

Impact of Supermarkets and Fast-Food Chains on Horticulture Supply Chains in Argentina

*Graciela Ghezán, Mónica Mateos and Laura Viteri**

In the 1990s, the supermarket and fast-food sectors grew rapidly in Argentina. Both were dominated by multinational firms, and their growth drove profound change in food market systems and farming. This article analyses the impact of this development on fruit and vegetables supply chains, in particular the way the advent of McDonald's affected the supply chain for frozen French fried potatoes. It shows that there is a tendency for such changes to favour medium and large producers, with evidence of the exclusion of small farmers.

Globalisation brought profound changes to the agrifood systems of developed countries in the 1990s (Boehlje, 1995; Fonte, 2000). It also brought changes to the economies of developing countries such as Argentina but, because of the structural heterogeneity that is typical of those economies, the changes produced a distorted and exclusive version of those experienced in developed countries.

A key element of Argentina's new economy since the 1990s is the persistence of structural heterogeneity (the co-existence of large and small firms) in production and in agrifood chains. This reflects the point made by Fonte (2000) that, as one economic model (which for simplicity we shall call the 'traditional', with no value judgement implied) gives way to another (which similarly we shall call the 'modern'), elements of the traditional persist in the new system, which becomes an amalgam of the traditional and the modern. In other words, there is a co-existence of sectors dominated by Fordist logic (commodities) with those producing flexible, demand-driven, differentiated products, adapted to the new requirements of consumers and with systems of co-ordination based on agreements (such as contracts) between buyers and suppliers.

Another key element is the influx of foreign direct investment (FDI) into the most dynamic agrifood sectors of the domestic market, including 'supermarkets' (the term which for simplicity we use for the combined set of supermarkets and hypermarkets, differentiating between them only where this needs to be explicit) and fast-food chains. Table 1 outlines the main changes in agrifood systems brought about by globalisation.

In this article, as an illustration of the emerging economic model in Argentina, we consider two cases where the co-ordination role is undertaken by the supply chain segments closest to the consumer: supermarkets and fast-food chains. In each case we analyse the impact of these new actors on the horticultural chain. These case studies highlight the contrast between a chain co-ordinated by supermarkets or fast-food

* Graciela Ghezán (gghezan@copetel.com.ar) is at the Instituto Nacional de Tecnología Agropecuaria (INTA) and the Universidad Nacional de Mar del Plata, Mónica Mateos is at the Universidad Nacional de Mar del Plata and Laura Viteri is at the Instituto Nacional de Tecnología Agropecuaria (INTA), Balcarce, Argentina.

outlets, and the traditional horticultural chain in Argentina, co-ordinated by traditional wholesalers and spot markets. Moreover, they demonstrate how elements of the traditional system co-exist with modern elements, with the latter changing the former's mode of production and exchange.

Table 1: Main changes in agrifood systems from globalisation

Traditional	Modern
Mass consumption of standardised products	Differentiated consumption: foods that incorporate services
Food prepared in the home	Preparation of industrialised foods
Food industry is in control	Retail and food service sectors are in control
Logic of supply: sell what you produce (Fordism)	Logic of demand: produce what is demanded (flexible system)
Prices set in open markets, with little co-ordination over the chain	Prices set by contracts, with more co-ordination in the chain
Production of commodities	Production of 'products' with specific characteristics
Limited dependence on new technology, R&D and information as public goods	High dependence on new technology, R&D and information as private goods
Lack of structural consistency in the food industry and in agriculture	Concentration in the food and agriculture sectors and unemployment; crisis of small firms and farms
Food retailed by small firms	Retail concentration in supermarkets and hypermarkets
FDI focused on agrifood exports	FDI focused on domestic and regional markets

The article is organised as follows. The next section analyses the impact of the rise of supermarkets on the horticultural chain in Argentina.¹ The following section examines the rise of fast-food chains in Argentina, using the case of McDonald's as a model, and focuses on its impact on potato supply. The final section draws some conclusions.

Effects of supermarkets on the horticultural supply chain

General characteristics of Argentina's horticultural supply chain

Argentina's horticultural production is currently 7,780,603 tons of fruit and 3,163,370 tons of vegetables (FAO, 2002). Fruit constituted 7% and vegetables 8.4% of agricultural sector production over the period 1990-96. This output goes mainly to the domestic market. Vegetable exports are mainly of garlic, onions, and asparagus,

1. The rise of supermarkets in Argentina is treated only briefly here for space reasons; the reader is referred to the article by Gutman in this volume for more detail on the subject.

representing 8% of total vegetable output; tomatoes are the main vegetable going to the processing industry. Fruit exports are mainly of pears, apples, and citrus fruit (56%, 10%, and 13% of exported output, respectively). Grapes and apples are the main fruit used for processing, representing 90% and 50% of the output of these fruit, respectively. Fruit production takes place mainly in zones specialising in this production, while vegetable production occurs in green belts around most cities (SAGPyA, 2002).

Despite the rapid rise of supermarkets in Argentina (from 17% of the retail sector in 1985 to 70% in 2000, according to Gutman, this volume), small fruit and vegetable shops (*verdulerías* and *fruterías*) still dominate horticultural retail. As shown by data from the National Household Expenditure Survey (INDEC, 1996/97), 71% of fresh fruit and vegetables (FFV) are bought from traditional small stores and 23% from supermarkets.² The reasons that appear to explain why Argentines prefer to buy FFV from small shops include: (i) the personal attention in small shops; (ii) the habit of purchasing FFV daily; and (iii) the perceived higher quality/price ratio in small shops. Survey research by the Department of Domestic Commerce (Dirección de Comercio Interior, 1998) shows that, during 1992-6, prices at small vegetable shops were 14% lower than those of supermarkets; but that the difference was less for fruit prices, and that the gap is disappearing, as shown in Table 2.

