Supermarketization of the "Emerging Markets" of the Pacific Rim: Development and Trade Implications

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There has been extremely rapid transformation in the past decade of the food retail sector, embodied in the rapid spread of supermarkets, in East and Southeast Asia and Latin America–the emerging markets of the Pacific Rim region. As the supermarket sector develops, leading chains are rapidly adopting technological, organizational, and institutional changes in their product-procurement systems. These changes alter the market that farmers face and have the potential to substantially transform the nature, composition, and volume of trade in the region. These trends in turn present both opportunities and challenges for development that require careful program and policy attention.

The world has been fascinated by the extremely rapid growth and industrialization in the economies and trade in the Pacific Rim over the past several decades. The demand and supply, the imports and exports, of this vast region affect global food markets. Much attention has been paid in past decades the domestic food markets of the region, particularly to the supply side transformation wrought by the Green Revolution. Recently, a new wave of profound transformation has occurred, this time from the demand side, sparked by a relatively sudden and massive evolution of the retail sector. There has been a supermarket[1] revolution in the past decade in the "emerging markets" of the Pacific Rim region—in East Asia (excluding Japan), Southeast Asia, and Latin America. That retail transformation is in turn transforming other segments of food markets such as the wholesale, processing, and farming sectors. Such profound change in domestic markets has development and trade implications. This article focuses on these changes and their implications.

[1] For simplicity, we use the term "supermarkets" to indicate all large-format modern retail (supermarkets, hypermarkets, and discount and club stores, which typically constitute about 95% of modern retail sales in developing countries, the rest being chain convenience stores), distinguishing formats only where necessary.

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The next section of this paper discusses the diffusion of supermarkets in the region. The following section focuses on the interface of retail transformation and the rest of the agrifood system—and in particular on the evolution of procurement systems of supermarket chains in the region. The final section discusses implications for development and trade of the above trends.

The Spread of Supermarkets in the Emerging Markets of the Pacific Rim Region

The traditional food markets of the emerging market countries of the Pacific Rim have in common with other regions—including the traditional food markets (still in the majority as little as five decades ago) of the United States and Europe—a preponderance of small shops, wetmarkets, and central markets.

Although (mainly domestic) supermarket chains were present in the 1980s and even before, in most of what we here call the emerging market countries, the supermarket sector was a tiny niche, at most 5–10% of national food retail, serving mainly upper-income consumers in a few large cities. However, starting in the early 1990s and accelerating markedly in the mid- and late-1990s, food markets began to be transformed with the rapid rise of supermarkets.

While there is significant variation in trends over countries in a given area such as Latin America, and within individual countries over zones and between rural and urban areas, several broad patterns are clearly observed. From the earliest to the latest adopter of supermarkets over emerging market areas, there have been three waves of diffusion.

The first-wave countries include much of South America and East Asia outside China (examples

include Argentina, Brazil, Chile, Korea, and Taiwan) where the share of supermarkets in food retail went from roughly 10–20% circa 1990 to 50–60% on average by the early 2000s. Compare that to the 70–80% share that supermarkets have in food retail in the U.S., UK, or France, and one sees a process of convergence. The inflection or take-off point was in the mid 1990s.

The second-wave countries include much of Southeast Asia and Central America and Mexico, where the share went from circa 5–10% in 1990 to 30–50% by the early 2000s, with the inflection point in the growth curve in the late 1990s; examples include Mexico, Colombia, Costa Rica, Guatemala, Thailand, and the Philippines.

The third-wave countries include some countries in Central and South America (such as Nicaragua and Peru), Southeast Asia (such as Vietnam), and China, where supermarkets were either a tiny niche or non-existent in 1990, and have come to have 10–20% of national food retail by the early 2000s, with the inflection point in the late 1990s and early 2000s.

Note that the growth rates of supermarket food sales as well as retail foreign direct investment (FDI) are inversely correlated with the waves, so that the fastest growth is occurring in the supermarket sector in China (30–40% per year) versus only 5–10% in the more mature, relatively saturated supermarket sectors such as those in Brazil and Taiwan.

In general, the "waves" above are correlated with socioeconomic characteristics of the areas that are related to consumers' demand for supermarket services and product diversity and quality: income and urbanization (in turn correlated with the opportunity cost of time, in particular that of women), and reduction in transaction costs through improvements in roads and transport and ownership of refrigerators. These demand-side factors are necessary, but not sufficient, to explain the very rapid spread of supermarkets in the 1990s and 2000s in these countries, most of which had at least a very small supermarket sector before 1990. That is, supply-side factors were also of extreme importance.

