



ELSEVIER

Journal of International Economics 48 (1999) 37–70

Journal of
INTERNATIONAL
ECONOMICS

International trade and industrial upgrading in the apparel commodity chain

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Abstract

This article uses a global commodity chains perspective to analyze the social and organizational dimensions of international trade networks. In linking international trade and industrial upgrading, this article specifies: the mechanisms by which organizational learning occurs in trade networks; typical trajectories from assembly to OEM and OBM export roles; and the organizational conditions that facilitate industrial upgrading moves such as the shift from assembly to full-package networks. The empirical focus is the apparel industry, with an emphasis on Asia. © 1999 Elsevier Science B.V. All rights reserved.

Keywords: Global commodity chains; Industrial upgrading; OEM; OBM; Apparel; East Asia

JEL classification: F14; F23

Globalization has altered the competitive dynamics of nations, firms, and industries. This is most clearly seen in changing patterns of international trade, where the explosive growth of imports in developed countries indicates that the center of gravity for the production and export of many manufactures has moved to an ever expanding array of newly industrializing economies (NIEs) in the Third World. This shift is central to the 'East Asian miracle,' which refers to the handful of high-performing Asian economies that have attained lofty per capita growth rates, relatively low income inequality, high educational attainment, record levels of domestic saving and investment, and booming exports from the 1960s to the mid-1990s (World Bank, 1993). Regardless of whether the growth is due to

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productivity gains or to capital accumulation (Krugman, 1994; Young, 1994, 1995), their economic achievement is largely attributed to the adoption of export-oriented industrialization as the region's main development strategy.

This view of international trade as the fulcrum for sustained economic growth in East Asia, while unassailable in its macroeconomic basics, nonetheless leaves a number of critical questions unanswered in terms of the microinstitutional foundations supporting East Asian development. Why were Japan and the East Asian NIEs (South Korea, Taiwan, Hong Kong and Singapore) so successful in exporting to distant Western markets, given the formidable spatial and cultural distances that had to be bridged? How were these East Asian nations able to *sustain* their high rates of export-oriented growth over three to four decades, in the face of a variety of adverse economic factors such as oil price hikes, rising wage rates, labor shortages, currency appreciations, a global recession, and spreading protectionism in their major export markets? Under what conditions can trade-based growth become a vehicle for genuine industrial upgrading, given the frequent criticisms made of low-wage, low-skill, assembly-oriented export activities? Do Asia's accomplishments in trade-led industrialization contain significant lessons for other regions of the world?

This article will address these questions using a global commodity chains framework. A commodity chain refers to the whole range of activities involved in the design, production, and marketing of a product. A critical distinction in this approach is between buyer-driven and producer-driven commodity chains. Japan in the 1950s and 1960s, the East Asian NIEs during the 1970s and 1980s, and China in the 1990s became world-class exporters primarily by mastering the dynamics of buyer-driven commodity chains, which supply a wide range of labor-intensive consumer products such as apparel, footwear, toys, and sporting goods. The key to success in East Asia's buyer-driven chains was to move from the mere assembly of imported inputs (traditionally associated with export-processing zones) to a more domestically integrated and higher value-added form of exporting known alternatively as full-package supply or OEM (original equipment manufacturing) production.¹ Subsequently, Japan and some firms in the East Asian NIEs pushed beyond the OEM export role to original brand name manufacturing (OBM) by joining their production expertise with the design and sale of their own branded merchandise in domestic and overseas markets.

From a global commodity chains perspective, East Asia's transition from assembly to full-package supply derives in large measure from its ability to establish close linkages with a diverse array of lead firms in buyer-driven chains. Lead firms are the primary sources of material inputs, technology transfer, and knowledge in these organizational networks. In the apparel commodity chain, different types of lead firms use different networks and source in different parts of

¹ Throughout this article, OEM production will be used as a synonymous term for relational contracting, specification contracting, and full-package supply.

the world. Retailers and marketers tend to rely on full-package sourcing networks, in which they buy ready-made apparel primarily from Asia, where manufacturers in places like Hong Kong, Taiwan and South Korea have historically specialized in this kind of production. As wage levels in those countries have gone up, East Asian manufacturers have tended to develop multilayered global sourcing networks where low-wage assembly can be done in other parts of Asia, Africa and Latin America, while the NIE manufacturers play a critical coordinating role in the full-package production process. Branded manufacturers, by contrast, tend to create production networks that focus on apparel assembly using imported inputs. Whereas full-package sourcing networks are generally global, production networks established by branded manufacturers are predominantly regional. US manufacturers go to Mexico and the Caribbean Basin, European Union firms look to North Africa and Eastern Europe, and Japan and the East Asian NIEs look to lower-wage regions within Asia.