Table 2: Differences in average prices between traditional small shops and supermarkets

FFV	Supermarkets A			Traditional Shops B			Difference in prices B/A (%)		
	1992	1996	1997	1992	1996	1997	1992	1996	1997
Fruit	100	96	87	91	90	85	-9.0	-6.3	-2.3
Vegetables	100	116	115	87	99	99	-13.0	-14.6	-14.0
Average for all food and beverages	100	117	117	108	123	122	+8.0	+5.1	+4.3

Source: Dirección de Comercio Interior, based on information of INDEC. *Negocios tradicionales vs supermercados. Comparación de canasta de precios.*

FFV products constitute about 5% of supermarkets' sales, occupying fourth place among food categories (INDEC, 2001). Within the broad group we call 'supermarkets', the share varies by format: for hypermarkets, it varies between 1% and 4%, while for supermarkets the share often exceeds 6% of total sales. These shares understate the importance of the FFV section in two ways. On the one hand, the rapid turnover of FFV gives it a higher profit margin than other categories. On the other hand, the FFV section is important beyond the direct profits it generates; it is essential to the overall image (freshness, cleanliness) of the store in the eyes of consumers. This is especially important for supermarkets (smaller than hypermarkets) competing with small neighbourhood FFV shops.

2. According to the Commercial Census of 1994 (INDEC), there were 16,134 small FFV shops in Argentina. Although there are no more recent data at the national level, Mediavilla (2000) shows that in the region of Mar del Plata the number of FFV shops grew by 13%, and employment in them by 70%, between 1994 and 1999.

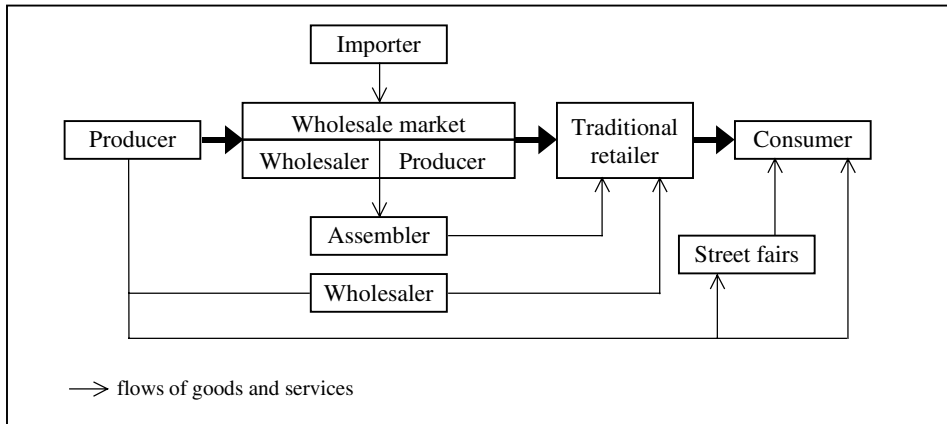
This competition with small shops has driven some supermarket chains to implement FFV quality improvement programmes and strong promotion of FFV among consumers. These actions include direct sales to consumers (discussed below), the training of FFV sales staff (via arrangements with universities, with courses both inside and outside the company), and FFV consumption promotion (‘5 a day’) programmes.

Changes in the 1990s in the FFV marketing system

The recently overwhelming importance of supermarkets and their establishment of new rules of the game in the agrifood sector in general affect the organisation of the FFV supply chain, even though supermarkets at present control only a quarter of FFV retailing. The main impact comes from the shift in the importance and roles of both modern and traditional actors in the chain. Nevertheless, as noted at the beginning of the article, this does not imply the disappearance of traditional FFV marketing channels, which continue to exist – making FFV marketing channels more complex than before.

Up to the beginning of the 1990s most FFV sales took place through the traditional marketing channel – from producers, through wholesale markets, to FFV shops (Figure 1). FFV producers sold their production to a wholesaler with a stand in the market or delivered it to a consignment agent, who charged a commission to distribute the product

Figure 1: Traditional marketing system of FFV

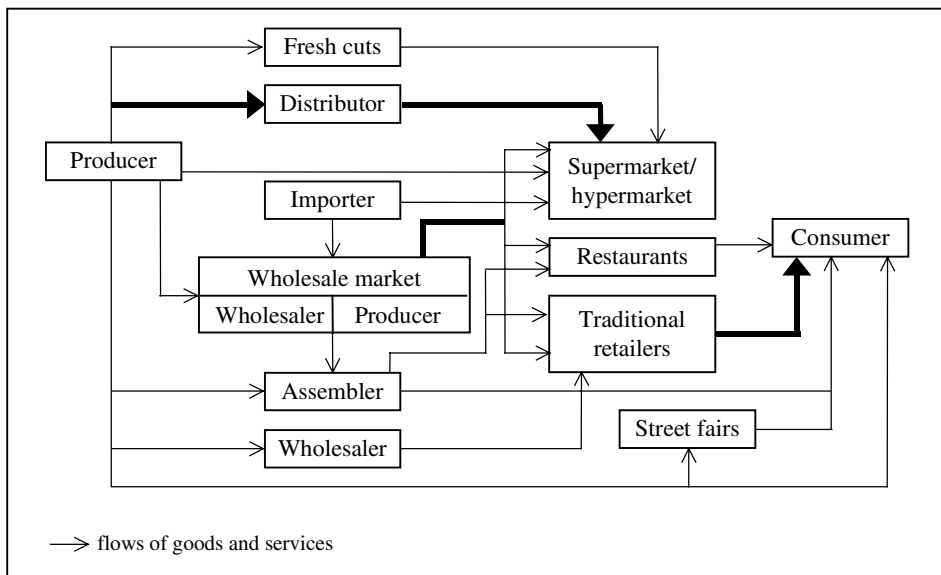


to retail shops. Moreover, producers could themselves sell directly in the market (renting space on a daily basis in an area of the market away from the wholesale stands) and could even become consignment agents or wholesalers. Although a less important channel, they could also sell directly to the consumer, via street fairs in some large cities. Finally, there were wholesalers operating outside of the wholesale market, who bought direct from farmers and sold to shops in the smaller towns. The main clients of the wholesale markets were the owners of FFV shops. In addition, intermediary distributors bought FFV in the wholesale market and supplied very small retailers far away from the wholesale market.

The focal point of the traditional FFV chain was the wholesale market, the most important being the Central Market of Buenos Aires (CMBA), established in 1984. The CMBA was set up with the purpose of making the FFV market more transparent and efficient, and of overcoming perceived problems with the previous system (too many competing wholesale markets – 25 for a population of 11 million in Buenos Aires; and high prices and lack of controls). Nevertheless, a series of problems arose in the operations of the CMBA and in 1990 its operations were de-regulated, after which numerous wholesale markets emerged once again.

