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Food retailing, supermarkets and food security: Highlights from Latin America

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Food Retailing, Supermarkets and Food Security

Highlights from Latin America

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Abstract

The importance of supermarkets in the world food economy has increased radically since the early 1990s. They are now major sellers and buyers of food items not only in developed but also in developing countries. Urbanization and the liberalization of the services sector have been important facilitators of this process.

Supermarkets have a significant impact on both producers and consumers. They provide relatively cheaper and better quality products, at least to some groups of urban consumers (the relatively better-off consumers in developing countries and the poor inner-city dwellers in more developed ones), thus contributing positively to their food security. Their global procurement networks, stringent quality requirements and financial muscle make this possible. The same factors, however, impact differently on producers. The suppliers who can abide by the quality standards, quantity requirements

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Keywords: food retailing, supermarkets, food security, value chains, Latin America

JEL classification: Q13, O13, O54

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and the business practices of supermarkets, either alone or in association with others, benefit from these new retail channels. They also gain easier access to export markets. Smaller and poorer producers, who cannot meet these requirements, are left out, marginalized and often bought out by larger concerns, experiencing impoverishment and subsequent deterioration in their food security. Finally, employment in the traditional retail sector suffers with a non-negligible loss of employment.

These global phenomena are examined and illustrated through examples from the Latin American region provided in the literature. Particular emphasis is put on fresh fruit and vegetables, products that have been studied most extensively, and milk. The case of potatoes illustrates the impact of the fast food industry, which is not much different from that of supermarkets. Some proposals are made to enable the more disadvantaged producers benefit from the opportunities presented by the advent of supermarkets.

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1 Introduction

As defined in the *Plan of Action 1996* of World Food Summit ‘Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life’ (FAO 1996). Food security can be discussed at the level of households, regions or the nation. The focus of this paper is households and, mainly, their access to food. The nutritional aspects of available food is mentioned only briefly, as is food quality, which is a major aspect of food safety, ‘closely linked with sanitation, water supply, food preparation and marketing’, and which is ‘the result of many different actions in the food supply chain’ (Unnevehr 2003: 1).

Poverty being the main cause of food insecurity, access to food is examined from the perspective of purchasing power, determined by prices and incomes. With a given the level of income, the prices paid for the food is the key element of food security for the urban population which is, by definition, a net food purchasing group—the lower the prices for a given quality of food, the easier is access to food. The impact of changes in the retail end the food supply chain, particularly with the advent of supermarkets, on access to food by urban consumers is one of the main concerns of the paper. The other being the impact on producers of food.

For the rural population, the situation is more complex. Food producers supplying urban markets have better incomes and better means to purchase the food items that they do not produce themselves (as is the case of producers integrated to markets but not subsistence farmers) when they receive higher prices for their products. Therefore, there appears to be a new element in the conflict of interest between urban consumers and rural food producers. The former are interested in low food prices which supermarkets may bring about, and the latter, so far as they are net sellers, in high prices which supermarkets suppress. However, a large part of the rural population are net food purchasers and their access to food and food security is also heavily affected by the prices of the food they purchase. They are interested in higher prices for the items they sell, but lower prices for those which they purchase. Moreover, incomes of the food suppliers are determined not only by prices but also by the quantities sold, and from this point of view, their ability to participate in the supply chain is crucially important. The challenges to securing access to these chains are treated below.

The variables mentioned above, which crucially affect food security—namely, prices, incomes of producers, quantities and qualities—are determined in the food system that comprises the activities carried out in a complex chain (or web¹—in the light of the complexity of relationships among global and local firms engaged in this sector) starting from supplying of inputs to agriculture, through farming, food processing and wholesale operations to the retail sector and consumers. In this paper, the focus is on the retailing stage of the food system and, especially on how the recent rapid growth of supermarkets affects the consumers (principally urban) and the farming sector (principally rural). A related question is whether the recent changes in food markets adds a new dimension to the conflict of interest between and within the rural and urban areas.

¹ For a discussion of the food economy as a web with food consumption at its centre, see Kinsey (2003).

The basic questions are relevant for all parts of the world, but the main examples used in this paper come from Latin America. The role of supermarkets in the food system, particularly their impact on the suppliers, has been the subject of considerable recent research. The intention of this paper is to highlight the food security aspect while summarizing some of the relevant literature, rather than adding original information to the extensive documentation already available.

2 Advent of supermarkets

The word 'supermarket' is used to denote a large self-service store, selling groceries, dairy products and household goods. Supermarkets are owned and operated by a wide variety of business concerns, from wealthy local individuals to giant, globally active transnational companies. The operational modalities also differ but in this paper the focus is more on 'modernity', particularly in procurement and selling practices, rather than size of the shops. The extent of concentration in the sector is an important determinant of these practices. The procurement practices become more complicated and restrictive for suppliers as concentration, and therefore the size of purchases, increases.

The emergence of supermarkets in developing countries is relatively recent. Their expansion, however, has been rapid. 'Supermarkets are now dominant players in most of the agrifood economy of Latin America, having moved from a rough-estimate population-weighted average of 10-20 per cent in 1990 to 50-60 per cent of the retail sector in 2000'. The corresponding change in the US retail sector took 50 years (Reardon and Berdegúe 2002: 371). According to available data, a plateau seems to have been reached. The share of supermarkets in the food retail sector of principal Latin American countries is now similar to those in developed countries.

Urbanization and the increasing participation of women in the workforce have been important factors behind the rise of supermarkets. As the time spent in shopping for food has become more valuable, transportation facilities, access to cars, and refrigeration at home have allowed more bulk shopping and a preference for shopping at one place. These are the basic elements of the demand side for supermarket services. As Table 1 shows, the growth rate of urban population in Latin America and the Caribbean has been, and will continue to be, higher than in developed countries, although Africa and Asia display higher rates. In Latin America and the Caribbean, the percentage of urban population has been the highest among developing regions and surpassed that of Europe by 2000.

