

Spatial and Temporal Dimensions of Collaborative Interfirm Relationships in the Taiwanese Rice Industry

Han, I*

Department of International Trade, Feng Chia University, Taiwan

Chuang, Cheng-Min

Department of International Business, National Taiwan University, Taiwan

This paper presents important dimensions of collaborative interfirm relationships in spatial geography and temporal cross-generational ties between economic actors. Based on field studies utilizing in-depth long interviews with 20 rice processors in Taiwan, we find that the history of the Taiwanese rice industry presets the formal and informal institutions for developing collaborative activities bounded by spatially defined localness and temporally defined cross-generational ties. Particularly in the post-WTO regime, participants in the rice industry move towards cooperative contracting collaboration to secure their survival by differentiated products. Underlying this trend, spatial and temporal dimensions of relationships play an even more critical role in enhancing collaborative stability and performance.

Keywords: spatial localness, temporal cross-generations, Taiwanese rice industry

JEL classification: M19, Q13

1 Introduction

Rice is the major food source in Asian societies. Before Taiwan joined the World

Received November 5, 2013, revised November 27, 2013, accepted December 10, 2013.

*Correspondence to: Department of International Trade, Feng Chia University, 100, Wenhwa Road, Taichung, Taiwan 407. Phone: 886 4 2451 7250 Ext.4269. Fax: 886 4 2451 0409. E-mail: ihan@fcu.edu.tw. The authors would like to thank the National Science Council for research grant NSC100-2410-H-035-046, and the reviewers and conference participants of the 2011 Academy of International Business Southeast Asia Regional Conference, Taipei for their comments.

Trade Organization (WTO) in 2002, rice served as a major commodity in Taiwan's domestic food market. In the post-WTO regime, with cost-competitive rice imports, domestic rice production was expected to become unsustainable given the high production costs. However, the domestic rice product market has led to more differentiated products with multiple features of choices, having been transformed from the past solely price-driven commodity market.

What has resulted in this transformation? What are the underlying forces? In this study, we explore the questions based on qualitative field research for the Taiwanese rice industry to construct a new theoretical concept to explain the research inquiry (Eisenhardt, 1989). Considering the logical shift of collaborative patterns to fulfill the requirements of differentiated rice products from the past tradition of the pure price competition of rice commodities, is there any additional factor driving the most efficient models into different forms of collaborative interfirm relationships? Moreover, is there any specific factor shaping the collaborative pattern of the rice production in Taiwan regardless of the trade market openness in the post-WTO regime? In addition, if there is, is it playing a more or less critical role in the different scenarios with regard to trade openness?

The foundations emerge, evolve, and re-enforce geographically-based local forces, playing distinct roles in shaping efficient forms of rice-farming and rice-processing interfirm collaborative activities before and after becoming part of the WTO regime. Efficient collaborative forms have changed from a 100% traditional arms-length model towards the new trend of cooperative contracting models in the post-WTO era. It is estimated that the nearly 100% growth of the cooperative model according to the farm size occurred between 2005 and 2008.

Through this study, we find that geographically-fragmented phenomena based on spatial constraints and temporal traditions might act differentially in terms of degrees and forms in each region in shaping the efficient collaborative interfirm arrangements. The accession to the WTO became the milestone of the rice industry's evolution from a dynamic point of view. This makes the spatially defined localness and temporally defined cross-generational ties even more important in some collaborative interfirm relationships than in others. Compared to a large number of studies regarding the importance of physical assets, human resources, and technology investments in collaborative interfirm relationships (*e.g.*, Ahuja, 2000;

Combs & Ketchen, 1999; Eisenhardt & Schoonhoven, 1996; Gatignon & Anderson, 1988; Hennart & Park, 1993; Kim & Hwang, 1992; Poppo & Zenger, 1998; Srinivasan & Brush, 2006), the spatial and temporal dimensions were only limitedly explored and in few studies (Dyer, 1996; Masten, Meehan & Snyder, 1989), especially when these two dimensions were studied at the same time.

The remainder of this paper is organized as follows. In Section 2, we review the literature on collaborative interfirm relationships. In Section 3, we move to explore the institutions' foundations in both formal and informal respects from a historical point of view of Taiwan's rice industry. In Section 4, we expand these foundations to study the economic and social aspects of the Taiwanese rice industry specifically in regard to spatial constraints and temporal traditions in combination with institutional foundations and geographically fragmented phenomena. In Section 5, we explain the method used in this qualitative study within the context of the research and data collection. Afterwards, we present our main qualitative findings in Section 6, in terms of the major institutional divisions of the WTO turning into different models of collaborative interfirm relationships when the post-WTO environment turns an increasingly large number of models from traditional arms-length models towards cooperative contracting. In the same section, we discuss the importance of the spatial dimension of localness and the temporal dimension of cross-generational linkages within collaborative interfirm relationships. We further develop a theoretical concept of local embeddedness at the end of this section. Finally, we conclude this study with research implications, limitations and future directions, as well as the conclusion.

