

The Function of Network-Style Transactions in Local Japanese Industry: A Case Study of the Plum Industry in the Minabe-Tanabe Region of Wakayama

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Abstract

In this paper, in order to clarify the mechanism for a more stable management of local Japanese industry in the medium term, the author conducted a case analysis of the Minabe-Tanabe region, focusing on the ways that profit and risk are shared among trading parties. The Minabe-Tanabe region is the largest ume (Japanese sour plum) production district in Japan, having produced ume for nearly 400 years. The case analysis shows that in the Minabe-Tanabe region, a network-style transaction had been in place over a long period of time among farmers, manufacturers, wholesalers and agricultural co-operatives, and a mechanism of sharing the risk of the supply fluctuation was incorporated into this network-style transaction system and a moderate amount of competition was maintained, which all contributed to make management of local Japanese industry more stable.

Keywords: *business system, stable management, agricultural producing districts, long-lasting transaction*

INTRODUCTION

The purpose of this paper is to clarify the mechanism for a more stable management of local Japanese industry in the medium term. From among the many important local industries, this analysis focuses on the food manufacturing industry that uses agricultural products as raw materials. Agriculture is greatly affected by the natural environment, such as weather and geographical conditions (e.g. properties of farmland soils). Therefore, in agricultural production, it is difficult for farmers to completely control the quality and quantity of products in response to fluctuations in demand. Changes in supply quantity and quality due to the natural environment are risks for both farmers and agricultural food manufacturers who use their products as raw materials. It is important to

understand how these risks should be shared among participants in producing districts.

According to statistics from the Ministry of Agriculture, Forestry and Fisheries, of Japan's 1,370,000 farm management bodies, 98% are family-run farms and the average area of arable land is 2.2ha per single management entity.¹⁾ Japanese agriculture is primarily made up of small family-run farms, and farmers and associated industries make up the producing districts. "Producing districts" here means regional areas consisting of a prominent agricultural activity and a number of related industries.

There are many agricultural districts in Japan that are producing farm products suitable for the natural environment of each region. However, there are many districts where agriculture is not practicable as an independent industry, or where

the situation is becoming increasingly difficult to sustain. In contrary, the Minabe-Tanabe region of Wakayama studied in this paper had not followed this trend and had been thriving with a unique system not found elsewhere in Japan.

In this paper, through comparative analysis of agricultural producing districts continuing production as a profitable business, features not found in other localities are specified and mechanisms for a more stable management of local Japanese industry are clarified from the viewpoint of business administration.

This paper focuses on ume (plum) producing districts and presents a comparative analysis of the Minabe-Tanabe region of Wakayama with the city of Wakasa in Fukui. Both districts are well established, with the Minabe-Tanabe region producing ume for over 400 years and Wakasa for over 200 years. In 2015, the Minabe-Tanabe area was designated as a Globally Important Agricultural Heritage System (GIAHS) by the Food and Agriculture Organization of the United Nations (FAO) in recognition of its “pollination mutualism between ume trees and honeybees” and “the use of sloped land for coppice forests and ume orchards.”²⁾

Ume is a deciduous tree of the Rosaceae family and its fruit is known to have various medicinal properties, and has been widely consumed in Japan to maintain good health since ancient times. Eventually, salted plums came to be eaten widely, and today, ume-boshi (salted dried plums) and plum wine are popularly consumed.

REVIEW OF PREVIOUS STUDIES

Previous Studies on the Concentration of Industry

Studies on local industries, the concentration of industry, and areas known as industrial clusters with companies, organizations and institutions related to one particular industry trace back to Marshall (1920). The economic effects of geographical concentration in specific areas have been examined. In the field of business administration, Porter (1998) provided a comprehensive theoretical framework for analyzing the competitive advantage of “industrial clusters” and for building them. Furthermore,

a renowned study on the concentration of industry, called “flexible specialization,” regards the concentration of industry as an alternative to mass production (notably, Piore and Sabel, 1984), and draws attention to the potential of craft-like production instead of mass production. Following Piore and Sabel (1984), Saxenian (1994) analyzed systems and institutions of the concentration of industry. Comparing Silicon Valley and Route 128 in the U.S. high-tech industry, Saxenian (1994) showed that industrial systems built on a regional cooperative network are more flexible and technically dynamic than systems which are compromised of independent companies that consolidate their research and experience.

These studies have clarified the advantages of the concentration of companies and organizations related to specific industries and the key factors for achieving them. However, there is little research available on how to create and maintain region-specific mechanisms. Kagono (2007) approached this problem and presented the concept of the business system of local industry.

Business System of Local Industry

A business system is defined as the, “systematization of management resources according to certain mechanisms determining which activities should be handled by the company and what kind of relationships should be established between various external business partners. The system is formed as a result of the structure of division of labor, incentive systems and design of the flow of information, goods and money” (Kagono and Inoue, 2004). Business systems are made up of a variety of elements that are inherently difficult to imitate and can therefore be a source of a company’s long-term competitive advantage. Therefore, the design—the decision of what kind of activities on the value chain the company is responsible for, and what kind of relationship it should build with business partners concerning those activities—is the key to the survival and development of the company.

