The Market Makers

How Retailers are Reshaping the Global Economy

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The Global Spread of Modern Food Retailing

Benjamin Senauer and Thomas Reardon

Introduction

Today you could walk into supermarkets or a supercenter (selling food and general merchandise) in Mexico City or Shanghai or hundreds of other cities around the world and think you had just entered an upscale store in an American or European suburb. Of course, once you looked at the customers and employees or at some of the different food products, you would realize you were not in the USA or Europe. However, the general appearance and operation of the supermarket would appear very familiar. In the late 1980s, modern food retailing was pretty much exclusive to the United States, Western Europe, and a few other economically advanced countries such as Australia and Canada. In a phenomenally short period (since the middle 1990s), modern food retailing has spread around the world to countries in Latin America, Asia, Eastern Europe, and even parts of Africa. The global expansion of modern food retailing is an excellent example of the concept of market making. Food retailers are remaking their consumer and supplier markets.

On the consumer side, supermarkets and other formats such as supercenters have transformed the food shopping experience for hundreds of millions of consumers around the world. People in Brazil, China, South Africa, and dozens of other countries who used to shop only at open-air public markets, street vendors, and small family-operated stores are going to modern supermarkets and supercenters as well as other modern retail formats (such as chains of hard discounts, neighborhood stores, and convenience stores). They are no longer waited on personally by the shopkeeper or vendor, but, like Americans and Western Europeans, they are walking up and down the aisle making their own selections before checking out. The selection of products is many times greater typically than in the traditional markets and stores

and the overall quality, variety, and safety of the food much better. In addition, in many cases the prices are lower than in the traditional markets and small shops, especially at first in processed foods, and with a lag, in fresh foods.

At the same time, modern food retailing has so dramatically altered the consumer market that it has also reshaped the supply chain. Most aspects of the traditional agro-food systems, including production, transportation, and marketing, in developing countries have been markedly inefficient. They have been characterized by low productivity levels, high post-harvest losses because of factors such as spoilage, and poor quality and food safety standards.

Modern Food Retailing

Although there are many additional variations, we will cover only the basic store formats of modern food retailing. Supermarkets are departmentalized, self-service stores that carry a wide selection of food and household goods that are consumed regularly. Most supermarkets are now part of a chain of stores. They are substantially larger and have a much broader selection than traditional grocery stores. Customers move along aisles stocked with products with a cart or basket to fill. The items are paid for at cash registers in the front of the store. Many of these features, which we take for granted, were remarkable innovations when they first appeared. The first self-service grocery store was opened in 1916. Before that clerks had to wait on each customer and get the items wanted from behind counters. Many products were kept in bulk form and were measured out and packaged for customers. The New York-based King Cullen (1930) and Big Bear (1932) stores are typically considered the first real supermarkets. By 1937, there were 3,000 supermarkets in operation in forty-seven states (Zimmerman 1955).

Supermarkets spread rapidly in the 1950s and 1960s, along with the growth of suburbs. Supermarkets and the food manufacturing industry grew together in a symbiotic relationship. Supermarket chains developed their price advantage over traditional retailers by buying in bulk and thus exploiting economies of scale. The natural partner from whom to buy in bulk was a large-scale food manufacturer. In the same way, to establish mass brand presence, be priced competitively, and develop economies of scope with a diversity of products, large food manufacturers found supermarket chains to be natural partners, with clear advantages over mom-and-pop shops in all but the manufacturer's degree of bargaining power with the client. This symbiosis was as true of large food manufacturers and supermarkets in the USA in the 1940s as it is in developing countries today.[1] Jointly, supermarkets and large food manufacturers transformed the consumer food market. While this is true in general,

some of the largest early supermarket chains, such as A&P, the largest retailer in the world in the mid-twentieth century, had quite a strained relation with many big manufacturers, and relied to a large extent on private labels. In the case of A&P, this strategy eventually contributed to its downfall, mostly at the hand of the antitrust authorities.

Supercenters, such as those operated by Wal-Mart, began to appear in the USA in the 1990s; they combined a supermarket and mass merchandise retailing in a single, very large store. A similar combination format actually appeared in France first, where it was referred to as a hypermarket. The so-called combination stores were common in the USA before they appeared in France. In fact, French managers went to the USA to study the principles of modern retailing, and came up with the hypermarket format.

Wholesale clubs, such as Sam's Club and Costco, also carry both food and general merchandise. They require a membership to shop, and lean toward large sizes and bulk sales. Limited-assortment stores, such as Aldi and Sav-A-Lot, are small, "bare-bones", "hard-discount" food stores. They typically carry fewer than 2,000 items and few, if any, perishables. Convenience stores, such as 7-Eleven, offer a very limited selection of food and non-food items (Food Institute 2007).

The Universal Product Code (UPC) providing bar codes on individual packages was adopted in the 1970s. Scanners came into use to expedite checkout and eliminate the necessity of stamping a price on each item. However, unlike in other retail sectors where scanners were adopted, few advances in the overall supply chain occurred. There was an imbalance of bargaining power between the food retailers and the major food manufactures, which favored the latter in the USA, as large food manufacturers had innovated with national brands in the late 1800s and early 1900s when supermarkets were in their infancy. Therefore, well-established food manufacturers had considerable bargaining power until well into the late twentieth century, when the pendulum of market power swung toward the retailers. In contrast, the market power balance has clearly been on the side of the large retailers in the UK from the mid-twentieth century (Wrigley and Lowe 2002).