One "supply-side factor" that was especially important was the massive influx of retail FDI (and competitive investment by local chains) that arrived in the first- and second-wave countries around the mid 1990s and the third-wave countries in the mid- to late-1990s and into the 2000s. The start of the influx usually correlated with the "inflection point" of supermarket growth takeoff discussed above. The influxes occurred on the heels of retail FDI liberalization that was merely the "little brother" of trade liberalization that occurred with structural-adjustment programs and GATT in the late 1980s and early 1990s. FDI from global multinationals based in Western Europe, the U.S., and Japan and from regional multinationals avalanched into the retail sectors of the emerging markets. The FDI was driven by push factors—in particular saturation and intense competition in home markets—and pull factors such as the much-higher margins to be made by investing in developing markets. For example, Carrefour earned three times higher margins on average in its Argentine compared to its French operations in the 1990s (Gutman 2002). Moreover, initial competition in the receiving regions was weak, generally with little fight put up by traditional retailers and domestic-capital supermarkets, and there are distinct advantages to early entry.

One could hypothesize that the effects of FDI, via the profound changes induced in the retail and processing sectors, is having a greater effect on local agrifood economies in the region than does trade liberalization. For example, note that while much attention has been focused on the boom in fruit and vegetable exports in Latin America over the past two decades, supermarket chains *in* Latin America now buy from local farmers 2.5 times the amount of produce that is exported from the region; which has more effect on local rural development, local supermarkets or trade? (Reardon and Berdegue 2002) That ratio is already similar in China, with supermarkets in China buying at least twice as much produce as is exported from China (Hu et al. 2004). The FDI and competitive local investment led to rapid consolidation and multinationalization of the supermarket sectors in the region over the past decade, with the trend again correlated with the waves.

Moreover, note that some anomalies in the relationship between socioeconomic (demand-side) variables and the pace of supermarket diffusion are explained by this policy factor; for example, while incomes and urbanization rates in China and Vietnam do not differ much from those of Guatemala, the first two countries figure only in the "third wave" because policy reform in terms of liberalization lagged that of Guatemala. As retail FDI was progressively liberalized in China, FDI poured in at an amazing rate from around the world in the late

1990s and early 2000s, making it the premier destination for retail FDI in the world.[2] The supermarket sector in China is growing faster than anywhere else in the world; it started in 1991, and by 2003 had $71 billion of sales, 30% of urban food retail, and was growing 30–40% a year (Hu et al. 2004).

A second "supply-side factor" is the adoption of the procurement-system organization and institutional changes discussed in detail later in this paper. Those changes were undertaken mainly in the second half of the 1990s or in the 2000s, and greatly reduced the procurement costs faced by retailers in the emerging markets.

That reduction in costs, coupled with stiff competition, allowed as well as pushed leading retail chains to move from large cities to secondary cities and even to smaller towns, and from upper- to middle- to lower-income segments. The now-common image of supermarkets with cheap products aimed at the working poor or at small-medium towns contrasts sharply with the traditional image of the supermarket aimed at the small niche luxury market in big cities.

The adoption of the procurement-system changes occurred first and fastest in processed foods (where supermarkets had a clear advantage over traditional small stores because of economies of scale) and only later, even very recently, in fresh foods including fresh meats, fish, and produce. A rule of thumb (with exceptions) is that in the first- and second-wave countries, the share of supermarkets' penetration in overall food is twice that of penetration of the produce market (for example, in Mexico, the share of supermarkets in overall food is 40%, while in produce it is only 20%), and in third-wave countries, is about thrice. Usually the first fresh food categories in which the supermarkets gain a majority share include "commodities" such as potatoes, and sectors experiencing consolidation in first-stage processing and production: often chicken, beef and pork, and fish.

The competition between supermarkets and wetmarkets is increasingly stiff, and is based on shopping experience, price, quality, freshness, and variety. In the big cities of Mexico or China the differences in prices between supermarkets and wetmarkets for commodity produce items is narrowing for key items; in some cases there is no difference at all. A recent study by ACNielsen of 15,000 consumers in the Asia-Pacific region found that supermarkets are eroding the share of the wetmarket in retail by attempting to replicate the experience of the traditional wetmarket while reducing prices to compete directly (M&M Planet Retail 2004). One observes that supermarkets in the emerging-market regions have been making significant inroads into these categories only in roughly the last five years or less, and usually only after making the kinds of cost-cutting and quality-increasing procurement-system changes discussed below.