Furthermore, Kagono (2007) studied local and traditional business systems, focusing on a set of rules for sharing profit and risk among persons and businesses. Based on case studies of traditional local industries, Kagono (2007) shows the factors

Table 1: Changes of Percentage of Business Farm Households in Each Producing District³⁾

	1950	1975	1985	1995	2005	2010	2015
The Minabe-Tanabe region	78%	55%	63%	50%	59%	51%	48%
Wakasa	55%	25%	25%	21%	16%	15%	12%
National	78%	38%	38%	26%	22%	22%	22%

Note: Made by the author from 'Census of Agriculture and Forestry,' Ministry of Agriculture, Forestry and Fisheries

and mechanisms that enable business systems, in terms of (1) The system of human resource development of skilled craftsmen, (2) Training of managers, (3) Promotion and suppression of competition and (4) Long-term continuous outsourcing.

In the paper, two cases are analyzed employing the concept of the business system of local industry (Kagono, 2007) for the following reasons. Agricultural producing districts are a combination of many value chains, and each value chain embedded in the system of the producing district is defined by the decisions made as to what kind of relationship each player should form with their business partners. And the concept of the business system ultimately comes down to matters of relationships between transaction parties. Thus, the paper analyzes cases employing the concept of the business system, focusing on how to share profit and risk among business bodies in producing districts.

Turning our attention to business relationships between suppliers and manufacturers in the Minabe-Tanabe region, we learn that long-lasting business relationships have been established among them. In this regard, Kagono (2007) points out that in many local industries, outsourcing (entrusting operations to outside companies) has been conducted, and that transactions with outside companies have continued over a long period of time, both being characteristic of Japanese business practice. The advantage of making use of long-term continuous outsourcing is that they can increase the flexibility of companies and achieve a benefit of division of labor by enabling individual businesses to specialize in particular areas of service or production.

Although Kagono (2007) considers excessive competition a risk, in agriculture there are other risks to consider. In agricultural producing districts, planned production and quality control are difficult because the traded goods are biological and

therefore susceptible to the unpredictable threats of the natural environment.

Thus, in analyzing cases, it is necessary to examine how these two risks are shared among business bodies in producing districts.

RESEARCH METHOD

Object of Analysis

This paper focuses on two ume-producing districts, the Minabe-Tanabe region of Wakayama and Wakasa in Fukui. Both districts started producing ume several hundred years ago and continued production today. In this paper, we place emphasis not only on being a well-established producing district, but also on conducting agriculture as an independent industry. To judge whether agriculture is independent as an industry in a particular district, the author uses the percentage of business farm households as an index. "Business farm household" is a farmer whose agricultural income is more than half of the household income.

When the agricultural income from the production and sale of ume is high, farmers can make a living on agriculture and as a result, the percentage of business farm households will increase. Comparing the percentage of business farm households of the Minabe-Tanabe region with that of Wakasa, the Minabe-Tanabe region is significantly higher and can be regarded as a more successful case (see Table 1).

Research Questions

In this paper, based on the discussions in the previous studies, the following research questions (RQ) are laid out.

RQ1 In agriculture, due to risks of an uncontrollable natural environment as well as risks

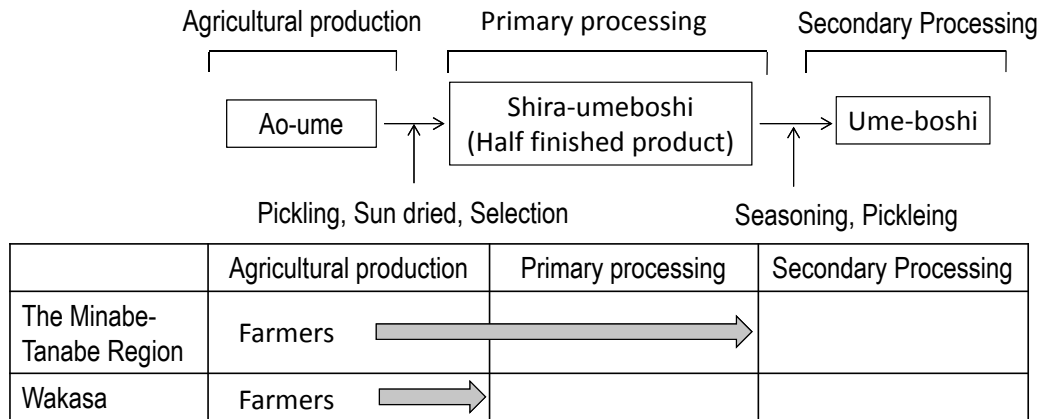


Figure 1: Changes of forms of ume and the scope of the farmers' business operation

Source: Made by the author based on interviews

of excessive competition, farmers cannot control the supply quantity and quality completely. What is the difference between each mechanism of risk-sharing due to the natural environment of each producing district? To maximize the district's overall profit rather than short-term profit, it is sometimes necessary for business bodies to sacrifice self-interest. Who is in charge of the management of the risk-sharing mechanism and how is it managed?

RQ2 Maintaining a modest level of competition is considered to contribute to making management of local Japanese industry more stable in the medium term. What is the difference between mechanisms of promoting and suppressing competition in each district?