2 Collaborative Interfirm Relationships

The subject of collaborative interfirm relationships has been very popular for decades both in industrial practice and academic studies. In relation to this topic, all kinds of exchange actions and interactions between two or more firms/actors are dealt with, from traditional contracts involving arms-length transactions, to long-term contracts, and to equity involving collaborative arrangements (Yoshino & Rangan, 1995).

Several theoretical lenses provide various angles to study which reasons

determine the managerial choices in collaborative interfirm relationships. Transaction cost economics (Williamson, 1975, 1979) has been one of the most powerful theories for explaining the importance of specificity in tasks, partners, and transactions, and their consequences in collaborative interfirm relationships. Exchange activities can be conducted only through a contractual process, or through partial or full internalization, whichever is relatively efficient. When the investment for exchange is idiosyncratic and it is difficult to redeploy alternatives, the arms-length transaction of the idiosyncratic asset is hazardous and thus needs a longer exchange process of bargaining, contracting, and coordination (Williamson, 1979).

Masten, Meehan and Snyder (1991) and Williamson (1985, 1991) demonstrated six forms of specificity in collaborative interfirm relationships, including site specificity, human-asset specificity, physical asset specificity, brand name capital, dedicated assets, and temporal specificity. A large number of past studies verified the importance of physical assets, human resources, brand capital, and dedicated assets such as technological R&D in collaborative interfirm relationships (*e.g.*, Ahuja, 2000; Combs & Ketchen, 1999; Eisenhardt & Schoonhoven, 1996; Gatignon & Anderson, 1988; Hennart & Park, 1993; Kim & Hwang, 1992; Poppo & Zenger, 1998; Srinivasan & Brush, 2006). However, the spatial and temporal dimensions regarding site and temporal specificity were limitedly explored. Within the limited number of studies, spatial site determinants were revealed in the natural resource industries (Joskow, 1987; Masten & Crocker, 1985), the construction industry (Masten *et al.*, 1991), the auto industry (Dyer, 1996, 2000), the naval shipbuilding industry (Masten, *et al.*, 1991), and the aerospace industry (Masten, 1984). On the other hand, temporal determinants were found to be critical in the construction industry (Masten *et al.*, 1991) and the shipping industry (Pirrong, 1993). In this study, we intend to demonstrate that both spatial and temporal dimensions matter in collaborative interfirm relationships, not just from an economic perspective but also from institutional and social perspectives.

3 Institutional Foundations

3.1 Formal Institutions

The rice industry was historically protected and controlled by the government for national security reasons as early as World War II (WWII), or the end of the period of Japanese rule in Taiwan. Rice industry participants were required to supply the food to national armies and to maintain the security level of the food inventory. Rice production in Taiwan used to be under the tight control of the authorities. Even in recent decades, compared with other forms of industrial production or even agricultural food production, rice production was still subject to more constraints imposed by the authorities in order to maintain a stable food price and to reserve enough rice stocks for national security.

The major Taiwanese food policies from the post-WWII era to the accession to the WTO were institutionally important, especially regarding the Food Area System, reorganizing Farmers' Associations (FAs), and Public Grains Warehousing Commissioning. These major policies established a local trade delivery system for rice. Farmers were assigned to whom and where they should deliver the harvest. In particular under the regulation of the seven food areas Food Area System policy launched in 1946, some processors remember the guard station at each bridge that was intended to strictly prohibit any rice from crossing the river. In addition, the reorganization of the FAs policy in 1949 established the deep dependency of local farmers for an FA's multifunctional services. At the time of the opening of the public grains warehouses to non-FA commissioning in 1964, some local farmers shifted to non-FA processors to deliver the public grain, but still within a local territory.

In addition to the above three policies contributing to the local trade delivery system, the most influential policies that contributed to the fragmentation of pieces of farming land were the following: the Public Land Leased policy of 1947, the Of Arable Land Rent Reduction Ordinance 375 policy of 1949, and the Land-to-the-Tiller policy of 1953. These land policies had a formal institutional impact on small-scale farming, with an average of 1.13 Taiwanese *ha* (a Taiwanese *ha* roughly equals one hectare) per farm household in more recent years. In addition, these land policies re-enforced the foundation of informal institutions of cognitive recognition in relation to landownership.

The Taiwan government has invested a lot of resources in promoting and stabilizing rice production activities. However, the supranational regime of the WTO launched in 2002 caused another division of dramatic changes in the rice industry.

Globalization trends under the WTO regime had a huge institutional impact on rice production activities. The dramatic changes in this industry still have an impact on the geographically fragmented forces.