[2] Dries, Reardon, and Swinnen (2004) make the same observation for the similar case of Russia.

Supermarkets' Transforming Procurement Systems in Emerging Markets

Technological, organizational, and institutional change in the procurement systems of supermarkets in the emerging-market countries of the Pacific Rim are key determinants of change in the markets that farmers face. We begin by discussing the objective function of the supermarkets in making these changes, and then discuss the "four pillars" of the changes themselves.

The decisions related to purchasing products for retail shelves rests with the procurement officers in supermarket chains. Whether in the United States, Europe, Nicaragua, Chile, or China, these personnel are under several common "pressures" from supermarket managers, operating under intense competition and low average profit margins. They are caught between the low-cost informal traditional retailers selling fresh local products on one side, and efficient global chain competitors like Wal-Mart on the other side. The procurement officers strive to meet this pressure by reducing purchase and transaction costs and raising product quality.

Reflecting the varied demand of consumers, procurement officers seek to maintain diversity, year-round availability, and products with assured quality and safety levels.

Before 1990, and in fact during most of the 1990s, supermarket chains or individual supermarket stores in the emerging markets usually used what we term the "traditional procurement system" for their products: each store procured its own products or one store was used as an entrepôt for a few neighboring stores, products were procured from the traditional wholesale markets, retailers relied on spot markets rather than on contracts with suppliers, and retailers relied on public quality and safety

standards where they existed.

Supermarket chains in the emerging-market countries typically found a gap between the objectives noted above and the capacities of the traditional food supply and market mechanisms, accessed via the "traditional procurement system," to meet those objectives. In response to that gap, supermarket chains began adopting four sets of procurement system change discussed below.

Note that the adoption rate is unequal in speed over types of products, with relatively early adoption of the procurement-system changes in the case of processed products and late adoption for fresh products (in many countries, only in the past few years). Adoption is also unequal over chains[3] (the leading 4–5 chains in each country, albeit usually with 50–75% of the supermarket-market, are "early adopters" of these changes, while the second-tier chains and independents usually lag in adoption due to lack of incentive or capacity or both). It is also common for the earliest adoption to be by global multinationals transferring procurement technologies and standards from their operations in other regions; the domestic frontrunners follow suite as quickly as possible.

Because of the cost reduction afforded by the changes, late adopters can find themselves to be non-competitive, and are then targets for the many mergers and acquisitions occurring yearly in the countries. Our interviews reveal that once the frontrunner chain in a given country shifts to distribution centers for produce and meats, the other leading chains feel under intense pressure to adopt similar systems. As in Cochran's Treadmill, once a procurement innovation is made, with the concomitant spike in profits and dip in costs relative to competitors, and competitors follow suite, the frontrunner must again innovate, thus pressing forward in this case the procurement technological change.

First Pillar of Change: Toward Centralization and Regionalization of Procurement

There is a trend toward centralization of procurement (per chain). As the number of stores in a given supermarket chain grows, there is a tendency to shift from a per-store procurement system to a distribution center serving several stores in a given zone, district, country, or region (which may cover several countries). This is accompanied by fewer procurement officers and increased use of centralized warehouses. Additionally, increased levels of centralization may also occur in the procurement decision-making process and in the physical produce-distribution processes. Centralization increases efficiency of procurement by reducing coordination and other transaction costs, although it may increase transport costs through extra movement of the actual products. The net savings can be substantial. China Resources Enterprise (2002), for example, notes that it is saving 40 percent in distribution costs by combining modern logistics with centralized distribution in its two new large distribution centers in southern China.