RESEARCH FINDINGS⁴⁾

Formation Process of the Producing districts

Both areas are well-established with ume production in the Minabe-Tanabe region starting around 400 years ago, and Wakasa around 200 years ago. However, it was not until 1868 that the production and processing of ume emerged as an industry because of the growing demand for preserved food for the military. Subsequently, the production bases were established in response to an increasing

demand for ume, and the amount of production increased in both producing districts. Figure 1 shows the changes of forms of ume and the scope of farmers' business operations. The manufacturing process of ume-boshi can be divided into three processes: the agricultural production of ao-ume (fresh Japanese plums), processing of shira-umeboshi (half-finished products), and processing of ume-boshi pickled plums (finished products).

In Wakasa, as production increased, farmers began to organize a group to maintain a joint sales system of ao-ume fresh plums. Around 1922 in Wakasa, whose ao-ume were highly valued in Keihan-Chukyo markets, in order to rationalize the sales system, such as shipping to wholesale markets in consumption areas, agricultural co-operatives were organized and began joint sales, and they still continue operating today.⁵⁾

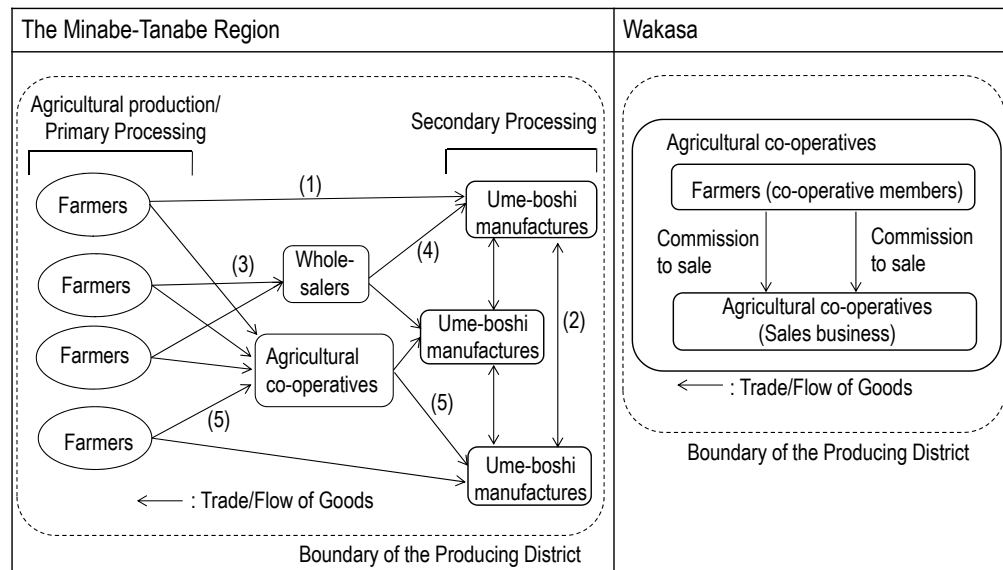
On the other hand, in the Minabe-Tanabe region, a system of division of labor among farmers, ume-boshi manufacturers and wholesalers was established. Before 1939, Tanabe City was a merchant town and Minabe Town was a farmer town. In the Minabe-Tanabe region, besides selling fresh ao-ume, farmers started processing plums themselves and manufacturing and selling half-finished shira-umeboshi that could be preserved for a long period of time (Figure 1).⁶⁾ Then, Tanabe merchants began selling the shira-umeboshi manufactured by farmers. Later, merchants started manufacturing ume-boshi (secondary processing) as well as selling

Table 2: Changes of the cultivation area and shipping quantity of ume⁸⁾

	The cultivation area (ha)			shipping quantity (ton)		
	Wakayama	Fukui	National	Wakayama	Fukui	National
1960	802	133	8,330	-	-	-
1970	1,650	291	15,900	-	-	-
1980	1,740	265	15,900	14,521	808	47,300
1990	3,480	420	18,700	40,800	1,170	80,400
2000	4,660	518	19,000	65,500	1,900	104,500
2010	5,630	510	18,000	54,300	963	79,700
2015	5,540	507	16,700	61,500	1,060	85,000
2018	5,410	491	15,600	70,600	1,390	99,200

Source: Ministry of Agriculture, Forestry and Fisheries, 'Annual statistics of fruit tree cultivation area,' 'Annual statistics of harvest and shipment quantity'

Note: "-" means facts unknown or lack of research

**Figure 2: Production distribution channels in each producing district (image)**

Source: Made by the author based on interviews

them, and they became the basis for today's plum manufacturers. As demand increased due to an improvement in taste of ume-boshi, the number of wholesalers buying shira-umeboshi from farmers and selling them to manufactures increased in the producing district. In this way, in the Minabe-Tanabe region, a system of division of labor among farmers, ume-boshi manufacturers and wholesalers was established in the producing districts.⁷⁾

Table 2 shows the changes in the ume cultivation area and shipping quantity in both the Minabe-