Manufacturers had adopted the practice of periodically running large batches of a product and then pushing it through the system with special discounts. The distribution system had become bloated with inventories sitting in warehouses. The inventory cost hurt retailers' competitiveness. Hence, food retailers instituted a version of "lean inventory management" in the early 1990s under the banner Efficient Consumer Response, widely referred to as ECR. The development of ECR was in large part a response to Wal-Mart, with its highly efficient distribution system and "every day low pricing" (EDLP) strategy. Wal-Mart had already affected supermarket sales in household merchandise and was beginning to open supercenters, which directly competed

with supermarkets (King and Phumpiu 1996; Coggins and Senauer 1999). ECR was designed to "drive costs" from the distribution system, a phrase frequently used. ECR used the advances in information technology to link retailers, distributors, and suppliers electronically, so that they could coordinate more closely. Timely, accurate, paperless information on sales, inventory replenishment needs, and payments were to flow one way, with a smooth, continual product flow matched to consumption in the other direction. Warehouses became distribution centers with the goal of speeding the flow of goods rather than storing inventory. Direct store delivery, in which a truckload was sent directly from the supplier to retail stores without ever going through a distribution center, was adopted for some products. The most innovative and best-managed food retailers were most successful at achieving the goals of ECR and thus achieving a competitive advantage with lower costs (King and Phumpiu 1996; Coggins and Senauer 1999).

By the end of the 1990s the major food retailers had largely remade the supply chain in the USA and Western Europe. With their control of the flow of information, they now had the upper hand in their relationship with food manufacturers and other suppliers. The shift in power from food manufacturers to retailers in the USA (following a trend that had occurred a decade or more before in the UK) was also affected by the waves of consolidation that occurred in US food retailing and the growth of "private-label" or "store-brand" products, which competed directly with the national brands. (Both the consolidation and the private-label trends started later in the USA than in the UK, as discussed in Wrigley and Lowe (2002).) For example, stores began to sell cereals that were similar to General Mills's Cheerios and Kellogg's Cornflakes, but that sold at a much lower price. The new supply-chain practices allowed food retailers efficiently to expand geographically. These practices also helped in chains' internationalization.

By 2005, many of the major food retailers in Europe and some of the major chains in the United States were operating internationally, as shown in Table 10.1 (*Supermarket News* 2007). The two largest global general-merchandise retailers, Wal-Mart and Carrefour, are also the world's two leading food retailers. This is because food accounts for at least a third of the sales revenue of their most important store formats, Wal-Mart Supercenters and Carrefour Hypermarkets. Wal-Mart is, in fact, the largest US food retailer, as is Carrefour in France, its home country. As they have entered the markets of developing countries like Mexico and transition countries like Poland, food has been an even more important component of their strategy. This is because people with lower incomes spend a higher proportion of their household budgets on food.

Deloitte, the accounting and consulting firm, publishes an annual *Global Powers of Retailing* study. The 2007 report makes clear that the fastest sales

Table 10.1. The ten largest global food retailers, 2007

Company	Headquarters	Sales ($bn)[a]	No. of stores	No. of countries
1. Wal-Mart[b]	United States	$312.40	6,380	16
2. Carrefour[b]	France	$92.6	12,179	38
3. Tesco	England	$69.6	2,365	14
4. Metro Group	Germany	$69.3	2,458	27
5. Kroger	United States	$60.6	3,726	1
6. Ahold	Netherlands	$55.3	6,422	11
7. Costco[b]	United States	$52.9	460	8
8. Rewe	Germany	$51.8	11,242	14
9. Schwarz Group	Germany	$45.8	7,299	22
10. Aldi	Germany	$45.0	7,788	14

[a] Total sales, including non-food, for most recent financial year, usually 2006.
[b] Food accounts for at least one-third of the total sales of these companies.
Source: *Supermarket News* (2007).

growth for the world's 250 largest retailers is occurring outside the developed countries. Their average sales growth was only 2.4 percent in France in FY 2005 and 2.1 percent in the UK, whereas it was 20.3 percent in Latin America. The majority of the top 250 global retailers are involved in food retailing. Some 54 percent operated supermarkets, superstores, or other formats in which food products constituted a major proportion of retail sales (Deloitte 2007).

Wal-Mart de Mexico provides a good example of international business operations of a major global retailer. Wal-Mart's expansion outside the United States began in 1991 in Mexico. In a joint venture with the Mexican retailer Cifra, the country's largest and strongest retailer at the time, a Sam's Club was opened in Mexico City. Wal-Mart acquired majority ownership of Cifra in 1997, and the name was changed to Wal-Mart de Mexico. After Wal-Mart had bought Cifra, it kept the experienced local managers, but introduced its efficient US purchasing and distribution system, while investing in expansion. Just as in the United States, Wal-Mart's core strategy was focused on low prices (Malkin 2004). Today Wal-Mart is the largest general-merchandise and food retailer in Mexico. However, the acquisition by Soriana of Gigante in December 2007 means that there is now a large domestic rival. Wal-Mart operated several formats in Mexico, with a total of 783 stores in 103 cities throughout the country and 140,000 employees. Wal-Mart de Mexico sales were equivalent to $18.3 billion in 2006. Total sales grew by 15.3 percent in 2006 in real terms (corrected for inflation)—more than three times the rate of GDP/capita growth—with comparable store (for stores open more than a year) real sales growth of 6.9 percent. With sales growth that is much more robust than it has been in the United States for Wal-Mart in recent years, it should not be surprising that Wal-Mart de Mexico expanded rapidly, investing $1.1 billion and opening 120 new stores since 2004 (Wal-Mart 2007).

