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The role of farmer organizations in supplying supermarkets with quality food in Vietnam

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ABSTRACT

The development of supermarkets in Vietnam, as in other emerging countries, is accompanied by increasing consumer concern for food quality. This paper investigates whether farmer organizations are able to help small-scale farmers obtain access to supermarkets as well as examines the role that supermarkets and public support play in the emergence and development of these organizations. The paper is based on case studies of a number of stakeholders marketing vegetables, flavored rice and litchi fruit in Vietnam. Eight farmer groups operating in the form of private commercial organizations act as regular supermarket suppliers for the selected products. Their ability to supply supermarkets is related to the combination of functions they make available to their members, especially with regard to promoting and controlling quality for which they receive public support. Their participation in flexible contracts with supermarkets, shops and schools is also a key issue. Supplying supermarkets via farmer associations increases farmers' profits per kilo compared to traditional chains, but the quantities supplied to supermarkets remain limited. The paper argues that changes in farmer organizations are not primarily due to supplying supermarkets, but rather to public and international support for food quality improvement which has been of benefit to supermarkets.

Introduction

The rapid development of supermarkets in both developed and developing countries has been covered extensively in reports in the last decade, particularly by Reardon et al. (2003). In Asia, the first supermarkets emerged in the 1990s after their rapid development in Latin America. The westernization of Asian diets, the development of supermarkets, fast food chains and exports in Asian countries are described by Pingali (2007) as the main drivers for change in the food systems. Private standards are developed by supermarkets as substitutes for non-existent or inadequate public standards. They serve as tools enabling them to compete with the informal sector by claiming superior product attributes (Ménard and Valceschini, 2005; Reardon and Timmer, 2005). Centralized procurement systems, requirements in terms of quantity and daily delivery and formalized transactions also reportedly result in the exclusion of small-scale farmers. The characteristics of small-scale family agriculture, with a wide diversity of farming systems and practices resulting in disparity and a lack of uniformity in agricultural produce, complicate matters for supermarkets with their stringent requirements and standards. According to the literature, this results in intermediaries such as wholesalers or farmer organizations playing an important role in connecting farmers and supermarkets, providing economies of scale and specialized skills in assembling, grading and transferring information between buyers and sellers (Vorley et al., 2007).

The role of dedicated wholesalers has been reviewed for China (Hu et al., 2004) where they are described as entering into contracts with local farmers or running their own farms while also providing a number of post-harvest services including packaging. In Costa Rica, dedicated wholesalers, including the Hortifruti Company, are described as the main suppliers of fruits and vegetables to supermarkets (Alvarado and Charmel, 2002). As regards farmer organizations supplying supermarkets, the literature paints a mixed picture of their sustainability. In China, they appear as dynamic. Agricultural associations have developed since the late 1990s as a result of legal recognition and public support. Public–private partnerships may link supermarket chains, cooperatives and public services in supplying horticultural and animal products (Hu et al., 2004; Reardon and Gulati, 2008). In other countries, fruit and vegetable farmer organizations are reported to be faced with a

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number of difficulties in responding to the demand from supermarkets. In Chile this is due to the insufficient scale of operations in relation to the costs generated (Reardon et al., 2002). In South Africa (Neven et al., 2005), in Honduras (Hellin et al., 2007) and in Nicaragua (Balsevich et al., 2006), this is due to low business skills and limited involvement of the group members and high dependence on a development project or an NGO, e.g. in terms of technical assistance, post-harvest infrastructures and liaison with supermarkets.

One conclusion of the "regoverning markets" program is indeed the need for more studies documenting best practices in connecting small-scale producers with dynamic markets in different policy environments (Vorley et al., 2007). Moreover, little effort has been made to investigate the ways in which supermarkets have transformed traditional food chains in Vietnam, a country currently experiencing rapid economic transition and which demonstrates certain particularities in terms of its agricultural structures and policy intervention. The retail sector has developed in parallel with the overall economic development. The growth rate of the value of the retail trade in USD is estimated at 10% per year for the period from 2001 to 2006. This rate rises to 11% for food sales. Modern trade, including supermarkets and convenience stores, is estimated by the same source to have grown by 20% per year between 2001 and 2006. Vietnam is considered to be the fourth most attractive retail market in the world (USDA, 2007).

On the supply side, Vietnam is characterized by a dynamic agricultural sector which still faces structural constraints. After the decollectivization of land use in 1988, farmers achieved impressive increases in terms of rice yields while also beginning to diversify into various high added-value sectors, including horticulture and livestock. The typical farm is a small family-run affair. According to data from the Vietnam Household Living Standard Survey conducted by the General Statistics Office in 2006, the average farm size per household is 1.7 ha for the country as a whole, 0.6 ha in the Red River delta and 1.8 ha in the Mekong River delta, while median values are 0.9, 0.6 and 1.2 ha respectively. Following decollectivization, cooperatives changed their function from the direct orientation of production to supplying services to their members. These services focused on irrigation, electricity and inputs delivery, while the role of cooperatives in the field of marketing has been described as limited (Dao The Anh et al., 2007). The case of Vietnam is interesting in terms of the development of famer organizations because the country now faces a new need for cooperation between small-holders in the market economy.

The purpose of this paper is to investigate whether farmer organizations have adapted as a result of supermarket development in Vietnam and have proven successful in facilitating small-scale farmer access to more profitable market opportunities. More specifically, the following questions are addressed.

(1) Are there differences in the organization of supermarket supply chains compared to the supply chains of traditional markets?

We assume that dedicated wholesalers and farmer organizations play a more important role in supermarket-driven chains than in traditional ones.

(2) What advantages does collective action give farmers compared to individual action in supplying supermarkets?

We assume that collective action among farmers helps to ensure regular delivery to supermarkets and compliance with quality criteria by reducing transaction costs relative to individual transactions thanks to a combination of incentives and sanctions for members (Ménard and Valcheschini, 2005).