Some examples are given later on the impacts of the advent of supermarkets on the structure of employment in the farming sector. However, rising supermarket domination also has an impact on employment in urban areas. It is reported that in Argentina the number of retail stores, in general, dropped between 1984 and 1993 by 30 per cent, accompanied by a drop of 26 per cent in employment in food retail. While sales were being taken over by supermarkets, because of lower labour intensity per peso sold in them, employment was reduced. As supermarkets took over larger parts of the food retail business, 125,000 jobs were lost in the traditional shops, as against an increase in jobs in supermarkets of 22,500 (Gutman 2002: 419).

Table 1
Urbanization indicators by regions

	Urban population as % of total				Urban population growth % per year	
	1950	1975	2000	2030	1950-2000	2000-2030
North America	63.9	73.8	77.4	84.5	1.21	0.77
Latin America & the Caribbean	41.9	61.4	75.4	84.0	2.27	1.11
Oceania	61.6	72.2	74.1	77.3	1.77	1.05
Europe	52.4	67.3	73.4	80.5	0.57	-0.27
Asia	17.4	24.7	37.5	54.1	1.93	0.99
Africa	14.7	25.2	37.2	52.9	2.56	2.10

Source: UN (2001: Table 3).

A rough correlation can be detected between the prevalence of supermarkets and the level of income as well as the rate of urbanization in the figures in Table 2. The dynamics of supermarkets, however, are such that after emerging in large cities and concentrating on wealthy consumer segments, they ‘spread quickly from their “niche” in capital cities to intermediate cities, and then to medium sized and small towns in the 1990s’. At the same time, they started to address the special needs of poorer consumers. They ‘moved out of their “niche” in upper-income neighbourhoods where the few of them were located pre-1990, to spill into middle-class neighbourhoods in the mid-1990s ... and then into working class neighbourhoods from the late 1990’. The latter development comes with an emphasis on low prices and austere presentation, and the opening of chains of hard discount stores (Reardon and Berdegué 2002: 376). Similar developments occur all over the world. The strategy includes small shops in the densely populated areas, which avoids transportation needs for consumers, narrower choice, and packaging in small quantities to allow poorer consumers to afford the products. Although it can be argued that the expansion of the supermarket network into poorer parts of cities is the outcome of an unequal power struggle between large supermarkets and small shops, it also reflects an effective demand for their services.

The entry of global supermarket chains into developing countries, including Latin American countries, has been an important factor behind the expansion of the supermarket network and the increased presence of supermarkets in food markets.² In Latin America, Chile is the only country that has been spared this trend of foreign dominance, possibly because ‘in the 1990s foreign firms prioritized their entry into ... much larger markets. In addition during that decade Chilean companies were themselves at their peak’ (Faiguenbaum, Berdegué and Reardon 2002: 462). Deregulation of domestic markets in the context of structural adjustment programmes as well as trade liberalization that allows imports and leads to economies of scope (in addition to economies of scale) have facilitated and encouraged the entry of global supermarket chains into these countries. Large-scale food manufacturers have also increased their importance in the food system driven by similar factors as supermarkets, and have ‘similar and indeed related impacts “upstream” in the food system’ (Reardon and Berdegué 2002: 372).

² Annex table gives the largest supermarkets in several Latin American countries.

Table 2
Modern sector shares in food retail, income and urbanization
Latin American countries (sorted by urbanization)

	Modern sector share in food retail		Per capita income US\$1000 (2001)	Urban population % of total (2001)
	Column (1)	(2)	(3)	(4)
Uruguay	59		5,545	92.1
Argentina	54	57	7,158	88.3
Venezuela	54		5,048	87.2
Chile	58	50	4,310	86.1
Brazil	45	75	2,888	81.7
Colombia	40	38	1,924	75.5
Mexico	66		6,150	74.6
Peru	44		2,050	73.1
Bolivia	32		940	62.9
El Salvador		37	2,176	61.5
Costa Rica		50	4,014	59.5
Paraguay	36		1,286	56.7
Panama		54	3,383	56.5
Honduras		42	965	53.7
Guatemala		35	1,748	39.9

Notes: Columns 1 and 2: The figures from the two sources (M + M Planet Retail for column 1; data covering the 'modern sector' for 2004 and Reardon and Berdequ  for column 2 (2002: Table 1)) covers supermarkets for circa 2000) are comparable owing to definitional differences. Some of the 'supermarkets', mostly locally owned, do not appear in the 'modern' sector. Even figures given in the same source are not comparable. For example, in Brazil, ABRAS defines supermarkets as having 2 or more cash registers while most other countries define them as having 3 or more (note f to table 1 in Reardon and Berdequ ).

Sources: Column 1: M + M Planet Retail;
Column 2: Reardon and Berdequ  (2002: Table 1);
Column 3: UNCTAD (2003);
Column 4: UN (2004).

3 Impact of supermarkets on the food chain

3.1 Consumers

The impact of supermarkets on the consumers (urban population) manifests itself in two levels. The most visible, and probably the most important variable from the point of view of the consumer, is the prices paid for food in supermarkets compared with those in traditional markets. So long as supermarkets help reduce food prices, they contribute to improving food security for those who have access to them.