The main global retailers (Wal-Mart, Carrefour, Ahold, Metro, Tesco) operating in the emerging-market countries have moved quickly in the decade since their entry toward centralization and use of distribution centers in each country. For example, Farina (2002) notes that in 2001 Carrefour established a distribution center in São Paulo to serve three Brazilian states (with 50 million consumers) with 50 hypermarkets (equivalent to about 500 supermarkets) in the Southeast Region. Leading domestic retailers have undertaken the same centralization in the region, as illustrated in the cases of Lianhua and Hualian in China (Hu et al. 2004) and Soriana, Gigante, and Comercial Mexicana in Mexico (Reardon et al. 2005). Establishment of processed-food distribution centers occurred early, often in the early 1990s or earlier. By contrast, nearly all meat and fresh produce went from slaughterhouse or wholesale market to individual stores in the early 1990s, while today in the leading chains the great majority goes to distribution centers for distribution to individual stores. This is illustrated for the case of Ahold in Thailand by Boselie (2002).

Note, however, that in most chains—multinational or domestic—it is common for large food processors/manufacturers that have their own distribution centers to deliver to the individual stores of a chain, as does Bimbo (the largest baking company in the Americas, based in Mexico), for example. This also occurs in many instances with large banana packer/shippers who ripen bananas in centralized facilities and deliver to stores in a chain.

The "catchment" area of a distribution center or a set of them usually starts as a zone of a country

[3]Kinsey (2004) says the same for adoption of procurement technologies over chains in the U.S.

(such as "northeast China") and then broadens to several distribution centers representing a centralized system for procurement over all zones in a country (such as Soriana's five distribution centers in Mexico).

The next, and economically logical, step is to set up a regional system of distribution centers to allow coordinated procurement over a set of countries. In a sense, this means intra-firm trade coordinated over several countries. This trend would mirror a trend of several decades in world trade toward increasing intra-firm trade over countries. Moreover, this trend is reinforced by the usual progressive entry of a global multinational into the countries of a given sub-region (for example, Tesco's entry into Thailand, Korea, and, in 2004, China; or Ahold's entry into Costa Rica, Nicaragua, Honduras, El Salvador, and Guatemala through partnership with two regional multinational chains in a partnership called Central American Retail Holding Company, CARHCO, formed in 2002), and the formation and expansion of regional multinationals, for example, the expansion into Southeast and South Asia by the Hong Kong-based Dairy Farm International chain, or the formation of the regional chain CARHCO from a partnership of Ahold, La Fragua based in Guatemala, and CSU based in Costa Rica.

We hypothesize that over the next decade this will be a factor inducing greater intra-regional trade and economic integration in and over sub-regions of the overall region of the Pacific Rim. Several illustrations of trade resulting from these regional sourcing arrangements follow in this section and again below, where we discuss implications of supermarketization for the volume and nature of trade. Note, however, that a systematic analysis of these relatively new arrangements has not yet been done, so we cannot say whether this represents net trade creation or whether it is merely transferring export functions from traditional export wholesalers to supermarkets chains. There is emerging anecdotal evidence, however, to support the hypothesis that there is net trade creation, but this cries out for further careful empirical research.

Illustrations of recent and incipient regionalization of procurement include the following. We give examples in fresh food products because it is already well established that there is already massive trade in non-food products.[4] The picture that emerges is of substantial new sourcing over countries within or over sub-regions of the Pacific Rim region, undertaken by regional and global multinational chains seeking to meet the procurement objectives we discussed above, in chains that stretch over the region or around the globe.

- Global multinational chains have or are setting up global and/or regional trade "hubs" in the region; this has been the case for several years in non-foods and processed foods, but the trend now is to do the same in fresh foods.
- In Central America, within the CARHCO chain, there is incipient regionalization with a plan toward country specialization by absolute advantage, with Hortifruti (the specialized wholesaler part of the holding company that includes the Costa Rica-based supermarket chain CSU) in Nicaragua delivering beans produced under contract to them by Nicaraguan farmers to stores of the CARHCO chain in several other countries in the region (Berdegue et al. 2005).
- Tesco in Thailand is sourcing vegetables from areas in southern China to supply its stores in Thailand (Tesco 2004);
- E-Mart in Korea is sourcing vegetables from Shandong China to supply its stores in China and Korea (Lee and Reardon 2005);
- Carrefour is sourcing black mini-melons from Indonesia to supply its stores in Indonesia and elsewhere in Southeast Asia (Reardon 2004) (this is discussed further below);
- Wal-Mart/Mexico is sourcing avocados from Mexico to supply its stores in China (Coordinator for Export Promotion 2005);
- H.E. Butt Grocers (based in Texas with stores in Texas and Mexico) is sourcing produce from Mexico for its Mexican stores and is planning direct supply from its new distribution center in Mexico to stores in Texas (HEB Mexico 2005);
- Carrefour is in a joint venture with Qingdao Binhua Industry Co., Ltd. (China) to source frozen strawberries for its China stores and its stores in Indonesia, Thailand, Malaysia, Brazil, Spain, and the UK (Binhua 2005);
- Hualian (China) is sourcing milk products from Mongolia and Australia under private label (Hu, Fuller, and Reardon 2004).

