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Traditional vs. Modern Food Systems? Insights from Vegetable Supply Chains to Ho Chi Minh City (Vietnam)

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This article describes the development of vegetable marketing in Ho Chi Minh City (Vietnam), where modern distribution outlets are competing fiercely with traditional traders for wholesale and retail customers. Data from interviews with supply chain stakeholders and a survey of vegetable wholesalers have been used to compare the performance of modern and traditional chains, and the findings reveal the chains as segmented in their product focus, the modern sector focusing exclusively on quality. Modern marketing channels are generally more efficient than traditional ones but still account for only around 2% of vegetable distribution. The article argues that policy-makers should not promote the 'modernisation' of food systems at the expense of traditional channels which meet important consumer needs.

1 Introduction

Recent research has shown the significance of the rise of supermarkets and modern distribution businesses in the food marketing systems of developing countries (Deloitte Touche Tohmatsu, 2005; Reardon et al., 2003). The same trend has also been documented more specifically in South-East Asia: modern distribution outlets like department stores, supermarkets and hypermarkets are appearing in the region, taking food market shares from traditional retailers. Local situations vary across the region: in Taiwan, over 60% of food sales were transacted by the modern retail sector in 2000; in Malaysia, modern retailers accounted for only 20% of food sales across the country; in the cities of Thailand, the modern sector's market share of food sales increased from 25% to 50% in just five years (Department of Foreign Affairs and Trade, 2002). However, in all countries in the region, sales of fresh food – fruits, vegetables, meat and fish – are still a stronghold of the traditional retail markets and itinerant retailers (Cadilhon et al., 2003b).

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In Vietnam, fresh food marketing has traditionally involved supply chains operating through a series of wholesale and retail markets scattered around cities (*Vietnam Investment Review,* 2000).[1] This is still the case in Ho Chi Minh City (HCM City) with over 200 markets to feed an estimated population of 8 million (*Vietnam News,* 2001). Although not as developed as in other countries in the region, modern food marketing outlets are starting to appear in HCM City with strong backing from the local authorities. At first restricted to a burgeoning middle class (Trân Hiêu, 2004), supermarkets and modern department stores are now starting to attract local customers with different income levels (*Saigon Times Weekly,* 2002).

This article documents the development of supermarkets in HCM City and compares the performance of modern and traditional vegetable supply chains. The next section reviews the recent literature on supermarket growth in developing countries and discusses indicators for measuring the performance of food supply chains. Section 3 details the methodology and the performance indicators chosen. Section 4 presents the structure of the fresh vegetable marketing system in HCM City and the relative market share of competing vegetable distribution channels. Section 5 compares the performance of traditional and modern supply chains, and the final section discusses the implications of the research findings for development policy.

2 Literature review

2.1 The rise of supermarkets in developing country food marketing systems

Food marketing research in developing countries has shifted in recent years from a bias towards the export function in favour of research into local markets and the increasing market share of modern distribution outlets (Balsevich et al., 2003). Indeed, supermarkets are becoming dominant outlets for local fresh produce compared with export markets (Neven and Reardon, 2004; Reardon and Berdegué, 2002). Furthermore, supermarkets in developing countries engage in relationship marketing and set up dedicated supply chains with secondary wholesalers or farmers, as opposed to relying on traditional adversarial relationships in spot markets. This emphasis on slim margins and high quality has created new opportunities as well as new challenges for farmers and other fresh produce suppliers (Cacho, 2003). The supermarket focus on quality is particularly noticeable to consumers in country contexts where official quality standards are low, not enforced or distrusted (García Martinez and Poole, 2004; Tan Loc, 2002). Self-service shopping, clean environments, price displays, and aggressive marketing and discounts are becoming the strategic norm (Hagen, 2003; Miu and Penhirin, 2003).

However, barriers to the advancement of the modern retail sector have been identified in the fresh food sector in Asian markets, due largely to deeply held cultural

1. A supply chain is a network of organisations involved, through up- and downstream linkages, in the different processes and activities to produce value in the form of products and services for the ultimate consumer (Christopher, 1998). The terms distribution channel, marketing channel and marketing chain will be used as a synonym for supply chain. Wholesale markets are defined as physical places where professional agents congregate to buy and sell physically present products from/to other professionals (Cadilhon et al., 2003a). Retail markets cater to the demands of consumers.

values (Goldman et al., 2002). For consumers in Asian markets, 'fresh' food means 'as close as possible to the live animal or plant'. Chilled and frozen meat, fish or fresh products are associated with a period of storage that thus makes the food un-'fresh', such that chilled food is not considered 'fresh' by many Asian consumers (Figuié, 2004).

2.2 The emergence of modern distribution in Vietnam

The liberalisation of the Vietnamese economy in 1986 enabled, among other things, the modernisation of the distribution sector. The first supermarket in HCM City was a state-run enterprise named Minimart established in 1993. Citimart followed in 1994, owned and operated by a Vietnamese expatriate who had gained experience of supermarket operations in the Philippines. The success of Citimart inspired the owners to open another supermarket chain – Maximart – in 1995. In 1996 the Vietnamese Federation of Trade Co-operatives established their first supermarket: Co-op Mart (Giac Tam, forthcoming). This co-operative-owned supermarket has become the largest local supermarket chain in South Vietnam, with 13 branches within HCM City and other provinces in the South and a 50% regional market share of modern grocery retailing (*Saigon Times Weekly*, 2004a).

