations, they show the influence of kinship, pioneering farmers and school ties. These ties can be described as social relationships of the CFI or DGI types, based on the categories listed in Table 1. In particular, farmers who commute to their farmland from other areas are not regarded as pioneers; however, they may have primary or junior high school relations in addition to C. As in the kinrin type transfer, kinship relations are accorded higher priority in the kessha type transfer.

In this way, as in the kinrin type, the kessha type TFRs also show the influence of multilayered territorial or kinship relations as a part of social relationships. Furthermore, the TFRs include C as a characteristic relation for this type of transfer, and relations such as pioneering farmers or primary school relations are significant bonds between farms in Naka Otofuke district. There is no variation in the years wherein such transfers have taken place. It can be said that the TFRs in Omaki and Kowa since the pioneering period are not limited to social relationships within the same settlement, such as ABGI or BGI. There are farm household members who commute to their farmland from Higashi Naka Otofuke or Kyoshin, and the TFRs to farmers living outside the settlement borders are permitted within Naka Otofuke district. The kessha type of farmland accumulation spread to other settlements within Naka Otofuke district through its use by farms who wished to expand their management size.

The kansetsu type

In total, 17 farms have implemented the kansetsu type of farmland accumulation as follows: farms 26, 27, 28, 29, 30 and 31 reside in Omaki and Kowa and have continued farming. farm L-9 left the settlement after retirement and those of farm E-4, E-5, E-6, E-7, E-8, E-9, E-10, E-11, E-12 and E-13 commute to cultivate their farmland from other districts in Otofuke Town (Figure 7). Each farm has seen an average of 6.7 transfers, and the average cultivated land under such management is 71.8 ha9. Both of these figures are higher than those in the previously mentioned types of farmland accumulation. Moreover, the types of crops under cultivation are more varied here than in the previous two types. Moreover, farms 26, 27, 28 and 30 have not only organized a cooperative group for selling their potatoes, but also developed new distribution routes.

The ages of the householders who have continued farming these farms are as follows: the householders of farms 27 and 28 are in their thirties, those of farms 26 and 31 are in their forties, and those of farms 29 and 30 are in their fifties. Successors are already engaged in farming at farms 29 and 30 and two two-year-round workers are employed at farm 28. There is no labor shortage in these farms, and they all specialize in upland cropping.

The farms of this type have continued to accumulate farmland from the high economic growth period to the present, and five farms, with the exception of farm 31, intend to expand the amount of land under cultivation in the future. These farms have accumulated farmland by focusing on the vacant land of neighboring households or households in the same settlement that abandoned farming during the high economic growth period. Farm 26 purchased additional farmland in Koei in 1980, which encouraged other farms to accumulate farmland even from other settlements in Naka Otofuke district.

Most of these transfers constitute the kansetsu type of TFRs, which is the characteristic type following the bubble economy period (1986–1991). Farm 30 was an exception in that it extended its target of farmland expansion to Nishi Omaki, which developed during the same period. At that time, the householder of farm 30, who was a member of the Agriculture Committee of Naka Otofuke district, was requested by a member of the Agriculture Committee of Nishi Naka Otofuke district to take over the farmland of a farm that had planned to leave the settlement. The same applies to farm 31.

In addition, in some cases, prospective buyers approached landowners through a third person, without the influence of any territorial, kinship, or kessha relations. This applies to farms 27 and 28. The householder of farm 28 purchased 5 ha of abandoned land that had become an isolated wilderness in Shihoro Town for 15 million yen in 1984. This transfer was initiated when the father of the householder, who was the chairman of the Community Association at that time, came across this wilderness while surveying around Omaki from a helicopter of the self-defense forces during an event at the town office. As soon as he spotted the land, he inquired about it at the town office and the Legal Affairs Bureau. He found the name of owner and asked the owner to sell the land. The owner resided in Nagoya, and the two parties were related only through farmland trading.