(3) What is the role of supermarket development, public support and private initiative in the changes observed in the farmer organizations identified?

It is assumed that the development of supermarkets is the reason behind the changes in farmer organizations because of their specific requirements in terms of regular quantities and quality which cannot be fulfilled by individual farmers (Vorley et al., 2007).

(4) Does participation in organizations supplying supermarkets improve the financial results of the farmers?

The hypothesis is that participation in organizations supplying supermarkets results in higher prices and higher profits for farmers (per kilo and per farmer).

The method used to answer the questions above is presented in the next section. The results are then outlined for each of the four questions: first, the importance of farmer organizations in supplying supermarkets; second, their characteristics and role for farmers; third, the financial results of members and non-members of farmer organizations; fourth, their historical development. In the discussion, the results are examined in relation to the initial hypotheses. The paper concludes by presenting a number of policy and research recommendations.

Methods and data

The paper is based on case studies of four food distribution chains supplying Vietnamese cities: vegetables to Hanoi and Ho Chi Minh City; litchis and flavored rice to Hanoi. The places of production are selected peri-urban districts of Hanoi and Ho Chi Minh City and temperate highlands (Son La and Lam Dong provinces) for vegetables, Hai Duong province for litchis and Nam Dinh province for flavored rice (see Table 1). The commodities and areas were chosen because they involve poor, small-scale farmers (less than 0.5 ha) supplying supermarkets. Fruits and vegetables are characterized by perishability, seasonal and unstable supply and consumer concerns for safety (credence and experience attributes). By contrast, rice can be stored, its supply can be predicted more easily and consumer concerns for rice safety are limited. This indeed results in differences in the organization of commodity chains, with wholesalers more likely to play a role in the rice chain. However, we chose to consider the rice chain together with fruit and vegetable chains because it also presents credence attributes, i.e. its origin in the Hai Hau district which is considered by consumers to provide a specific—analytically non-measurable—taste quality.

The paper uses a value chain approach identifying the full range of activities required to ensure the delivery of a product (or service) to the end consumer from its conception through the different phases of production to disposal after use. "The value chain disaggregates a firm into its strategically relevant activities in order to understand the behavior of costs and the existing and potential sources of differentiation" (Porter, 1985: 33). Yet the value chain approach is mostly applied to the operations of private companies rather than farmer groups. To investigate the rationale and results of farmer organizations, we used insights into the economics of rural organization (Hoff et al., 1993) considering organizations as substitutes for non-existent or incomplete markets in addition to their role in obtaining economies of scale. Farmer organizations have also been described in the literature as hybrid organizations (Bosc et al., 2001) combining a range of economic, social and political functions.

Due to the sensitive nature of the information required (implying relationships of trust with the interviewee) and the causal rela-

Table 1
Sample for interviews of farmers and traders.

Sample	Commodities			
	Litchis, North	Vegetables, North	Vegetables, South	Rice, North
Supermarket managers or purchasers[1]	13	13	8	19
Wholesalers[2]	3	4	4	6 Hanoi wholesalers 3 food companies 20 Hai Hau wholesalers
Market retailers[3]	6	8	6	10
Shop vendors[2]	6	11		10
Street vendors	6	12		10
Collectors[2]	3	5	4	13
Farmers	Bac Giang province: 80 in Luc Ngan district (randomly chosen from a list provided by local authorities). Hai Duong province: The head and five other leaders of the Thanh Ha Litchi Association; 30 Thanh Ha farmers outside the association, 30 inside the association	Son La province, Moc Chau district: 32 randomly chosen from a list provided by collectors. The head of Moc Chau Farmer Association and five other leaders. Hanoi province, Soc Son district: four farmers in the groups supplying supermarkets, 12 farmers outside the groups supplying supermarkets. Hanoi province, Dong Anh district: the head of farmer association (Van Noi) supplying one supermarket	Lam Dong province: three heads of farmer organizations; 120 farmers, one third of whom are members of organizations. Ho Chi Minh City province, Cu Chi district: two heads of farmer organizations; five members of the organization, five outside the organization	Hai Hau district in Nam Dinh province: 44 farmers in two communes (Hai Phong, Hai Toan) randomly chosen from a list provided by local authorities, including 24 non-members of the organization and 20 members. Head of rice famer association

[1] The number accounts for more than 80% of the total of supermarkets selling the selected products.
[2] The number accounts for more than 30% of the total of traders selling the selected products.
[3] The study also used results of secondary studies on the organization of traditional fruit and vegetable markets in Hanoi giving data on the source and nature of intermediaries of commodity chains based on a representative sample of traders (Moustier (2004) and van Wijk et al. (2005)).

tionships identified, a case study approach was used where only a small number of cases were investigated in detail (Sterns et al., 1998). We carried out a disaggregation of costs and prices as well as relationships along the same chains rather than dealing with separate samples of suppliers and vendors. This involved interviewing a chain of buyers and sellers following a cascade methodology, starting from buyers and identifying their suppliers until the whole chain was reconstructed.

The research was carried out from June 2004 to June 2005. It began with interviews of a sample of supermarket managers or purchasers in charge of the food section in Hanoi and Ho Chi Minh City as well as a sample of traditional retailers in formal or street markets (see sample in Table 1). In addition to the financial data, the chain of wholesalers, collectors and farmers supplying these outlets was also identified in the interviews. A sample of these suppliers was then interviewed in the respective provinces (Hai Duong province for litchis; Son La, Hanoi, Lam Dong and Ho Chi Minh City provinces for vegetables; Hai Hau district in Nam Dinh Province for flavored rice). The wholesalers and collectors were randomly selected from the list provided by supermarkets and other retailers considering a target total, starting from one unit at random and then adding a constant factor to select the subsequent unit. Farmers within organizations supplying supermarkets were selected in the same way from a list supplied by village leaders (or collectors in the case of vegetables) while farmers who were not members of organizations were drawn from a list supplied by the same informants for farmers located in neighboring areas and demonstrating similar size and education characteristics. Financial data were collected during these interviews together with qualitative information on the choice of outlets and participation in farmer organizations. In addition, all the heads of the identified farmer groups, together with village leaders, were interviewed in-depth to obtain insights into the development of farmer organizations.