3.2 Informal Institutions

Informal institutions fostered the belief of keeping landownership across family generations. The resistance to move has informal roots. Farmers earn their living from the land. Land is absolutely immobile, as are the many farmers and their past generations. It creates feelings of belonging to the land, which causes the farmers to like to see the land day after day, even until the day they are too old to farm anymore. The land is like one of the family members to them. Unless there is sufficient reason to force them to leave, most farmers prefer to stay on their land property for life. This traditional mentality of immobility is actually a kind of informal institution emerging within the stable agricultural society of Taiwan.

Even nowadays, when a large number of the young generation move out from the rural areas into the metro cities to make a living in the secondary or service sectors, many of them tend to go back to the location where they were born after retirement. Those people who left their birthplaces for jobs or business opportunities are likely to come back to their birthplace after retirement. The traditional mentality regarding farmland property and the sense of belonging there is akin to the phenomenon of “salmon swimming back home.” There is a place for belonging in one’s mind. For people in the agricultural sector, such a place is the farm land, the location which provides food, living, wealth, and familiarity. The land is a family inheritance across generations.

4 Economic and Social Foundations

4.1 Spatial Constraints

Regardless of formal institutional foundations, the economic activities of rice farming and processing are constrained by spatial distances. In the old days, farmers dried the harvested wet grain themselves. Then, they chose a time when they wanted

to sell the grain through human-powered vehicles. In modern times, when processors take up the task of grain drying, there is also the constraint of the time limits of a harvest delivery. The wet harvested grain needs to be dried within hours. Thus, the harvest delivery spot cannot be far away. The economic spatial constraints make the rice farming and processing interfirm collaborative activities that are co-located in the neighborhood sites. The average delivery distance is usually within several kilometers.

4.2 Temporal Traditions

Rice-farming activities are seasonal-based. There are specific times according to the lunar calendar for each of the farming stages, from soil preparation, planting, fertilizing and spraying, to harvesting. In addition, based on the geographical region, this timing is adjusted within a range. The southern and low-latitude regions are always the areas to be harvested the earliest. The northern and high-latitude regions are always the last to be harvested. The temporal traditions in each region differ in accordance with the seasonal activities.

Social linkages have emerged and evolved from the long history of the rice industry. Most farmers and processors are embedded temporally, not only by their family-based jobs but also by the community-based local activities. The typical lives of people in the rural country areas are connected by generations of families and households within the same community. The temporal embeddedness of traditions emerges and evolves within a community or a township. The social barrier toward a non-local people or another township is quite high. Thus, the local-based economic activities create a barrier to non-local people. Many farmers recognize that the local–non-local geographical boundary is cut at or below the township level.

5 Method

Qualitative methodology is a good way of exploring new theoretical concepts that have been missing in past studies. In particular, through multiple sources of data collection and comparison, theories can be built based on insights (Eisenhardt, 1989). We combine multiple approaches to qualitative studies in order to balance the

different perspectives among the industry stakeholders. In the formal interview sessions, we adopted the long interview method (McCracken, 1988) through deep exploration with the help of selected key informants with special knowledge of the Taiwanese rice industry. The selection criteria of the key informants were based on their general awareness in each major rice production region across the island. The interviewees were the key executives of the processors. Most of them were the general managers of family-owned non-FA processors or factory chiefs of FA processors. According to McCracken (1988) and Woodside (2010), the features of a typical long interview include a two- to six-hour face-to-face interview in his or her life space related to the research topic with a tape recording of responses. In addition, the verification of responses is required.

5.1 Research Context

Rice farming in Taiwan accounts for the largest population of agricultural participants. There were 230,710, accounting for 31 percent of all agricultural households, such participants in 2007. In addition, rice farming is the most important form of agricultural production in terms of land area covered. The total rice farming land spanned 260,159 *ha* in 2007, accounting for 32 percent of the total farming land in Taiwan (2008 *Annual Report of Agriculture and Food Agency*).

The accession to the WTO became the milestone along the historical evolution of the industry from a dynamic view, which was observed to make collaborative interfirm relationships between rice farmers and processors more cohesive in some regions than in others. Taiwan joined the WTO in 2002. There was a time when we witnessed numerous media reports of farmers protesting against the WTO. This happened not only in Taiwan but also in other small-scale farming countries. Heckscher-Ohlin trade theory states that globalization kills inefficient domestic production. If this is the case, it is just like the huge number of studies conducted before 2002, which consistently expected a miserable future for Taiwan's rice industry. The same thing happened with the rice industry participants, because under market protection, the small-scale rice industry in Taiwan has historically faced higher costs of production than that in many other countries.

“During the years approaching 2002, I did not dare invest in any facilities. I

was afraid, as with all other people here, that rice farming and processing would disappear after accession to the WTO.” (JS)

Through the field study conducted between 2007 and 2012, the milestone of WTO accession was identified as the division between the divergent patterns of collaborative inter-firm relationships between farmers and processors across regions. Some of those relationships became even tighter in order to enhance rice quality in differentiated markets. On the contrary, others became looser when farmers searched for the best available market price across traditional geographical boundaries during harvest time. The area of geographical location mattered to the division of collaborative activities. However, a “geographical location” *per se* does not matter much. It is the institutional environment and the existing embedded relationships which make a geographical location matter.