Interestingly, Wal-Mart operates a more diverse range of store formats in Mexico than in the United States, and food constitutes a much larger share of total sales. As of January 2007, Wal-Mart Mexico operated 118 supercenters, 77 Sam's Clubs, 218 Bodega Aurrera, which offer a limited assortment of food, housewares, and staple goods, 60 Superama supermarkets, 311 VIPS restaurants, and 62 Sububia apparel stores, plus smaller numbers of some other formats. Food accounted for 45 percent of supercenter sales, 49 percent for Sam's Clubs, 48 percent for Bodegas, and 70 percent for Superama supermarkets (Wal-Mart 2007). These figures are a good example of the greater importance of food in most large retailers in developing and transition countries, as already discussed. The competition between Wal-Mart and the main domestic chains has encouraged domestic chain mergers and acquisitions, such as the one noted above, as well as competitive investments in procurement system modernization, such as in distribution centers (see Reardon et al. 2007).

The Spread of Modern Food Retailing into Developing Countries

It is useful to distinguish several distinct phases or "waves" in the geographic spread of modern food retailing beyond the countries with advanced market economies. From earliest to latest adopters of supermarkets in emerging market areas, there have been three waves of diffusion, and an emerging fourth.

First Wave. Experiencing supermarket-sector "take-off" in the early to mid-1990s, the first-wave countries include much of South America and East Asia outside China (and Japan), Northern-Central Europe, and South Africa—a set of areas where the average share of supermarkets in food retail went from roughly only 10–20 percent circa 1990 to 50–60 percent on average by the early 2000s (Reardon and Berdegué 2002; Reardon et al. 2003). Compare that to the 70–80 percent share that supermarkets had in food retail in 2005 in the USA, UK, or France, and one sees a process of convergence. Examples include front-runners where the supermarket take-off started in the early 1990s, such as Argentina with a 60 percent supermarket share in food retail in 2002 (Gutman 2002), Brazil with 75 percent (Farina 2002), Taiwan with 55 percent in 2003 (Chang 2005), and the Czech Republic with 55 percent (Dries, Reardon, and Swinnen 2004). While a small number of supermarkets existed in most countries during and before the 1980s, they were primarily local firms using domestic capital,[2] and tended to exist in major cities and wealthier neighborhoods. That is, they were essentially a niche retail market serving 5–10 percent of national food retail sales in 1990 (for at-home consumption: not bought at restaurant/retail for consumption away from home). However, by 2000, supermarkets had risen to occupy 50–60 percent of national food retail amongst

these front-runners, almost approaching the 70–80 percent share for the United States or France. South America and parts of developing East Asia and transition Europe had thus seen in a single decade the same development of supermarkets that the United States experienced in five decades.

There is a second set of countries perched at the tail end of the first wave and near the start of the second wave, which we class with the first wave, with their supermarket “take-off” in the mid-1990s, such as Costa Rica and Chile, with close to 50 percent market share by 2002 (Reardon and Berdegué 2002), and, in 2003, South Korea with 50 percent (Lee and Reardon 2005), the Philippines and Thailand with approximately 50 percent each (Thailand Development Research Institute 2002; Manalili 2005), and South Africa with 55 percent (Weatherspoon and Reardon 2003).

Second Wave. The second-wave countries include parts of South East Asia and Central America and Mexico, and Southern-Central Europe, where the share went from around 5–10 percent in 1990 to 30–50 percent by the early 2000s, with the take-off occurring in the mid- to late 1990s; examples of rapid growth by 2003 include Mexico with a 40 percent share of supermarkets in total food retail (see Reardon, Berdegué, and Timmer 2005), Colombia with a 47 percent share (see Hernandez 2004), Guatemala with 36 percent in 2002 (see Orellana and Vasquez 2004) Indonesia with 30 percent (Rangkuti, 2003), and Bulgaria with 25 percent (Dries, Reardon, and Swinnen 2004).

Third Wave. The third wave includes countries where the supermarket revolution take-off started only in the late 1990s or early 2000s, reaching about 10–20 percent of national food retail by circa 2003; they include some of Africa (see below), some countries in Central and South America (such as Nicaragua (see Balsevich 2005), Peru, and Bolivia), and some countries in South East Asia (such as Vietnam (see Tam 2004)), China, India, and Russia. The latter three countries were the foremost destinations for retail foreign direct investment (FDI) in the world in 2004 (T. Burt 2004) and remain so in 2010.

China had no supermarkets in 1989, and food retail was nearly completely controlled by the government; the sector began in 1990, and by 2003 had climbed meteorically to a 13 percent share in national food retail, with $71 billion of sales, 30 percent of urban food retail, and growing the fastest in the world, at 30–40 percent per year (Hu et al. 2004). Many of the driving forces for supermarketization were in place (rising incomes, urbanization), and it merely took a progressive privatization of the retail market and, even more importantly, a progressive liberalization of retail FDI, which started in 1992 and culminated in 2004, to drive immense competition, even a full-out race, in investment amongst foreign chains and between foreign chains and domestic chains. This expansion and competition greatly accelerated in 2005 with the full liberalization of FDI that occurred as a condition to

accession to WTO by China. Russia is a similar case, with a late start because of policy factors holding back the take-off despite propitious socioeconomic conditions, and then a very rapid take-off spurred on by an immense competition in investments underway in the early and mid-2000s (Dries and Reardon 2005).