As farmers in the Red River and Mekong delta areas presently produce for commercial purposes rather than for self-sufficiency, profits per kilo of output and profits per farmer are important criteria for household economics and decisions concerning types of crops or outlets for the same crops. Profits are defined here as sales revenues minus all production and post-harvest costs, including both variable costs and depreciation on investments and taxes. The data were averaged across the sample of different stakeholders presented in Table 1. We did not weight the prices according to quantity, but quantities were used in calculating and explaining incomes. To account for seasonal variations, we asked about the min-

Table 2
Comparison of characteristics of surveyed members and non-members of selected farm organizations.

	Member	Non-member
Flavored rice (Hai Hau)		
Minimum land size (ha)	0.07	0.08
Average land size (ha)	0.22	0.20
Maximum land size (ha)	0.37	0.37
Standard deviation of land size	0.10	0.10
% of women	37	55
Average age	47	45
Standard deviation of age	10	11
Litchi (Thanh Ha)		
Minimum land size (ha)	0.37	0.43
Average land size (ha)	0.42	0.38
Maximum land size (ha)	0.46	0.43
Standard deviation of land size	0.20	0.31
% of women	20	50
Average age	49	40
Standard deviation of age	10	8
% with primary education	30	60
Vegetables (Anh Dao)		
Minimum land size (ha)	0.10	0.10
Average land size (ha)	0.10	0.28
Maximum land size (ha)	1.80	1.00
Standard deviation of land size	0.70	0.40

Note: We tried to get data on land size, gender distribution and age of members and non-members for all associations, but it was not always possible due to some reluctance on the part of the interviewees to disclose information. The table displays the information for the three products/area for which we were able to collect sufficiently reliable socio–economic data.

imum, maximum and average values, which provided a means of checking the reliability of declared average values. Besides, the cascade nature of the interviews allowed us to check the value of purchase prices relative to selling prices. Despite these measures, the data should be treated with caution given the seasonal nature of the commodities dealt with, the reluctance of farmers and traders to provide financial data and the small sample used. We nevertheless believe that they are sufficiently reliable when used comparatively.

Comparing the profits of farmers belonging to associations and those of farmers outside associations supplying supermarkets may involve biases, as some observable and non-observable characteristics may differ between members and non-members of associations including size, education and motivation. Nevertheless, biases resulting from these reasons are expected to be limited in our framework. There are few differences in terms of land size between farmers within an organization and those operating individually in the same location, except in the case of the Anh Dao cooperative (see Table 2). As regards litchis, members of the association are more likely to be male and are older than non-members, but their level of education tends to be lower. The flavored rice association also presents a small bias in favor of male members.

Background information on the Vietnamese retail sector

Although not as rapid as in other countries of Asia, the development of supermarkets has progressed at a steady rate in Vietnam (we use here the official definition of supermarkets in Vietnam which refers to trade establishments larger than 500 m^2). The first supermarkets appeared in Hanoi in 1993 and by 2005 Vietnam had around 126 supermarkets, of which 55 were in Hanoi and 71 in Ho Chi Minh City including eight hypermarkets (Moustier, 2006). The public authorities have so far shown a positive attitude towards the development of supermarkets, mostly since the early 2000s, on the grounds of modernization and food safety (see Decree 02/2002/ND-CP on market management and development and Decision 1371/2204/QD-BTM on supermarkets). The planned rapid increase of supermarkets and the elimination of temporary markets and street vendors by 2020 are indicated in the strategy of the Domestic Trade Department of the Ministry of Trade on the grounds of "modernization" and "civilization" (Vietnam Ministry of Trade, 2006; Figuié and Moustier, 2009). The Ho Chi Minh City People's Committee approved a plan for fifteen new supermarkets between 2005 and 2010, which has been followed by a government call for investment. Yet the available (sketchy and sometimes inconsistent) figures show that the share of supermarkets in food distribution remains limited (see Table 3). These figures may nevertheless evolve very quickly. The consumption of fresh fruit and vegetables in supermarkets and specialized shops in Hanoi and Ho Chi Minh City is expected to reach 30% in 2015 compared to 5.5% in 2005 according to the estimates of Mergenthaler et al. (in press).

Main results

The importance of farmer organizations in supplying supermarkets

We tracked the origins of vegetables, litchis and flavored rice retailed by supermarkets in Hanoi and Ho Chi Minh City and compared them to the situation in traditional retail markets. The importance of farmer associations is clearly visible in chains supplying supermarkets. Collectors or wholesalers operating on night wholesale markets, who are key actors on traditional retail markets, play a much more limited role in these chains (see Figs. 1–4). This is even more the case where food commodities are sold fresh and/or have specific quality characteristics.

With regard to vegetables, we estimated that Hanoi supermarkets receive 80% of their supplies from five cooperatives located in two peri-urban districts involving fewer than 450 farms and 50 ha of land. One of these cooperatives, Mr. M's in Van Noi, was the object of one of our case studies. The remaining supply comes partly from the Technical Fruit and Vegetable Center (the name changed to Hadico in 2006) and from the Bao Ha company. These are mixed public–private establishments which both produce vegetables and buy them from contracted farmers. Dedicated wholesalers and collectors also supply supermarkets, especially for certain specific kinds of vegetables which are produced in distant regions of the country, e.g., Lam Dong province. In Ho Chi Minh City, supermarkets are supplied by between 5 and 10 farmer cooperatives and

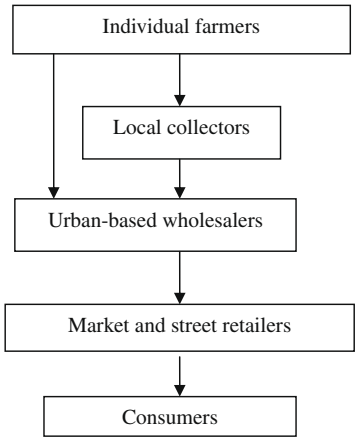

Fig. 1. Organization of traditional vegetable and litchi supply chains, Northern and Southern Vietnam.