The French Bourbon Group set up its first hypermarket in Bien Hoa City, 20km east of HCM City in 1998. Fresh produce was sourced solely through the state-owned packer and exporting company Vegfruco. The direct implantation of the French hypermarket model was a failure and merchandising methods have been modified at Big C to become more appropriate to the local context of frequent patronage by customers coming from the neighbourhood on foot or motorcycle (Cadilhon et al., 2005a).

Another foreign investment into fresh food distribution is the German-owned company Metro Cash & Carry. Established as a modern wholesaler with a first Vietnamese outlet in 2002, the company has been opening new stores with strong sales to customers in the hotel, restaurant and catering sector. The rapid success of the Metro business model has been attributed to its careful prior market analysis (Cadilhon et al., 2003b). Metro fresh food supply chains also involve strong collaborative practices with a few of their best and regular farmer-suppliers in order to satisfy their quality-focused customers (Cadilhon and Fearne, 2005). However, Metro also relies on many small trader-suppliers for occasional deliveries, traders with whom it has a more arms-length supply relationship determined by cheap prices (Giac Tam, forthcoming).

Vietnamese authorities strongly encourage the development of modern distribution outlets in the cities in order to solve perceived problems of food health and safety in the production and marketing system (HCM City Department of Trade, 2002). Accordingly, traditional markets are being modernised or closed in HCM City.

2.3 Measuring performance

The policies of the Vietnamese local authorities suggest that the Western supermarket model is the benchmark for good supply chain performance. However, criteria other than 'modernity' have been proposed to assess the performance of food markets in a more systemic manner.

Traditional research has focused on detailed performance indicators like economic efficiency, innovation potential, successful transfers of resources between the different sectors of an economy, equity in income distribution in the marketing system, employment potential, reduction of food insecurity and co-ordination efficiency (Goldman, 1992; Harrison et al., 1987; Scarborough and Kydd, 1992). More recent assessments of food marketing systems have added the dimensions of food traceability (Lees, 2003) and food safety (Balsevich et al., 2003) that should be counted in to measure marketing system performance completely.

Given the lessons learned from supermarket supply conditions in other developing country contexts, the development of modern distribution in Vietnam and strong government support for it, this research set out to compare the performance of both traditional and modern vegetable supply chains in HCM City.

3 Research methodology

3.1 Choice of performance indicators

The following performance indicators reflect the traditional research focus, to which have been added particular concerns arising from the Vietnamese context:

- Market share not only involves the relative volumes supplied by competing channels but also the number and spatial distribution of available retail outlets. The market share indicator has been used in previous studies on the growth of supermarkets in developing countries (Reardon et al., 2003). However, there are difficulties in collecting accurate information in developing country contexts where the informal sector is very important in traditional food distribution networks.
- Satisfaction depends on the expectations of a customer and the performance of a supplier (Batt, 2003). The business literature has shown how satisfaction was a good proxy for the performance of a trading relationship (El-Ansary, 1979, quoted by Duffy, 2002).
- Price data at different stages help assess the role of producers and distributors in building value in the marketing channel. However, collecting accurate price data in a highly volatile market context has proved very difficult; the prices reported here should thus be seen as indicative only. The effect of price volatility is also difficult to interpret, as it can create uncertainty about the revenues of supply chain stakeholders, on the one hand, but can also be used to clear the market, on the other (Brousseau and Codron, 1998).
- Labour index. The number of people employed by a supply chain divided by the volume of products sold is a rough indicator of the contribution made by the competing marketing channels in job creation (Harrison et al., 1987).
- Supply chain efficiency was assessed by collecting information on price stability, flexibility in response to customer orders, delivery times and quality

management in order to assess the distributive efficiency of the competing marketing channels (Fearne and Hughes, 1999).

3.2 Data collection

The tomato supply chain was selected because of the widespread use of tomatoes by consumers and because of the problems in marketing and transport identified by previous research (IFPRI, 2002). Data were collected in HCM City between 2002 and 2004.

The principal method of data collection was in-depth interviews with marketing system stakeholders – farmers, collectors, wholesalers and supermarket managers – followed by four case studies: two of traditional supply chains, and the case studies of Metro and Big C modern tomato supply chains (Cadilhon and Fearne, 2005; Cadilhon et al., 2005a and 2005b). A survey of HCM City wholesale traders was also carried out in order to understand working conditions at the wholesale level of the traditional tomato supply chains. A detailed questionnaire was used to interview 53 tomato wholesalers (46% of all tomato traders enumerated at the time of the survey in the three principal wholesale markets of the city).