India is an interesting case, with its substantial middle class acting as a "springboard" for the spread of supermarkets; the country is amongst the top three retail FDI candidates in the world and is poised at the edge of a supermarketization take-off, although the share in food retail is still only, at most, 5 percent. In 2010, FDI is still far from fully liberalized, and regulations concerning joint ventures in retail still block what observers think is an imminent flood of foreign investment. Yet already a massive wave of domestic capital investment, which should rise to $20 billion sometime before 2015, is rushing into the Indian retail sector and already beginning to transform it, fueled by rapid economic growth. Even though retail FDI by 2008 was not yet liberalized, Metro and other global chains have already entered and operate cash and carry stores (wholesale to small shops and food service and hotels), and joint ventures have started, such as Bharti with Wal-Mart, with the latter assuring the "back end" operations while Bharti assures the "front end" of retailing, opening stores in March 2008 (Reardon and Gulati 2008).

Sub-Saharan Africa presents a very diverse picture, with only one country (South Africa) firmly in the first wave of supermarket penetration (Weatherspoon and Reardon 2003), and the rest either in the early phase of the "third wave" take-off of diffusion or in what may be a pending—but not yet started—take-off of supermarket diffusion. Kenya (Neven and Reardon 2004) and Zambia (Neven et al. 2006) are in the early phase of the "third wave," and have substantial numbers of supermarkets, initiated by both domestic investment and FDI from South Africa. This investment was attracted by a middle-class base and high urbanization rates, but supermarket penetration is still approximately where South America was in the early 1980s. The share of supermarkets in urban food retail is about 10–20 percent in the large/medium cities, and the share of produce hovers around 5 percent (see Neven and Reardon 2004 for Kenya). Even with mainly domestic investment and some South African retail capital and technology, there is still considerable uncertainty about the rate at which the supermarket sector in these countries will grow. The great majority of Africa, however, can be classified as not yet entering a substantial "take-off" of supermarket diffusion. At the upper end of this group are a score or so of supermarkets in countries like Mozambique and Tanzania, Uganda, and Angola, places where South African retail FDI is just starting (see Weatherspoon and Reardon 2003 for evidence on investments by the South African chain Shoprite) and may by 2020 be recognizable as a "fourth wave." Supermarkets in these countries show signs of early growth

and are surrounded by a more general trend of the growth of self-service in large semi-traditional stores in urban areas as in the first third of the twentieth century in the USA.

In addition to these somewhat distinct phases of expansion, there are also certain trends that are common to the global spread of modern food retailing. Supermarkets gain market share most quickly in groceries, and in processed and packaged goods, because of advantages in both scale and the efficiency of their supply logistics compared to mom-and-pop stores. Their growth in fresh foods is usually slower (just as it was in the USA in the twentieth century, not becoming important in produce, for example, before the 1960s–1970s), because traditional markets and vendors are nestled in the neighborhoods and thus provide easy access, and in the early stages are more attuned to local consumer habits and have better connections to local suppliers. Over time supermarkets begin to adapt to and shape their customers' preferences and also establish a supply network that is more efficient, as well as imposing higher standards of food quality and safety for fresh products than previously existed (Reardon, Timmer, and Berdegué 2004). The increased importance of fresh produce retail is very recent, even in first- and second-wave countries. For example, produce became important in Mexican supermarkets only since 2000 (Reardon et al. 2007); produce was minor in Hong Kong hypermarkets and supermarkets until they launched in-store wet markets in the early 2000s and quickly gained share from traditional wet markets (Reardon and Gulati 2008).

Another common trend is for supermarkets to open first in the largest urban areas, then to spread to smaller cities, and in some countries the expansion has reached towns in rural areas. The modern food retailing sector has become typified by both a greater presence by multinational, foreign-owned companies and by consolidation and more concentration. The multinational operators, such as Carrefour, have advantages in their access to investment capital and their procurement and logistics efficiency.

Figure 10.1 shows clearly just how rapid the recent expansion of modern retailing has been compared to the much slower historical spread in countries like the United States and France. Some of the countries in which modern food retailing appeared most recently have seen even faster growth in the sector than those emerging economies where the expansion began earlier, such as Brazil and Korea. The rate of expansion in China has been nothing short of phenomenal.

The customer base of modern food retailers has spread well beyond just the expatriate and higher-income segments of the population in developing countries. Few rigorous empirical studies have been conducted of who shops at these supermarkets and what they are buying. In general, however, the emerging evidence indicates: (1) that, controlling for wave or stage,