5.2 Data Collection

In this qualitative study, the major sources of data collection included formal long interviews and informal interviews during dining and social activities. In the formal long interviews, we conducted in-depth face-to-face interviews with 20 representative processors in Taiwan between 2007 and 2012. Some of the processors were interviewed more than once. By adopting unstructured interviews, interviews were conducted via open-ended questions and interactive follow-ups. There were no major guidelines in order to maintain an informal atmosphere. Thus, interviewees were willing to share. In the informal interviews, we had different levels of frequencies in each venue to join in the conversations with the rice processor as well as a number of rice farmers. Table 1 lists the outlines of the formal and informal interviews to show the multiple sources of different important actors in the industry in order to perform the cross-validation check. In addition, we also gathered more information from other stakeholders in the rice-farming societies during those informal interviews based on social activities, which included local elites, local residents, and tourists in the local area.

In the formal long interviews, we usually started with a question such as: “please tell us you and your family’s business history in the industry.” During the interactive informal conversations, we usually included questions such as: “What do

you think are the major milestones in the industry and in the business? Why? And how do they make you, your business, and your collaborative farmers different?” Overall, we were especially interested in asking about their interfirm collaborative relationships with rice farmers.

We basically asked questions about their real experiences based on past and present industry conditions, some important turning points, and interfirm relationships with farmers from a longitudinal point of view. Each interview took at least one and a half hours. Half of the interviewees were interviewed for over four hours. The main topics covered included the past history and industry experience, challenges and milestones, interfirm relational details with farmers, and structural mechanisms in the local community and in the industry. All interviewees knew a great many details and were willing to tell us as much as they knew, with the only exception being their confidential business figures such as their grain/rice inventories and exact financial figures. We paid attention to the epistemological and ontological underpinnings by referring to Guba and Lincoln (1994) to incorporate our interview data transcript in our analytical process along with the nature of the reality (ontology), the nature of knower and known (epistemology), and how this research can lead to the findings (methodology).

Table 1: Sources of Data Collection

Formal long interviews						
Region	Location	Processor	Product Categories	Size	Number of Interviews	Hours of Interviews
West/ North	Yuanli, Miaoli	CS	Full	Large	2	4
West/ Central	Tachia, Taichung	TFA	Niche & Organic	Medium	2	4
West/ Central	Wurih, Taichung	RF	Niche	Small	1	3
West/ Central	Wufeng, Taichung	WFA	Niche	Medium	2	8
West/ Central	Pitou, Changhua	UR	Full	Large	1	2
West/ Central	Erlin, Changhua	LS	Niche	Medium	2	5

Formal long interviews						
Region	Location	Processor	Product Categories	Size	Number of Interviews	Hours of Interviews
West/ Central	Pusin, Changwua	DC	General	Small	1	2
West/ Central	Hsilo, Yunlin	YD	Full	Large	2	6
West/ Central	Hsilo, Yunlin	SFA	Niche	Large	1	1.5
West/ South	Taipao, Chiayi	TFA	Niche & Organic	Small	1	2.5
West/ South	Houbi, Tainan	LF	Niche	Medium	2	5
West/ South	Houbi, Tainan	HFA	Niche	Small	1	3.5
West/ South	Houbi, Tainan	FR	Niche	Medium	2	6
East/ North	Sansing, Yilan	SD	Organic only	Small	1	3.5
East/ North	Wujie, Yilan	JFA	Niche	Medium	1	3.5
East/ Central	Fuli, Hualien	YC	Organic only	Small	3	6
East/ Central	Fuli, Hualien	FFA	Niche	Medium	2	5
East/ South	Chihshang, Taitung	JS	Niche & Organic	Medium	5	12
East/ South	Chihshang, Taitung	CFA	Niche	Medium	1	2.5
East/ South	Chihshang, Taitung	CX	Niche & Organic	Small	1	4
Informal interviews (during dining or social activities)						
Region	Location	Processor	Number of farmers	Activity	Contact frequency	Hours of activities
West/ Central	Wufeng, Taichung	WFA	100	Harvest delivery	Medium	6
West/ Central	Erlin, Changhua	LS	55	Dinner	High	3

Informal interviews (during dining or social activities)						
Region	Location	Processor	Number of farmers	Activity	Contact frequency	Hours of activities
West/ Central	Hsilo, Yunlin	YD	62	Farmers' meeting	Low	2.5
West/ South	Houbi, Tainan	FR	5	Home visit	High	2
East/ Central	Fuli, Hualien	YC	8	Farmers' class	Medium	6
East/ South	Chihshang, Taitung	JS	53	Farmers' meeting	Medium	3
			56	Farmers' class	High	4
East/ South	Chihshang, Taitung	JS, CX, CFA	More than 100	Local festival	Low	4
East/ South	Chihshang, Taitung	CX	36	Farmer/ Process year-end party	Low	2

Source: this research.