An exploratory consumer survey was also carried out to gain insights into the viewpoint of the final customers of supply chains studied with a predominantly business-to-business perspective (Cadilhon and Giac Tam, 2004). Finally, insights into the functioning of the food marketing system in HCM City were collected by key informant interviews with government officials, local researchers and industry experts (Cadilhon et al., 2003b).

4 The structure of the HCM City vegetable marketing system

4.1 The system today

Competing supply chains for consumer food spending

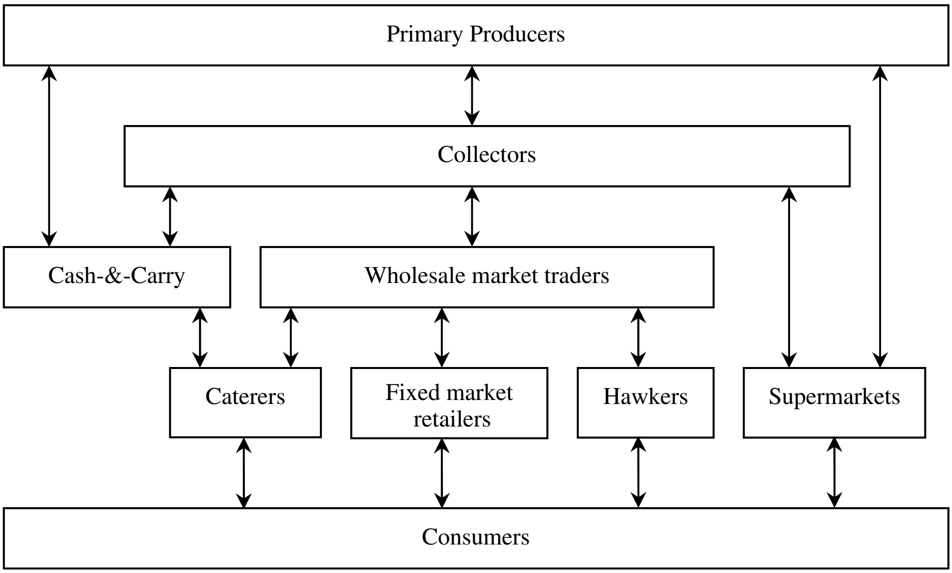
Total demand for fresh vegetables in HCM City has been estimated by Tan Loc (2002) at 438,000 tonnes per year. The stakeholders in the fresh vegetable trade are indicated in Figure 1.

All the chains represented in Figure 1 source fresh vegetables from Lam Dong Province, a high-plateau area located over 250km northeast of HCM City. Producers and collectors are located in the production area, whereas wholesale and retail stakeholders are urban-based. All transport from producers to urban distributors is carried out in unrefrigerated trucks.

The modern stakeholders in the vegetable marketing system are represented by the cash-and-carry business (Metro) and supermarkets (Big C). Traditional urban distributors source through middlemen because of the small scale of vegetable production in Lam Dong Province where the majority of household vegetable plots are less than 0.5ha. In contrast, the modern distribution sector has built direct supply links with producer groups with larger land holdings in Lam Dong Province.

Figure 1 oversimplifies the marketing system inasmuch as some stakeholders may hold several roles: for example, large producer groups rely on one of their members for collection and marketing to city outlets. Figure 1 also represents only vertical links between stakeholders. Suppliers to modern distribution outlets are also suppliers to traditional wholesalers (Cadilhon, 2005).

Figure 1: Competing vegetable supply chains to HCM City consumers



Source: Adapted from Cadilhon et al. (2003b).

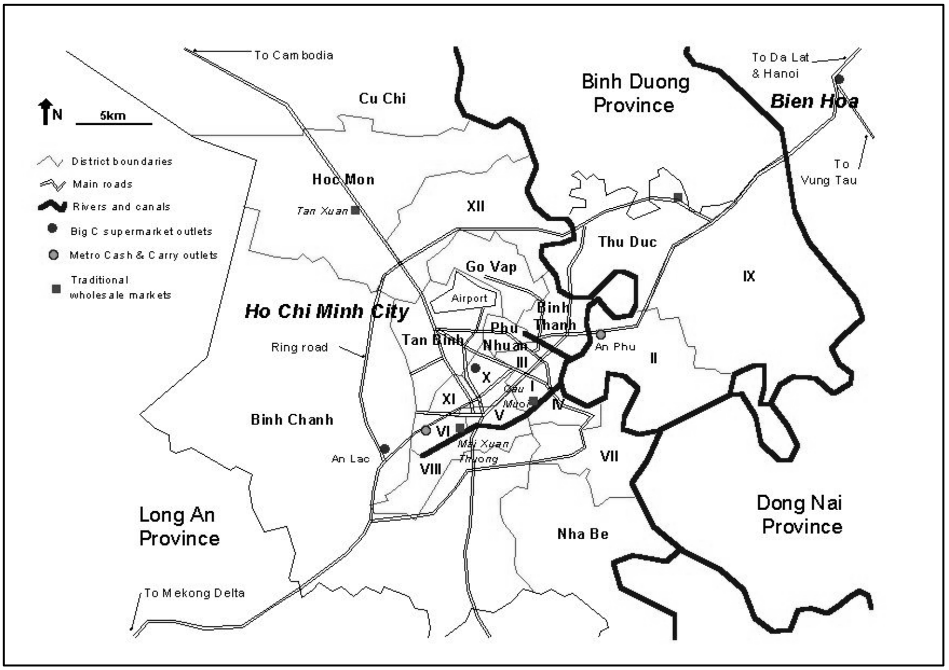
Wholesale markets

The wholesale markets in HCM City are the main entry points for supplies of fresh produce to the city. There are three main vegetable wholesale markets which are active mainly at night. In all wholesale markets the range of products on sale is extensive. Figure 2 shows the location of these markets.