During the 1990s the expansion of supermarkets made the FFV market system more complex. As shown in Figure 2, the traditional actors in the FFV supply chain continued to play a role (some with new functions), while modern actors were added. With the expansion of supermarkets, there was an increase in direct sourcing (not via wholesale markets), facilitated by specialised wholesalers procuring FFV for supermarkets direct from farmers. There was also the emergence of ‘fresh-cuts’ firms making ready-to-eat salads and other minimally-processed FFV products retailed principally via supermarkets. The latter development is related to the recent tendency in the consumption habits of Argentines towards foods that save on preparation time to fit in with changing lifestyles, such as two-career homes. The rise in the consumption of prepared or semi-prepared foods from supermarkets is part of a broader change in consumer habits which includes an increase in the share of food consumed outside the home, favouring the traditional food service sector (bars, restaurants, and institutional food service), and more recently, the fast-food chains, as discussed below.

Figure 2: Modern (post-1990) marketing system of FFV



Among recent changes in the functions of traditional actors in the FFV supply chain, the most noteworthy is that of the distributor (*repartidor*). These wholesalers specialising in FFV have been separating over the past decade into three groups: (i)

those who continue to supply small, traditional FFV shops, and who come from lower-income groups and undertake FFV distribution as an important source of informal-sector employment; (ii) specialised wholesalers for the modern food sector, such as hotels, restaurants, fast-food chains, hospitals, factories, and catering firms; and (iii) firms which sell direct to homes. In the latter case, one must differentiate between modern commercial firms targeting their sales to upper/middle income consumers³ and informal-sector firms catering to lower-income families.

The portion of the FFV supply chain serving supermarkets

FFV procurement strategies of supermarkets In general, there is a lack of systematic data on the FFV supply chain, but the lack is worst for the part of the chain supplying supermarkets. The information in this section is therefore derived from the authors' interviews with supply-chain participants.⁴

The large supermarket chains organise their FFV procurement from suppliers via distribution centres, where they come to agreements with producers and fix prices, quality standards and delivery conditions. The use of these centres facilitates inventory management for the chain, and the centres receive information and orders from the member stores.

During the 1990s, the supermarket chains initiated a process of change in their system of FFV purchase. They shifted from buying most of their FFV products in the wholesale markets to buying direct from farmers or from specialised wholesalers, the purpose being to obtain a better quality/price ratio. The shift took place more quickly in fruit than in vegetables, because of the presence of large production, packing and exporting firms in the fruit-producing regions. By contrast, the special features of the organisation of the vegetable production system made it much more difficult to shift to buying direct. Even in the mid-1990s, supermarkets still relied to a large extent on purchases from the main wholesale market (CMBA).⁵

Supermarkets' procurement experienced another change with the introduction of 'logistical platforms' (a term used in retailing for modern, integrated freight terminals). The shift to tighter logistical management was driven by a number of factors: increasingly intense competition among supermarket chains in the 1990s and the important role in that competition played by the FFV section strategies of supermarket chains; and the highly perishable nature of FFV.⁶

3. An example is the Quinta Fresca Company (www.quintafresca.com.ar), a small firm distributing FFV direct to homes, which started in the 1990s with around 50 customers. Today the firm has 2300 orders a week, received via a 0-800 line (free call) or the internet. It produces its own FFV products and has annual sales of nearly US\$4 million.

4. In 1994, 1996, and 1999, the authors interviewed FFV purchase managers in the 6 leading supermarket chains in Argentina.

5. By now the supermarkets have reduced their vegetable purchases in the wholesale markets, buying only the residual of supplies when direct purchase or purchase from specialised wholesalers is insufficient in quantity or type. Although it is difficult to assign a specific figure to the reduction rate, buying agents of several chains informed the authors that 10 years ago they bought 80% in the CMBA and now buy only about 10% of the total volume purchased.

6. For FFV these platforms are recent, as the first chain to establish one was in 1996 and the rest followed suit in 1998 and 1999. Besides increasing efficiency in handling, the platforms save on logistical costs and

Six major chains were studied: Carrefour, NORTE and TIA (bought by PROMODES in 1998 before the latter's fusion in 2001 with Carrefour), Coto, Wal-Mart, and Disco. All of them procure FFV by means of centralised systems and have the products delivered to logistical platforms. Within the limits of this general purchasing behaviour, there are, of course, differences by FFV category and according to store format (hyper- versus supermarkets). For instance, the one chain specialising in the hypermarket format does not use a logistical platform but instead requires the suppliers to deliver direct to each store. Moreover, in general the chains do not centralise the delivery of leafy vegetables or fresh-cuts, as these are highly perishable; instead, the supermarket chains with many neighbourhood stores require delivery direct to their logistical platforms.

Furthermore, for supermarkets located in the interior of the country, the degree of decentralisation of FFV procurement for a given chain in a given zone varies as a function of the chain's commercial strategy, the importance of FFV production in the local area (the more FFV produced locally, the more decentralised the procurement), and the number and average size of their stores in the area. It also varies by type of FFV product: there is greater centralisation of procurement for less perishable products such as potatoes. The latter can hurt local FFV producers who see demand fall for their products from local cities in the interior of the country as the share of supermarkets in FFV retail has expanded and is expanding.

Actors involved in FFV supply to supermarkets The direct link between supermarkets and suppliers, in which wholesale markets are not involved, spurs the emergence of new actors and the refurbishing of traditional actors in the supply chain. Our interviews revealed several important points in this regard.

First, the FFV farmers selling to supermarkets are not small farmers, but rather are medium or large farmers, using high-level technology (especially greenhouses and other forms of covered horticulture), who in general produce FFV of superior quality to that found in the wholesale markets. Secondly, preparation and packing, performed according to the requirements of supermarkets, as well as transport of the product from the farm to the logistical platform and/or store of the supermarket chain, are the responsibility of the supplier. Third, although there are differences among suppliers in volumes sold, a minimum scale is necessary to become a regular FFV supplier to supermarkets in Argentina. Moreover, there are both diversified and specialised FFV suppliers to supermarkets.