Table 3
Data on share of supermarkets in food distribution.

Percentage (%)	Sector	Year	Place	Source
<2.5	Food	2002	Vietnam	Hagen (2002)
12*	Food	2007	Vietnam	USDA (2007)
7	Fresh food	2002	Ho Chi Minh City	Cadilhon (2005)
1	Vegetables	2005	Hanoi	Son et al. (2006)
0.03**	Food	2004	Northern Vietnam	Ali et al. (2006)
0.08**	Food	2004	Urban areas of Northern Vietnam	Ali et al. (2006)
0.3**	Vegetables	2004	Urban areas of Northern Vietnam	Ali et al. (2006)
0.06**	Fruit	2004	Urban areas of Northern Vietnam	Ali et al. (2006)
5.5***	Fresh fruits and vegetables	2005	Hanoi and Ho Chi Minh City	Mergenthaler et al. (in press)

* Including convenience stores.
** This is the percentage in food consumption from supermarkets.
*** This is the percentage in food consumption from supermarkets and specialized shops.

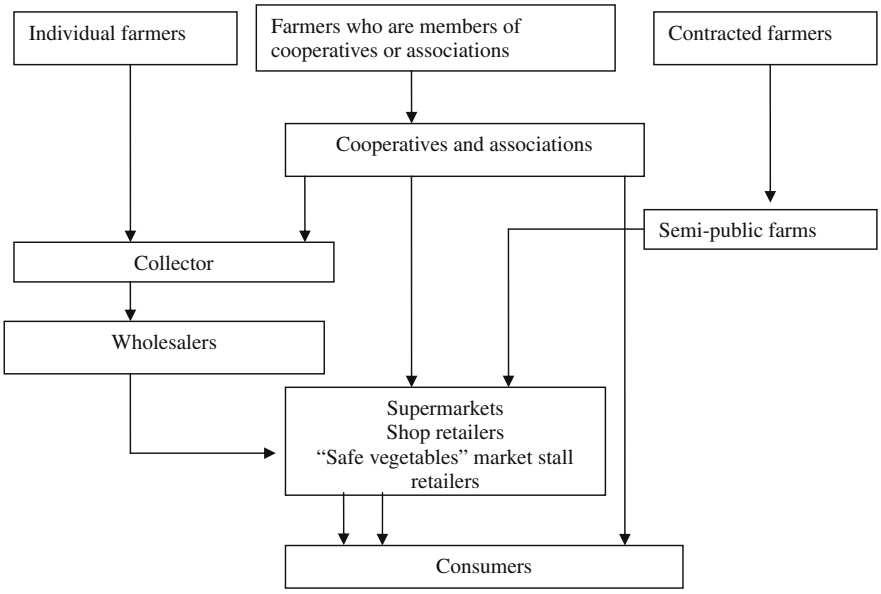

Fig. 2. Organization of vegetable and litchi supply chains to supermarkets and shops, North and South Vietnam.

associations in the temperate highlands (Dalat area) for temperate vegetables, either directly or through a dedicated consolidator. Three of these were the object of a case study. Leafy vegetables are supplied by two groups in Cu Chi district (one association and one cooperative which are part of our sample) or by Vegfruco, a state-owned company. None of the retailers on the traditional markets of Hanoi as well as Ho Chi Minh City is supplied by farmer organizations directly.

Litchi chains present a similar organization. Traditional market retailers and street vendors are supplied by wholesalers or collectors. Collectors (some of them farmers) buy litchis from farmers located between 50 and 100 km away in Bac Giang and Hai Duong provinces, either at the farms or at road collection points. They transport them by lorry or motorbike to Hanoi, depending on the distance. They re-sell the litchis to retailers or to wholesalers working on night wholesale markets. Alternatively, sixteen supermarkets selling litchis obtain their supplies from the Thanh Ha Litchi Farmers' Association and from a number of farmer-collectors. In contrast to traditional chains, these litchis are packaged and labeled with an indication of the place of production. Litchis are collected, packaged and distributed by the marketing group of the association, which includes 10 members and is supervised by the vice-president of the cooperative. The Thanh Ha Litchi Association accounted for 75% of the supply to Hanoi supermarkets at the time of the survey, while accounting for less than 5% of purchases by traditional retailers. Besides selling to supermarkets, the association also sells litchis to 50 retail outlets in Hanoi and also directly to consumers through its own shop in Hanoi and through local street stalls.

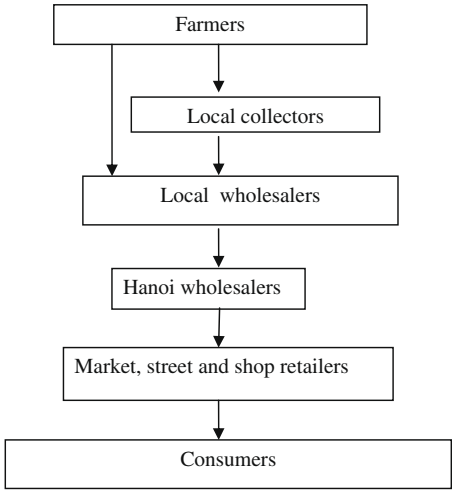

Fig. 3. Organization of traditional flavored rice supply chains, Northern Vietnam.