Industrial upgrading, from this perspective, involves organizational learning to improve the position of firms or nations in international trade networks (Gereffi and Tam, 1998). Participation in global commodity chains is a necessary step for industrial upgrading because it puts firms and economies on potentially dynamic learning curves. There are many obstacles, however, to moving up these chains from labor-intensive activities like export-oriented assembly, to more integrated forms of manufacturing like OEM and OBM production, to the most profitable and/or skill-intensive economic activities such as breakthrough innovations in new goods and services, design, marketing, and finance. Therefore, we need to address not only *why* industrial upgrading occurs in global commodity chains, but also *how* it occurs. A commodity chains framework that attempts to link international trade and industrial upgrading must specify: the *mechanisms* by which organizational learning occurs in trade networks; typical *trajectories* among export roles; and the *organizational conditions* that facilitate industrial upgrading moves such as the shift from assembly to full-package networks.

The economic theory of industrial upgrading is that as capital (both human and physical) becomes more abundant relative to labor and the endowments of other countries, nations develop comparative advantages in capital- and skill-intensive industries (Porter, 1990). This article will show, however, that upgrading does not occur to a random set of capital- or skill-intensive industries or activities, but rather to products that are organizationally related through the lead firms in global commodity chains.

The microfoundations of this upgrading pattern involve both forward (marketing) and backward (sourcing) linkages from production, and the kind of learning that occurs across these segments. With regard to marketing, countries that are upgrading within commodity chains have already identified the buyers for their products within the chains. The implication is that marketing outside the chain is more difficult due to search costs and the fact that foreign buyers provide access to information that assists local suppliers in their export and marketing efforts (Rhee

et al., 1984). For sourcing linkages, both technological and tacit knowledge exists about how and where to establish new export capacity for finished products. There is a clear pattern of organizational succession in buyer-driven chains, however, whereby foreign buyers that occupy distinct positions (or price points) in the retail sectors of their home markets source from each of the major Asian exporting nations in distinctive cycles or sequences (Gereffi, 1994). This succession mechanism drives the geographical expansion of global sourcing networks, as buyers for less expensive goods are pushed into lower-cost production sites, and it is also crucial for industrial upgrading because the higher price points of fashionable retailers reflect more complicated products and differentiated styles.

Our empirical focus in this article will be the apparel industry, with an emphasis on Asia. This selection is justified on multiple grounds. Apparel is one of the oldest and largest export industries in the world. Most nations produce for the international textile and apparel market (Dickerson, 1995, p. 6), making this one of the most global of all industries. Apparel is the typical ‘starter’ industry for countries engaged in export-oriented industrialization, and it played the leading role in East Asia’s early export growth. The apparel industry is a prototypical buyer-driven commodity chain because it generates a highly aggressive pattern of global sourcing through a variety of organizational channels, including giant cost-driven discount chains (Wal-Mart, Kmart, or Target), upscale branded marketers (Liz Claiborne, Tommy Hilfiger, Nautica), apparel specialty stores (The Limited, The Gap), and burgeoning private label programs among mass merchandise retailers (JC Penney, Sears). Finally, apparel embodies two contrasting production systems characteristic of buyer-driven chains: the assembly and the OEM models. Whereas the assembly model is a form of industrial subcontracting in which manufacturers provide the parts for simple assembly to garment sewing plants, the OEM model is a form of commercial subcontracting in which the buyer–seller linkage between foreign merchants and domestic manufacturers allows for a greater degree of local learning about the upstream and downstream segments of the apparel chain.