Farm 27 in Kowa borrowed the land the Hokkaido Agriculture Development Public Corporation and subsequently purchased it. Although the father of the present householder was personally acquainted with the farner landowner, the two were not on good neighborly
terms. Moreover, the former landowner had sufficient financial resources and did not abandon farming for the sake of debt redemption. The landowner entrusted the Development Public Corporation with the disposition of his farmland due to its ability to conduct smooth financial transactions. The land rent levied by the Development Public Corporation was based on the standard farm rent, and it could not be influenced by the power relationship between the concerned farms. It was only a coincidence that the father of the householder of farm 27 was personally acquainted with the landowner, and there was no influence of territorial, kessha, or kinship relations in this TFR.

Any other case, there are two more instances of TFRs based on kansetsu: the householder of farm 26 purchased farmland from a landowner residing near the city center, and farm 29 purchased farmland in Nishi Omaki. These two transfers were based on junior high school relations as well as other personal social relationships. Moreover, kinship relations are accorded priority even in the TFRs covering different districts; one such instance is farm E-7.

Similar to the previous two types, the kansetsu type of transfer is influenced by a multilayered combination of relations such as territorial and kessha relations. In fact,

| Farm No. | Year | Relaxed Affiliation | Year | Age | Area (ha) | Crops |
|----------|------|---------------------|------|-----|-----------|-------|
| Omaki    | 26   | 1985                | 60   | 66  | 94.1      | Wheat, Beets, Potato, Red Beans, Soybean, Yam, Carrot, Green-cut Oats |
|          |      | 1990                | 70   | 70  | 50        | Wheat, Beets, Potato, Red Beans, Soybean, Yam, Green-cut Oats |
| Kowa     | 28   | 1960                | 80   | 80  | 108.5     | Wheat, Beets, Potato, Red Beans, Soybean, Carrot, Green-cut Oats |
|          |      | 1965                | 90   | 90  | 83        | Wheat, Beets, Potato, Red Beans, Soybean, Yam, Carrot |
| Moved Out | 30   | 1961                | 100  | 100 | 50        | Wheat, Beets, Potato, Red Beans, Soybean, Yam, Carrot |
| From Other Area | 31   | 1965                | 110  | 110 | 45        | Wheat, Beets, Potato, Red Beans, Yam, Carrot |

Figure 7. Social relationships of the transfer of farmland rights by “kansetsu type” in Omaki and Kowa, Otofuke Town, Hokkaido Prefecture (2007).

Notes: See Fig. 5. Sources: See Fig. 5.
24 such transfers involve farmland from another district of Otofuke Town (D, corresponding to Table 1) or outside Otofuke Town (E), and eight of them are characterized by neighborhood relations (A). The farmland in the other 16 cases is detached from the farmland normally cultivated by the buyers and borrowers. There were some kessha relations in 10 of these 16 cases. However, the remaining six cases are exclusively kansetsu transfers, where only other relations (P) are involved. In the other cases involving public institutions (O), only public institutions are connected to the farms carrying out the TFRs, and this connection exists only at a uniplex level. Furthermore, in the case of farms that commute to their farmland from other areas, each TFR is understood to be based on kansetsu. Hence, farms in other settlements and districts utilize the kansetsu type of transfer to accumulate land for further EFS.

**Relationship Pattern of TFRs and Individual Farming**

This section will examine the characteristics of the process of TFRs in both settlements and the ways in which each transfer is related to the farming of each farm.

The kinrin-type TFRs have been developed as a blend of various roles in social relationships, as represented by the case of farm 5 (Figure 8). It is impossible for individual households to either enter into or withdraw from these social relationships, which include territorial and kessha relations. Such social relationships do not cease even after the termination of lease contracts, primarily due to local society. In other words, these relationships have a binding authority on farm householders and make it difficult for the parties to annul a purchasing contract or cancel a lease contract. Moreover, since there are many TFRs where it is impossible to either enter into or withdraw from all the social relation types, there seems to be little risk that the amount of cultivated land under a farming will decrease due to the cancellation of a lease contract. Hence, farms can continue to accumulate farmland and set up stable large-scale farm management.