There is an interesting dichotomy between the developed and developing countries as regards the comparative prices for food in supermarkets and small shops or wet markets. In developed countries, food prices in neighbourhood markets are considerably higher than in supermarkets. In the United States, the difference can reach 76 per cent and agricultural produce and other foods offered in smaller stores are of lower quality (Prevention Institute) and 'inadequate access to supermarkets elevates the rate of diet-linked disease' (Clairmont 2004). Hence, the lack of supermarkets in low-income areas (where consumers' possession of cars is also lower) is often associated with

disadvantages in access to food. In developing countries, however, especially for fresh fruit and vegetables (FFV), the situation is the opposite. In Nairobi, supermarkets charge on average 50-60 per cent more than do roadside kiosks and market stall vendors. While the wealthiest 20 per cent of consumers make 25 per cent of their fresh fruit and vegetable purchases at supermarkets, the corresponding share is barely 1 per cent for the lower 80 per cent of consumers (Tschirley *et al.* 2004: 2). The situation in Latin America seems to be somewhere in the middle. In Mexico, 21 per cent of the consumers preferred to buy FFV in the supermarkets (Schwentenius and Gomez 2002: 493). In Argentina, 21 per cent of FFV was bought in supermarkets (Ghezán, Mateos and Viteri 2002: 391) Thus, cross-country experience indicates that as a country's level of development increases, the role of the supermarkets in food consumption becomes more important. In poorer countries, policies to improve the efficiency and cleanliness of the traditional marketing systems appears as the priority for food security.

The second variable affected by supermarkets which impacts on food security is the quality and safety of the food bought in supermarkets. So long as progress is achieved in this realm, food security can be considered to have improved. In fact, supermarkets follow much stricter quality requirements than traditional markets, and this is one attraction for consumers. As a result of the recognition of this fact, there has been a positive impact in general. 'A certain amount of mimicry' has been observed in the hygiene practices of 'wetmarkets' in Chile (Reardon, Timmer and Berdegué 2003: 8).

Surveys among urban consumers,³ including in Latin America, have confirmed that price is the primary concern of lower-income consumers in making a choice regarding where to shop. As income levels rise, dietary changes take place and the importance of quality, the richness of available varieties, food safety, and convenience increases. Results of surveys are not conclusive on whether the first two concerns are better satisfied by supermarkets or small shops. Supermarkets, however, appear to satisfy the latter two concerns better.

Supermarkets' impact on prices of different types of foodstuffs follows roughly their predominance in the sale of these different types. In the initial phases of their increasing participation in food retail, supermarkets are particularly focused on the sale of dried and prepared foods, such as dried beans, rice, spaghetti and canned products. These products are easier to procure in large quantities and to store for longer periods of time than fresh items such as fruit and vegetables. Thus, their prices in supermarkets tend to be lower than in traditional channels from an early stage. Prepared foods are becoming more significant in the food basket of the urban population, because the increased participation of women in the labourforce reduces the time allocated to food preparation at home, and it can be said that this has contributed to easier access to food. This is all the more so as supermarkets continue to extend their coverage to the lower-income areas of the cities and change the nature of their stores, opening hard discount chains with a narrower product choice with less fancy items.

Extending the range of relatively cheaper 'private brands' (alternatively called 'own brands') of the supermarket chains themselves at the expense of better-known trademarks contributes to bringing down prices. It is reported that in Costa Rica private

³ For example, as reflected in Faiguenbaum, Berdegué and Reardon (2002), Alvarado and Charmel (2002), Rodriguez *et al.* (2002).

labels—which started with the staples, i.e., the products that are probably most important from a food security point of view and where the Costa Rican consumers (vis-a-vis those in other places) exhibit highest price sensitivity—are typically priced 10 per cent below national brands (Alvorado and Charmel 2002: 479). One of the reasons that private brands are cheaper is the ability of supermarkets to purchase more cheaply than others. The UK Competition Commission’s 2000 report on supermarkets shows that the largest supermarket (Tesco in the UK) can consistently obtain discounts from its suppliers and pays 4 per cent below the industry average, while smaller players pay above the odds (DFID 2004: 12). There is no reason to believe that a comparative situation is not at least as favourable to Latin American supermarkets as those in the UK. Not only do the supermarkets sell products they package and process themselves under their private labels, but also use products obtained from the suppliers of regular brands, with whom their private brands normally compete. In Costa Rica, for example, Parmalat in a joint venture with a medium-sized firm supplies milk under a private label to a major chain, CSU (Alvorado and Charmel 2002: 480).

An added advantage of supermarket chains in this connection is their ability to import products from cheaper sources globally. While import liberalization would allow this to be done by anyone, access to information through global sourcing networks of international supermarket chains, access to finance at international rates which are generally better than local conditions, and the possibility to import in large quantities provide significant advantages to supermarkets for selling bulk products more cheaply than traditional markets. The impact on producers of products such as dried beans has not been extensively studied, but since they are in any case traded in bulk, the local trading channels are not likely to change much, apart from the emergence of competition from abroad.

Fresh fruit and vegetables (FFV) is another principal food group that enters into the consumption basket. In general, supermarkets are less prevalent in the supply of FFV to consumers than in the other types of food. In Argentina and Mexico, while supermarkets’ share in food retailing is about 50 per cent, the corresponding share in FFV is less than 30 per cent. In Chile, the disparity between these shares is even greater. They are, respectively, 62 per cent and 3-8 per cent (Reardon and Berdegú 2002: 379). It has been observed in Argentina that there is a higher probability that consumers will buy meat, vegetables, fruit and bread from small shops (Rodríguez *et al.* 2002: 437). This is a result of the choice of consumers’ whose perceptions of freshness favour traditional markets. In Chile, consumers do not consider refrigerated FFV to be fresh (Faiguenbaum, Berdegú and Reardon 2002: 466). In Mexico, FFV prices in supermarkets are relatively high, and supermarkets have less diversity of produce (Schwentesi and Gomez 2002: 494).

Table 3
Differences in average prices between traditional small shops and supermarkets
in Argentina, 1992 and 1997

	Supermarkets (S)		Traditional shops (T)		Price difference (T/S %)	
	1992	1997	1992	1997	1992	1997
Fruit	100	87	91	85	-9.0	-2.3
Vegetables	100	115	87	99	-13.0	-14.0
All food and beverages	100	117	108	122	+8.0	+4.3

Source: Ghezán, Mateos and Viteri (2002: Table 2).