Before October 2003, there were two major fresh produce wholesale markets in the historic city centre: Cau Muoi market in District I and Mai Xuan Thuong market in District VI. Because of congestion and market efficiency issues, the local city authorities moved the Cau Muoi market traders to a new facility on the outer reaches of Thu Duc District, in the Northeast of the city. Plans to move Mai Xuan Thuong market to a location in the Southwest Binh Chanh District are meant to be implemented by the end of 2005.

The third vegetable wholesale centre, called Tan Xuan market, is located in the Northwest district of Hoc Mon. This market is active both night and day and has two distinct peaks of selling activity corresponding to products from different origins: Lam Dong vegetables (onions, potatoes, tomatoes, cabbage, cauliflower and other temperate produce) arrive at night, while the trading of peri-urban produce (mainly squash, cucumbers and yard-long beans) is conducted in the afternoon by other wholesale businesses specialised in produce coming from this geographical origin.

Figure 2: HCM City with main vegetable wholesale markets, Big C supermarket and Metro Cash & Carry outlets



The traditional retail and catering sectors

Despite the growing number of city households with refrigerators, consumers continue to go to market very frequently (Cadilhon and Giac Tam, 2004). Table 1 shows that every ward within each urban district has at least one market. To supplement the official network of 200 retail markets and independent shops, unofficial street markets have been set up by petty traders in order to bring the market closer to consumers. Hawkers also deliver produce directly to households in need of convenience and lacking time.

Consumers in HCM City are spoilt for choice of cooked food outlets: restaurants, hotels, street canteens and hawkers make up a thriving catering sector that is highly symbolic of Vietnamese lifestyle and culture. In 1997-8, food consumption outside the home represented 20% of urban food expenditure and 30% of the calorific intake of the Vietnamese urban population. The catering sector of Vietnam represented a market valued at US$700 million in 1997, 67% of which was concentrated in cities (Moustier et al., 2003). In 2004, the HCM City Nutrition Centre estimated that at least 30-35% of food consumption occurred in restaurants and at take-away counters.[2]

2. This figure was expected to rise to 45-50% by 2010 (*Vietnam News*, 2004).

Table 1: Number of traditional and modern distribution outlets in HCM City, 2004

Name of urban district	Traditional retail markets			No. of other street markets selling fresh food	Supermarkets and department stores		
	No. of outlets	Selling food	Selling fresh food		No. of outlets	Selling food	Selling fresh food
District I	9	9	8	21	10	9	2
District II	1	1	1	4	1	1	1
District III	3	3	3	8	2	2	1
District IV	1	1	1	7	-	-	-
District V	15	11	6	5	4	2	1
District VI	4	6	5	5	4	4	4
District VII	5	5	5	5	-	-	-
District VIII	14	14	14	12	-	-	-
District IX	4	4	4	10	-	-	-
District X	2	2	2	5	5	5	1
District XI	4	4	3	8	1	1	1
District XII	4	4	4	7	-	-	-
Phu Nhuan	3	3	3	4	2	2	1
Tan Binh	10	9	9	11	4	4	2
Binh Thanh	5	5	5	9	1	-	-
Go Vap	4	4	3	19	-	-	-
Thu Duc	2	2	2	8	1	1	1
Binh Chanh	3	3	3	21	1	1	1
Total	93	90	81	169	36	32	16

Source: HCM City Department of Trade (2002), HCM City People's Committee (2003) and field observations.

The modern food distribution sector

Table 1 also lists the modern distribution outlets located in the different districts of HCM City. Most are located in the city centre where population density is high, and education and culture are more influenced by foreign trends (Tan Loc, 2002). In particular, the 10 modern distribution outlets in District I are linked to expatriates and foreign tourists who commonly reside in that area of the city. Different types of modern food outlets co-exist today (Giac Tam, forthcoming; Tan Loc, 2002): small convenience shops (less than 100m² in surface), mainly located in the vicinity or within condominiums for expatriate residents;[3] and supermarkets which are over 500m² in size, stock at least 4,000 different goods and operate under the self-service concept, and can be located within a bigger department store selling branded non-food consumer goods,

3. These modern convenience shops seldom sell fresh produce in HCM City.

or as independent shops with their own parking area, security service and storage facilities.[4]

Only 16 of the 36 modern distribution outlets listed stock fresh food. This low penetration of fresh food into Vietnamese modern distribution is attributable to the difficulty and expense of sourcing and distributing perishable products, and the marked preference of consumers to buy fresh food in traditional outlets (Goldman et al., 2002). However, the modern distribution sector is making particular efforts to stock local fresh produce in satisfactory conditions of hygiene and freshness (Giac Tam, forthcoming). Most modern outlets used to sell fresh produce as washed and pre-packed bundles of fruits and vegetables, but they are now adopting self-service merchandising similar to the conditions found in traditional retail markets. There is, as yet, no important fast food or catering chain that makes a significant impact on fresh food supply chains by its procurement strategy.