6 Major Findings

6.1 Turning into a Cooperative Contracting Model

A major divide was observed when Taiwan opened up its market to agricultural trade in 2002 through joining the WTO. Before the WTO, rice was just rice. Historically, rice production activities in Taiwan have been stable, primitive, and self-sustaining for a long time. From the olden days when farmers harvested crops to support their daily necessities, to the recent decades when farmers sold their harvests to processors, the rice production in Taiwan has become vertically disintegrated. Farmers trade rice grain with processors as commodities. Processors hull and sell rice to intermediate and end users. The typical arms-length traditional model has been the most efficient approach under the supply-demand rule of a perfectly competitive economic theory.

The prohibition of international rice trade resulted in the high-cost rice

production in Taiwan being protected. Although there is no evidence as to whether the high cost was a consequence of domestic market closure or a consequence of the small-scale of farming land, the high cost was a fact. A general response from interviewees was that the cost of rice production in Taiwan was significantly higher than in low-cost production countries such as the US, Egypt, and some Southeast Asian countries. The openness of international trade no longer made it feasible to sell the high-cost domestic rice commodities. The only hope was to turn rice commodities into rice products, which would be differentiated by consumer perceived values. A high-priced rice product would still be sellable given its higher value as recognized by consumers.

But how could it be possible to turn rice into “not just a commodity”? In the past, rice did taste a little different from season to season, and from place to place, but it did not matter because there was only one equilibrium commodity price at a time. Changing the image of rice that had been seen as just a commodity for centuries could not just be done through marketing skills. Marketing could work only when rice really tasted different in a consistent manner.

Why do higher production costs matter in an interfirm collaborative structural arrangement? The only way to have a stable output of differently tasting rice is to invest in advanced technology and knowledge in the production process. When more idiosyncratic investment is required, transaction costs become higher unless the arms-length transaction model is shifting toward a high-context cooperative model of production (Williamson, 1979). Therefore, the arms-length traditional model is not feasible anymore, when outputs require differentiated qualities from the very origin to the end of the production process.

Immediately before the commencement of the WTO, there were many debates and worries about the openness of the domestic agricultural market. It was a fact that rice production in Taiwan was at a cost disadvantage and was not expected to be immediately turned around. This could hardly be changed even over a foreseeable period in the future because of historical land policies. Those policies have resulted in fragmented pieces of small-scale land, and it is almost impossible to persuade farmers in Taiwan to sell or even lease their land unless they are seriously short of money. The shift toward a cooperative contracting model between farmers and processors has so far been confirmed as a successful solution in order to compete

with low-cost imported rice or even high-quality Japanese rice.

Because of the higher rice production costs in Taiwan, the authorities have also taken the lead by means of several major policies to quickly and smoothly transform the domestic rice commodities into rice products. For example, the 2004 Nationwide Rice Quality Competition provided a great incentive for farmers or their affiliated processors to increase the rice quality in order to win prizes as well as gain media exposure.

“We do everything we can just to increase our rice quality without taking costs into account.” (JS)

In 2005, the launch of the “Rice Production & Sales Professional Zone” policy formalized the encouragement towards a cooperative contracting model. The policy provides incentives for processors to backward integrate farming resources by cooperating with farmers directly with contracting mechanisms. To qualify as the zone, processors need to apply with operation proposals. Once the zone is established, the responsible processor has to sign contracts with collaborative farmers as part of the documentation provided to the government. To get the contracting done, zone-participating processors must usually provide better incentives to attract farmers to join. Since zone participants are not allowed to deliver public grain to the government, a better-than-public-grain agreed price is necessary. Processors and farmers often have to work hard interdependently to create new value for the rice products. The policy has speeded up the trend toward cooperative contracting models since its launch because more and more processors discover new niches and value in the segmented rice products rather than in the conventional commodity market.

In traditional and cooperative models of farming and processing, we find that local forces matter in each rice-farming region. Local forces may become stronger or weaker from area to area in the post-WTO regime. However, they still exist. We are especially interested in how those local forces feature in mechanisms of embeddedness and their impacts. There is a fundamental local force for distinguishing the rice production models across rice-farming regions. The local forces distinguishing rice production activities from industrial production activities follow two aspects: spatially defined localness and temporally defined

cross-generational ties.

6.2 Spatially Defined Localness

The long-term transactions between local farmers and processors have been path dependent and bound by transportation time. Farmers sell the harvest to rice processors and receive their money based on quantity. In the traditional arms-length model when rice is a commodity, the price depends on the total quantity of the harvest in the market. Because time is limited when it comes to drying the wet grain, farmers tend to sell locally. The localized rice exchange is a natural outcome of localness based on economic efficiency.