Table 3 provides evidence from Argentina, showing that while fruit and vegetables are more expensive in the supermarkets (although the difference has declined in the case of fruit), the overall average of prices of all foods and beverages is less in the supermarkets. Thus, the price differential for staple foods is larger than indicated in the table: they were more than 4 per cent cheaper in the supermarkets than in traditional shops. In Nicaragua, potato and tomato prices drop by about 10 per cent, at each stage as one moves from the upper to the middle segment to the discount supermarket to the plaza market (Reardon and Berdegúé 2002: 379). While supermarkets may not have much impact on the availability of FFV from the point of view of food security, the impact on suppliers is very significant, reflecting the fundamental difference between the procurement practices of the supermarkets and traditional retailers.

It can thus be said that from a nutritional point of view, particularly if one associates nutritional improvement with increasing the consumption of fruit and vegetables, supermarkets are not contributing much in poorer countries. However, for the poorer segments of the society in developing countries, nutritional upgrading involves increased consumption of basic foods such as pulses, sugar and vegetable oils, and these appear to be cheaper in the supermarkets, especially in their discount varieties, in developing countries as well as developed ones.

A significant contribution to food security is made by the new developments in food retailing in the area of processed foods. For example, supermarkets have had a considerable impact on increasing the availability of safe milk to consumers. Their role in widening the availability of safe milk and dairy products to a significant portion of urban areas has been supported by the expanding use of the ultra-heat technology (UHT). It was only through this technology that large quantities could be obtained and stored. The offtake of large quantities for distribution in extended markets must have contributed to making investments viable in the relatively large plants utilizing UHT technology. The share of UHT milk in Brazil's fluid milk market went up from 5 per cent to 60 per cent (85 per cent in urban areas) during the decade of the 1990s. The possibilities for easy transport across long distances and storage (no need to refrigerate) allowed local, and at best regional, milk markets to become national. Thus, milk was produced and processed in low-cost areas of the country for distribution over a large area. Prices dropped and production as well as processing increased by 2.5 per cent per year from 1997 to 2000. Consumers benefited from this development while the situation of producers changed for the better or worse, depending on whether or not they could participate in the new structure of the supply chain.

Another change in the food system has been the result not of supermarkets but of the expansion of fast food chains. While these have made eating out a cheaper option for the middle-income group, they have also changed the characteristics of at least part of the supply chains for the principal items served in these outlets, such as fried potatoes (French fries) and meat, and induced significant impacts on suppliers as discussed below.⁴

⁴ There has been considerable press coverage of the unhealthy nature of food consumed in these outlets, in particular the relationship with obesity, but this is not a particularity of modern fast food. 'Data from an Accra-wide survey show that the poorest income quintile consumed more of its calories (31.4 per cent) away from home than any other income group. Food from away from home sources tends to be higher in fat, often refried many times over' (Haddad 2003: 4).

3.2 Producers

Bringing cheaper food to consumers is achieved through two principal avenues, both of which reduce costs to the supermarkets. The first is the increased efficiency in procurement practices, and logistics have become much more efficient in the case of supermarkets. The second is the ability to procure products more cheaply. Therefore, only the producers who can meet very stringent conditions with regard to qualities, quantities and, most importantly, prices, can participate in the supply chains. We now have economic actors engaging in transactions rather than anonymous firms selling their homogeneous products on the market. Commodities are turning into distinguishable special food items (Kirsten and Sartorius 2002) with traceability characteristics.

Regarding the producers, the procurement practices of supermarkets are the key factor that affects their working conditions, employment and income and thus, their own food security. Wages of landless workers in agriculture and food processing are also very important. For the landless and wage labourers in rural areas, any impact generated by the supermarkets' activities on the price of food that they buy needs to be taken into account in discussing food security. For this group, the impact would be the result of local products being channelled to the supermarket rather than the local market, and the subsequent effects on availability and prices. The net effect of the changing nature of supply chains on employment and poverty cannot be predicted, but depends on factors such as *ex ante* spatial and sectoral distribution of the poor and the food insecure, the nature of technologies introduced and the indirect effects of new patterns of income generation (Reardon and Barrett 2000: 197) as well as the distribution of assets such as land. The nature of new institutional arrangements also has a crucial impact on employment and poverty. For example, the development of the FFV industry and processing activities, the extra care needed to meet the stringent requirements, preparation of products for sale, including packaging and bar-coding, generate employment opportunities, principally for women (e.g., in Chile, Barrientos *et al.* 1999). Nevertheless, the increasing pressure to cut costs leads to permanent workers being replaced by lower-waged temporary workers and thus male workers by females.⁵ Small producers who have turned over their activities to the larger concerns become net additions to the local labour supply or are forced to migrate to urban areas in search for work. This group experiences a significant negative impact on their food security.