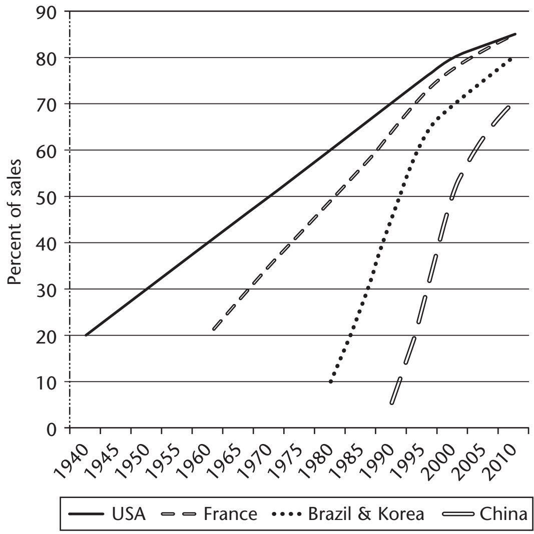

Figure 10.1. Supermarket share of the retail food market, 1940–2010

supermarkets penetrate first the upper-income, then the middle, and later the poorer consumer segments; (2) supermarkets have already penetrated well beyond the middle class into the food markets of the poor in the first-wave countries and some of the second-wave countries (as can be seen in comparing the supermarkets' share in food retail versus the share of the middle and upper classes in overall population in these countries); (3) while upper and middle consumer segments are increasingly buying fresh produce from supermarkets, the poor still mainly buy processed staples (rice, wheat and maize flour, edible oil, bread, noodles, snacks, beverages, and condiments, as well as dairy) from supermarkets.

An example is a household survey carried out in Nairobi, Kenya, in 2003 that interviewed a sample of 445 food shoppers, which covered all income groups. The survey found that a surprising 80 percent of the households shopped at a supermarket at least once a month and that the figure was 60 percent for even the poorest families in Nairobi. However, higher- and upper-middle-income households, which essentially constitute what will be referred to as the emerging global middle class in developing countries in a later section of this chapter, were crucial in terms of sales. Although they made up only 15 percent of Nairobi's population, they accounted for 44 percent of supermarkets' sales. The study revealed a clear pattern in what was purchased at supermarkets, which were mostly processed foods. Only 15 percent of those sampled bought fresh fruits and vegetables there. Poorer households bought mostly easy-to-store bulk items like sugar and soap and purchased less than

1 percent of their fresh produce at supermarkets. The most frequently given reason for shopping at a supermarket was “low prices”, followed by “large assortment.” On the one hand, the most common reasons for buying from traditional retailers, such as kiosks and over-the-counter shops, were that they were “easy to get to” and the “availability of credit.” The research found that prices for processed foods, such as sugar, cooking oil, flour, and bread, were some 3–4 percent lower at supermarkets than traditional retail outlets. On the other hand, fresh fruits and vegetables were less expensive at traditional retailers, almost 90 percent lower at open-air markets, although the quality might not be as good. In other countries with healthier economies than Kenya, the growing middle class could be expected to be doing more of its food shopping predominantly at supermarkets, including purchasing fresh fruits and vegetables there (Neven et al. 2005).

Factors Driving the Spread of Modern Food Retailing

The global expansion of modern food retailing is being driven by factors that can be placed in three categories. As shown in Table 10.2, one can distinguish between push or supply-side, pull or demand-side, and external enabling factors. Food retailers in the advanced economies are increasingly faced with domestic markets that are saturated, particularly in Western Europe, which has pushed them to go abroad. Profits in many cases are under pressure from intense competition. In these highly developed countries, expenditures on food are still growing, but very slowly, especially for groceries as opposed to restaurant and other food service meals.

In addition, food retailers are more capable of operating over far broader geographic areas because of the innovations in information technology, which allow them to monitor closely inventories and track the movement of goods through the supply chain. They have been able to improve greatly

Table 10.2. Factors driving the spread of modern food retailing

Push/supply factors	Pull/demand factors	Enabling/external factors
Domestic market saturation	Per capita income growth in other countries	Political stability
Reduced growth in food spending	Urbanization	Trade liberalization
Competitive pressure on profits	Entry of women into the work force	Globalization of other industries (i.e., finance)
Supply-chain technology	Emergence of middle class	Communication and transportation technology
Fear of being left behind	Size of market potential	Cultural globalization
	Importance of scale	End of the Cold War
	Inefficiency of traditional food systems	

the efficiency of their supply chains. The companies with the highest efficiency have a competitive advantage that they have tried to transfer to their operations in other countries. Another push/supply-side factor is that large retailers must be concerned if they let major international competitors get well established in a particular foreign market first (Reardon, Timmer, and Berdegué 2004; Senauer and Venturini 2005).

At the same time there are demand-side forces that can be thought of as pulling major food retailers to expand into other countries, especially those with emerging market economies. Many of these countries, especially some of the largest, such as Brazil, China, and India, have been experiencing robust economics growth. China's economy has grown at 10 percent or more annually for over a decade. Expenditures on food are growing rapidly in these countries. According to Engel's Law, the lower the initial per capita income level of the population the greater will be the expansion in food demand for a given rise in income. With additional income, many of the people in these developing countries want to add more animal protein and greater variety and improved quality to their diets, which have been dominated by one or two staples, such as corn, rice, or wheat (Senauer and Venturini 2005).

The emerging middle class in seventeen developing and three transition countries was estimated to contain over one billion people in 2000. These consumers lived in households with at least $2,500 in income per person (Myers and Kent 2003). Foreign currencies were compared to US dollars using purchasing power parity (PPP) to correct for distortions in foreign currency exchange rates. In another analysis that focused on food expenditures, the emerging middle class was identified as persons living in households with annual total consumer expenditures per capita of $2,695 per capita or more in 2000, a very similar level to the other study. Based on data for Lima, Peru, the emerging middle class corresponded to the top quintile in terms of per capita expenditures. The households in the top quintile spent over three times more on fresh vegetables, fresh fruit, and red meat than the average purchases of people in the lower four quintiles. They spent over four times more on yogurt, butter, and cheese; and over six times more on prepared foods consumed at home (Senauer and Goetz 2004). This makes clear why this middle class is so attractive to food retailers. The size of the emerging middle class in China in 2003 was estimated to be 352 million, in India 105 million, in Russia 89 million, in Brazil 57 million, all of which continue to grow rapidly (Senauer 2005).