The case of flavored rice is slightly different (see Figs. 3 and 4). In the traditional chains, retailers selling on markets or in shops are supplied by individual wholesalers who are commonly involved in rice processing. Supermarkets are mostly supplied by private companies (called food companies, formerly state farms) which buy from a network of wholesalers supplied by collectors. These companies are involved in the collection, processing, packaging and distribution of the rice. Each of them employs 30–40 workers. However, since 2003, a farmer association has supplied rice to supermarkets through two dedicated food companies (see the emergence of this association below). This accounts for 89 tons out of a total of 543 tons traded by supermarkets (and 5560 tons retailed in Hanoi), i.e. 16% of the supermarket supply of flavored rice, while its share on the traditional market is 1.5%. Through the trading companies, this association supplies 16 supermarkets (30% of Hanoi supermarkets) and 20 shops in seven of the nine Hanoi districts. Rice sold via the association is packaged and labeled with the name and address of the association. It is 100% flavored rice of the variety originating in Hai Hau, while rice sold outside the association is commonly mixed by the wholesalers or the food companies with other types of rice, including non-flavored rice.

The role and advantages of collective action by farmers

All farmer organizations supplying supermarkets surveyed here are of a voluntary economic nature, bringing together farmers who choose to undertake certain joint social or economic activities. Some take the form of "new" cooperatives, others the form of associations. Voluntary farmer organizations in the form of commercial joint-stock cooperatives obtained official status in 1996. The new cooperative law of 2003 makes the voluntary cooperative the basis for obtaining the legal status to be able to perform economic activ-

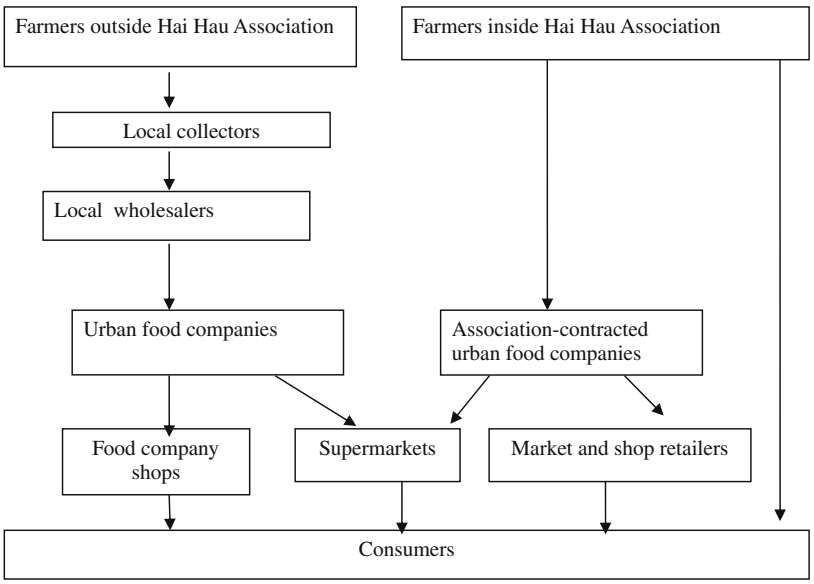

Fig. 4. Organization of flavored rice supply chains to supermarkets and specialized shops in Hanoi, Northern Vietnam. *Note*: The arrows represent purchase and resale operations, with transfers of ownership rights.

ities, e.g., negotiating contracts and paying taxes. On the other hand, associations still lack a clear legal economic status (with the advantage of tax exemption). The household members of associations have the right to negotiate contracts rather than the group. Associations, which are more flexible in their operations because the Association Law is still under discussion, are more common in the case of large farmer groups with diversified products (see Table 4). They may actually represent a preliminary stage before registration as a cooperative.

The organizations investigated were established quite recently (created between 1996 and 2003). The number of members ranges from 11 (Anh Dao Cooperative) to 437 (Hai Hau Association). While some organizations do not require any contributions from their members, others ask for fees ranging from 60 to 200 USD (see Table 4).

The functions of the farmer organizations surveyed are summarized in Table 4. The first advantage of collective action for farmers is the centralization of marketing operations, with economies of scale in terms of quantities collected, contacts and negotiations with purchasers as well as investment in a common operator with adequate skills and time devoted into marketing tasks. The usual situation is that the cooperative employs a salaried worker responsible for marketing and then pays the farmer the resale price minus a fee to cover certain administrative, transportation, sorting and packing costs. In the safe vegetable cooperatives in Hanoi, such as Mr. M's, marketing operations are decentralized. Each member deals directly with a point of sale (supermarket, shop or school) for product delivery and payment. To ensure a regular and diverse supply, the person in charge of the point of sale complements his own production with purchases from the other members of the group. The cooperative management board, comprising four salaried members, establishes contacts with customers, allocates customers to each member and influences crop planning. It also negotiates the annual contracts with the purchasers.

All organizations reviewed have a contract with supermarkets (or, in the case of Hai Hau, with companies supplying supermarkets). These contracts are written in the case of 80% of supermarkets. They specify the frequency of delivery, quality requirements (including safety and visual criteria) and terms of payment (cash, 15–30 days after delivery). Contracts have no legal status and there is no legal administration to have them enforced, yet no cases of conflict in compliance with the contract was mentioned to us, either by farmer groups or by supermarket managers who state that the threat of a break in the relationship is sufficient an incentive to promote compliance.

The Hai Hau Rice Association and the trading companies have signed an exclusive 3 year contract based on the sale of 100 tons of flavored rice per year (83% of the production in 2004) and specifying the price, packaging style, certificate delivered by the Ministry of Health, monthly payment and replacement conditions in case of damage or passing of the expiry date. The Thanh Ha Litchi Association has a contract with two supermarkets and a wholesaler supplying supermarkets, stipulating a minimum quantity supplied during the 1 month litchi season, various quality characteristics in terms of packaging, labeling and product uniformity and the possibility of returning unsold produce.