The main change that takes place in procurement practices that has considerable impact on suppliers, is the replacement of traditional wholesale markets with alternative specialized channels and more direct contacts between supermarkets, food processors and producers. There is an increasing vertical integration of the supply chain. In terms of the 'value chain' literature (e.g. summarized in Dolan and Humphrey 2000), governance of the chain is within the supermarket (or large food processor). The following is a review of this phenomenon and its impact on producers in Latin America, focusing on two types of changes. The first is the FFV chain where the change and the impact can be directly attributed to supermarkets. The second type of change has been

⁵ There is a gender dimension with respect of the impact of increased incomes (whether an increase in disposable income through lower prices on the part of consumers, or through increased production and sales on the part of producers. In Central American agriculture, it has been observed that when men control expenditures from increased income, money is spent on buying agricultural inputs, paying debts and purchasing land. When women earn their own wages *and* control expenditures, extra money is spent on food for their family (Thrupp 1995: 83).

generated by food processors in the milk and potatoes sectors. Supermarkets have had a triggering role and an impact, albeit rather indirectly, with regard to milk. For potatoes, the instigator of the change has been the spreading of fast food chains. In spite of the differences in the dynamics of the process, the results have been similar in all instances. Changes have been favourable for large producers and unfavourable for small ones, particularly for those who have not been able to organize themselves into larger operational and organizational units. The cases of Purranque for vegetables in Chile and Hortifruti in Costa Rica have been cited as successful examples (Reardon and Berdegué 2002: 382), while the failure of the small growers into organizing themselves for selling to supermarkets is exemplified by the case of the Union of Lime and Tropical Fruit Growers in Mexico (Schwentesi and Gomez 2002: 498).

Fresh fruit and vegetables (FFV)

Traditionally FFV producers, large or small, have operated in a system which allows them to decide what to produce and then to put their products on the market through various types of wholesale markets. Retailers procure supplies from these wholesale markets where the prices based on different qualities would also be established. Based on these price signals, producers would decide on the produce to be planted. This is still the principal channel for the commercialization of FFV, but significant changes have occurred as a result of the increasing presence of supermarkets in FFV retailing.

At the initial stages of supermarket expansion in FFV retailing when the quantities involved are relatively small, supermarkets obtain supplies from the traditional wholesale markets. However, supermarkets quickly realize that the traditional wholesalers provide inadequate service since they lack standards, mix different grades, and have significant bargaining power in the wholesale markets (Reardon and Berdegué 2002: 380), thus reducing the relative power of the supermarkets. As the quantities involved become larger, alternative procurement methods become more attractive, and supermarkets tend to look for ways to eliminate the intermediaries. As a first step, when adequate storage facilities are built up and the volume of sales at specific stores becomes sufficiently enough to handle, for example, produce by the truckloads producers who have the capacity to offer such quantities become preferred suppliers. As long as the desired quantities and qualities are obtained through direct procurement, these producers have a direct access to supermarkets, bypassing the wholesale markets. In Mexico, direct procurement is estimated to offer 10 per cent savings on costs (Schwentesi and Gomez 2002: 496). This is the first phase of small producers facing major difficulties in accessing supermarket supply chains.

In the second stage, when the supermarket chain handles even larger volumes and a centralized distribution system is established, the volume and quality requirements become more numerous and stringent. At this stage, specialized, dedicated wholesalers also appear to serve the supermarkets. These are 'generally agroexporters and agroindustrial firms which are used to dealing in volume and meeting safety and quality standards. ... Some chains even use their distribution centres, sourcing networks and/or joint venture operations to both supply their local stores and export produce between Latin American countries and from Latin America to the global market' (Reardon and Berdegué 2002: 380-1). Three examples cited in this context are Costa Rica's Hortifruti; Brazil's Carrefour which supplies from the country's contracted melon producers 67 stores in Brazil as well as Carrefour distribution centres in 21 countries, and the

Argentina-based Ahold's regional sourcing network, sourcing apples from Chile for its distribution centre in Peru (Reardon and Berdegué 2002: 381).

It is also at this phase when contracts are drawn between suppliers and supermarkets regarding volumes, qualities and timing of supplies. Obviously, transaction costs for the supermarkets are lowered as the number of suppliers they deal with diminishes. This generates the dynamics that lead to the exclusion of produce from the supermarket shelves of the individual small producers precisely at a time these channels are becoming increasingly for getting products to consumers. Exclusion can be avoided only if small producers organize themselves into cooperatives in order to eliminate the need for supermarkets to deal with a large number of individual small producers. It is reported that farmers' economic organizations in Chile are having a hard time meeting the demands of the supermarkets, but in comparison to traditional markets still generating higher incomes for their members. In several successful organizations, public or private assistance to help the growers with technical assistance and suppliers' input credit has been provided (Reardon and Berdegué 2002: 381-82). Excluded suppliers face greater challenges in having to compete in the shrinking (traditional) market, while those that are linked to supermarkets have access to an expanding one. Larger farms appear to be at an advantage. In one locality in Argentina, total horticultural area doubled between 1978 and 1994 but the number of farms increased by only 12 per cent (Ghezán, Mateos and Viteri 2002: 398). The takeover of small production units by larger ones is a common phenomenon, threatening the livelihoods of the former.

Meeting the standards set by supermarkets is a major challenge, as these are almost always more stringent than general food safety requirements, including hazard analysis critical control point (HACCP). Some are private standards without third-party certification, some involve third-party certification and some are hybrid private-public standards. The latter are common for processed FFV products. There is a convergence between national and international supermarket standards and with export standards. For example, CSU-Supermarkets and Hortifruti in Costa Rica have indicated a plan to adopt the EUREPGAP standard applicable in European supermarkets (Reardon, Timmer and Berdegué 2003: 22-3). This means that producers who are able to supply local supermarkets are also qualified to enter international markets, while those who cannot meet the standards are quickly 'delisted' and lose their option to sell to supermarket chains. As international supermarket chains usually employ similar criteria for all their international procurement systems, suppliers complying with the standards also have the chance to access international supply channels, thus a much larger market.

Supplying fresh fruit and vegetables under contract (generally by large producers) brings with it new challenges and opportunities. The importance of prices in deciding resource allocation practically disappears. In fact, some researchers argue that there is a tendency for the emergence of a 'seamless system' as a fully integrated food system from seed to supermarket shelf. 'Within this emerging system there will be no markets and thus no price discovery ... the first time the price of any input in the food system will be public information will be at the supermarket ... The farmer becomes a grower, providing labour and often some capital, but never having clear title to the product as it moves through the food system and never making major decisions' once he is integrated into this system (Heffernan 1999: 6).