4.2 Market shares of competing supply chains

Figure 3 complements Figure 1 by estimating the market shares of the competing tomato supply chains in HCM City. The dominance of the traditional retail sector in terms of sales volumes and number of outlets is striking.

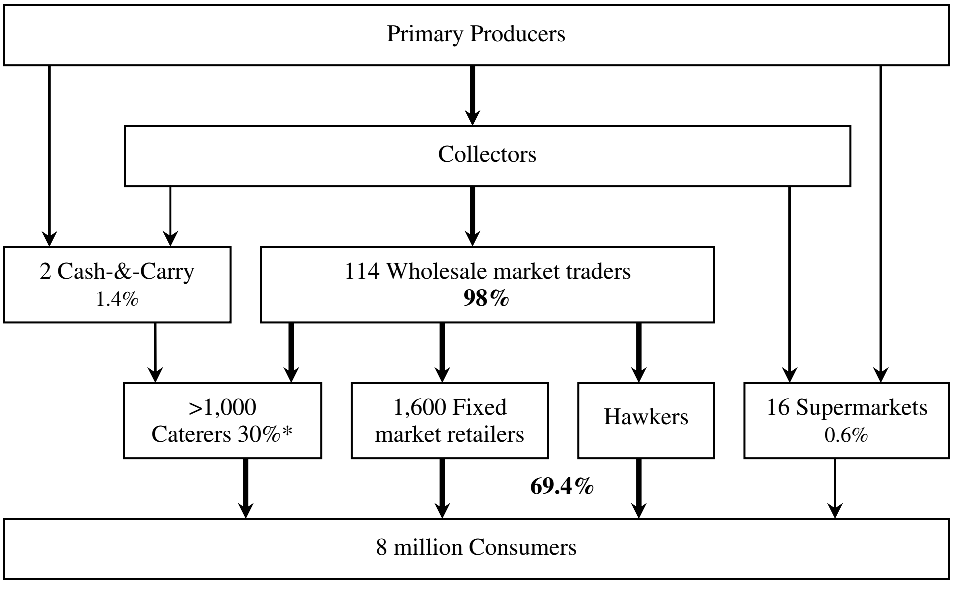
Data from the wholesaler survey sample – constituting 46% of the entire population of tomato wholesalers in the three main markets – were extrapolated to evaluate the total volume of tomatoes sold in these main wholesale markets, estimated at 70 tonnes per day. In-depth interviews with managers at Metro and Big C revealed that tomato sales by the modern wholesaler stood at 1 tonne per day and at around 250kg/day for the modern retail sector. Accordingly, traditional wholesale markets appear to distribute 98% of all the tomatoes in town, compared with 1.4% for Metro and only 0.6% for the modern retail sector.

Regarding the number of outlets, the enumeration of wholesalers in the traditional markets identified 114 businesses selling tomatoes. At the retail level, the number of modern distributors selling fresh food has been estimated at 16 (cf. Table 1), compared with an estimate of 159 traditional retail markets selling fresh food in HCM City with approximately 1,600 tomato retailers. The number of hawkers is difficult to estimate but they are visible on the streets throughout the city. Finally, the number of businesses registered within the catering sector was around 1,000 at the beginning of 2004 (personal communication from French Trade Commission in HCM City on 11 November 2004). What is more, there are also myriad unofficial food stalls spread out around the city selling cooked food to consumers.

Thus, although supermarkets in Vietnam are enjoying very strong growth (*Saigon Times Weekly*, 2004b), market shares for fresh produce are very small compared with those in some other Asian cities and in the advanced economies. This low market share is partly due to the very early stage of supermarket development in the country, but other performance indicators may have further explanatory value.

4. The term hypermarket is used here for the bigger version of a supermarket, with over 12,000m² of store area.

Figure 3: Market share of competing HCM City supply chains for tomatoes



Sources: Authors' estimations and **Vietnam News* (2004).

5 Comparing performance of competing supply chains

5.1 Satisfaction of stakeholders

Satisfaction of the final consumer

Customers of different vegetable retail outlets in HCM City had varying reasons to patronise their preferred outlet (Cadilhon and Giac Tam, 2004). The main reasons for regular use of an outlet were the proximity of the shop and time saving (spontaneously quoted by 51% of 138 respondents) rather than freshness (41%), price (34%) or safety of the produce (34%). The survey also highlighted the capacity of the traditional retailing system to reach all types of consumers in widely scattered dwellings, thus showing the benefits of an extensive rather than concentrated retailing system. However, 90% of customers surveyed in the modern distribution outlets stated the safety of the produce as their main reason for shopping there for vegetables.