Beyond the economic rationale, what else explains the localness? We find quite consistently that geographically proximate interfirm relationships build up the foundation of interdependent activities in the farming regions. Fei (1991) describes the nature of an agricultural society. The people that make up the agricultural society in Taiwan maintain their traditions based on 5,000 years of Chinese history. Many traditions have been adopted for a long time. They are legitimate via a long-term process of institutionalization.

Fei argues that people in the embedded structure might directly know each other, or indirectly know one another in the neighborhood. Unlike law-based Western societies, laws are unnecessary under the embedded agricultural context. The traditions of shared assumptions, norms, values, and expectations replace the law. Those traditions do not need to be told, but are embodied in the daily routines and normal behaviors within the neighborhood communities.

Some of Fei's descriptions are still in effect in the agricultural societies of Taiwan. Based on community in-depth familiarity, trust gradually emerges. However, trust does not emerge universally to anyone in the community, but is dependent on particular people and contingencies which are familiar. Simply said, trust is who-dependent and what-dependent. Like concentric circles, there are tiers of levels of trust. If there is trust, there is the implicit rule to follow. Furthermore, the implicit rule is highly reliable for guiding one's behavior. Sometimes, the rule is even so embodied that it leads something to naturally happen.

Fei also argues that tiers of value are defined toward the focal actor and his or

her kinship in the center of the trust concentric circles. In the agricultural society, there is no universal rule. Familiarity, trust and reliability are all disciplined in this manner. These are dependent on the one who is located in a certain tier from the trust concentric center. If interfirm collaboration is embedded in long-term close relations, something paid today will be paid back in the future in a reciprocal way but it could happen beyond the regular time expected in most western societies. On the contrary, to someone who is an outsider, such as a non-local businessman (contrary to the first-tier relation based on geographical proximity), it is taken for granted that the focal actor will bargain a deal without feeling embarrassed.

We find that geographic proximity-based relationships emerge from territorial boundaries among farming communities. The processor tends to build up a territorial boundary by enhancing the interdependent relationships with local farmers. On the other hand, farmers tend to stay with whoever is familiar in the local area.

6.3 Temporally Defined Cross-Generational Ties

In Taiwan, farm land is the family inheritance. An old Chinese saying is relevant here: "Own land and then own wealth." Farmers never sell the land property even after they die--only does a "family loser" sell the land. With the long-term possession of the land in a family, most rice farmers successively take on farming jobs from one generation to the next. Unless a farmer's son moves out of the town to earn a living far away, the farming job continues in the family between father and son from generation to generation.

Meanwhile, most non-FA rice processors are family-owned. Many of today's long-time processors in Taiwan have been operated across more than two generations. In the olden days, most processors started from wealthy families in each region. At that time, poor farmers needed money to exchange for daily items before the harvest. An easy way to resolve this problem was to go and ask a wealthy neighbor whether he or she could lend some money in exchange for a proportion of the future harvest. Those wealthy families turned to play a rice-trading role by selling the farmer's cashed rice in the market. Gradually, they might have established some processing facilities, mainly for rice storage and rice polishing. Because most processors hold the family wealth, their jobs of rice trading and

processing are very likely to be passed down the family from one generation to the next.

Both farming and processing activities are very commonly kinship-based succession tasks. The farming and family-based processing jobs are geographically based and relationally embedded. They are also temporally embedded. We found that a lot of non-FA processors have operated for two to three generations. In addition, quite a large number of farmers have made their living from farming since their grandparents' generation.

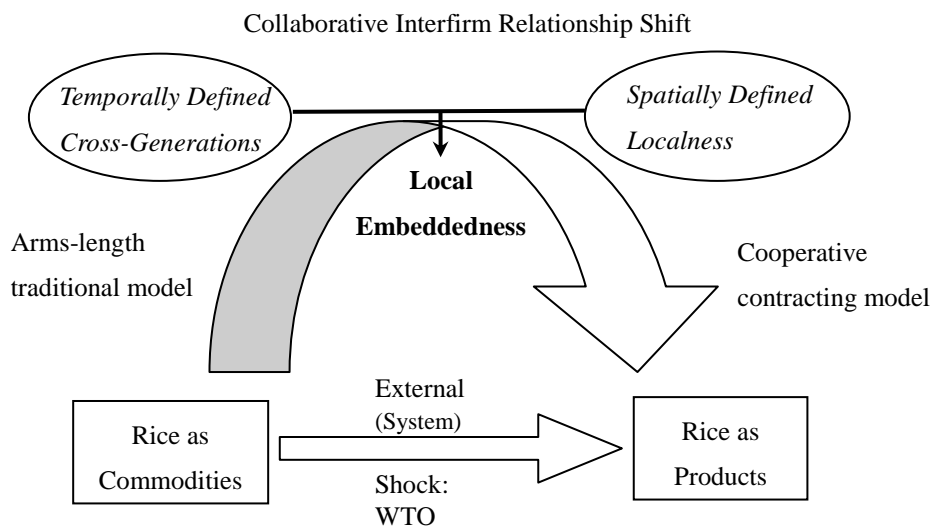
The longer the relationships last, the harder it is to disembed them from the interdependency of the local community. The familiar geographically-based social structure is interdependent of local actors because it builds upon a long history of availability and reliability. Establishing community in-depth familiarity within a geographically proximate embedded structure takes generations of interactions. They are tied spatially and temporally.