With regard to vegetables, quality requirements include the provision of a certificate of safe production issued by the Department of Science and Technology or the Department of Agriculture and Rural Development on the basis of farm inspections and the collection of samples for analysis of chemical residues and pathogens. In Ho Chi Minh City, in addition to safety requirements, contracts specify visual quality characteristics such as the requirement for vegetables to be Grade 1 in reference to color and softness (for leafy vegetables) or size and uniformity (for tomatoes).

The second advantage of belonging to a farmer organization is that it enables the farmer members to have access to training in terms of quality improvement (see next section). Training programs organized by the government or by international projects target farmer organizations rather than individual farmers. A third related advantage concerns joint investments by members of farmer organizations in the areas of quality development, labeling and certification. These investments are necessary to satisfy the quality requirements of supermarkets. The members of litchi and flavored rice associations have developed a common production protocol to ensure the stable quality of the products, especially with respect to the appropriate timing and quantities of the use of fertilizers and pesticides and the choice of seed. Experienced farmers act as internal inspectors. All farmer organizations surveyed have a common means of packaging the products and a quality label in the form of a logo together with an indication of the name and address of the cooperative indicated either on the package or on a sign at

Table 4
Main characteristics of farmer organizations supplying supermarkets.

Products	Litchis, North	Vegetables, North	Vegetables, South						Rice, North
Name	Thanh Ha Association	Van Noi Mr. M's Cooperative	Ap Dinh Association	Tan Phu Trung Cooperative	Xuan Huong Cooperative	Phuoc Thanh Cooperative	Anh Dao Cooperative		Hai Hau Association
Date established	2003	1996	2001	2003	2003	2003	2003		2003
Number of members	138	16	200	50	21	15	11		437
Area (ha)	49	7	20	7	0.5	1	0.5		54
Output (t)	500	900	630		100	250	720		180 t
Conditions for membership*	Neighbor relationship	Neighbor and kinship relationship Shares = 60 USD	A wide range of incomes, production volumes and size; no membership fee		Close relationship, experience and ability to invest in greenhouses. Membership fee: 60 USD	Close relationship, experience. Membership fee: 200 USD	Membership fee: 60 USD		Belonging to the same limited geographical area
Functions:									
Training	x	x		x	x	x	x		x
Credit					x	x			x
Input supply	x		x	x		x			x
Marketing**	x	x	x	x	x	x	x		x
Internal quality control	x	x	x	x	x	x	x		x

* In addition to agreeing to comply with common association production protocols and labeling.
** Joint branding and contact with purchasers, joint transport and delivery.

the points of sale. In the case of vegetables, packaging varies from a simple bundle with the stems tied to a plastic bag. The label indicates "safe vegetables." In the case of litchis, the fruit is packaged in nylon bags. The label indicates both the origin, "Thanh Ha", and the variety "vai thieu". There is a picture of the litchi with a small kernel and thick pulp, which is a typical characteristic of fruit produced in this location. Flavored rice is packaged in 10 kg bags indicating the place of production of the rice and the fact that it is 100% "tam xoan" flavored rice, which refers to a special variety in terms of flavor and cooking characteristics.

Finally, farmer organizations have a bank account and can issue invoices, which is necessary for transactions with supermarkets. Individual farmers find it too troublesome to open a bank account and register their company officially given the low value of their transactions. Besides, they cannot afford to wait for the minimum delay of 15 days before being paid.

The role of supermarkets, public and farmer initiatives in the development of farmer organizations

A number of surveys conducted in Hanoi and Ho Chi Minh City show growing consumer concerns about vegetable safety, especially with regard to pesticide residues. This applies to all income categories. Those with higher income and education levels are nevertheless more inclined to purchase "safe vegetables" which cost at least 50% more than ordinary vegetables (Figuié, 2004; Minh et al., 2005, for Hanoi; Hoang and Nakayasu, 2006 for Ho Chi Minh City; Mergenthaler et al., 2009, for both cities). In 1995, public interest in the safety of vegetable products led the Vietnamese Ministry of Agriculture and Rural Development to implement an ambitious program called "safe vegetables." This program, based on IPM principles, educated farmers in the reasonable use of fertilizers and pesticides as well as in the use of water from wells and non-polluted rivers. The program also helped to market "safe vegetables" through various communication strategies including the organization of annual safe vegetable fairs and support allocated to farmers and traders with a view to opening "safe vegetable" shops or market stalls. Training programs for farmer groups on IPM vegetable production was also organized by the Danish NGO ADDA. In Ho Chi Minh City, the program was implemented by the Department of Agriculture in 1997. The first targeted area was Ap Dinh where households formerly belonging to a cooperative in the early 1980s were farming individually. In 1997, five of them formed an association so that they could join the training program. From 1997 to 2000, membership expanded from five members to 40. After the city's vegetable fair in September 2000, the Ap Dinh Association received numerous orders from vegetable companies, city caterers and shops. To meet such an increase in demand, the association has gradually included more members with up to 200 households divided into four smaller groups based on farmer locations in four villages.

In addition to food safety, specific quality characteristics (special taste and safety) related to a special origin are desired by urban consumers (Tran Thi Tham, 2005). Thanh Ha litchis have certain special characteristics in terms of sugar content, the thickness of the pulp and flavor, which are particularly appreciated by consumers. However, because of the surplus production of litchis over the past 10 years and the difficulty in recognizing the origin of the litchis, litchi prices fell 6-fold between 1997 and 2004. The Vai Thieu Thanh Ha Litchi Production and Marketing Association was created in 2003 with the help of the Agricultural Science Institute and a French-funded project to respond to marketing problems encountered by farmers. Experiments and a number of meetings with farmers, extension workers and local authorities were organized to define the limits of the agro-ecological area as well as a joint production protocol safeguarding the specific quality characteris-

tics of these litchis. Other activities were progressively introduced including marketing, advertising and the collective provisioning of inputs. In 2003, the association had 55 members while 1 year later, this figure had increased to 138 members divided into seven groups.