[4] An example is Wal-Mart sourcing circa $12 billion of non-food products per year from China, supplying its stores globally, including the U.S. and Mexico (Boston Consulting Group 2003).

Second Pillar of Change: Shift Toward Use of Specialized Wholesalers and Logistics Firms

The use of specialized/dedicated wholesalers is growing. They are specialized in a product category and dedicated to the supermarket sector as their main clients. The changes in supplier logistics have moved supermarket chains toward new intermediaries, side-stepping or transforming the traditional wholesale system. The supermarkets are increasingly working with specialized wholesalers, dedicated to and capable of meeting their specific needs. These specialized wholesalers cut transaction and search costs and enforce private standards and contracts on behalf of the supermarkets. The emergence and operation of the specialized wholesalers has promoted convergence, in terms of players and product standards, between the export and the domestic food markets. Examples include:

- Xincheng Foods, based in Shanghai, has both direct production (in lands rented from townships) and contract farming with small farmers to produce vegetables to the standards of major domestic supermarket chains based in Shanghai, Lianhua, and Hualian (Hu et al. 2004);
- Hortifruti (in the same holding company as the Costa-Rica based chain CSU) undertakes contract farming and spot-market purchases to source produce for the CSU stores in Costa Rica, Nicaragua, and Honduras, following the private standards of that chain (Berdegue et al. 2005).

The case of Mexico is illustrative. Over the past half decade the four leading retail chains have shifted sharply away from use of the "wholesale floor"— the local term for the spot market in the traditional wholesale markets—toward not only direct purchases from producers of some products (such as bananas or tomatoes and avocados from packer/shippers) or close relationships with specialized/dedicated wholesalers with offices in the wholesale markets, but also toward backward-integrated operations in the rural areas (such as ownership of, or alliances with, packing houses sourcing from local farmers under implicit contracts). This allows the supermarket chains to get consistent year-round volumes and quality. The combined pressures of the rapid rise of supermarkets from only about 5% in 1990 to about 40% today of food retail and about 20% of produce retail, plus the shift toward reliance on specialized/dedicated wholesalers and direct purchases, have reduced the volumes of produce going through the wholesale markets, with rough estimates being 25%, 30%, and 50% for the Mexico City, Monterrey, and Guadalajara wholesale markets in the past two-three years (Reardon et al. 2005). This is similar to the trends that occurred in Brazilian wholesale markets during the supermarketization decade of the 1990s (Farina 2002).

In some cases, wholesalers are "fighting back" by partial forward integration such as the Monterrey wholesale market's alliance with a convenience store chain (Super-S) (Reardon et al. 2005), an agricultural cooperative's forward integration into both wholesale and retail (hypermarket chain Hanaro, in Korea; see Lee and Reardon 2005), or a wholesale company's establishment of supermarket chains, such as Minrun in China (Hu et al. 2004).

Moreover, specialized/dedicated wholesalers are expanding their operations beyond their point of origin to "follow" the expansion of supermarket chains they supply; this constitutes a multinationalization of wholesalers in the region as a result of supermarketization. Examples include:

- Hortifruti "multinationalized" along with CSU as the latter moved from its Costa Rica base into Nicaragua and Honduras;
- Bimandiri, a specialized/dedicated wholesaler working closely with Carrefour, has been expanding from its base in west Java into other parts of Indonesia "following" Carrefour; reportedly, the latter requested that the wholesaler make such an expansion (Reardon 2004).

Finally, there is a trend toward logistics improvements to accompany procurement consolidation. To defray some of the added transport costs that arise with centralization, supermarket chains have adopted (and required that suppliers adopt) best-practice logistical technology. This requires that supermarket suppliers adopt practices and make physical investments which allow almost frictionless logistical interface with the chain's warehouses. For example, Ahold instituted a supply-improvement program for vegetable suppliers in Thailand, specifying post-harvest and production practices to assure consistent supply and improve the efficiency of their operation (Boselie 2002).