Given the above three generalities, several differences can be noted. First, there is the difference between fruit and vegetables. On the one hand, as noted above, supermarkets usually procure fruit direct from the production zone, buying from large growers/packers (there are two or three per type of fruit) in the country's different fruit zones, according to the timing of harvest of the various products. In contrast, vegetable production takes place among many small farmers (who are not organised in associations). Buying direct from them incurs more transaction costs than in the case of fruit. Moreover, from among the vegetable farmers, specialised wholesalers have emerged who deal in buying from the farmers and selling to the supermarkets. Thus,

on the use of space in stores (Gutman, 1997; Green and Schaller, 2000), and facilitate direct purchase from farmers.

there is a wide variety among the intermediaries between vegetable farmers and supermarkets that emerged in the 1990s.

Our interviews revealed that there are four broad groups of vegetable suppliers to supermarkets, taking into account whether they are producers or in marketing (if they have jobs in the wholesale markets or are direct distributors), whether they act individually or in association, and finally how they have changed over time. In any case, it is worth noting that we found no operator who sold all of his output or stocks to supermarkets. Instead, all the operators diversified their sales between supermarkets and traditional channels (to wholesale markets and small vegetable shops). The four categories comprise the following:

- (i) Large commercial vegetable farmers who sell individually to supermarkets. These farmers cultivate 40 or more hectares of vegetables (as field crops and in greenhouses), using capital-intensive technology. They have also made substantial investments in packing plants. Although somewhat diversified, in general they supplement their own production with purchases from other farmers to attain the volume they target for delivery to supermarkets. Towards the middle of the 1990s they initiated strategies of linking with supermarkets, in the search for a commercial alternative that would absorb their supply (which exceeded the demands of the wholesale markets), that would pay for quality, and whose probability of payment was higher than that of the traditional wholesalers. The farmers' quest meshed with the desire of supermarkets at that time to source vegetables direct.

Nevertheless, by the end of the 1990s most of the large vegetable farmers (with only one exception) opted to sell to supermarkets indirectly, via specialised wholesalers. According to our interviews with them, this was because they could no longer meet, as individual farmers, the requirements of the supermarkets in terms of volume, quality, and packing material rental, and because of the supermarkets' practice of paying after long delays, of levying discounts for promotions and store openings, and so on. The negotiating power of the supermarkets appears to have convinced the large vegetable farmers of the need to rely on intermediaries specialised in commercial linkages.

- (ii) The second category is the distributor who was formerly a wholesaler in the wholesale market. In fact the distributors to supermarkets initially emerged from among several operators in the wholesale market who had already formed commercial relationships with the supermarkets during the period when the latter sourced FFV only from the wholesale market. The emergence of these specialised wholesalers coincided with the initiation of direct FFV purchase by supermarkets from farmers.

In the early stages, these specialised wholesalers engaged only in marketing functions, buying vegetables from third parties (farmers). As their relations with supermarkets stabilised, there was a deepening of their relations with farmers: they began incorporating pre-packing preparation and packing operations; and they improved their logistics by hiring or buying refrigerated trucks, reducing the time between receiving the product and delivering it to the supermarket chain. They also now supply services to the farmers and in some cases provide credit and technical

assistance. They are in fact 'full-service' specialised wholesalers, and earn most of their income from a few products (tomatoes, peppers, and lettuce).

Within this category there are also some large farmers, using modern technology, who before the 1990s were already involved in the wholesale market, with their own jobs. These farmers – with more than a generation in horticulture – are differentiated from the first group by their marketing experience.

Interestingly, both groups (farmers and non-farmers) have kept their jobs in the wholesale market, continuing to operate in the traditional system as well as the modern system supplying supermarkets. In the case of one large farmer, however, the emergence of the opportunity to sell direct to supermarkets induced him to shift to specialising in production of leafy greens for a large hypermarket chain. This second group invested heavily in the acquisition of other vegetable production firms and in joint ventures with other producers.

- (iii) The third category are groups of commercial farmers associated with specialised wholesalers. At the outset, in the early 1990s, some large farmers formed groups for the purpose of selling vegetables to supermarkets; they worked independently of the wholesale markets, signing agreements with supermarket chains as well as with producers.

These actors (many of them only recently started in vegetable production) became major suppliers of vegetables to supermarkets, subcontracting a substantial share of their supply from third-party farmers in various zones of the country, to ensure that the requirements of the supermarkets are met. In some cases, the large-farmer groups are associated with specialised wholesale firms, with the latter assuming the marketing functions for the supermarkets. This approach has taken root quickly in the past five years owing to the difficulties that farmers faced in undertaking supply to supermarkets on their own, for the reasons discussed above.

- (iv) The fourth category are agents operating on behalf of the supermarket chains. In the mid to late 1990s, two large supermarket chains decided to fully outsource the procurement of vegetables from one specialised wholesaler, set up to work exclusively with each chain. In one case, the wholesaler is already operating in other countries in association with the international retail chain, and, in the other, the wholesaler is composed of ex-employees of a retail chain that was absorbed in the retailing concentration. The creation of these dedicated distribution firms required producers and other wholesalers to sell via the new firms.

Impacts on the traditional segment of the FFV supply chain

Impact on operators in the wholesale markets The development of direct relations between farmers and supermarkets, combined with the deregulation of markets in the 1990s, caused a reduction in volumes marketed and the number of operators in the wholesale markets. During the period 1985-9 the CMBA sold 29% of Argentine fruit and 30% of the vegetables; these shares dropped during the 1990s to 17% and 25% respectively. In 1995 the number of wholesalers in the CMBA was 570, falling to 460 in 2002. This reduction is also reflected in the concentration of sales among wholesalers, with the top 200 wholesalers selling 80% of the FFV in the wholesale market, and the top 80 selling 50% of the CMBA volume. At the other extreme are the small

wholesalers, in a critical financial plight as they struggle with new price competition and commercial requirements.

As already noted, only some of the wholesale operators opted to convert into distributors to supermarkets. The option was practicable for wholesalers handling large volumes. In contrast, the main client of the small wholesalers continues to be the traditional small shop, as shown in a recent study carried out in an intermediate city.⁷

The weakening of wholesale markets by the direct purchase practices of supermarkets is exacerbated by the development of informal or alternative market channels. The latter involve sales carried out by producers or assemblers, who buy in the production zone and sell to traditional small merchants and/or consumers. However, the CMBA still has an important role in the determination of benchmark prices in the Argentine produce market.