The Hai Hau Flavored Rice Association was created in 2003 following the same model. It was especially important to conduct in-depth experiments on seeds as the quality of traditional variety had fallen. This initiative was favored by the Hai Duong provincial authorities who allowed the association to produce and trade seed, whereas these activities were previously exclusively restricted to public companies. Moreover, the Hai Hau district of Nam Dinh province has introduced a flavored rice development program into the resolution of the district communist party committee.

From the outset, rice, litchi and vegetable organizations adopted various options to distribute their products, especially those offering a premium for quality products, including shop retailers, supermarkets, restaurants and direct sales to consumers in their own shops or stalls. The rest is sold via traditional collectors who are prepared to purchase products with lower visual quality characteristics. The share of output sold to supermarkets is two-thirds in the case of the Anh Dao vegetable cooperative, 30% for Mr. M's vegetable association, 50% for the Hai Hau Rice Association and less than 5% for the Thanh Ha Litchi Association. Nevertheless, it can be said that supermarket development is founded on the same basis as the development of collective action by farmers in the field of marketing, i.e., changes in consumer demand. Communication on food quality is a major promotional tool for both supermarkets and farmer organizations. One supermarket chain, Metro, actually invests in the development of quality by individual farm enterprises, farmer organizations and traders, together with the Vietnam Ministry of Trade and German and Dutch funding agencies. In collaboration with the Agriculture Development Departments, Metro has provided training to more than 10,000 Vietnamese farmers and food suppliers in farming technique and hygiene standards. The meat, fish, fruit and vegetable sectors in the Red River Delta, Mekong Delta and Lam Dong province have been specifically targeted. Training programs focus on good agricultural practices, business knowledge, processing and packaging. Metro and GTZ (German Technical Cooperation) have also invested in twenty processing and sorting stations (Metro et al., 2007).

The financial results of members of organizations supplying supermarkets

Financial data of members and non-members of the surveyed organizations are summarized in Table 5. Farmers belonging to organizations supplying supermarkets are paid higher prices per kg than farmers who are not members (43% higher for rice, 33% for litchis and 67% for tomatoes). Production costs are nevertheless slightly higher (by 18% for rice, 2% for litchis, and 67% for tomatoes). Profits per kg of products sold to supermarkets are also higher (by 65% for rice, 38% for litchis and 400% for tomatoes). However, due to the small quantities sold to supermarkets, increases in profits per kg are not necessarily reflected by similar increases in profits per farmer generated by the crop. Quantities sold by the Hai Hau Flavored Rice Association remain limited (275 kg of flavored rice per member per year compared to 692 kg for non-members); hence profits from flavored rice amount to 91 USD for members compared to 133 USD for non-members (using the bank exchange rate at the time of the survey). On the other hand, quantities sold through the litchi association are higher than quantities sold by individual farmers representing 2500 kg on average compared to 1500 kg (about half of this volume is sold to supermarkets while the other half goes to shops and stalls at the same price as they are sold to supermarkets). This is reflected by incomes which are more than twice as high among members of the association (543 USD compared to 236 USD). In Lam Dong province, supermarkets buy two-thirds of the total supply capacity (1250 kg/month) of the Anh Dao Association while the rest has to be sold on traditional markets. The monthly tomato profits earned by members of the association amount to 45 USD, while those of non-members are estimated at 13 USD. These results should be treated with caution as differences in profits may be due to differences in non-observables as mentioned in the section on method.

In addition to higher prices, the main advantage of supermarkets quoted by the farmers interviewed is the greater degree of stability both of the quantities demanded on a weekly basis and of the product prices compared to traditional commodity chains, a point stressed by Vorley et al. (2007).

Table 5
Some financial data of surveyed farmers inside and outside organizations supplying supermarkets (in USD equivalent; for one crop cycle).

	Outside association	Inside association
Flavored rice (Nam Dinh province)		
Farm gate prices	0.37	0.53
Production costs	0.17	0.20
Profits/kilo	0.20	0.33
Quantities sold (t)	0.69	0.27
Profits from flavored rice/farmer	133.18	91.81
Standard deviation of profit/farmer	19.71	7.6
Litchi (Hai Duong province)		
Farm gate prices	0.21	0.28
Production costs	0.05	0.06
Profits/kilo	0.16	0.22
Quantities sold (t)	1.50	2.50
Profits from litchi/farmer	236.23	543.71
Standard deviation of profit/farmer	63.54	109
Tomato (Lam Dong province)		
Farm gate normal prices (NP)	0.09	
Farm gate premium prices (NPP)*		0.15
Production costs	0.08	0.10
Profits/kilo at normal prices	0.01	−0.01
Profits/kilo at premium prices		0.05
Quantities sold at normal prices (t)	1.25	0.37
Quantities sold at premium prices (t)		0.87
Profits from tomato/farmer	13.50	45.25
Standard deviation of profit/farmer	15.53	43.44

Note: 1 USD is taken here as 16,300 VND (bank exchange rate in May 2005).
SD = standard deviation.
We only display here the data for the products where we could find some general socio–economic data comparing members and non-members (see Table 2).
* When product sold to supermarkets.

Discussion

The results show that farmer organizations are major direct suppliers of supermarkets, unlike in traditional commodity chains where retailers are supplied by a chain of wholesalers and collectors dealing with farmers selling on an individual basis. The importance of farmer organizations as intermediaries between individual small-scale farmers and supermarkets is reflected in the literature. In Vietnam they seem to play a stronger role relative to dedicated wholesalers than is generally observed in other countries. Besides Vietnam's communist history of collectivization, this active role is certainly the result of public support for quality improvement which has deliberately targeted farmer groups as a strategy to overcome the pitfalls of Vietnamese agriculture, in particular small-scale farming. It is also the result of the initiative taken by certain dynamic farmers who have taken advantage of this public support as well as the emerging demand for specific food qualities. The role of "specialized wholesalers in reducing transaction and

search costs and enforcing private standards and contracts on behalf of the supermarkets" highlighted by Reardon et al. (2003) is indeed endorsed by the leaders of farmer organizations because they were active in promoting specific quality characteristics well before the emergence of supermarkets.