Nevertheless, the coordination of the supply chain through contract farming, which is an intermediate form of industrial organization between spot markets and full vertical integration, remedies such market failures as information asymmetry between the buyer and the seller. Contract farming in its different varieties is relevant not only for FFV but for farming of most products. As noted by Kirsten and Sartorius (2002 11-4):

Farmers usually enter into contract production in order to reduce costs and gain access to information, technology, marketing channels, managerial skills, technical expertise, access to plant and equipment and patented production procedures. Contracting can also improve access to capital and credit. Reduction of marketing risks and greater stability of income are other attractive features of contract farming. Farmers are prepared to relinquish their autonomy, accept greater production risk for the sake of being able to produce. Contracts can be of different types, the control of the buyer varying in proportion to the provision of resources and inputs to the grower.

In some cases, supermarkets charge the supplier a fee for the benefit of having access to a particular market. This fee, known as *rapel* in Chile, amounts to 3-8 per cent of the value of the produce (Faiguenbaum, Berdegué and Reardon 2002: 466).

Apart from the challenge of meeting the contract-stipulated requirements, one important aspect of supplying supermarkets is the practice of supermarkets generally paying suppliers with significant delay. In fact, supermarkets are known to make significant earnings from financial operations made possible by using funds generated through spot payments from consumers but delayed payments to suppliers that extend to several months. 'On a worldwide scale, Carrefour's cash-flow cycle (from selling the product to the consumer to paying the suppliers, including days in stock) was 55 days'. In Argentina, 'by the end of 1990s, the average supermarket payment period was 90 days, varying between 60 and 10 days, while consumers provide immediate payment in cash or at most 25 days on consumer credit cards (Gutman 2002: 421).⁶ In Chile, the 30-90 day waiting period implies that suppliers not only finance the net value of the produce but also the value added tax paid by the supermarket each month (Faiguenbaum, Berdegué and Reardon 2002: 466). In Mexico, based on reports from the Union of Lime and Tropical Fruit Growers, supermarkets pay the highest price, but the Union also incurs extra costs for refrigeration and for providing credit to the supermarkets. Limes sold to wholesale markets were priced 10-20 per cent less than those sold to supermarkets but payment was immediate, or with a delay maximum of 15 days (Schwentelius and Gomez 2002: 499). Legislation has been enacted in some countries to reduce this delay on payment to suppliers. For example, in March 2002, the government of Argentina imposed a 30-day limit in connection with suppliers of perishable goods (Gutman 2002: 421).

Supermarkets provide certain opportunities. Apart from the enlarged markets, supermarket chains are known to assist their suppliers with technical support regarding production processes and with financing for fixed investments, such as cold storage, to improve quality and to ensure its maintenance. These are beneficial for the suppliers who can participate in these arrangements and they improve their earnings. The food insecure, however, are normally not among this group. Long-term contracts also reduce

⁶ Information on Carrefour as quoted by Gutman (2002).

the marketing risks associated with production by ensuring a market and relatively stable prices. These prices may be somewhat lower in the long run than what could have been obtained if a perfect selling strategy taking advantage of all possible optimal prices would have been followed (a rather unlikely outcome), but the reduction of risks is a positive factor improving business performance. The fact that there is a secure income under contractual arrangements should enable farmers to obtain credit at relatively favourable terms through structured financing channels where they exist.⁷

Large concerns supplying supermarkets may also provide opportunities for value adding operations (packaging, bar-coding) and simple processing activities that can be handled on the producer farm (washing, preparing ready-to-eat salads). Other, more sophisticated processing operations (freezing, producing ready-to-eat meals) require different operations. In any case, all of these open up possibilities for employment, particularly for female workers, in the rural areas and can be perceived as positive from the point of view of food security, as they improve the earnings of the relatively poor segments of society.

Milk

The recent changes in the milk sector have also affected producers significantly. Also in the case of milk, small producers have been disadvantaged owing to similar factors as seen in the FFV sector. During the 1997-2000 period, the number of farmers delivering milk to the top twelve companies in Brazil dropped by 60,000 (35 per cent) and there was a 55 per cent increase in the average size of the supplier (Farina 2002: 452-5). Nestlé alone removed 26,000 farmers from its supply list, a drop of 75 per cent (Farina 2003: 9). In Argentina, between 1988 and 1996, the number of dairy farms dropped by 30 per cent, while the number of cows increased by 17 per cent. The daily production of milk per farm doubled and total output increased 44 per cent (Gutman 2002: 425). The establishment of large-scale milk processing plants, however, may have contributed to some employment generation in these plants.

Potatoes

While the impact of fast food chains on food security and safety is debatable, these chains have brought new dynamics to Latin American agriculture, particularly to producers of essential ingredients, namely meat and potatoes. Changes in the potato industry have been well documented (Ghezán, Mateos and Viteri 2002). Argentina's potato industry was basically targeted for consumption in the unprocessed state. The proliferation of fast food, in particular the McDonald's chain in Argentina, generated a change in the potato industry. As the number of fast food outlets increased, the chain's international potato suppliers took over from local producers. Business methods changed, but potatoes continued to be procured locally in Argentina. As a result, the import operations of principally McCain of Canada for frozen pre-fried potatoes were replaced by locally processed and frozen supplies, targeted not only to the Argentinean but also to the regional markets. Argentina now supplies 90 per cent of Latin America's exports, including 50 per cent coverage of the Brazilian market.

⁷ For a recent discussion of structured finance in the commodity sector, including farming, see UNCTAD (2004).