Impact on small and medium horticultural producers As the FFV supply systems for supermarkets evolved in Argentina over the past decade, very little or no link with small producers was observed. Although there are some isolated cases of relatively successful associations of small producers supplying FFV to supermarkets, these have not been sustained over time.⁸

The constraints for small farmers in attempting to sell to supermarkets is linked to their weak capacity to meet the requirements of the supermarkets, their organising capacity, and their bargaining power. Among their key problems are: (i) insufficient economies of scale for them to be competitive in cost terms; (ii) lack of access to financial capital to make investments in greenhouses, packing plants, and cold chains; (iii) difficulties in meeting the supermarkets' requirements in terms of volume, quality, and delivering consistently over time; (iv) lack of liquidity to withstand the long payment delays of supermarkets; (v) problems in associating with other farmers; and (vi) lack of access to market information.

The weakness of small farmers, combined with the changes in the FFV marketing channels and increased competition, led to concentration in the sector. Again, because of lack of national-level data, we cite an example of an expanding green belt in the municipality of Partido de General Pueyrredón, in Mar del Plata, in the southern part of the Buenos Aires region, taking into account the Horticulture Censuses of 1978 and 1994 and two studies (Hamdan and Huarte, 1986; Di Napoli, 2001). Comparison of the censuses shows that the total horticultural crop area doubled over the period, whereas the number of farms only increased by 12%, which implies an increase in the average size of horticultural farm. Moreover, between 1985 and 2000, the share of the local wholesale markets in the total horticultural volume sold dropped from 40% to 10%.

7. Ghezán et al. (1999) show that in cities in the interior of Argentina where the expansion of large supermarket chains has been more recent, and where the wholesale market is still important as a supplier of FFV, supermarket purchases represent 45% of the total volume sold by the wholesale market. The study also shows that the supermarkets buy from large wholesalers (more than 1000 hundred-weight sacks per day), whereas small wholesalers (less than 100 sacks a day) make 65% of their sales to small vegetable shops.

8. Between 1992 and 1996, a co-operative of 19 farmers was formed in a region without a horticultural tradition, in the province of Buenos Aires, in Chascomús. The co-operative operated 15 hectares in greenhouses, and specialised in 3 vegetable crops for a supermarket chain in Buenos Aires. The problems mentioned in the text led to the bankruptcy of the co-operative, and only a few producers survived, shifting to supplying the local market.

There was also an increase in the share of output sold to national-level markets and to the interior of the country via distributors who collect and store produce (from 61% to 78% of total local output). Nevertheless, the small farmers (less than 4 hectares) sold more than 85% of their output in local wholesale markets, which they saturated.

In order to survive, the small horticultural farmers diversified their marketing channels away from the wholesale markets (and from sales to supermarkets), selling direct to consumers' homes and to FFV shops (adding value by delivery to the buyer's door). The organisation of these alternative channels within the traditional marketing system, incorporating services and improvements in quality, post-harvest practices and logistics, would allow them an option for commercial survival – within the overall context of the progressive concentration of the sector.

Effects of the rise of fast-food chains on the potato supply chain

This section is based on research by the authors undertaken since 1995. The information on which the findings are based comes from several sources: (i) surveys of managers and technicians in the processing firms; (ii) surveys of managers of the fast-food chains and other key informants; and (iii) a survey of farmers in the potato production zone serving processing plants in the Buenos Aires region in 1998-9.

Characteristics and development of fast-food chains in Argentina

The principal US fast-food chain, McDonald's, was founded in 1955. Today there are 30,000 McDonald's establishments in 121 countries. 70% of them are franchises, a major factor in the company's rapid expansion. Its international expansion began in 1967 (www.mcdonalds.com). McDonald's exports the US concept of fast food: namely, offer cheap and fast service, one main product (hamburgers with french fries, always of the same quality), and a network of restaurants that guarantee the same type of format and service. The firm is an example of the Fordist industrial logic (a strategy of cost minimisation and quest for large scale) applied to the food service sector, with key innovations in the method of preparing the meal, the organisation of raw material procurement, and service in the restaurants. In general, McDonald's enters external markets via a partnership with a local firm; once its brand is established, it grows via franchising.

One of the innovative characteristics of McDonald's, and an anchor of its competitiveness in the United States in the face of competition from similar types of chains, is its development of a suppliers' network. McDonald's relations with the agrifood industry are governed by its strict product specifications to its input suppliers (quality, quantity, timing, and form of delivery) and a constant quest for cost minimisation. Its first suppliers in the 1950s were small and medium-sized firms that developed specific products to supply to the company; these suppliers then grew with McDonald's into large firms.⁹ In the 1990s, after having established its supply chain, the

9. Among others, major suppliers include Simplot, www.simplot.com (frozen potatoes for french fries), Keystone Foods, www.keystonefoods.com (hamburgers and logistics), Schreiber Foods Inc.,

area of major importance became marketing. In its internationalisation, it incorporates local tastes via new products and services, yet without losing the ‘American’ identity of the product and service (hamburgers with French fries and the atmosphere of its restaurants), which is the great advantage of the ‘owner firm’ as defined by Dunning (1992).

In 1975, sales outside the US represented only 8% of total sales. In 1985, McDonald’s was present in 44 countries, with 19% of sales outside the US, while the latter figure exceeded 50% in 1996 (Table 3). Its international expansion was the consequence of competition and market saturation in the United States.

Table 3: Number of McDonald’s restaurants

	1985 (44 countries)	1996 (100 countries)	2001 (120 countries)
World	9000	20884	29018 ^a
USA	7000	12094	13099 ^a
Latin America	100 ^b	699	1581
MERCOSUR	6	318	822

Notes: a) does not include 1075 stores of other brands of McDonald’s in the US (Boston Market, Donatos Pizzeria, etc); b) 1987.

Source: Authors’ calculations, based on data from website www.mcdonalds.com, as well as Love (1987) and Scott et al. (2001).

Table 3 shows that McDonald’s growth in Latin America is far superior to its growth rate in the US and in its overall international market. While it entered the Latin American market in the 1970s, its major growth there occurred in the 1990s (from 100 in 1987 to 1581 in 2001). In Latin America, 50% of its establishments are in Argentina and Brazil, the main economies of the regional trading bloc MERCOSUR (see Table 4).

Table 4: McDonald’s restaurants in Argentina and Brazil

	1985	1992	1996	2001
Argentina	1	17	88	211
Brazil	5	100	214	568
Total	6	117	302	779

Source: Authors’ calculations from data on McDonald’s websites and from interviews.