The farms of the kessha type have accumulated most of their farmland through social relations that are impossible to enter into and withdraw from, such as being from the same settlement or having neighborhood relations, just like the kinrin type. Moreover, some of these transfers extend to other settlements in Naka Otofuke and are similar to the within-settlement transfers in that they are based on social relations with a strong binding authority, such as farms who have developed their land together or who are members of a primary school alumni association. There have been cases where farms have been forced to receive farmland because of their social relationships, even though the farmland was not in good cultivable

![Figure 8. The network attendant on the transfer of farmland rights in Omaki and Kowa (2007). Source: Interviews.](image-url)
condition. This example explains that such a transfer prevented abandonment of farmland and even expanded cultivated land, because recipients generally want to take over only good farmland. Such social relationships have contributed to the sustainability and stability of large-scale farming in regions where there are many farms that practice farmland leasing, such as in the study areas.

Farms of the *kansetsu* type have also accumulated most of their farmland through neighborhood relations or *kessha*, similar to the previous two types. A few of these farms have accumulated additional farmland through *kansetsu* transfers, in which there are no connections between the buyers and sellers or borrowers and lenders. The TFRs are based on social relations that can be entered into as well as withdrawn from. In this type of transfer, if the households decide to terminate their farmland relations, it would not cause any problems in the social life of the settlement.

Most of the farmland accumulation in the *kansetsu* type occurred after 1990. Transfers of this type constitute a significant means for farmers wishing further EFS. Such transfers also play a key role for farmland providers to set a land price that is far different from the actual market price due to their social relations within the settlement. Thus, the land price can be automatically determined between the two parties. Furthermore, since *kansetsu* transfers are based solely on the purchase or lease of farmland, it is not necessary for the providers to set a land price that is far different from the actual market price due to their social relations within the settlement. Thus, the land price can be automatically determined between the two parties. Furthermore, there have been cases in which farms that have already retired in Omaki and Kowa lent out their farmland to farms in Shihoro Town at higher land prices. Farms that have expanded through *kansetsu* transfers also tend to introduce new crops in their expanded farmland and thoroughly utilize newly developed distribution routes. As mentioned above, farms of this type utilize their social relations, such as *kansetsu*, while actively expanding their farming scale, developing distribution routes, and introducing new crops. Since farmland accumulation utilizing *kansetsu* transfers occurs through weaker social relationships rather than territorial, kinship and *kessha* relations, they also involve risks pertaining to the cancellation of a lease contract. Thus, farming scale expansions utilizing *kansetsu* can emerge based on *kinrin* and *kessha* types.

From the viewpoint of the farming belonging to each type, there are relatively many small-scale farms of the *kinrin* type with different farming types as follows: only upland cropping, upland cropping with dairy husbandry, dairy husbandry and vegetable cropping. The average age of the farmers is 54.4, which is quite old (Table 2). The area of cultivated land under the management of farms of the *kessha* type is larger than that of the *kinrin* type, and the average age of these farmers is 47.1, which is younger than that of the *kinrin* type. The *kansetsu* type of farms have a larger area of cultivated land under their management compared to the other two types, and all of these farms practice only upland cropping. The average age of these farmers is also the lowest among all three types.

In Omaki and Kowa, while the average number of TFRs among farms focusing exclusively on upland cropping in all the types is 4.2, the corresponding number for dairy husbandry farms is 2.8. In farms practicing upland cropping that have full-time farmers younger than 50, the average number of transfers is 5.4. Based on the above, it appears that farms specializing in upland cropping have a strong desire to expand their management size, while those who have young full-time farmers tend to accumulate farmland more actively. With regard to the farms involved in dairy husbandry, farmland accumulation is not directly connected with EFS, and they are not interested in expanding the cultivated land under their management. Furthermore, the number of TFRs per farm is 3.2 in Omaki and 4.8 in Kowa, a difference of 1.6 points. This is likely because the cultivated land in Kowa is better than that in Omaki. If the condition of the cultivated land in Omaki was as good as in Kowa, the ratio of upland cropping would increase in Omaki, and the farmers would be more proactive in farmland accumulation. In other words, farming types are divided into upland cropping and dairy husbandry depending on the location of farmland, and the progress of farmland accumulation differs depending on the amount of labor available for