Tanabe region and Wakasa. Figure 2 shows a diagram of production distribution channels. In the Minabe-Tanabe region, there were five kinds of transactions including, (1) Transactions between farmers and ume-boshi manufacturers, (2) Transactions between ume-boshi manufacturers (between peers), (3) Transactions between farmers and wholesalers, (4) Transactions between wholesalers and ume-boshi manufacturers, and (5) Transactions between agricultural co-operatives and farmers. According to Hashimoto, et al. (2005),

Table 3: Percentage of Farmers per Shipment Destination in the Minabe-Tanabe Region⁹⁾

	Ume-boshi manufacturer	Wholesalers	Agricultural co-operatives
Percentage of Farmers per Shipping Destination (n / n)			
Minabe Town (n =181)	38%	60%	3%
Tanabe City (n = 243)	18%	46%	36%

Source: Made by the author based on Hashimoto et al. 2005, 'Questionnaire Survey on Ume-producing Farmers'

Note: Time of the survey, Minabe town in August 2002, Tanabe City in July 2003. Multiple answers allowed.

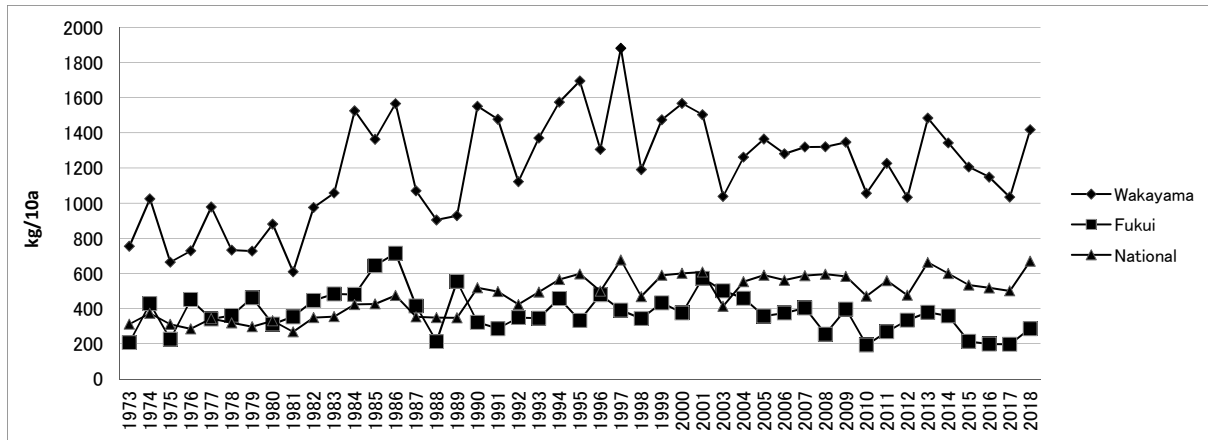


Figure 3: Changes of the Quantity of Ume per Unit Area

Source: 'Production and Shipment Statistics,' Ministry of Agriculture, Forestry and Fisheries

Table 4: Statistics on variability of the quantity of ume per unit area (1973–2018)

	Average value (kg/10a)	Standard deviation	Coefficient of Variation
Wakayama	1,176	295.7	0.251
Fukui	368.6	116.1	0.315
National	463.8	116.2	0.251

Source: Tabulated by the author based on 'Production and Shipment Statistics,' Ministry of Agriculture, Forestry and Fisheries

who conducted research on ume farmers from August 2002 through July 2003, the percentage of farmers per shipment destination is as shown in Table 3.

Farmers in Wakasa commissioned sales of fresh ao-ume to agricultural co-operatives. Only large-scale farmers processed ao-ume, and most farmers sold ao-ume without primary processing (see Figure 1)

Supply Fluctuation and Uncertainty of Quality

Ume plum is a fruit tree of the family Rosaceae, and its fruit is harvested once a year. Since it blooms in the middle of winter from February to March and

yields are susceptible to the climate of the pollination period, the amount of yield varies greatly by production year (see Figure 3, Table 4).

Agricultural products, unlike industrial products, are not uniform in quality and each product can vary greatly. Such is the case for ume, where fruit of various quality and size is harvested from a single tree. As to the size of the fruit, each one tends to be smaller when the yield is large and bigger when the harvest is poor. In agricultural products, generally, standards concerning quality and size are set by each shipping organization, such as agricultural co-operatives. In the Minabe-Tanabe region, a unified shipping standard for shira-umeboshi has

been determined by the industry. There are four grades (A to D) according to the number of marks and spots on the fruit and softness of the flesh, and seven grades (5L to S) according to the weight of one fruit. The quality and size of shira-umeboshi required by the ume-boshi manufacturer on the demand side varies according to the targeted market, such as A-class 4L for gifts.

The Function of Long-Term Continuous Business Partnerships

(1) The Minabe-Tanabe Region

The ume yield varies greatly by production year. Ensuring the purchase of raw materials becomes difficult when there is a bad harvest. In the Minabe-Tanabe region, regardless of the year's harvest, manufacturers wanted to continue business with as many partners (farmers, wholesalers and agricultural co-operatives) as possible in preparation for a bad harvest year. Ume-boshi manufacturers did business directly with nearby farmers, not through wholesalers.

Ume-boshi manufacturers bought shira-umeboshi directly from farmers, and the transaction was long-term and ongoing. This can be regarded as long-term continuous outsourcing of primary processing to farmers.