Given that restaurants submit orders to the distribution centre only 48 hours in advance of delivery, very sophisticated infrastructure and logistics are required. With this development, written contracts between processors and farmers became widespread. This requirement for sophisticated infrastructure and logistics, as in other cases of contract farming, promotes concentration. Nearly half of the produce supplied to the processors comes from 15 per cent of the farmers. Given the very specific quality requirements, new varieties of seeds were provided to the suppliers by the processing plants, who also imported harvesting machines (valued at about half a million dollars each), providing credit to three major farmers purchasing the machines. These firms also offer financing for operational expenses. This has spillover effects for production other than processing, and is found to be useful by the farmers. The opportunities created by McDonald's need for frozen French fries led to the emergence of a whole new industry. It has special requirements with regard to potatoes, resulting in a significant upheaval, repositioning and consolidation among producers. For entrepreneurs in the processing industry, the market became much wider than the earlier domestic market, and extended to neighbouring countries.

4 Conclusion

The increasing importance of the supermarkets is one of the several changes taking place in the food chain. Supermarkets have not only changed the retail end of the food chain, but also generated very significant changes in the organization of production and delivery of food to the point of sale.

In the urban areas, food safety of those with access to supermarkets appears to have improved in line with the greater emphasis on cleanliness by supermarkets. For some food commodities, particularly bulk products, a drop in prices is observed, thus improving access to food, again for those who shop in supermarkets, particularly discount chains. There does not seem to be an impact on the food security of the poorer strata in middle-income countries, or even in the middle-income groups in poorer countries.

The advent of supermarkets in the rural communities has opened up unprecedented opportunities for a considerable number of (mostly large) farmers, albeit generating negative impact on small producers unable to meet the stringent requirements of supermarket chains and other modern food supply channels. Inevitably, the food security of this latter group is impaired. It is therefore imperative that development policies and national as well as international assistance programmes take this factor into account and include actions that will enable this disadvantaged group to benefit from the new opportunities opening up in the food trading system. Such action primarily needs to address the financing of the transition needed to comply with modern supply chain requirements. While financing by donor assistance is an option, dealing with the financing of small and relatively risky concerns within a value chain approach, namely using the stronger parts of the chain as a security for financing the weaker links, offers interesting opportunities (UNCTAD 2004). The supermarkets' corporate social responsibility also calls for closer ties with small producers with a view of assisting in the transformation of their production and business practices, and avoiding social problems. Although initiatives by small producers to organize themselves into viable cooperatives to deal with supermarkets have had mixed results, this still seems to be an

area requiring attention and support. Legal and institutional improvements aimed at promoting ‘good business practices that optimize retailer supplier relations, protecting both sides’ (Reardon and Berdegué 2002: 386) are also required, particularly as contractual relations become prominent. Finally, competition policy actions that would prevent the abuse of market power and promote a competitive retail sector would help the producers get a better share of the final value of their products.

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Annex

Annex Table
Main supermarkets in Latin American countries

Rank		1998			2004		
		Food sales US\$	Market share in modern sales, %	Market share in total food sales, %	Food sales US\$	Market share in modern sales, %	Market share in total food sales, %
ARGENTINA							
1	Carrefour	3,297	11.0	7.7	1,272	11.5	6.2
2	Coto	1,321	4.4	3.1	734	6.6	3.6
3	Ahold	1,825	6.1	4.3	654	5.9	3.2
4	La Anónima	509	1.7	1.2	385	3.5	1.9
5	Cencosud	463	1.5	1.1	309	2.8	1.5
6	Wal-Mart	273	0.9	0.6	298	2.7	1.4
7	SHV Makro	420	1.4	1.0	202	1.8	1.0
8	Casino	311	1.0	0.7	159	1.4	0.8
9	Supermercados Toledo	323	1.1	0.8	154	1.4	0.7
10	Cooperativa Obrera	251	0.8	0.6	99	0.9	0.5
11	Auchan	45	0.2	0.1	22	0.2	0.1
	Subtotal	9,038	30.0	21.1	4,288	39.0	20.8
	Other	20,933	70.0	49.0	6,760	61.0	32.8
	Total modern food sales	29,971	100.0	70.1	11,048	100.0	53.6
	Total food sales	42,756		100.0	20,614		100.0
BOLIVIA							
1	Hipermaxi in Bolivia	15	1.8	0.6	39	5.0	1.6
2	Ketal in Bolivia	10	1.2	0.4	35	4.5	1.4
	Subtotal	25	3.0	0.9	74	9.0	3.0
	Other	804	97.0	30.5	705	91.0	28.9
	Total modern food sales	829	100.0	31.4	779	100.0	32.0
	Total food sales	2,639		100.0	2,437		100.0
BRAZIL							
1	Casino	3,297	6.7	3.1	3,877	7.9	3.6
2	Carrefour	3,950	8.1	3.7	2,985	6.1	2.8
3	Wal-Mart	172	0.4	0.2	1,063	2.2	1.0
4	Modelo Continente	1,013	2.1	1.0	965	2.0	0.9
5	Atacadao	771	1.6	0.7	912	1.9	0.8
6	SHV Makro	819	1.7	0.8	890	1.8	0.8
7	Zaffari	281	0.6	0.3	325	0.7	0.3
8	Coop Cooperativa de Consumo	243	0.5	0.2	312	0.6	0.3
9	Ahold	1,037	2.1	1.0	289	0.6	0.3
10	ExxonMobil	45	0.1	0.0	65	0.1	0.1
11	Ipiranga	41	0.1	0.0	51	0.1	0.0
	Subtotal	11,669	24.0	11.0	11,734	24.0	10.8
	Other	37,201	76.0	35.1	37,233	76.0	34.4
	Total modern food sales	48,870	100.0	46.1	48,967	100.0	45.2
	Total food sales	106,103		100.0	108,225		100.0

Annex table continues

Annex table (con'd)