The factors determining its rapid growth in MERCOSUR are linked to the macroeconomic context in the 1990s, the size of the Brazilian market, the increase in expenditures on meals outside the home, the increase in the participation of women in jobs outside the home, the continuous workday (without substantial time at home midday, as was the traditional practice), in particular in the big cities. In Argentina, expenditures on meals out grew from 8% of food expenditures in 1970 to 18% in 1996

www.sficorp.com (cheese). In the US, McDonald’s procures inputs from 4-5 specialised suppliers per product or service, thus maintaining competition among them.

(still less than in the developed countries). Expenditures are strongly correlated with household income. In 1996, meals out represented 28% of the food budget of high-income households, 13% for the middle-income groups, and only 5% for low-income households (INDEC, 1996). Households with medium/high incomes make up no more than 30% of the population of Argentina. Moreover, the fast-food segment is preferred by children and teenagers.¹⁰

In 1986, McDonald's set up its first restaurants in Buenos Aires, via a joint venture between McDonald's Corporation and a US partner (Woods Staton, who owns 51% of the stock and is president of 'Arcos Dorados, S.A.', Spanish for 'Golden Arches'). The exponential growth of the firm over the period 1994-8 brought it to a position of dominance in the fast-food market.¹¹ Of the total of 172 restaurants now in Argentina (www.mcdonalds.com.ar), 86% are in the federal capital and Greater Buenos Aires, while the rest are in the main cities of the interior of the country where they are located in the upper-income areas and mainly in malls and hypermarkets.

As McDonald's expanded the number of its establishments in Argentina, it began to modify its ingredient procurement system. Starting in 1995/6 the local suppliers were replaced with multinational firms that had been supplying McDonald's for decades and had grown with it (see footnote 9). Among them were: (i) Keystone Foods (www.keystonefoods.com), based in Pennsylvania and operating in 20 countries, which replaced Frigorífico Rioplatense in the supply of hamburger meat, as well as adding logistical services; Keystone also replaced a local subsidiary of Cargill that was producing chicken hamburger meat; and (ii) McCain (www.mccain.com). In Argentina, McCain replaced imports of frozen pre-fried potatoes and displaced the local purchase of that product 'in natura'.¹²

Impact of fast food on the potato supply chain and its participants

In contrast to the prevailing trend in developed countries, the production of potatoes in Argentina is targeted towards consumption in the fresh (unprocessed) state (more than 80% of output). Argentina has the largest output and highest yield of potatoes in Latin America (Scott et al., 2001). Marketing of fresh potatoes is characterised by chain co-ordination via a market with little transparency, which has problems of quality and a tendency towards over-production and falling prices.

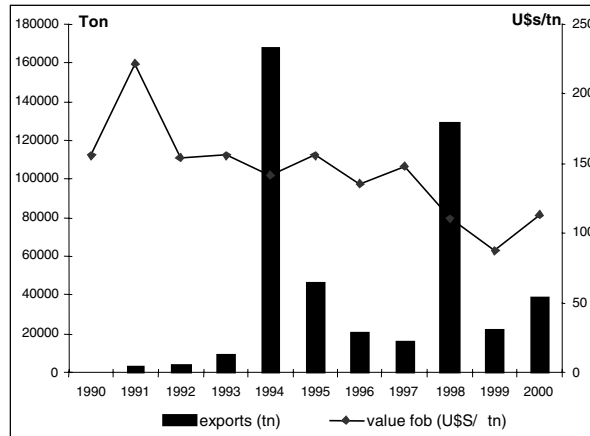
10. It is noteworthy that adults maintain the national preference for meats, pastas, and pizzas, for which there are numerous restaurants with a wide variety of dishes, prices, and qualities. Restaurant consumption habits in Argentina, as in other South American countries, are still strongly determined by local tastes.

11. In the early 1970s, a chain was formed with domestic investment capital, with a similar format: Pumper-Nic, incorporating, as a novelty (relative to traditional restaurants) self-service, and the menu of hamburgers with french fries, typical Argentine fast food, with an atmosphere similar to McDonald's in the restaurants. Nevertheless, the entry of McDonald's (1986) and Burger King (1989) induced Pumper-Nic to sell its 20 restaurants to the multinational Wendy's in the 1990s. The latter pulled out of Argentina in 2000 after two years of losses, leaving Burger King with 25 restaurants as the only direct competitor of McDonald's in fast food.

12. The development of the processing industry and the international market in this product has been linked fundamentally to this type of business. Different from other products, fast-food chains buy 90% of the US production of frozen pre-fried potatoes for the internal market and for export (Peterson et al., 1997). The main firms in the world are McCain (Canada); Simplot-Conagra and Lambweston (US); Farm-Frites, ODC, AVIKO (European).

Exports of fresh potatoes have been very variable over the past decade and have not exceeded 7% of output (see Figure 3). Exports depend on output and prices in Argentina, and on demand in Brazil (sensitive to purchasing power changes). In any case, despite the existence of MERCOSUR and Argentina's advantage therein in potatoes, non-tariff trade barriers, lack of standards, and a mismatch between the Argentine varieties and the types of potatoes demanded by Brazilians, have reduced Argentina's exports of potatoes to Brazil.

Figure 3: Exports of fresh potatoes, Argentina 1990-2000 (tons and prices fob per ton)



In Argentina, the industries that buy potatoes are the frozen pre-fried potato industry and the chips or snacks industry (dehydrated, peeled, fried). Although these industries displayed great dynamism in the 1990s, the focal point of the growth in industrial demand became in fact the entry and expansion of firms processing local fresh potatoes into frozen pre-fried potatoes for the regional market. The firms involved were mainly McCain and Farm-Frites (www.farmfrites.com). McCain has a capacity for producing 70,000 tons, and Farm-Frites, 12,000 tons. McCain entered Argentina in 1996 in a zone with a tradition of potato production. Its second plant was established in Greater Buenos Aires in 1994 via a joint venture with a local firm, which it ended up acquiring in the late 1990s.¹³

After the entry of these two firms, Argentina went from being a minor importer of frozen French fried potatoes to being a net exporter (with more than 90% of Latin American exports of this product). The main destination of the exports is Brazil (Argentine production covers 50% of Brazil's demand), followed by Chile – showing clearly the regional strategy of the multinational-based industry in Argentina, which is to follow and supply the development of fast foods in the extended MERCOSUR

13. A multinational supplier has a strong advantage over national firms (the owner advantage), as it follow its client in its international expansion as part of the globalisation of its market (Dunning, 1992).

region.¹⁴ In that context, the growth of the frozen French fried potato industry, with its volume and quality requirements of the raw material (fresh potatoes), brought a profound change in the potato supply chain in Argentina. The agreements between the fast-food chains and the industry constituted an important organisational and technological innovation in the subsector, bringing new forms of co-ordination to the supply chain which modified the existing relations of exchange and production.