Retail chains in the three regions increasingly outsource logistics and wholesale distribution functions (sometimes to a company in the same holding

company as the supermarket chain), entering joint ventures with other firms. An example is the Carrefour distribution center in Brazil, which is the product of a joint venture of Carrefour with Cotia Trading (a major Brazilian wholesaler distributor) and Penske Logistics (a U.S. global multinational firm). Similarly, Wu-Mart of China announced in March 2002 that it will build a large distribution center to be operated jointly with Tibbett and Britten Logistics (a British global multinational firm) (CIES 2002). Ahold's distribution center for fruits and vegetables in Thailand was operated in partnership with TNT Logistics of the Netherlands (Boselie 2002).

Third Pillar: Toward Preferred Supplier Systems

Many supermarket chains are undertaking institutional innovation by establishing contracts with their suppliers—in particular via their dedicated, specialized wholesalers' managing a preferred supplier system for them. This trend is similar to that in agroprocessing during the past decade (Schejtman 1998). The contract is established when the retailer (via their wholesaler or directly) "lists" a supplier. That listing is an informal (usually) but effective contract[5] in which delisting carries some cost, tangible or intangible. We have observed such contracts in all the regions under study. Contracts serve as incentives to the suppliers to stay with the buyer and over time make investments in assets (such as learning and equipment) specific to the retailer specifications regarding the products. The retailers are assured of on-time delivery and the delivery of products with desired quality attributes.

These contracts sometimes include direct or indirect assistance for farmers to make investments in human capital, management, input quality, and basic equipment. Evidence is emerging that for many small farms these assistance programs are the only source of such much-valued inputs and assistance, particularly where public systems have been dismantled or where coverage is inadequate. In some cases, the assistance is indirect—where supermarket chains agree to act as "guarantors" (providing a collateral substitute) of bank loans to their suppliers making substantial upgrading investments (for Mexican illustrations, see Reardon et al. 2005).

This constitutes resolution by retailers or their wholesaler agents of idiosyncratic factor market failures facing small producers such as credit, information, technical assistance, and so on. Hu et al. (2004) describe the case of Xincheng Foods in Shanghai, acting as a specialized wholesaler for the top two chains in China. Xincheng leases 1000 hectares of prime vegetable land long-term from townships, hires migrant labor, installs greenhouses and uses tractors and drip irrigation (thus changing production technology), and produces in-house large quantities of high-quality vegetables for the supermarket chains and for export. It also has contracts with 4500 small farmers to add to its own production. This kind of operation can be described as a potentially major "agent of change" in the Chinese agrifood commercial economy.

While the contracting is quite recent for produce, it has been a practice for a half decade or more among chains sourcing from processed-product suppliers. Manufacturers of private-label processed fruits and vegetables and meat and cereals products typically operate under formal contract with the supermarkets. Supermarket chains have contracts with processing firms, who in turn may sign contracts with producers. Similarly, processed fruits and vegetables are sold under the label SABEMAS for the supermarket CSU in Costa Rica, and various firms produce under contract the products for the private label. As retail sales of private-label products continue to grow, such contract arrangements are expected to increase in Latin America and Asia.

Fourth Pillar: The Rise of Private Standards

While food retailing in these regions previously operated in the informal market, with little use of certifications and standards, the emerging trend indicates a rapid rise in the implementation of private standards in the supermarket sector (and other modern food-industry sectors such as medium-/large-scale food manufactures and food-service chains. The rise of private standards for quality and safety of food products, and the increasing importance of the enforcement of otherwise-virtually-not-enforced public standards, is a crucial aspect of the imposition of product requirements in the procurement systems. In general, these standards function as instruments of product and product-quality dif-

[5] "Contracts" is used in the broad sense of Hueth et al. (1999), which includes informal and implicit relationships.

ferentiation and of coordination of supply chains by standardizing product requirements over suppliers, who may cover many regions or countries. Standards specify and harmonize the product and delivery attributes, thereby enhancing efficiency and lowering transaction costs.

An important element of this is the reduction of coordination costs in procurement systems that become progressively broader in geographic scope, as the discussion of the first pillar above establishes as a trend. Regional and global chains want to cut costs by standardizing over countries and suppliers as this occurs—which induces a convergence with the standards of the toughest market in the set, including with European or U.S. standards. One sees this in Wal-Mart between Mexico and the U.S., in the Quality Assurance Certification used by Carrefour over its global operations that include developing countries, and in the regional chains such as CARHCO (Berdegue et al. 2005). In turn, the implementation of these standards depends crucially on the establishment of the new procurement-system organization noted in the three pillars above (Reardon et al. 2001).