Rank		1998			2004		
		Food sales US\$	Market share in modern sales, %	Market share in total food sales, %	Food sales US\$	Market share in modern sales, %	Market share in total food sales, %
CHILE							
1	D&S (Distribución y Servicio)	1,289	18.3	10.1	1,329	16.2	9.5
2	Cencosud	250	3.6	2.0	900	11.0	6.4
3	Unimarc	389	5.5	3.1	232	2.8	1.7
4	Montserrat	140	2.0	1.1	211	2.6	1.5
5	Falabella	19	0.3	0.1	121	1.5	0.9
6	COPEC	79	1.1	0.6	71	0.9	0.5
	Subtotal	2,166	31.0	17.0	2,864	35.0	20.4
	Other	4,872	69.0	38.3	5,333	65.0	38.0
	Total modern food sales	7,038	100.0	55.3	8,197	100.0	58.4
	Total food sales	12,722		100.0	14,026		100.0
COLOMBIA							
1	Casino	1,140	14.6	5.8	1,241	14.0	5.6
2	Carulla Vivero	328	4.2	1.7	616	6.9	2.8
3	Olimpica	389	5.0	2.0	456	5.1	2.1
4	Carrefour	75	1.0	0.4	362	4.1	1.6
5	SHV Makro	149	1.9	0.8	180	2.0	0.8
6	CAFAM	198	2.5	1.0	152	1.7	0.7
	Subtotal	2,279	29.0	11.6	3,007	34.0	13.6
	Other	5,538	71.0	28.1	5,861	66.0	26.4
	Total modern food sales	7,817	100.0	39.6	8,868	100.0	40.0
	Total food sales	19,729		100.0	22,176		100.0
EDUCATOR							
1	Supermercados La Favorita	143	11.8	4.1	397	18.2	6.5
2	Tia	53	4.4	1.5	85	3.9	1.4
	Subtotal	196	16.0	5.6	482	22.0	7.8
	Other	1,016	84.0	29.1	1,698	78.0	27.7
	Total modern food sales	1,212	100.0	34.8	2,180	100.0	35.5
	Total food sales	3,486		100.0	6,141		100.0
MEXICO							
1	Wal-Mart	3,267	6.8	4.3	5,248	8.1	5.4
2	Soriana	1,702	3.5	2.3	2,110	3.3	2.2
3	Comercial Mexicana	2,211	4.6	2.9	2,056	3.2	2.1
4	Gigante	1,872	3.9	2.5	2,083	3.2	2.1
5	OXXO	486	1.0	0.6	1,142	1.8	1.2
6	Safeway (USA)	725	1.5	1.0	845	1.3	0.9
7	Costco	243	0.5	0.3	812	1.3	0.8
8	Chedraui	537	1.1	0.7	609	0.9	0.6
10	Carrefour	440	0.9	0.6	548	0.8	0.6
11	H.E. Butt	167	0.3	0.2	576	0.9	0.6
	Subtotal	11,650	24.0	15.4	16,029	25.0	16.5
	Other	36,389	76.0	48.2	48,508	75.0	49.9
	Total modern food sales	48,039	100.0	63.7	64,537	100.0	66.4
	Total food sales	75,465		100.0	97,161		100.0

Annex table continues

Annex table (continues)

Rank		1998			2004		
		Food sales US\$	Market share in modern sales, %	Market share in total food sales, %	Food sales US\$	Market share in modern sales, %	Market share in total food sales, %
PARAGUAY							
1	Superseis	25	2.8	1.1	29	3.8	1.4
2	Supermercados Stock	50	5.7	2.1	14	1.8	0.7
	Subtotal	75	9.0	3.2	43	6.0	2.0
	Other	804	91.0	34.4	723	94.0	34.0
	Total modern food sales	879	100.0	37.6	766	100.0	36.0
	Total food sales	2,336		100.0	2,128		100.0
PERU							
1	E. Wong	329	6.3	2.7	504	7.1	3.1
2	Santa Isabel (formerly Ahold)	184	3.5	1.5	300	4.2	1.8
3	Falabella	5	0.1	0.0	51	0.7	0.3
	Subtotal	518	10.0	4.3	855	12.0	5.2
	Other	4,700	90.0	38.9	6,282	88.0	38.2
	Total modern food sales	5,218	100.0	43.2	7,137	100.0	43.5
	Total food sales	12,084		100.0	16,424		100.0
URUGUAY							
1	Casino	213	9.2	6.0	187	14.2	8.4
2	Tienda Inglesa	144	6.2	4.1	48	3.6	2.2
3	Multi Ahorro	112	4.8	3.2	43	3.3	1.9
4	Ta-Ta	77	3.3	2.2	29	2.2	1.3
	Subtotal	546	24.0	15.4	307	23.0	13.8
	Other	1,769	76.0	49.8	1,009	77.0	45.5
	Total modern food sales	2,315	100.0	65.2	1,316	100.0	59.3
	Total food sales	3,551		100.0	2,220		100.0
VENEZUELA							
1	Casino (Started in 2000)	0	0.0	0.0	320	4.0	2.2
2	SHV Makro	399	3.8	2.2	264	3.3	1.8
3	Central Madeirense	571	5.4	3.1	238	3.0	1.6
4	Unicasa	230	2.2	1.3	91	1.1	0.6
5	Automercados Plaza's	137	1.3	0.7	85	1.1	0.6
6	Excelsior Gama	86	0.8	0.5	51	0.6	0.3
	Subtotal	1,423	13.0	7.8	1,049	13.0	7.1
	Other	9,187	87.0	50.1	6,887	87.0	46.5
	Total modern food sales	10,610	100.0	57.9	7,936	100.0	53.6
	Total food sales	18,320		100.0	14,797		100.0

Source: Data from M+M Planet Retail, compiled by Mr Anar Mammadov, Commodities Branch, UNCTAD.