The interviews of the upstream stakeholders within all the supply chains revealed that traders had little idea of the satisfaction of the final consumer, whether in terms of product safety, appearance, freshness, price or availability. There was no deliberate information-sharing in the supply chains on the quality attributes desired by consumers. Rather, retailers would choose products with specific 'commodity' characteristics such as size, freedom from obvious damage and homogeneity when buying from wholesalers. These characteristics would be sought after by wholesalers when purchasing vegetables from their collectors, who would in turn ask for such characteristics from farmers. Nevertheless, the two modern distribution channels showed a more participative system of information-sharing throughout their supply chains because of the special emphasis on product quality. Moreover, Metro showed a real intention of satisfying its customers through the numerous surveys it commissioned and reacting to complaints about the quality of its fresh produce.

Comparing satisfaction in the traditional and modern marketing channels

Among the suppliers interviewed who dealt in both modern and traditional marketing channels, there were mixed feelings of satisfaction. Differences originated in the characteristics of the transactions in the two channels and individual trader strategies. On the one hand, two young female Metro suppliers stated that they preferred to deal with Metro rather than with their traditional wholesaler customers. Indeed, they commented that Metro had a more transparent price policy and payment was secure, although delayed, whereas it was more common for them to be price takers with their traditional customers. On the other hand, another older male Metro supplier preferred to deal with his traditional customers because they were much less particular about quality and more flexible on quantities delivered and payment arrangements.

This difference in strategy and satisfaction can be explained by the personality and business orientation of the three stakeholders involved. Both young women still had a long trading career in front of them. The stability of Metro supply contracts was obviously attractive for them as a risk management strategy. On the other hand, the older supplier already had a very good knowledge of the way the traditional marketing channels worked and was less willing to innovate for the newly-arrived modern distributors.

Another source of dissatisfaction on the part of collectors selling to both traditional and modern distributors was that the latter's orders were much smaller in volume. In the case of one farmer group, as little as 1% of the 15 tonnes of total daily produce sales were sold to Metro because of its small market share of fresh vegetable distribution in HCM City. The traditional wholesale markets therefore remain an essential business partner for all vegetable producers and collectors in Vietnam.

5.2 Comparison of prices

Table 2 shows the differences in tomato prices in the two modern supply chains compared with the traditional marketing channels. Because daily vegetable prices in Vietnam are extremely volatile, the prices in Table 2 should be used with caution.

The price comparison between the two modern distribution channels and the traditional supply chains shows that farmers in the modern channels get a better price for their produce, mainly thanks to the direct supply without middlemen. However, there are extra costs linked to direct supply (processing and packaging, marketing, transport, transaction costs) which farmers in the traditional supply chains do not incur.

Table 2: Price formation in tomato supply chains to modern and traditional outlets in HCM City (all prices in VN$/kg)

Supply chain	Big C direct from farm	Traditional supply chain	Metro direct from farm
Type of tomato	Grade 2, 'Safe'	Grade 2	Grade 1, 'Safe'
Farm-gate price	2,300	500	1,500
Collector price	-	1,200	-
Wholesale price	-	1,500	2,700
Retail price	4,900	5,000	-

Note: Produce sold by Metro and Big C is marketed as 'safe', having been produced with fewer chemical inputs than the produce in the traditional supply chains. This concept of 'safeness' – *'an toan'*– is the object of an official certification by a government laboratory. The produce sold by modern distributors may thus be considered a different product from that in the traditional supply chains. At the time of research, £1 ≈ VN$27,000 and €1 ≈ VN$18,000.

Not only are the farm-gate prices in the modern supply chains higher than in the traditional competing channels, but all the stakeholders interviewed reported that prices were much more stable as well. As the tomatoes sold are 'safe' (*an toan)* in respect of food hygiene, the variations in price are much smaller than for the conventional product. Nevertheless, it is worth remembering that farmers growing 'safe' tomatoes for the modern distributors cannot clear all their 'safe' goods because the sales potential of Metro and the other supermarkets is not big enough (Cadilhon et al., 2005b). Again, the parallel supply chains with traditional wholesalers remain very important to all suppliers of modern distributors.

Finally, at the modern retail level, in-depth interviews with the fresh produce buyer at the Big C supermarket revealed that Big C would endeavour to display slightly lower prices than its competitors in city retail markets by using pricing techniques that would discount VN$100[5] off the price of its competitors. For example, fresh produce prices at Big C would state VN$4,900/kg when the quoted price in the city retail markets would be VND5,000/kg. However, consumer research in Vietnam has shown that city consumers had the impression that vegetable prices in the supermarkets were generally higher than those in the traditional retail markets (Cadilhon and Giac Tam, 2004; Figuié, 2004).