Ume-boshi manufacturers purchased shira-umeboshi of all qualities and sizes from farmers every year, regardless of a good or bad harvest. In a good harvest year, even though oversupply caused the market price to fall, the purchase price was determined by considering farmers' profits. Although agricultural products can vary individually and fruit of various quality is harvested from one tree, ume-boshi manufacturers purchased an entire quantity from farmers regardless of grade. Still, the purchase price was determined each production year by negotiations between farmers and manufacturers. Although the quality and size of the required shira-umeboshi differed depending on the targeted market, ume-boshi manufacturers purchased a single, whole amount from farmers even when they didn't need all of it, for example, the best quality, class-A, big-size shira-umeboshi. Since ensuring the purchase of raw materials became difficult when there was a bad harvest, ume-boshi manufacturers needed to maintain a long-term

continuous business relationship with farmers regardless of the success or failure of the harvest, and so the purchase of the entire amount of shira-umeboshi had become a condition of long-term continuous business. If ume-boshi manufacturers had bought only materials of the necessary quality, farmers would have had to look for other buyers for the remainder of their products. Thus the purchase of the whole amount was beneficial to farmers.

If ume-boshi manufacturers did not buy all raw materials directly from farmers but from the market, in order to procure the necessary amount at the time of a bad harvest setting the purchase price higher than the market price would become necessary. Additionally, ume-boshi manufacturers with no purchasing power could not get enough supply of raw materials and could not produce products and would run out of stock. In such a case, their contracts with sellers would have to be cancelled and eventually they would have to face the danger of bankruptcy. Shira-umeboshi can be carried through until the following year and ume-boshi manufacturers thought that it was necessary to always maintain a certain amount of stock in preparation for a bad harvest year.¹⁰⁾

Although ume-boshi manufacturers bought the whole amount of shira-umeboshi of all qualities and sizes directly from farmers, the qualities and sizes of shira-umeboshi they needed were different depending on the targeted market. Some amount of shira-umeboshi also became unnecessary while some grades and sizes ended up in short supply. In such cases, transactions between peers made up for the short supply. These peer transactions consisted mainly of spot trades conducted when necessary in the event of oversupply.

The fluctuation of the supply amount due to the natural environment is the uncertain factor for both farmers and ume-boshi manufacturers. Ume-boshi manufacturers promised long-term business partnerships with farmers on the condition that they purchase the whole amount and so this long-lasting transaction could respond to the risk of a shortage of raw materials in a bad harvest year.

(2) Wakasa, Fukui

Farmers in Wakasa commissioned sales of ao-ume to agricultural co-operatives. Only large-scale

farmers did primary processing and most farmers did not conduct primary processing but instead sold them as ao-ume (see Figure 1). In Wakasa, there were no direct business relationships between farmers and ume-boshi manufacturers.

In Wakasa, agricultural co-operatives commission sales for each farmer, and each farmer is also a member of the co-operative and sells products to consumers. Agricultural co-operatives receive fees according to the sales amount. The agricultural co-operative's sales business is based on the structure of Japanese agriculture, of which relatively homogeneous and small-scale farmers make up the majority. They are in charge of the non-production parts of agriculture businesses (supply of production materials, distribution of products, etc.) and pursuing profits.

When a farmer, a member of the co-operative, commissions the agricultural co-operative to sell his or her products, he or she usually does not specify when, at what price and to whom to sell and leaves these matters to the co-operative. Since agricultural products are of varied quality, price differs depending on when and to which wholesale market they are shipped. But agricultural co-operatives determine the price of the agricultural products of the same quality shipped by the co-operative members during a certain period of time by averaging the price, thus enabling farmers to run their businesses stably without being affected by price fluctuations due to the timing of shipping or the specific conditions of individual markets.

Agricultural co-operatives cannot refuse commissions made by member farmers without reasonable grounds. However, transactions between agricultural co-operatives as an economic entity and consumers depend on price competition like bidding, and in the years of a good harvest the price falls sharply. Since ao-ume is fresh fruit unable to be stored for a long period of time, the shipment volume of ao-ume cannot be adjusted. As a result, the amount of money paid to co-operative member farmers in good harvest years can be extremely small.

There were no measures in place to cope with a drop in price in good harvest years like the ones put in place in the Minabe-Tanabe region.

Promotion and Suppression of Competition among Farmers in Producing Districts

(1) The Minabe-Tanabe Region

In the Minabe-Tanabe region, there was no core company, nor promotion of competition among farmers led by such a company. There were no unwritten rules that suppress excessive competition either. Wholesalers in producing districts played a role in promoting competition among farmers, while agricultural co-operatives assumed a role in the suppression of competition.

(a) Promotion of Competition

In the Minabe-Tanabe region, while direct transaction with farmers was considered important, ume-boshi manufacturers chose to purchase through wholesalers and agricultural co-operatives to reduce the cost of distribution and price negotiation. Transactions with wholesalers and agricultural co-operatives were more convenient for purchasing products of the required quality and quantity. Ume-boshi manufacturers claimed that, wholesalers and agricultural co-operatives were necessary, especially for procuring the required quantity.