Trade and Development Implications: Emerging Evidence and Hypotheses

We have argued that supermarketization brings with it, through the pillars of change of supermarkets' procurement systems, a "knitting together" or integration of the national and regional markets. This integrating force is perhaps at least as powerful as policy determinants of trade and regional integration. This market integration is bound to reduce transaction costs for suppliers capable of selling in larger volumes to larger markets, and thus increases opportunities for exporters from within the Pacific Rim or elsewhere to gain access to the emerging markets of that region.

Moreover, as supermarketization occurs in the subregions of the Pacific Rim region, as particular supermarket chains establish multi-country and multi-subregion presence, and as concomitant regionalization of procurement systems proceed apace, we predict that chains will increasingly use combinations of the above procurement-system innovations to develop effective international sourcing—that is, trade. A microcosm of this emerging phenomenon is illustrated in Indonesia, where Carrefour has contracted with a specialized/dedicated wholesaler Bimandiri to work with a local farmer association, Makar Buah, supported with credit and technical assistance by Syngenta, to produce specialty melons to supply to Carrefour stores in Indonesia and elsewhere in Asia, meeting the Carrefour private-quality and safety standards (Reardon 2004).

It is even probable that this type of "supermarketization-transformed trade" will gradually or perhaps quickly replace the traditional trade-wholesaler-based trade that dominates at present. That would be the analog, at regional level, of the shift from traditional wholesale systems to new specialized/dedicated wholesale and procurement systems that one observes at individual-country levels. This change could well spell a change in the nature, composition, and volume of trade in the Pacific Rim region in the next decade. There has been no systematic research on this hypothesis; rather, the emerging evidence and illustrative cases (such as those sketched above, or those outlined for the South American and Central American cases in Reardon and Berdegue [2002] and Berdegue et al. [2002]) merely whet the appetite of the researcher to explore this potentially major trade phenomenon.

The development implications emerging from rapid supermarketization produce both hope and worry. There is certainly major opportunity implied by the expansion and diversification of the food market induced by the spread of supermarkets, and there is evidence that this can raise producer incomes relative to selling to traditional markets, as illustrated for example for lettuce in Guatemala by Flores (2004). Meeting transaction requirements implied by the organizational change in supermarket procurement systems, and the product requirements implied by institutional change in the form of private standards, can present clear opportunities for producers. Adopting the new practices can give suppliers the opportunity to sell through supermarket chains that are "growing" the market in terms of volume, value added, and diversity. A supplier can move from being a local supplier to a national, regional, or global supplier. Moreover, private-process standards can increase the efficiency of firm operations and raise profitability. The market scope could also increase, compensating for per-unit profit decreases arising from costs incurred to meet the standards.

However, meeting these non-traditional market requirements implies changes in production

practices and investments, such as coordinating to aggregate volumes, reducing pesticide use, or investing in "electric eyes" in packing sheds and cooling tanks in dairies. Some of these investments are quite costly, and are simply unaffordable by many small firms and farms. It is thus not surprising that the evidence is mounting that the changes in standards, and the implied investments, have driven many small firms and farms in developing countries out of business over the past 5 to 10 years and accelerated industry concentration.

The supermarket chains, locked in struggle with other chains in a highly competitive industry with low margins, constantly seek to lower product and transaction costs and risk. All that points toward selecting only the most capable farmers, and in many developing countries that means mainly the upper-tier of small farmers, and medium and large farmers. Moreover, as supermarkets compete with each other and with the informal sector, they will not allow consumer prices to increase in order to "pay for" the farm-level investments needed. Who will pay for water-safe wells? Latrines and handwashing facilities in the fields? Record-keeping systems? Clean and proper packing houses with cement floors? The supplier does and will bear the financial burden. As small farmers lack access to credit and large fixed costs are a burden for a small operation, this will be a huge challenge for small operators.

To help many small farmers grasp the opportunities these changes imply in the short-to-medium run, and to help those who cannot to transition into other employment in the medium-to-longer run, development programs will have a challenge and a mandate to assist small farmers to make the transition.

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