5.3 Comparing labour indicators

In a country where 1.4 million young people enter the labour market every year and cities are the focus of migration by job-seekers from the rural areas, it is essential for the Vietnamese authorities to foster employment generation (Moustier et al., 2003). The traditional food marketing channels characterised by numerous small family-run businesses are a possible solution to increase labour demand. On the other hand, the development of modern distribution outlets in cities can also be seen as a way of concentrating an abundant labour supply in the services sector. It is thus relevant for

5. At the time of the research, VN$1000 would be equivalent to €0.055 or £0.037.

policy-makers to know the respective contributions of modern and traditional food supply chains to job creation.

At the wholesaler level, the 53 tomato wholesale businesses interviewed employed a total of 140 people and sold around 49,000kg of tomatoes daily. At Metro Cash & Carry, 1,200 workers were employed for 1,000kg of tomatoes sold daily. Admittedly, not all these workers in the wholesale markets and at Metro are involved in the tomato supply chains. Thus, traditional wholesale businesses employ a maximum of 2.9 workers per tonne of tomatoes sold, whereas Metro employs 1.2 workers. This may be interpreted in two ways. From a societal perspective, traditional wholesale markets can be seen as a better medium for employing a numerous population than their modern equivalent. On the other hand, the modern wholesaler has used its tomato supply chain management to increase the productivity of its own workers: because the produce is ready-for-sale and has already been cut and processed by its suppliers, Metro staff only need to handle the produce from the store room to the display stall (Cadilhon et al., 2005b).

Comparing employment levels further up the supply chains was more complicated as only detailed case studies have been used here. The modern distributors expressed a clear preference for sourcing from big farmers or farmer groups who have the capacity to deliver several types of products in the case of vegetables from Lam Dong Province.

5.4 Comparing efficiencies

Effects on price stability

Given the high volatility of prices in the Vietnamese vegetable marketing system, the supply chains that manage to stabilise prices for all their stakeholders could be regarded as performing better than those where stakeholders are the victims of market price fluctuations. Stakeholders interviewed in the case studies of 'safe' vegetable supply chains for the modern distribution outlets stated that they benefited from more stable prices than farmers and traders in the traditional marketing channels. Their focus on quality produce, and on 'safe' vegetables in particular, had a direct impact on stabilising prices in the supply chain.The modern supply chains with a quality focus may therefore be seen as more efficient than the traditional marketing channels in terms of reducing price volatility and risk.

But the inherent volatility of the tomato market is not an entirely negative characteristic. It is true that the strong volatility of tomato prices at the production level can be very damaging to producers: all market gardeners interviewed commented on a seasonal glut around February and March when farm-gate prices were so low that harvesting costs would not be covered and many farmers would let the produce rot. The wholesaler survey also showed that 57% of traders sourcing from regular collector-suppliers always paid their suppliers after they had finished their own transactions. Rural stakeholders therefore receive a residual price and suffer from the volatility at the city wholesale level.

However, this price volatility can also be used as a tool to clear produce. All traders interviewed for the case studies of traditional supply chains agreed that they could modify their prices very quickly to follow market conditions in order to clear leftovers before the end of the marketing day. Indeed, 98% of the wholesalers surveyed used these discounted prices to clear their goods. Further in-depth interviews discovered that wholesalers did not regard this practice as pushed by distress, and the potential added-value that was lost was not seen as problematic. Rather, the possibility of changing prices quickly according to the market conditions enabled wholesalers to clear goods from their regular suppliers and to clear the market of goods that could not be stored because of limited facilities and lack of refrigeration.

Time needed from order to delivery

Modern and traditional tomato supply chains do not show significant variations in delivery efficiency. Indeed, both traditional and modern wholesalers will send their orders to their suppliers in the morning for an expected delivery the following night so that produce is on display in the early morning. However, differences appear when dealing with a highly perishable product like butterhead lettuce (Cadilhon et al., 2005a).

On the other hand, at the wholesaler-retailer level, the traditional marketing system was reported to be more efficient than the modern one. Purchasing managers interviewed in HCM City five-star hotels all agreed that independent secondary wholesalers were more flexible, and had the appropriate quality produce delivered faster and at a cheaper price than Metro. In its strategic alliance with one of the hotels, the business partners had agreed to give a three-day advance notice for deliveries to be prepared and delivered. Therefore, there is still scope for Metro to develop its food service activity to compete successfully with traditional food service providers and complement its cash-and-carry activity (Cadilhon and Fearne, 2005).

Quality management

The traditional supply chains regard the wholesalers as clearance houses for their produce. As such, farmers and rural collectors are not encouraged to sort or grade the vegetables, since city wholesalers will always pay for all types of produce supplied, even though prices are highly discounted. In terms of quality management, the entry of modern distribution outlets in Vietnam has brought a complete shift in the way supply chain stakeholders think.

The major innovation introduced by the modern distribution outlets is the simple rejection of sub-standard produce. They will only accept high quality produce (high quality being judged on food safety requirements and appearance) and reject vegetables that are below standard.

City traders who are more concerned about higher quality, whether in the traditional or modern sectors, ask their collectors – who in turn ask their farmers – to take special care of their produce. This quality incentive makes the collectors grade the vegetables at the farm stage so that they can get a higher return on homogeneous lots of better grade produce. Producers can also benefit from this preliminary grading as they will likewise get higher prices for the part of their harvest that is of better quality (Cadilhon et al., 2005b).