As the amount of ume-boshi production increases, in order to cope with the mass consumption of supermarkets, procuring the necessary quantity becomes vital for manufacturers. Though ume-boshi manufacturers needed to maintain business with multiple suppliers to reduce the risk of a shortage of raw materials in the year of a poor harvest, there was a limit to the number of farmers they could trade with directly. As the amount of their product increased, procurement of raw materials only from individual farmers became impossible. Thus, transactions with wholesalers have become an indispensable element in producing districts.

Wholesalers introduced severe principles of price competition into producing districts. They bought shira-umeboshi of varied grades and sizes from farmers, secured the required amount of grades and sizes of shira-umeboshi and sold them to manufactures. Wholesalers profited from the balance of the purchase price and the sales price and did not consider farmers' profits.

Since ume are not industrial products, their

qualities and sizes vary. It is not possible for farmers to produce only ume of the required quality and size. Thus, wholesalers buy raw materials of various qualities and sizes from farmers, and sell only those of the required quality and size to manufacturers (buyers) in the required quantity. In the Minabe-Tanabe region, wholesalers moved widely throughout the producing districts and collected information about the demand of manufacturers in terms of what amount, which grade and size they needed.

What prompted the emergence of wholesalers in the Minabe-Tanabe region was the large increase in ume-boshi consumption in the 1980s. Against the backdrop of a health food boom in the 1980s, ume-boshi manufacturers improved their pickling and seasoning techniques, and started developing low-salt ume-boshi. With the improvement of products, the old image of ume-boshi changed greatly and it has since become popular among people of all ages and, as a result, consumption of ume-boshi has increased. In response to the increase in demand, the number of wholesalers handling shira-umeboshi in producing districts has also increased.

(b) Suppression of Competition

Agricultural co-operatives played a role in suppressing competition. In transactions between farmers and agricultural co-operatives, the latter purchased all the shira-umeboshi that member farmers wanted to sell. And agricultural co-operatives sold only the shira-umeboshi of required grades and sizes to buyers. Ume-boshi manufacturers considered agricultural co-operatives to be one of the local wholesalers. The way farmers of the Minabe-Tanabe region did business with agricultural co-operatives was different from that of Wakasa farmers. In Wakasa, farmers and the agricultural co-operatives made sales commission contracts, while in the Minabe-Tanabe region, agricultural co-operatives and their member farmers made sales contracts. In the Minabe-Tanabe region, agricultural co-operatives purchased shira-umeboshi from farmers and decided the price on the spot. Though agricultural co-operatives traded with each farmer separately, they did not refuse to purchase products from member farmers. As a result, competition

among farmers was suppressed.

(2) Wakasa

Farmers in Wakasa commissioned sales of ao-ume to agricultural co-operatives. Since agricultural co-operatives sold commissioned ao-ume all together, farmers were unable to know to whom their ao-ume had been sold. Agricultural co-operatives did not refuse sales commissions from member farmers without reasonable grounds. Thus, agricultural co-operatives had to always secure customers.

In this way, farmers in Wakasa were dependent on agricultural co-operatives. There was no fear of rejection of sales commissions by agricultural co-operatives, and competition among farmers was suppressed.

Table 5 shows the continuity of transactions and the presence or absence of competitive pressure on farmers in both regions. In the Minabe-Tanabe region, in the case of transactions between farmers and ume-boshi manufacturers, and transactions between farmers and wholesalers, business entities can almost freely change their trading partners. Farmers were afraid that they might someday be replaced by other farmers. On the other hand, in the transaction between agricultural co-operatives and farmers, agricultural co-operatives did not refuse purchase or sales commissions from member farmers without reasonable grounds, and there was no competitive pressure on farmers. Thus, there was no competitive pressure for Wakasa farmers who commission sales to agricultural co-operatives, while the Minabe-Tanabe farmers constantly felt such anxiety.

DISCUSSION

In addition to the risk of being affected by the natural environment, agriculture also faces the risk of excessive competition. The above case analysis shows that network-style transactions were set up by farmers, manufacturers, wholesalers and agricultural co-operatives, and have been in place in the Minabe-Tanabe region for a long period of time. This case presents a mechanism built into a network for the purpose of share the risks of supply fluctuations, and it was demonstrated that moderate competition was maintained. All of these aspects

Table 5: Continuity of transactions and competitive pressure on farmers

	Minabe-Tanabe region					Wakasa
Transaction	Between farmers and ume-boshi manufactures	Between ume-boshi manufacturers	Between farmers and wholesalers	Between whole-salers and ume-boshi manufacturers	Between agricul-tural co-opera-tives and farmers	Between agricul-tural co-opera-tives and farmers
Continuity of transaction	Long-term continuous	spot	Long-term continuous / spot	Long-term continuous / spot	Long-term continuous	Long-term continuous
Freedom of entry and exit	Can change trading partners to some extent	Can change trading partners freely	Can change trading partners freely	Can change trading partners freely	Agricultural co-operatives do not refuse to buy from member farmers	Agricultural co-operatives do not refuse sales commissions from member farmers
Competitive pressure on farmers	Exist (Potential competitive pressure)	-	Exist	-	Not exist	Not exist

Source: Made by the author

contributed to make the management of local Japanese industry more stable in the medium term.