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Table 2: Characteristics of the process of transferring farmland rights in Omaki and Kowa

| Type of farming | Area (ha) | Average Age of Full-time Farmer |
|-----------------|-----------|--------------------------------|
| Type of farming | 30-31 | 31-60 | 60+ | U & D | Dairy | Vege |  |
| Kinrin Type | 16 | 8 | 7 | 1 | 1 | 3 | 1 | 54.4 |
| Kessha Type | 5 | 1 | 3 | 1 | 2 | 1 | 2 | 47.1 |
| Kansetsu Type | 6 | — | 3 | 3 | — | — | — | 45.8 |

Note 1. “U&D” is the diversified farming of upland crops and dairy husbandry. Note 2. Unit is “households” except for “Average Age of Full-time Farmer.” Source: Interviews.

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Based on the analysis of how TFRs among farms are influenced by the social relations between those farms, this study examined the roles played by such transfers in farming in rural settlements. The analysis focused on the combination of social relationships among farms involved in these transfers.

Most TFRs are based on multiplex relationships between farmland suppliers and receivers, which contribute to EFS. On the other hand, a few farms plan more EFS, and they utilize uniplex relationships beyond the borders of their settlement to accumulate farmland (Figure 9). Uniplex relationships have been seen for a long time, however, they could not be utilized to obtain TFRs in recent years. Mechanization and the construction of roads have shortened time to farmland. Higher mobility times is necessary for buyers and borrowers to expand to a wider range of farmland accumulation methods. Another reason for the wide range of selling or lending of farmland is that farmland suppliers can choose buyers or borrowers to pay off their debts. Furthermore, if a farmland supplier has paid off all their debts, they can then choose a buyer and borrower based on their judgment alone, leading to a wide range of selling or lending. Farmland suppliers have been able to set the land price under market control or choose the receiver at a high price without concern for their social situation. These changes have brought about a combined situation in that most TFRs occur within their own settlements, and if farmers want more EFS, farmlands are found beyond the borders of the settlement, district, or town. Farm management sizes have increased over time, and these individual expansion activities have resulted in one of the largest upland farming areas in Japan.

This study revealed the mechanism of TFR based on uniplexes, which would reduce the problem of farmland abandonment. There is a farming labor shortage and farmland surplus in Japan, so many settlements have abandoned farmland (Shoji et al. 2019). Some settlements search for farmland management outside of their own settlement; however, some avoid lending to outsiders because they are afraid of them claiming their tenant rights. This feature is particularly strong near suburban areas because landowners are expecting to develop farmland for other uses (Godo 2006). In this new style of transfer, farmland is automatically traded, and there is little possibility of problems such as agrarian disputes caused by a tenant’s right to farm. Hence, even if the transfer involves unfavorable farmland trading, there is little disruption to the local society, which alleviates the landowner’s sense of resistance to lending out the land.

Under the current conditions, the Japanese national government has increased the demand for EFS. The agrarian community of Hokkaido has achieved large-scale farming under rapid economic growth after World War II, and Hokkaido can be regarded as a model case of Japanese agriculture. The findings of this study can provide a direction to discuss Japanese agriculture and farming types.

The diversified social relationships revealed in this paper do not only influence TFRs, but also farming as a whole. For example, some dairy farmers accumulate their farmland from within the neighborhood alone, while others entrust breeding to outsiders from other settlements or districts. Furthermore, when upland farmers organized co-shipment groups to widen their market, they constructed or utilized wider social relationships. Future
research will focus on analyzing these activities and wider social relationships.

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Notes

1. Social network analysis aims to explain not only the social relationships consisting of intentional and unintentional interactions between individuals or groups as actors following the norm within groups, but also the relationships built by human beings themselves (Morioka 1995; Kanamitsu 2003).