In addition, the increasing urbanization and growing participation of women in jobs outside the home have created opportunities for modern food retailers. Also, the ownership of a refrigerator allows a family to shift its food shopping patterns. With a refrigerator, people do not need to shop as frequently, even daily in many cases for fresh foods, or as close to home, as

they would without a refrigerator. They can stock up on less frequent trips to a more distant supermarket (Reardon, Timmer, and Berdegué 2004).

With rapid economic growth and large populations, the size of not just the present, but especially the future potential, market for retail food in countries such as China and India makes them extremely attractive opportunities. Beyond that, the larger scale that can be achieved with expansion in a country or a region, or even globally, allows for increased efficiency. There are scale economies in a distribution system that serves more stores. The investments in information technology and logistics can afford to be greater and the costs of distribution centers and transport are spread over more retail outlets.

Traditional food production and marketing systems are burdened by inefficiencies and marked by low levels of capital, labor, and land productivity. Post-harvest crop losses during storage, transportation, and marketing are frequently in the order of 30 percent. Losses may be even higher for perishable products, such as fresh fruits and vegetables, since they were not kept chilled during distribution, which also affects quality.

Although trade liberalization has dominated the globalization debate, retail (and processing) FDI liberalization is a far larger force in affecting the "remaking of markets" in developing countries. In fact, the liberalization of retail FDI in many developing countries in the early 1990s was the main "sufficient" factor (beyond the necessary factors of the propitious demand-side situation of rising incomes and urbanization) to initiate the supermarket revolution in the 1990s in developing countries (Reardon and Timmer 2007).

Moreover, the global expansion of food retailers, as with other industries, has been facilitated by the globalization of other services, including the financial industry, as well as by improvements in communication with the Internet and transportation, with convenient jet travel to most places in the world. The movement of information and key personnel is crucial to a global business. Food preferences still vary significantly between countries, and even within regions of many nations. However, cultural globalization has brought preferences closer together, which makes it easier for food retailers to expand internationally.

Transformation of the Supply Chain

The rapid growth of supermarkets is profoundly transforming the marketing channels and the agro-food markets in many developing countries. Supermarkets initially gained a large share of the market for packaged groceries, but more recently have been making rapid gains in fresh products, such as dairy and fruits and vegetables. Modern food retailers, such as Carrefour and Wal-Mart, as well as many competing domestic chains, need large product

volumes and operate centralized procurement operations. They want to deal with only a small number of large, reliable suppliers and not a multitude of small fragmented producers. The retailers are imposing stringent quality standards, and are beginning to impose safety standards. Procurement contracts and "preferred" suppliers are replacing traditional wholesale markets already in an advanced way for processed products, and in initial phases for fresh products. Sourcing is becoming regional or even global. The use of modern logistics practices is driving costs from the system, as was done in the United States and Europe.

These supply-chain changes are leading to a consolidation of the procurement system—in particular for processed products. Examples include a Chinese medium-sized supermarket chain cutting back sharply on its processed food suppliers (Hu et al. 2004) and Russian supermarket chains doing the same for their dairy suppliers (Dries and Reardon 2005). This sort of "exclusion" is still far less common in fresh produce for several reasons. Supermarkets in developing countries have only very recently introduced fresh produce. (We noted above the example of Mexico, which is typical amongst second-wave countries, where supermarkets started to have a substantial retailing effort in fresh produce only in the 2000s). Moreover, supermarket chains still mainly rely on traditional sourcing from wholesale markets. Where they have begun to modernize fresh produce procurement, such as via specialized wholesalers or via direct sourcing, the general tendency is toward use of the "upper tier" (in terms of land or non-land assets) of horticultural producers (Reardon and Berdegué 2007). Thus, for example, even the specialized wholesaler working for Carrefour in Indonesia sources from small tomato farmers, but these tend to be the "elite" of the small farmers in terms of assets like irrigation, access to infrastructure, and education (Natawidjaja et al. 2007). Moreover, the nationwide network and even regional and global networks of supermarkets in developing countries mean that local farmers become more exposed to competition.

The modern food retailers' procurement contracts set quality and consistency requirements that most small producers cannot meet, in particular in the case of processed plus semi-processed foods (constituting some 80–90 percent of the food sales of supermarkets, the rest being fresh produce and fish). As noted above, to the extent that supermarkets are moving away from sourcing from the traditional wholesale markets, these higher private standards are beginning to affect produce growers and form a challenge, especially for small farmers. These private standards are becoming more important in agro-food systems than the public grades and food safety standards established by governments and international agreements (Reardon et al. 1999). Meeting a retailer's requirements for fresh produce may necessitate major investments in packing and cooling facilities, cold storage and shipment,

and trucking capacity. Carrefour applies the same quality certification to some 200 items globally, and other international retailers are also applying similar quality standards across countries (Reardon and Berdegué 2002).

Considerable attention has been given to the effects of the World Trade Organization (WTO) accords and CODEX Alimentarius (an international food code) protocols on agro-food quality and safety standards. In reality, the private standards established by global food retailers have a greater impact in many cases, except for the international trade of basic agricultural commodities. Likewise, there has been a focus on the potential for exporting fruits and vegetables and other agricultural products from developing countries to the industrial ones. However, the domestic market opportunity may be greater. For example, supermarkets in Latin America buy 2.5 times more produce to sell to local consumers than these countries export to the rest of the world (Reardon and Berdegué 2002).