Risk Sharing Mechanism

In the Minabe-Tanabe region, network-style transactions were set up by farmers, manufacturers, wholesalers and agricultural co-operatives, and have been in place for a long period of time (see Figure 2).

Since the ume harvest season is once a year and the yield fluctuates year by year, the supply quantity cannot be adjusted in response to demand. In good harvest years, due to oversupply, there is the risk that farmers cannot secure buyers. In poor harvest years, due to a shortage of supply, there is the risk that manufacturers cannot procure raw materials. Unlike industrial products, each ume fruit is different in size and quality and producing only what is required by the demand-side is impossible.

Transactions between farmers and ume-boshi manufacturers in network-style transactions [(1) in Figure 2] were long-lasting. In the Minabe-Tanabe region, ume-boshi manufacturers promised long-term business partnerships with farmers on the condition that they purchase all qualities and sizes of half-finished shira-umeboshi. Thus, manufacturers can manage the risk of not being able to procure raw materials in bad harvest years while farmers can manage the risk of not being able to secure buy-

ers in good harvest years.

Ume-boshi manufacturers in the Minabe-Tanabe region had to accept the risk of overstock by purchasing shira-umeboshi of all qualities and sizes from farmers including the unwanted fruit. To solve this problem, ume-boshi manufacturers adjusted the excess and deficiency of raw materials through cooperation with other manufactures. In the Minabe-Tanabe region, through direct trade with farmers, ume-boshi manufacturers bought shira-umeboshi of all qualities and sizes. Since the required qualities and sizes of shira-umeboshi were diverse depending on their targeted markets, some of the shira-umeboshi became superfluous, while some grades and sizes were insufficient. These excesses and deficiencies were minimized among fellow manufactures.

In this way, these two mutually dependent processes created a mechanism of shared risk, whereby direct trade between ume-boshi manufactures and farmers ensured steady trade, and cooperation among manufacturers ensured even distribution.

The mechanism of sharing the risks imposed by the natural environment cannot function when there is only a transaction between farmers and manufacturers. Agriculture being affected by the natural environment is an uncertainty factor in business for both farmers (suppliers) and ume-boshi manufacturers. It is important not to place

the burden of risk entirely on the farmers.

The risk-sharing mechanism was not controlled by the strongest in the industry. Since the risk is unpredictable and uncontrollable, neither farmers nor ume-boshi manufacturers can take the initiative in the transaction over a long period of time. For ume-boshi manufacturers, promising to buy a whole amount from farmers, and for farmers, promising long-term trade with ume-boshi manufacturers, was the most reasonable way to cope with risks and make a profit.

In Wakasa, there was no direct trade between farmers and ume-boshi manufacturers. Farmers commissioned all sales of ume to agricultural co-operatives. Unlike in the Minabe-Tanabe region, no measures were taken in response to a decline in sales prices in good harvest years. Facing the risks of the natural environment, they did not take any action.

The reason why farmers did not trade directly with ume-boshi manufacturers was historically based. The majority of farmers in Wakasa did not process primary products but sold them as ao-ume. Ao-ume harvested in Wakasa have been sold to Kyoto restaurants since around 1922, and have been highly valued because of their excellent quality. So, even when agricultural co-operatives proposed processing them as shira-umeboshi, farmers preferred that they sell them as fresh plums. Because they adhered to their past successful experiences, the scope of their business could not expand.

Repression and Promotion of Competition among Suppliers in the Producing District

In network-style business relationships in the Minabe-Tanabe region, agricultural co-operatives and wholesalers took mutually complementary roles of suppressing and promoting competition. Both intervened between production and demand (see Figure 2). Wholesalers contributed to the promotion of competition among farmers while agricultural co-operatives contributed to the suppression of competition. A severe principle of price competition was introduced by the existence of wholesalers. In the trades between farmers and agricultural co-operatives, agricultural co-operatives bought all the shira-umeboshi farmers wanted to sell. Although agricultural co-operatives traded

with each farmer separately, they did not refuse to buy from member farmers. As a result, competition among farmers was suppressed.

In this way, a mechanism of promoting moderate competition and suppressing excessive competition has contributed to making the management of local Japanese industry more stable in the medium term. Kagono (2007) already pointed out the importance of maintaining moderate competition and of suppressing excessive competition. There, the existence of “unwritten law” was emphasized as a mechanism for controlling the risk of excessive competition. However, there was no unwritten law of competition in the Minabe-Tanabe region. As shown in this paper, agricultural co-operatives and wholesalers took mutually complementary roles of suppressing and promoting competition.

In the Minabe-Tanabe region, as the amount of production increased, wholesalers emerged in response to the needs of ume-boshi manufacturers. Farmers might not actively choose to trade through wholesalers but they were a necessary mechanism, for ume-boshi manufacturers and farmers also made use of the mechanism to enhance the market value of their products. On the other hand, agricultural co-operatives, functioning in the repression of competition, have started dealing shira-umeboshi in response to the needs of member farmers. The existence of both wholesalers and agricultural co-operatives had contributed to maintaining moderate competition and suppressing excessive competition in the producing districts as a whole.