The organization of the paper is as follows. First, the global commodity chains framework will be outlined, with an emphasis on the structure and dynamics of buyer-driven chains. Second, the role of each of the big buyers (retailers, marketers and manufacturers) in forging global sourcing networks in the apparel commodity chain will be highlighted. Third, an industrial upgrading framework is introduced to help account for the most significant trade shifts among global apparel exporters. The organizational basis for upgrading is associated with different kinds of buyer–seller links, and distinct patterns of organizational succession among foreign buyers in exporting nations. Fourth, from a commodity chains perspective, industrial upgrading is associated with the process of building, extending, coordinating and completing integrated production and trade networks in Asia. These networks are resilient forms of social capital that are a valuable competitive asset in the global economy. Fifth, we will assess the implications of

the Asian experience for the sourcing of apparel in North America. The United States currently is importing garments from Mexico and the Caribbean Basin countries that have been assembled using US inputs. Our analysis of industrial upgrading in Asia suggests that Mexico will have to move beyond assembly production and establish a full-package or OEM model in order to promote an integrated North American commodity chain. If full-package supply does succeed in Mexico, however, it will utilize very different kinds of networks than those found in Asia because of inter-regional variations in the industrial and spatial organization of the apparel commodity chain.

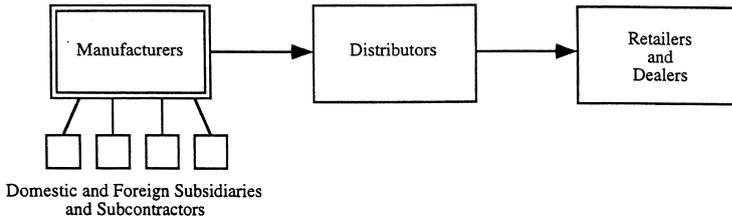
1. Producer-driven and buyer-driven global commodity chains

In global capitalism, economic activity is not only international in scope, it is also global in organization. ‘Internationalization’ refers to the geographic spread of economic activities across national boundaries. As such, it is not a new phenomenon; indeed, it has been a prominent feature of the world economy since at least the 17th Century when colonial empires began to carve up the globe in search of raw materials and new markets for their manufactured exports. ‘Globalization’ is much more recent than internationalization because it implies the functional integration and coordination of internationally dispersed activities.

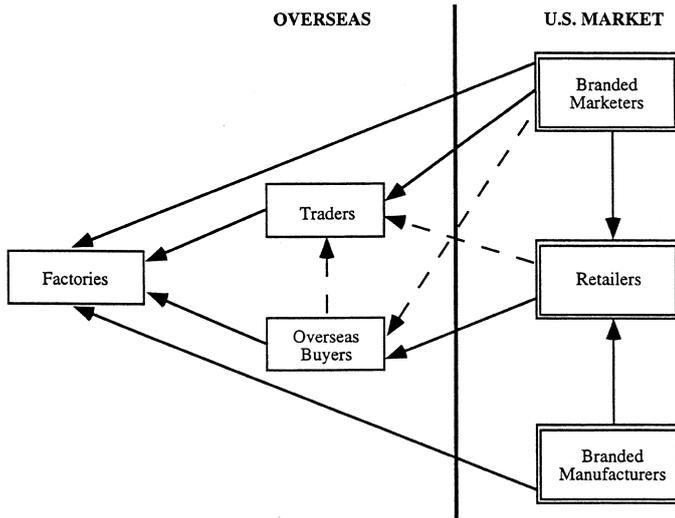
Industrial and commercial capital have promoted globalization by establishing two distinct types of international economic networks: ‘producer-driven’ and ‘buyer-driven’ commodity chains (Fig. 1). Producer-driven commodity chains are those in which large, usually transnational, manufacturers play the central roles in coordinating production networks (including their backward and forward linkages). This is characteristic of capital- and technology-intensive industries such as automobiles, aircraft, computers, semiconductors and heavy machinery. The automobile industry offers a classic illustration of a producer-driven chain, with multilayered production systems that involve thousands of firms (including parents, subsidiaries and subcontractors). The average Japanese automaker’s production system, for example, comprises 170 first-tier, 4700 second-tier, and 31 600 third-tier subcontractors (Hill, 1989, p. 466). Florida and Kenney (1991) have found that Japanese automobile manufacturers actually reconstituted many aspects of their home-country supplier networks in North America. Doner (1991) extends this framework to highlight the complex forces that drive Japanese automakers to create regional production schemes for the supply of auto parts in a half-dozen nations in East and Southeast Asia. Henderson (1989) and Borrus (1997) also support the notion that producer-driven commodity chains have established an East Asian division of labor in their studies of the internationalization of the US and Japanese semiconductor industries.