Interface of fast-food chains and the processing industry

In the case of McDonald's, the suppliers from the food industry side ('partners' is the term used by McDonald's) must sign a standard contract that contains detailed quality and processing specifications; in addition, there is a verbal agreement regarding the projected volume for the year. The negotiations regarding the terms of the contract are undertaken on the basis of 'open costs', whereby the supplier provides details concerning the cost components of production and is invited to 'collaborate' in reducing the costs by using international procurement mechanisms.

The supply of frozen French fries to the fast-food chains approximates the conditions of fluid mechanics: restaurants send their orders to the distribution centre 48 hours before they need the product. The short turnaround time demands sophisticated infrastructure and logistics. It is therefore not surprising that the fast-food chains participate actively in the planning of production and distribution by the processing firms.

In the case of the strips of frozen french fries, the main requirements of the fast-food chains include: the amount of defects, the form of the strip, the quantity of strips per package, the temperature of the strips at delivery, the yield at frying, and so on. In general, the fast-food chains in Argentina believe that they are receiving good quality frozen French fries from the processors, although they regard it as possible to reduce costs further and to increase the efficiency of the processing industry and the provision of raw materials to the processors. It is important to note that McDonald's contracts an international expert to undertake audits in the potato production zone as well as in the plants once a year (near to harvest), in order to establish the contract conditions between McDonald's and the processing industry in terms of local production and processing (quantity, quality, and prices). This relationship (fast-food-chain/processor) then conditions the processor/farmer relationship, as discussed next.

Interface between processors and farmers

The leading firm, McCain, is located in the southeast zone of the Buenos Aires region, the most important potato production area in the country, because the single most important input cost is that of the fresh potato itself. The zone supplies potatoes to the processors between February and November; during the rest of the year the plants receive potatoes from other zones. The development of the frozen French fries industry

14. The devaluation of the Argentine peso in January 2002 improves the export position of the processing firms, which had already been exploring (for the past two years) establishing plants in Brazil (as the main consumer of the product) as well as Chile. However, the firms had opted to operate in Argentina because fresh potatoes (the main input) are cheaper and price variability less there.

brought the introduction of written contracts between processors and farmers.¹⁵ The use of contracts increased rapidly over the years, starting with 35 contracts signed in 1994/95, 85 the next year, then 130 in 1996/97, and 120 in 1997/98. In 1997/98 contracts were signed with about 30% of the potato farmers in the zone, representing 20% of the land under potatoes in the zone.

Potatoes received from farmers under contract represent 70-85% of the total potato input, depending on the processing plant. The balance is bought in the spot market (supplied by potato growers aiming at the industry as buyer). The number of tons per contract and per farmer varies according to the processing firm, between a low of 250 tons and a high of 5000 to 7000 tons (for farms of between 10 and 250 hectares). In 1997/98, of 100 farmers linked to processors, more than half signed contracts for between 250 and 750 tons. Nevertheless, the potato supply to the plants is concentrated among the farmers: nearly 50% of the supply to the processors comes from 15% of the farmers, with contracts for more than 2000 tons per farmer.

Brousseau (1993) categorises contracts by the mechanisms in them that (i) organise operational and technical co-ordination, (ii) provide incentives for effort, and (iii) provide guarantees and share risks. We use these categories to analyse the contracts between processors and potato farmers, over the period 1994-8, as follows.

Operational co-ordination is effected in the contracts by their specifying volume and timing of delivery (given a base price). The delivery timing was modified over the period 1994-8 from three to eight times, improving the co-ordination of processing output with fast-food demand.

Technical and organisational co-ordination is effected by specification in the contract of conditions concerning quality and the provision of potato production inputs. In terms of quality, the contracts have been modified over time with the addition of specifications both in minimum standards and in maximum tolerance. In terms of inputs, processors agreed to provide seed for the new potato varieties (but not for the traditional varieties, the latter amounting to 60% of production). In 1998, the contracts began to require the use of traditional seed provided by the processor. For many farmers this was onerous, because the cost of seed from the processors was more than that of own-produced seed. Nevertheless, for those who do not produce seed, this arrangement was of benefit because the provision of seed is a form of indirect finance.

Quality incentives are effected in the contracts via discounts and bonuses (sticks and carrots). The number and level of quality parameters in the contracts increased steadily over the period, using the reference point of the best of the farmers. Financial incentives are effected in the contracts by the processing firm's commitment to pay the farmers on time, and to finance the purchase of irrigation equipment and machinery by the farmers.

In sum, the contracts evolved towards greater requirements of quality and lower average price (because of the increase in discounts for quality), based on the demands of the fast-food chains and the continuous evaluation of production conditions.

Via the link between processor and farmer, various technological and organisational innovations were introduced into the zone. These implied a continuous

15. Pre-existing processing industries (chips, purée), which had lower requirements in terms of volume and quality standards, relied on only around 10 farmers and worked via verbal agreements or, at most, purchase orders; none of them had written contracts with farmers.

process of apprenticeship on the part of the industry (since the local production environment as well as the socio-economic setting were different from those of the Northern Hemisphere) as well as for the farmers, who had no experience of producing under contract and who had to cope with new standards and new varieties. Several technologies which the processors initially recommended to the farmers (irrigation, mechanical harvesting, and bulk delivery) had to be modified because they were not adapted to the local conditions, in particular, because of the use of rented land¹⁶ and the farmers' high level of decapitalisation and indebtedness. Up to 1999 only three farmers had bought harvesting machines (with a 300 hectares capacity and valued at as much as US\$500,000). These machines were imported by the processing firms, who provided credit to the three farmers who bought them; the latter provided services to other farmers to amortise the cost of the expensive equipment.