2. Kyosankai (1980), Komaba Shogakko (1986), Komaba Chugakko (1997), Higashi Naka Otofuke Shogakko (2000), Kowa (2002).

3. Inoue (1987) defines kessha as a relation “which was consciously established for some purpose to provide opportunities” based on “the free will of participants”. However, Inoue also notes that although these relations are based on some common purpose, their participants have different degrees of selectivity depending on the characteristics of each group. There is no choice involved in being a member of a primary or junior high school alumni association or a pioneering farmer who developed the land in Omaki or Kowa. Hence, it can be said that kessha relations also include those that cannot be selected in Omaki and Kowa.

4. This policy was one of the most effective, and promoted the modernization of farm management types (Shoji et al. 2019).

5. According to Ushiyama (1989), the Otofuke Town Agricultural Cooperatives classified farms as A, B, C and D based on their economic situation and recommended that they abandon farming in the order of D to A. These classifications were based on the following criteria: households classified as A “can return the principal and interest of agreed redemption of the loan from the farms’ surplus of their farms economy”, those classified as B “can return all the interest and some of the principal”, those classified as C “can return only some interest”, and those classified as D are those whose economic surplus cannot cover their farm’s expenditure. Farmland belonging to the farms that were advised to abandon farming were usually seized as collateral, following which the households left the settlement.

6. According to Hiraiishi (2006), the maximum size of upland cropping managed by family farming is estimated to be between 50 ha and 60 ha in Tokachi Plain.

7. With regard to farms 3, 6, 7 and 15 this study considered their TFRs only after their entry into the concerned settlements. With regard to the farms that entered after the pioneering period (1955–1960), the study considered their transfers only after entering the study area.

8. The TFRs of tenant farmers from other areas are specified only in Omaki and Kowa; therefore, they are not included in this number.

9. The TFRs of tenant farmers from other areas are specified only in Omaki and Kowa; therefore, they are not included.

10. The annual farm rent in Shihoro Town ranges between 15,000 and 20,000 yen per 0.1 ha. In the study areas, there were two cases where farms in Omaki and Kowa had abandoned farming and lent out their farmland to farmers in Shihoro Town.

11. There is a vertical drop of approximately 70 m between the eastern part of Omaki and the northwestern areas of Kowa, which affects the water drainage conditions of the cultivated land. Moreover, the cultivated land in the northern parts of Omaki has many stony soils and is unfit for upland cropping; therefore, some farms in this settlement focus only on dairy husbandry.

References

Akitsu, M. 1998. Nogyo seikatsu to nettowaku. Tokyo: Ochanomizu Shobo. (J)

Amano, T. and Fujita, N. 2005. Shuyo hatasaku chitai ni okeru hatasaku keiei kibo no doko yoso. Hokkaido Nogyo Kenkyu Senta Nogyo Kenkyu 88: 24–43. (J)

Boissevain, J. 1974. Friends of friends: Networks, manipulators and coalitions. Oxford: Basil Blackwell and Mott.

Clout, H. 1972. Rural geography: An introductory survey. Oxford: Pergamon Press.

Godó, Y. 2006. Nihon no shoku to no: Kiki no honshitsu. Tokyo: NTT Shuppan. (J)

Hatakken Kenkyukai ed. 1998. Tokachi ichi noson: 40 nen no kiseki. Tokyo: Norin Tokei Kyokai. (J)

Higashi Naka Otofuke Shogakko (Higashi Naka Otofuke Shogakko Kaiko 70 Shunen Kinen Kyosankai) ed. 2000. Kaiko 70 shunen kinenshi: Kibó.