6.4 Toward Local Embeddedness

The major findings of our study show that spatially-defined localness and temporally defined cross-generational ties are critical, but they are under-researched in interfirm collaboration studies. The concept of local embeddedness describes these two important spatial and temporal dimensions. Through our findings on the embeddedness of social structure and the relations of an actor in the geographical dimension, the concept of local embeddedness can be defined as the structure and relation of long-term social and economic ties originating from and developed through geographically proximate actors.

The key context of local embeddedness is geographical proximity. What is the major difference between actors in a geographically proximate context and actors in a geographically distant context? In addition to the economic issues of transportation and inventory costs (Dyer, 1996, 1997; Williamson, 1985), more importantly, embedded structures and relations matter because geographically proximate actors are exposed a more homogeneous environment with a higher frequency and longer duration of interactions than geographically distant actors. More importantly, local embeddedness describes not only the spatial dimension of geographical proximity,

but those geographically proximate actors also possess temporally cross-generational linkages within the local community. In Figure 1, we demonstrate the conceptual model of local embeddedness based on the findings. Local embeddedness is shaped by spatially-defined localness and temporally-defined cross-generations. Under the external system shock, local embeddedness might shift the pattern of collaborative interfirm relationships in the past towards a new regime, given that local embeddedness is a dynamic concept, which might cause the collaborative interfirm relationship to be more cohesive or less pronounced across regions.



Source: this research.

Figure 1: Conceptual Model of Local Embeddedness

6.5 Research Implications

This paper contributes to theoretical implications in two major respects. First, the development of local embeddedness provides a new perspective to study collaborative interfirm relationships. Second, we provide a conceptual model of local embeddedness to identify the importance of spatial and temporal dimensions in

studying the collaborative interfirm relationship.

Our research provides practical implications for rice farmers and processors, as well as policy-makers, particularly in the post-WTO era. Firstly, to rice farmers, the globalization environment indeed provides a new chance for all rice industry participants, especially rice farmers, to expand their view of choice alternatives towards rice farming and processing collaborative activities. However, based on the spatial and temporal dimensions, farmers might need to consider whether the turning into a cooperative contracting model is a better choice nowadays compared with the arms-length model of the past. Secondly, for rice processors, the cooperative contracting model is mainly a post-WTO trend for the differentiated rice product market. However, there is a cost along the shift from the traditional arms-length model towards a cooperative contracting model. Thirdly, to policy-makers, the major policy in the post-WTO era for promoting the cooperative contracting model is the policy of Rice Production and Sales Professional Zones, which was launched in 2005. This policy does facilitate the shift in collaborative interfirm relationships in the rice industry. However, policy-makers should be cautious that the geographically dependent conditions of localness and cross-generational ties imply varieties of effectiveness when a policy that fits one region might fit another.

6.6 Limitations and Future Directions

This study explores the spatial and temporal dimensions of collaborative interfirm relationships in the Taiwanese rice industry. The long interview method is suitable for exploring retrospective descriptions by select individuals with special knowledge of the research topics (McCracken, 1988). However, generalization to a theory-in-use requires caution. Woodside (2010) compares strengths and weaknesses between long interview and other primary data collection methods. In the future, the local embeddedness concept and the spatial and temporal dimensions of interfirm relationships should be further examined by considering alternative methods such as the mail survey, mail intercept, and participant observation. In addition, in other research contexts, efforts need to be made to overcome the problem of generalization to a theory-in-use. In addition, spatial and temporal dimensions from the local embeddedness perspective open a fruitful avenue for future studies in

collaborative interfirm relationships.

7 Conclusion

This study describes the context of the Taiwanese rice industry with the importance of spatial and temporal dimensions of collaborative relationship milestones. Through in-depth long interviews with 20 representative processors and some of their affiliated farmers, this study provides the dynamics and the cross-sectional perspectives of interfirm relationships. Spatially defined localness and temporally defined cross-generational ties are found to be important not just before Taiwan joined the WTO, but become even more important in some regions in the post-WTO regime by shifting to the cooperative contracting model between rice farmers and processors. Our qualitative findings provide an idea for describing what the localness is and how it matters. The concept of local embeddedness is important in explaining the past and the present interfirm collaborative relationships in the Taiwanese rice industry. This qualitative study demonstrates the importance of spatial and temporal dimensions of collaborative relationships in the context of the rice industry. The concept of local embeddedness deserves further research for building up a theoretical foundation in explaining collaborative interfirm relationships not just in the rice industry but also in other spatially-specific and temporally-specific production relationships.