Metro and Big C only guarantee very good quality produce, which is ready-to-sell to quality-conscious customers. On the other hand, limited supplies of quality-assured produce mean that there is a danger of discontinuity, with no alternative supply other than the traditional wholesale markets or the state-owned and expensive Vegfruco company for an emergency delivery. Turnover in what is still a niche market presents another problem: although the supermarkets are striving to improve the appearance of fresh produce on their stands, turnover is still slower than in traditional markets. As a result, visits to retail outlets confirmed that many of the vegetables at Metro or in the supermarkets do not look as fresh as those in the traditional markets.

6 Discussion of results

Results from this research on the various levels of performance of traditional and modern vegetable supply chains in HCM City suggest recommendations for development decision-makers and operators.

6.1 A push for co-developing modern and traditional channels

The traditional system is delivering services that are valued by millions of customers. Given their overwhelming market share in the vegetable marketing system of Vietnam, the role of traditional fresh produce supply chains is assured for the medium-term, despite the challenge of their modern competitors. The complementary satisfaction of different consumer segments and of the various stakeholders interviewed also supports the call for city authority policies that might bring a harmonised development of both modern and traditional marketing channels. On the one hand, the traditional marketing sector should be modernised in order to improve trading conditions in respect of hygiene, congestion and waste management. Nevertheless, the current dense network of fresh food retail markets should not be dismantled by policy-makers, because it responds to the demands of a large segment of the consumer population with limited time and needing to find fresh produce close to home. On the other hand, private investments in modern distribution should be further encouraged to raise awareness of quality and safety.

A more appropriate method of improving fresh produce quality standards than market systems restructuring and 'out-of-town' relocation would be to enhance the overall standards of quality within supply chains and city markets. This could be achieved by increasing farmer and trader awareness about integrated pest management, 'safe' vegetable production techniques and 'safe' marketing practices. The generalisation and systematisation of quality controls at the different stages of the marketing channels should also be encouraged. The examples of Thailand and Taiwan (Republic of China) in this field are particularly relevant for Vietnam where regulatory approaches to food safety are rudimentary.

6.2 Consequences of the rise of supermarkets in Vietnam

Despite the still small market share of the modern distribution sector in Vietnam, its characteristics as detailed by this research – strong growth, lower consumer prices, innovative supply strategies – are likely to lead to major impacts on stakeholders in the vegetable marketing system.

Positive impacts

Positive impacts of the rise of modern distribution on Vietnamese society can be identified and are consistent with other research results (Cadilhon et al., 2005b; Department of Foreign Affairs and Trade, 2002; Farina et al., 2004; Moustier et al., 2003; Reardon et al., 2003; Speece and Huong, 2002), as follows:

- increased employment in modern retailer outlets and in their dedicated supply chains;
- a general improvement of food quality throughout the country as farmers copy the safe agricultural practices of successful neighbours supplying the modern distribution sector, and consumers increasingly take better value for granted when shopping;
- a decrease in consumer retail prices which will benefit consumers. Given that modern distribution outlets now focus on leaner supply chains to attract all types of consumers, their increasing market share can lead to lower consumer prices;
- the development of agri-business farms to supply the modern distribution sector, and export markets will be a source of agricultural employment for Vietnamese rural labour that has been shown to be relatively idle.

Negative impacts

Some negative aspects are also likely. First, supermarkets are an opportunity for poor farmers to sell quality items at a better price, but the higher investments necessary for some market crops, for example, greenhouses or netting, may force smallholders out of business (Boselie et al., 2003). The rise of supermarkets in Vietnam could thus lead to squeezing small farmers out of the agri-food production and marketing systems, as has happened in other countries (Fritschel, 2003).

Secondly, there is the long-term possibility that traditional wholesale markets will be superseded by the modern distribution sector, Wholesale markets may then become cheap clearing houses for low-quality produce, as is the case in the United Kingdom (Cadilhon et al., 2003a). A strategy to prevent this gradual lowering of quality in the traditional supply chains and maintain a diverse food system would be for wholesalers to develop a focus on quality rather than on clearing all their produce, and to seek customers from within the growing institutional and catering niche of the retail market.

6.3 Research limitations

Two principal limitations of the methodology implemented should be highlighted. First, the case study methodology has a low degree of generalisation. Second, the vertical supply chain framework (cf. Figure 1) oversimplifies the impacts of the network structure of the marketing system (Lazzarini et al., 2001), which was uncovered by the case findings.

Nevertheless, the case study framework adopted by this research has enabled exploration of the mechanisms by which supply chain characteristics impact on market performance. The uncovering of stakeholder responses to changing incentives in the Vietnamese economy, which is moving fast from central planning towards market stimuli, raises questions about the adequacy of different food supply systems for meeting consumers' preferences, and constitutes valuable lessons learned for future research and policy-making. This interest in strengthening local food supply chains in parallel to the rise of modern distribution outlets in developing countries should continue.

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