Hiraishi, M. 2006. Daikibo hatasaku keiei no tenkai to sonritsu joken. Tokyo: Norin Tokei Kyokai. (J)

Hosoyama, T. 2004. Nochi chintaishaku no chikikusai to daikibo shakuchi keiei no tenkai. Tokyo: Norin Tokei Kyokai. (J)

Hosoyama, T. and Wakabayashi, K. 2007. Tokachi chuobu ni okeru nochi ryudoka, sakutsuke no doko to keiei tenbo. Hokkaido Nogyo Kenkyu Senta Nogyo Kenkyu 93: 1–23. (J)

Inoue, T. 1987. Sha-en no ningen kankan. In Nihonjin no ningen kankan, ed. Y. Kurita, 244–260. Tokyo: Domesu Shuppan. (J)

Ishihara, T. 1985. L’utilisation du sol dans les régions périphériques et la concurrence du commerce extérieur: Le cas de Shikaoi, Hokkaido. Annals of the Association of Economic Geographers 31: 293–305. (JF)

Ito, T. and Yamaki, T. 1993. Nogyo keiei no hoinaka to keiei senryaku. Tokyo: Norin Tokei Kyokai. (J)

Kanamitsu, J. 2003. Shakai nettowaku bunseki no kiso. Tokyo: Keiso Shobo. (J)

Kasai, Y. 1970. Forming process of dairy regions in Tokachi Plains, Hokkaido. Annals of the Tohoku Geographical Association 22: 130–139. (JE)

Kawakami, M. 1985. The recent trends of lender and borrow...
farmland in Kochi Prefecture. *Annals of the Association of Economic Geographers* 31: 191–209. (JE)

Komaba Chugakko (Komaba Chugakko 50 Shunen Kinen Kyosankai) ed. 1997. *Komaba Chugakko 50 shunen kinenshi: Juritsu*. (J)

Komaba Shogakko (Komaba Shogakko Kaiko 80 Shunen Kinen Jigyo Kyosankai) ed. 1986. *Komaba Shogakko 50 shunen kinenshi: Habatako daichi no ko*. (J)

Kowa (Kowa 50 Nen Jigyo Jikko Inkai) ed. 2002. *Omaki Kaitaku Kowa Ka 50 nenshi: Kowa no ayumi*. (J)

Kysanko (Kysankai Kinenshi Bukai) ed. 1980. *Naka Otofuke kaii 50 shunen, Naka Otofuke Shogakko kai 50 shunen kinenshi: Kyori no ayumi*. (J)

Lewis, J. 1979. *Rural communities*. London: David and Charles.

Miyatake, K. 2007. *Daikibo inasaku keiei no keiei kakushin to chiiki nogyo*. Tokyo: Norin Tokei Kyokai. (J)

Morioka, K. 1995. *Toshi shakai to pasonaru nettowaku: Personal network ron no seiaka to kadai*. *Toshi Mondai* 86: 3–15. (J)

Murdoch, J. 2000. *Networks: A new paradigm of rural development? Journal of Rural Studies* 16: 407–419.

Murdoch, J. 2006. *Networking rurality: Emergent complexity in the countryside*. In *Handbook of rural studies*, ed. P. Cloke, T. Marsden and P. Mooney, 171–184. London: Sage Publications.

Nihei, T. 2007. Regional bases carrying the upland farming of Tokachi, Hokkaido. *Tsukuba Studies in Human Geography* 31: 39–74. (JE)

Onishi, T. 1996. *Noochi taishaku no genkyokumon to ninaita no sonzai keitai*. *Japanese Journal of Farm Management* (Nihon Nogyo Keiei Gakkai) 34(1): 1–10. (J)

Oro, K. 2007. Evolution of the population of beef cow-calf operations in Taiki, Hokkaido Prefecture. *Geographical Review of Japan* 80: 547–566. (JE)

Otani, S. 1995. *Gendai toshi jumin no pasonal nettowaku: Hokubei toshi riron no Nihonteki kaidoku*. Kyoto: Minerva Shobo. (J)

Otofuke Cho Nogyo Kyodo Kumiai ed. 1999. *Otofuke Cho Tokyo 50 nenshi*. (J)

Rigg, J., Salamanca, A. and Thompson, C. E. 2016. *The puzzle of East and Southeast Asia’s persistent smallholder*. *Journal of Rural Studies* 43: 118–133.