Why are modern retailers in developing countries moving toward procurement system modernization? In many countries, modern food retailers have found the traditional wholesale markets and distribution systems challenging. Javier Gallegos (2003), who was the head of marketing for Hortifruti, the dedicated produce wholesaler for the CARHCO chain of supermarkets in Central America (bought by Wal-Mart in 2006), clearly outlined the shortcoming of the traditional supply chain:

> The market is fragmented, unformatted, and lacks standards. The growers produce low quality products, use bad harvest techniques; there is a lack of equipment and transportation, there is no post-harvest control and infrastructure; there is no market information. There are high import barriers and corruption. The informal market does not have: research, statistics, market information, standardized products, quality control, technical assistance, infrastructure. (Gallegos 2003)

Modern food retailers operating in developing regions have both qualitative and quantitative goals in re-engineering the supply chain, with the first increasing product quality and food safety and with the second reducing costs and increasing volume. Traditional procurement systems have relied on wholesalers and wholesale markets. The new procurement systems have four key elements or "pillars": (1) centralized procurement systems, (2) specialized/dedicated wholesalers, (3) preferred suppliers, and (4) high-quality and improved safety standards (Reardon, Timmer, and Berdegué 2004; Reardon and Timmer 2007).

As food retailers expand the number of stores in their chain in a country or region, they shift from a system of each store handling its own procurement to the centralization of procurement operations utilizing regional distribution (wholesale) centers. This organizational change in procurement occurs earliest in processed products, then in semi-processed, and very recently has started in

fresh produce. For example, Ahold, a Dutch supermarket chain, and Tesco, a British chain, both operate central distribution centers (DCs) to serve their stores in the Czech Republic, Hungary, and Poland. Carrefour, the French hypermarket chain, distributes to fifty stores in southeastern Brazil from a DC in Sao Paulo. Procurement of perishable products such as fresh fruits and vegetables and dairy products, which used to be largely local, has become regional and even, in some cases, global. Centralization increases scale economies and efficiency, although transportation costs typically increase (Reardon and Timmer 2007; Reardon, Timmer, and Berdegué 2004).

The second pillar is moving from relying on spot markets, such as traditional wholesale markets and brokers, to wholesalers and logistics firms, which are specialized for product categories and dedicated to meeting the needs of modern food retailers. Hortifruti was established to procure the fresh produce for the major supermarket chain in Central America. Freshmark serves a similar function for Shoprite, the largest supermarket chain in Africa. At the same time, the retailers require these dedicated wholesalers and their suppliers to adopt best-practices distribution and logistics processes. These practices include electronic interchanges replacing paper transactions. Physical improvements in how, especially fresh, products are harvested, shipped, and stored are required, with a continuous cold (refrigerated) chain from the grower/shipper to the retail store. These changes have improved both efficiency and product quality (Reardon, Timmer, and Berdegué 2004; Reardon and Timmer 2007).

The third pillar involves establishing longer-term contractual relations with "preferred suppliers," usually via the dedicated wholesalers. This practice is an example of "vertical coordination," which brings many of the benefits of vertical integration via acquisition and merger without the costs and management problems. A food processor or producer is "listed" as a preferred supplier. The contract usually contains incentives for the supplier to stay with the buyer and to make the investments in equipment and processes to meet the particular requirements of the retailer. If a supplier does not meet the retailer's expectation, they can be "delisted," losing a major customer. Xincheng Foods acts as the primary produce wholesaler for the two largest food retail chains in China. Xincheng leased some 1,000 hectares (about 2,500 acres) of prime farm land, hired farm workers, invested in tractors, drip irrigation, and greenhouses to supply high-quality produce to the supermarkets and to the export market, Xincheng also contracted with some 4,500 small farmers for additional production (Hu et al. 2004; Reardon and Timmer 2007).

The final element of modernizing the supply chain is the implementation of private quality and food safety standards by the retailers that its suppliers must meet. The regulation of food safety and quality has not been a primary concern for the governments in developing countries. Even if rules and

regulations are in place, the monitoring and enforcement are usually missing. The private standards substitute for the absence of government regulation and also serve several other important purposes. The safety of the food supply should be a government responsibility, but in its absence large food retailers need to consider both their liability and public reputation.

Private standards also harmonize the product and delivery attributes amongst partners in the supply chain, which improves efficiency and reduces transaction costs. The food retailers can also use their private quality and safety standards as a means of differentiating themselves from the competition. Global food retailers can lower costs by applying the same standards across countries. Carrefour started to apply the same quality certification to numerous items globally, for example (Reardon and Berdegué 2002). Finally, though, the food retailers need sufficient market power to impose their standards and suppliers capable of actually meeting them (Reardon and Timmer 2007).

Implications for Farmers and Agricultural Development

The global spread of modern food retailing is bringing more change to the agricultural sector in many developing countries than decades of government programs, projects by non-governmental organizations (NGOs), and international development assistance. The procurement requirements of modern food retailers offer both opportunities and challenges for agricultural producers. Becoming a supplier to a supermarket chain can open the door to a market that is growing in terms of volume, value added, and diversity. Producers can move from supplying a local market to one that is regional, national, and even international.