In Wakasa, farmers commissioned sales of all their agricultural products to agricultural co-operatives. There was no fear of co-operatives refusing the sales commission, and competition among farmers was suppressed because the co-operatives placed importance on treating their members' products equally. As a result of farmers' commissioning the sales of all products to agricultural co-operatives, the risks of competition were all concentrated on agricultural co-operatives, which have to find buyers.

CONCLUSION

From the comparative analysis of the Minabe-

Tanabe region with Wakasa, which aims to clarify the mechanism for a more stable management of local Japanese industry in the medium term, the following two points have become clear.

First, in order to make management of local Japanese industry more stable, creating a mechanism of risk-sharing among trading entities is critically important. In the cases discussed in this paper, network-style transactions have been in place in producing districts among farmers, manufacturers, wholesalers and agricultural co-operatives for a long period of time. Additionally, a mechanism for sharing the risks of supply fluctuation was built into the network-style transactions. It is not possible to stop growing agricultural products altogether and then resume production again at a convenient time. Although planned production and quality control are a matter –of course in industrial production, they are difficult in agriculture. Furthermore, since the lead time to reproduction in agriculture is longer than that of other manufacturing industries, it is necessary to design a mechanism for sharing profits and risks over a long span of time.

Such a mechanism for risk sharing function when transactions between food manufacturers and farmers (suppliers), and coordination between food manufacturers (among peers), work in tandem. These transactions within producing districts are mutually interdependent. The nature of agriculture being affected by the natural environment concerns both farmers and manufacturers as an uncertainty factor for management. It is important not to place the burden of risk entirely on farmers.

Secondly, eliminating the competition among suppliers altogether does not contribute to making the management of local Japanese industry more stable. In the case of the Minabe-Tanabe region, farmers (sellers) were able to secure buyers even in a time of over-supply in a good harvest year by cooperation among ume-boshi manufacturers, complementing a deficiency or excess of raw materials. It is important that under potential competitive pressures where someday other farmers might replace them, farmers choose to trade directly with manufacturers, and that these relationships with buyers enable the mutual sharing of risk.

The average age of core persons engaged mainly in commercial farming households in Wakayama

Prefecture is 66 years old.¹¹⁾ In Minabe-Tanabe area, the population is continuing to age and management succession and human resource development are important issues. Analyses focusing on human resource development and development systems of management will be an issue in the future.

NOTES

- 1) Ministry of Agriculture, Forestry and Fisheries, Census of Agriculture and Forestry, 2015.
- 2) A GIAHS is defined by the FAO as a remarkable land use system and landscape with globally important and traditional agriculture, forestry, or fishery. As of 2020, the FAO has designated 62 regions in 22 countries, and 11 regions in Japan as a GIAHS.
- 3) It is possible that one farm household may be producing more than one crop. In addition, some farmers in Tanabe City, Minabe Town and Wakasa Town do not produce ume. Therefore, in order to calculate the percentage of Business farm households, data for each district within Tanabe City, Minabe Town and Wakasa Town were checked, and those districts where less than half of the total number of farmers produces ume were excluded.
- 4) The contents of this section modified partly by Nishida (2018).
- 5) The number of ume farms in Wakasa is about 140 (Ministry of Agriculture, Forestry and Fisheries, Census of Agriculture and Forestry, 2015), and ume-boshi manufacturers is one.
- 6) For example, according to “Kami-Minabe Magazine,” “the Minabe Ume Processing Association” was formed in 1926. The purpose of establishing the association was to enable the farmers themselves to carry out primary processing, and to teach them how to process ume, as they believed that the traders should not be allowed to monopolize the profits. This initiative would spur similar movements in many other areas around the region and the country.
- 7) The number of Minabe-Tanabe ume farmers is about 3,100 (Ministry of Agriculture, Forestry and Fisheries, Census of Agriculture and

- Forestry, 2015), the number of ume-boshi association member manufacturers is about 80, and the number of wholesalers is about 40.
- 8) According to the 2015 Census of Agriculture and Forestry in Japan, Minabe-Tanabe area accounted for 83% of the total ume producing areas in Wakayama Prefecture, and Wakasa Town accounted for 75% in Fukui Prefecture. Based on these facts, it can be inferred that the highest production and shipment volume in Wakayama and Fukui prefectures comes from the Minabe-Tanabe area and Wakasa Town.
 - 9) The Kishu Agricultural Cooperative, which covers sales in Minabe Town, has been dealing in shira-ume boshi (salt-pickled ume) for 40 years. However, compared to the Kinan Agricultural Cooperative which covers sales in Tanabe City, the amount of shira-umeboshi dealt in Minabe Town was very low. Later, by increasing demand from the members of the Kishu Agricultural Cooperative, the cooperative started dealing with local ume processors from around 2011, and the amount of shira-umeboshi production increased. From this fact, we learn that as of 2002 and 2003, the share of sales to agricultural cooperatives differed greatly between Minabe Town (3% in 2002) and Tanabe City (36% in 2003).
 - 10) In the primary processing, ume are pickled with 20% of salt, which allows them to be stored for at least two years.
 - 11) Ministry of Agriculture, Forestry and Fisheries, Survey on Movement of Agricultural Structure, 2018.
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