Sadamoto, M. and Hirai, S. 1991. *Tokachi Heiya no futsu hatasaku nogyo*. *Ron-en* (Himeji Kogyo Daigaku) 2: 13–31. (J)

Saito, J. 2003. *Farmland liquidity and hierarchical transition of farmers in a large-scale rice-growing area in Hokkaido: With special reference to Numata Town, northern Sorachi*. *Annals of the Association of Economic Geographers* 49: 19–40. (JE)

Saito, J. 2007. *Expansion and characteristics of large-scale rice-growing farms in Fujishima-area, Tsuruoka, Yamagata Prefecture*. *Geographical Review of Japan* 80: 427–441. (JE)

Sakai, N. 2006. *Okinawa toshi kinko chiiki ni okeru nochi taishaku no tokuchu*. *Nogyo Keiei Tsushin* 230: 18–21. (J)

Sakamoto, H. 2002. *Yasai engei no sanchi bunseki*. Tokyo: Taimaido. (J)

Sakamoto, Y., Okada, N., Miyoshi, H. and Nishimura, N. 1994. *Hatasaku keiei ni okeru shakuchigata kibo kakudai no keizaisei*. *Nogyo Keiei Kenkyu Seisekisho* 41–82. (J)

Shimamoto, T. 2001. *Gendai nochi taishakuron*. Tokyo: Norin Tokei Kyokai. (J)

Shoji, G., Yoshida, K. and Yokoyama, S. 2019. *Government interventions and part-time family farming*. In *Asian small-holders in comparative perspective*, ed. E. Thompson, J. Rigg and J. Gillen, 81–107. Amsterdam: Amsterdam University Press.

Suzuki, Y. 1994. *Inasaku nogyo no saihensei*. Tokyo: Taimaido. (J)

Tabata, T. 1986. *Hokkaido no nogyo shakai*. Tokyo: Nihon Keizai Shimbunsha. (J)

Takenaka, A. 2004. Land transaction under the expansion of farm size in Tokachi, Hokkaido: A case study of N Block at Otofuke Town. *Review of Agricultural Economics* (Hokkaido University) 60: 225–237. (JE)

Tanimoto, K. 1998. *Nagayou gaibuka to daikibuka, tatoka: Hokkaido rakuno hatasaku chitai no sugyo juitaku no jirei kara. Nosei Chosa Jiho* 506: 36–45. (J)

Temma, T. 2010. *Rino: Sonogou kara wa do nattaka*. Tokyo: Nihon Hoso Kyokai. (J)

Temma, T. and Sasaki, I. eds. 1979. *Tokachi kannai rinoshita to tsuseki chosa kekka hokokusho*. Obihiro: Obihiro Chikusan Daigaku. (J)

Tojo, S. 1992. *Daikibo inasaku keiei no nouchi shuseki to informaru puerosu no igi*. *Journal of Farm Management* (The Farm Management Society of Japan) 30(3): 1–9. (JE)

Uchida, M. 1997. *Hokkaido nogyo chiikiiron*. Tokyo: Taimaido. (J)

Ueno, C. 1994. *Kindai kazoku no seiritsu to shuen*. Tokyo: Iwanami Shoten. (J)

Umeda, K. 2003. Restructuring competitive strategy of the oligopolistic agribusiness: A case of Snow Brand Milk Products Co. *Annals of the Association of Economic Geographers* 49: 289–312. (JE)

Ushiyama, K. 1989. *Agriculture in Hokkaido in crisis*. *The Journal of Agrarian History* 122: 35–49. (JE)

Yanagimura, S. 1999. *Hatasaku chitai ni okeru nochi chintashkchu no kozoe to nochi shudanka jigyo*. In *Hokkaido no nochi mondai*, ed. K. Tanimoto and A. Sakashita, 147–159. Tokyo: Tsukuba Shobo. (J)

(J) written in Japanese

(JE) written in Japanese with English abstract

(JF) written in Japanese with French abstract