References

- Annual Report of Agriculture and Food Agency, (2008), Council of Agriculture, Executive Yuan, Taiwan.
- Ahuja, G., (2000), "The Duality of Collaboration: Inducements and Opportunities in the Formation of Interfirm Linkages," *Strategic Management Journal*, 21, 317-343.
- Combs, J. G. and D. J. Ketchen, Jr., (1999), "Explaining Interfirm Cooperation and Performance: Toward a Reconciliation of Predictions from the Resource-Based View and Organizational Economics," *Strategic Management Journal*, 20, 867-888.

- Dyer, J. H., (1996), "Specialized Supplier Networks as a Source of Competitive Advantage: Evidence from the Auto Industry," *Strategic Management Journal*, 17, 271-291.
- Dyer, J. H., (1997), "Effective Interfirm Collaboration: How Firms Minimize Transaction Costs and Maximize Transaction Value," *Strategic Management Journal*, 18, 535-556.
- Dyer, J. H., (2000), *Collaborative Advantage: Winning through Extended Enterprise Supplier Networks*, New York, NY: Oxford University Press.
- Eisenhardt, K. M. and C. B. Schoonhoven, (1996), "Resource-Based View of Strategic Alliance Formation: Strategic and Social Effects in Entrepreneurial Firms," *Organization Science*, 7, 136-150.
- Eisenhardt, K. M., (1989), "Building Theories from Case Study Research," *Academy of Management Review*, 14, 532-550.
- Fei, X., (1991), *Xiang Tu Zhong Guo*, Hongkong, SAR: Joint Publishing HK.
- Gatignon, H. and E. Anderson, (1988), "The Multinational Corporation's Degree of Control over Foreign Subsidiaries: An Empirical Test of a Transaction Cost Explanation," *Journal of Law, Economics, and Organization*, 4, 305-336.
- Guba, E. G. and Y. S. Lincoln, (1994), "Competing Paradigms in Qualitative Research," In: Denzin, N. K. and Y. S. Lincoln (eds.), *Handbook of Qualitative Research*, Thousand Oaks, CA: Sage, 105-117.
- Hennart, J. and Y. Park, (1993), "Greenfield vs. Acquisition: The Strategy of Japanese Investors in the United States," *Management Science*, 39, 1054-1070.
- Joskow, P. L., (1987), "Contract Duration and Relationship-Specific Investments: Empirical Evidence from Coal Markets," *American Economic Review*, 77, 168-185.
- Kim, W. and P. Hwang, (1992), "Global Strategy and Multinationals' Entry Mode Choice," *Journal of International Business Studies*, 23, 29-53.
- Masten, S. E. and K. J. Crocker, (1985), "Efficient Adaptation in Long-Term Contracts: Take-or-Pay Provisions for Natural Gas," *American Economic Review*, 75, 1083-1093.
- Masten, S. E., (1984), "The Organization of Production: Evidence from the Aerospace Industry," *Journal of Law and Economics*, 27, 403-417.
- Masten, S. E., J. W. Meehan, and E. A. Snyder, (1991), "The Costs of Organization,"

Journal of Law, Economics, and Organization, 7, 1-25.

Masten, S. E., J. W. Meehan, and E. A. Snyder, (1989), "Vertical Integration in the U.S. Auto Industry: A Note on the Influence of Transaction Specific Assets,"

Journal of Economic Behavior and Organization, 12, 265-273.

McCracken, G., (1988), *The Long Interview*, Thousand Oaks, CA: Sage.

Pirrong, S. C., (1993), "Contracting Practices in Bulk Shipping Markets: A Transactions Cost Explanation," *Journal of Law and Economics*, 36, 937-976.

Poppo, L. and T. Zenger, (1998), "Testing Alternative Theories of the Firm: Transaction Cost, Knowledge-Based, and Measurement Explanations for Make-or-Buy Decisions in Information Services," *Strategic Management Journal*, 19, 853-877.

Srinivasan, R. and T. H. Brush, (2006), "Supplier Performance in Vertical Alliances: The Effects of Self-Enforcing Agreements and Enforceable Contracts," *Organization Science*, 17, 436-452.

Williamson, O. E., (1975), *Markets and Hierarchies: Analysis and Antitrust Implications*, New York, NY: Free Press.

Williamson, O. E., (1979), "Transaction-Cost Economics: The Governance of Contractual Relations," *Journal of Law and Economics*, 22, 233-261.

Williamson, O. E., (1985), *The Economic Institutions of Capitalism*, New York, NY: Free Press.

Williamson, O. E., (1991), "Comparative Economic Organization: The Analysis of Discrete Structural Alternatives," *Administrative Science Quarterly*, 36, 269-296.

Woodside, A. G., (2010), *Case Study Research: Theory, Methods, Practice*, Wagon Lane, UK: Emerald.

Yoshino, M. and U. Rangan, (1995), *Strategic Alliances: An Entrepreneurial Approach to Globalization*, Boston, MA: Harvard Business School Press.