To supply a large domestic food retail chain increasingly requires producers to meet the same standards of efficiency, quality, reliability, and food safety necessary to export to international markets. To fulfill these requirements, though, requires improvements in production techniques and substantial investments in everything from information technology to modern packing houses with cooling units. Food retailing is a low-margin business typified in general by a high level of price competition. These pressures mean retailers are pushing their suppliers to lower product and transaction costs. Not surprisingly, supermarket procurement becomes increasingly dominated by the most capable farmers and firms, which are normally the larger operations (Reardon and Timmer 2007).

Small farmers with limited assets are largely being excluded from the supermarket supply chain because they lack the knowledge or capital to make the necessary changes and investments. To understand the reasons more fully, we

must simply review supermarket procurement strategy and requirements. Above all, supermarkets require consistent, reliable supplies of a standardized quality. In comparison to traditional markets, supermarkets demand: (1) a higher, consistent quality that satisfies food safety standards, (2) a reliable supply of large volumes, (3) modernized logistics practices, such as truck transportation and chilled storage, (4) strict delivery conditions in terms of grading, packaging, labeling, timing, and so on, (5) a high level of efficiency resulting in low prices and transaction costs, and (6) advanced management and information technology systems (Neven and Reardon 2003).

Suppliers typically do not receive payment from supermarkets immediately upon delivery, which is what small farmers are used to in traditional marketing channels. As supermarkets become established in a country, they shift from store-level delivery to centralized distribution centers, from traditional brokers and wholesalers to dedicated wholesalers and a system of preferred suppliers, and impose their own private quality and safety standards, rather than rely on government ones (Weatherspoon and Katjiuongua 2003). Economists would argue that an essential reason that small producers are being excluded is the high transaction costs and transaction risk (Dorward et al. 2004). It is costly to deal with many small suppliers rather than a few large consolidated ones. Moreover, there is greater risk they will not deliver products with the reliability and consistency required.

The institutional innovations required to link small producers into the supermarket supply chain are likely to be the most essential element for their participation. These institutions must be arranged to reduce substantially the high transaction costs and risks associated with sourcing products from small farmers. Contract farming, also referred to as out-grower schemes, and cooperatives, farmer associations, and other forms of farmer-controlled enterprises have been increasingly seen as a potential way to improve the inputs and technical support available to small farmers, as well as expanding their marketing opportunities (Coulter et al. 1999). They might also serve to lower transaction costs and risks, particularly if the contracting is with a farmer cooperative or association.

In contract farming, private agribusiness companies establish a contractual arrangement with individual farmers for a specific quantity and quality of product at specified terms. The contract frequently includes the provision of inputs, such as seed and fertilizer, as well as technical and even financial support. There are some clear benefits and also some problems with contract farming and out-grower arrangements. Farmers may fail to make delivery or default on the credit repayment, and supervisory and transaction costs with many small producers can be very high (Coulter et al. 1999). The greater risks and costs have led to the exclusion of small farmers.

Current farmer-owned enterprises are different from the state-controlled cooperatives of the past. The latter were usually unresponsive to farmer needs and generally performed poorly. The new cooperatives perform best with small, cohesive groups of farmers and when directly linked with an agribusiness enterprise buying their production. They are more likely to succeed when the functions are kept relatively simple and focused and when they concentrate on higher-value products rather than low-value staples. The successful ones are also more likely to have been built upon already existing farmer organizations and have a clear member-driven agenda. The link with agribusiness and other private-sector market intermediaries is critical to ensuring there is a viable market (Coulter et al. 1999). These characteristics suggest such cooperatives deserve careful consideration as an institutional structure for integrating small farmers into the supermarket supply chain.

Farmer cooperatives can work well in combination with contract farming. Group liability for credit repayment reduces the risk of default, and transaction costs are reduced by the scale economies. The governments of developing countries and donors can provide an enabling setting for successful outgrower schemes and farmer-owned enterprises, particularly in terms of the appropriate laws and regulations. Government agencies and NGOs can promote farmer cooperatives, especially those that develop contractual links to a supermarket procurement channel and other expanded market opportunities. This promotional role requires that the government agencies and NGOs develop good working relations with both the farmer groups and agribusinesses. A high priority needs to be placed on improving the business and technical skills of the groups (Coulter et al. 1999). The most viable institutional structure will depend on the particular situation and participants involved. As Haggblade, Hazell, and Reardon (2002) stressed, flexibility is important to be able to adjust to changing circumstances.

The history of agriculture in the developed economies of countries such as the United States offers an important lesson. Increasing labor productivity in the agricultural sector is essential to improving the incomes of farmers. However, as productivity rises, fewer farmers and agricultural workers are needed. In 1900, 40 percent of the US population lived and worked on farms; now only 2 percent do, and somewhat over 100,000 large farms account for the majority of agricultural output (Offutt and Gunderson 2005; USDA NASS 2007). US agricultural policy has tried to ease the effects of this transformation with limited success.

In the final analysis, as the number of farms shrinks in developing countries, in no small part because of the spread of modern food retailing, hundreds of millions of people will transition to employment in other sectors of the economy over time. It is fortunate that modern food retailing is expanding most rapidly in countries that have been experiencing robust

economic growth, such as China. Therefore, their economies are in a better position to handle the large migration out of agriculture and rural areas. However, strong government policies and programs are necessary to help provide these people with the education and skills to find jobs in other sectors. Efforts are also needed to encourage private businesses to help create more off-farm job opportunities in rural areas.