Impacts on potato farmers

Relative to other main agricultural activities in the region such as cereal production, producing potatoes is quite complicated and costly (in 1998 about US\$3,000 per hectare, compared to US\$350 for maize or sunflowers). Potato farmers, relative to the average grain farmer in Argentina, tend to possess knowledge and machines specific to potatoes, to rent land, to integrate some commercial elements into their operations and to have a greater tendency to take risks. They are commercial entrepreneurs.

The farmers who are linked to the processing industry comprise entrepreneurs (80%) and family farmers with sufficient capital (20%). Potatoes are their main crop and farming activity (in 50% of cases). Most (90%) of potato farming is carried out on rented land, in view of the need to rotate crops, given the crop's high rate of extraction of soil nutrients; if the farmer did not rent land, he would have to have a large area of fallow to be able to diversify production.

Potato farmers sell to different markets (industry, fresh vegetable, and seed markets), depending on the amount of land they have under potatoes and the degree of their agricultural diversification. For the purposes of this analysis we surveyed a sample of farmers linked to the processing industry, classified by the volumes contracted. We then categorised the producers according to the land under potatoes (for any market, as most of them sold potatoes in several markets). The result was four categories of producers, differentiated by amounts sold to the industry (see Table 5).

Type A farmers have more than 700 hectares of potatoes plus other crops, and supplied 40% of the processing industry's requirements in 1998/99. They display two distinct strategies with respect to links with the industry. For some, those relatively decapitalised, links with the processing industry represent an opportunity to increase potato production, while reducing risk. For others, with greater presence in the market and a fresh product of high quality, selling to the processing industry is not obviously better than the alternatives as measured in the ratio of price received to requirements demanded. They tend to put less of their land under contract with processors, as compared with the first subgroup of type A farmers.

16. An example is the recommendation to use immobile irrigation systems, which were not adapted to farmers working on rented land who needed to move the irrigation equipment around.

Table 5: Volume of potatoes supplied to the processing industry by type of farmer (%)

Season	A	B	C	D	Total ha
1995/6	42	22	31	5	948
1996/97	35	22	37	6	1638
1997/98	34	18	39	9	2086
1998/99	39	0	52	9	1831

Source: Authors' interviews with farmers.

Type B farmers have between 400 and 700 hectares under potatoes, and specialise in potato production. Initially they dedicated a large share of their land to potatoes sold to the processors. However, because they were unable to meet all the requirements and standards demanded by the processors, and because of their high degree of indebtedness, the processors did not sign contracts with them in 1998/9.

Type C farmers (with between 250 and 400 hectares under potatoes) are specialised producers who dedicate between 40% and 100% of their potato crop to the processing industry. Those who dedicate 100% (selling to several French fries processors as well as potato chip firms) are the ones who most increased their total of land under potatoes over the period, and are the most promising group of suppliers for the industry; Type C farmers supplied 30% of the industry's needs in 1994/5, increasing to 50% in 1998/9.

Type D farmers (with less than 150 hectares under potatoes) are diversified farmers; sales to the processors enable them to finance the production of potatoes for the fresh market. Only 30% of these farmers receive finance from the processors for irrigation equipment, whereas among the other types such financing is general.

The managers of the processing plants prefer to contract with larger farmers who go in for mixed production (at least 200 hectares for the industry and 200 for the fresh market). This fits the profile of group A but not really that of group C, although the latter group supplies half the industry's needs. Thus, we believe that the supply of raw materials is not yet fully adjusted to their needs, and that the gap grew with the doubling of processing capacity in 2000.

For the farmers, in a context of excess production and a secular decline in prices, the attraction of a link with the processing industry lies mainly in reducing market risk¹⁷ and selling at a price known before harvest (and which is not lower than the market price). Links with processors also mean receiving financing for equipment as well as operational expenses which spill over into fresh production; thus selling to processors 'subsidises' production for the fresh market.

The presence of fast-food chains in the MERCOSUR market and of the frozen french fries industry located in the southeast zone of the Buenos Aires province has the potential to reconfigure potato production in that zone. This development may have less impact than it would have in a developed region with different initial conditions (and where the share of production going to processing is already higher). The combination of the predominance of commercial farmers, who farm on rented land and have

17. In the fresh market the producers run the risk of not getting paid as the transactions are informal and are not registered.

substantial debt, and the incipient rise of farm service suppliers, may give rise in the medium run to deep change in the composition of growers supplying the potato industry. These processes appear to be inducing concentration in the farm sector linked to processing, driving out rural labour at least on a per unit basis (due to the increase in mechanical harvesting), and introducing large land-owning non-traditional producers of potatoes into this supply chain.

Conclusion

In Argentina, the growth, concentration, and multinationalisation of the supermarkets and fast-food chains have been and still are extremely rapid, much faster than in developed countries. Multinational firms had advantages over the national firms because of their financial capacity to invest and absorb shocks, and their experience in produce procurement systems, the selection of suppliers, and logistics.

Supermarkets and fast-food chains have been the vector of fundamental change in horticultural supply chains, beyond their merely quantitative importance, great as that is. They have had a massive effect via their use of contracts and their quality standards, their commercial requirements of large volumes and timely and tightly co-ordinated delivery, and their logistical platforms and large distribution centres.

The impacts on the horticultural supply chain have been various: (i) the reduction in the role of the traditional wholesale market as a co-ordinating mechanism in the chains, especially because of the supermarkets; (ii) the emergence of new actors, in particular the specialised wholesalers who work with the supermarkets; (iii) the tendency to exclude small farmers, because of the commercial and technological requirements demanded by the new actors and implemented via the new organisational and institutional approaches. Small farmers are looking for, and to a certain extent finding, alternative markets, but many are not succeeding and are abandoning farming.

Given the above context, the virtual non-existence of production or marketing associations among small farmers, and the lack of financial and technical assistance, or any form of targeted policies or programmes by the government, have together increased the tendencies of the 'modern economy' to exclude small horticultural producers. To the extent that the traditional marketing system continues to be important for the small and medium-sized horticultural producers, it is important for the government to increase the transparency of that market by means of regulations such as quality standards and the diffusion of market information. Moreover, technical and financial assistance directed to small horticultural producers is needed, in particular to help them develop their potential in markets other than those of the large retailers and fast-food chains.

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