For the three products examined, our interviews with supermarket managers suggest that the limited role of dedicated wholesalers results from supermarkets preferring to deal directly with farmer groups. This enables them to reduce purchasing prices. However, the situation varies from one product to another: while this is feasible with vegetables which are grown less than 30 km from the city, it is more complicated for rice grown more than 60 km away as farmers are reluctant to spend several hours travelling to and from the city (supermarkets ask suppliers to deliver to the shops on a daily basis). An increasing role for dedicated wholesalers may be observed when supermarkets require larger quantities.

Buying from farmer groups also enables supermarket managers to improve control of product quality through the possibility of visits to the farm and interviews with the farmers. Quality is the main factor in the choice of suppliers with regard to the safety of vegetables (no excess chemical residues) which is a major concern for urban consumers, while the quality of rice and litchis refers to a typical taste in relation to a specific location. These aspects of quality involve problems of uncertainty and the risk of moral hazard by suppliers which can be solved by means of labeling. It is indeed in the area of quality labeling that grouped suppliers distinguish themselves from the other suppliers and it is also in this area that supermarkets want to differentiate themselves (Codron et al., 2003). The survey conducted in 2006 by Maruyama and Trung (2007) shows that Hanoi consumers shopping in supermarkets are quality-driven while they were previously value-driven in the 1997 survey conducted by Speece and Huong (2002). Collective action by farmers plays a crucial role in promoting quality, primarily because it facilitates access to the training resources offered by the government's agricultural services. The common quality label and the associated reputation are collective goods which imply specific governance structures in terms of inclusion and exclusion mechanisms (Olson, 2000 edition). Farmer organizations also play the traditional role of expanding the product catchment area, a crucial factor in delivery to supermarkets.

The efficiency of collective action in reducing transaction costs with regard to quality characteristics results from various mechanisms. The inter-linkages between the supply of inputs and training services, quality control and output marketing reduce moral hazard which would result in a breach of agreement—for example concerning production procedures—and may have consequences on other transactions such as output marketing (Bardhan, 1989). Four of the organizations reviewed are characterized by neighbor and/or kinship relationships between the members which allow trust to develop and facilitate the control of farmer behavior, in particular in terms of the use of chemicals (see Table 4). Each organization has a board of directors usually comprised of those members holding the highest number of shares and who exert hierarchical power over the other members.

In addition to the development of supermarkets, changes in consumer demand, public support for the promotion of quality and pioneering farmer initiatives help explain the development of farmer organizations involved in the marketing of quality food products. There are indeed outlets other than supermarkets which may prove to be more accessible. Supermarkets still account for a relatively limited niche market opportunity for farmers. In 2004, a major vegetable cooperative, Van Tri, stopped supplying supermarkets after 3 years in order to concentrate on marketing through 10 shops or market stalls (compared to four in 2002), where cooperative members sell directly to consumers. They felt that supermarkets were too demanding in terms of payment times (15 days) and the return of unsold produce. The innovative pattern now emerging is that of direct marketing, i.e., direct contact with consumers who ask questions and are given answers concerning the production methods used by the cooperative.

While public support to supermarkets started in 2000 as mentioned in the introduction, policies supporting farmer organizations as economic key units were introduced as early as 1996 with the cooperative law. The public programs supporting quality food product development started at the same time. Supermarket development accelerated the adaptation of farmer organizations which had been brought about by public intervention as well as by the initiatives of pioneering farmers.

Conclusion

Collective action by farmers plays a crucial role in supplying supermarkets in Vietnam, mostly because of its role in the development and promotion of quality food. The historical development of farmer organizations involved in the marketing of quality food products shows that supermarkets are not the primary vectors of change, even though they contribute to it. In fact, supermarkets benefit from changes made by the public administration and pioneering farmers in response to changes in consumer demand. Yet the rise of the supermarket and the development of farmer associations involved in marketing share certain common roots, i.e. consumer concerns about food quality. The strong concern of public authorities over this question has been translated into support for farm organizations involved in food quality, as well as support for the development of supermarkets. Hence both supermarkets and farmer organizations contribute to adapting and modernizing the food systems.

Supermarkets are currently one of several options, albeit minor, for farmers to market their "quality" products with a price premium. However, this type of outlet is becoming larger with increasingly competitive strategies concerning the range of suppliers. On the one hand, this may result in the further development of innovations in terms of production to sharpen the comparative advantages of suppliers, in particular with regard to the development of quality. On the other hand, it may result in less advantageous pricing conditions. Supermarkets may also tend to promote their own labeling system rather than the labeling of farmer organizations to obtain more of the economic rent gained from indicating quality. This can already be observed, as vegetables are increasingly sold in bulk with supermarkets presenting them under a general "safe vegetables" sign.

Farmers face numerous difficulties in obtaining access to credit compared to private investors involved in modern distribution. Hence we recommend that local administrations support investment in rural infrastructure to promote product quality and access to retail outlets in the form of market stalls, shops or farmers' markets. The latter have yet to be introduced in Vietnam, unlike other countries such as Malaysia or India (Braber, 2006) or indeed in Europe (Kirwan, 2004). It is also important that local administrations be more closely involved in the control of food safety at the production and marketing stages. This is primarily for public health reasons, but also to strengthen the credibility of farmer organizations. Rather than endorsing all the functions of food quality control, they should stimulate the emergence and accreditation of private, third-party certifiers which are as yet restricted in Vietnam to a small number of companies dealing in agricultural exports.

A more systematic evaluation of the financial impact of belonging or not belonging to farmer organizations should be conducted based on a large representative sample and using certain econometric tests. It would also be useful to investigate further the pat-

terns of free-riding in the groups, in particular by members who may want to benefit from the reputation of the group without undertaking the necessary efforts in terms of quality.

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