Buyer-driven commodity chains refer to those industries in which large retailers, branded marketers, and branded manufacturers play the pivotal roles in setting up

Producer-driven Commodity Chains



Buyer-driven Commodity Chains



Notes: Solid arrows are primary relationships; dashed arrows are secondary relationships.

Fig. 1. The organization of producer-driven and buyer-driven global commodity chains.

decentralized production networks in a variety of exporting countries, typically located in the Third World. This pattern of trade-led industrialization has become common in labor-intensive, consumer goods industries such as garments, footwear, toys, housewares, consumer electronics, and a variety of handicrafts. Production is generally carried out by tiered networks of Third World contractors that make finished goods to the specifications of foreign buyers.

Profitability is greatest in the relatively concentrated segments of global commodity chains characterized by high barriers to the entry of new firms. In producer-driven chains, manufacturers making advanced products like aircraft, automobiles and computers are the key economic agents not only in terms of their earnings, but also in their ability to exert control over backward linkages with raw material and component suppliers, and forward linkages into distribution and retailing. The transnationals in producer-driven chains usually belong to global oligopolies. Buyer-driven commodity chains, by contrast, are characterized by highly competitive, locally owned, and globally dispersed production systems. Profits in buyer-driven chains derive not from scale, volume, and technological advances as in producer-driven chains, but rather from unique combinations of high-value research, design, sales, marketing and financial services that allow the retailers, branded marketers and branded manufacturers to act as strategic brokers in linking overseas factories with evolving product niches in the main consumer markets. Thus, whereas producer-driven commodity chains are controlled by industrial firms at the point of production, the main leverage in buyer-driven chains is exercised by retailers, marketers, and manufacturers through their ability to shape mass consumption via strong brand names and their reliance on global sourcing strategies to meet this demand.

The leading firms in producer-driven and buyer-driven commodity chains use barriers to entry to generate different kinds of ‘rents’ (broadly defined as returns from scarce assets) in global industries. These assets may be tangible (as with machinery), intangible (brands) or intermediate (as in marketing skills). Adapting and extending the typology of rents in Kaplinsky (1998), producer-driven chains rely primarily on *technology rents*, which arise from asymmetrical access to key product and process technologies; and *organizational rents*, which refer to a form of intra-organizational process knowhow that originated in Japan, and is particularly significant in the transition from mass production to mass customization (or flexible production), involving a cluster of new organizational techniques such as just-in-time production, total quality control, modular production, preventive maintenance, and continuous improvement.

Buyer-driven chains are most closely tied to *relational rents*, which refer to several families of inter-firm relationships, including the techniques of supply-chain management that link large assemblers with small- and medium-size enterprises, the construction of strategic alliances, and small firms clustering together in a particular locality and manifesting elements of collective efficiency associated with OEM production;² *trade-policy rents*, understood as the scarcity

² Although organizational and relational rents are closely related, they differ in that the former is intra-organizational, and the latter is inter-plant, inter-firm, and inter-institutional (e.g., research institutes or training programs with public-private sector support). The rent element arises from the fact that all these organizational features are tacit, cumulative and systemic. Adoption is a matter of degree. Some economies and firms are better at utilizing these techniques than others, giving rise to uneven diffusion and consequently to scarcity and rent (Kaplinsky, 1998).

value created by protectionist trade policies like apparel quotas; and *brand name rents*, which refer to the returns from the product differentiation techniques used to establish brand-name prominence in major world markets.

In the apparel commodity chain, entry barriers are low for most garment factories, although progressively higher as one moves upstream to textiles and fibers; brand names and stores are alternative competitive assets firms can use to generate significant economic rents. The lavish advertising budgets and promotional campaigns required to create and sustain global brands, and the sophisticated and costly information technologies employed by today's mega-retailers to develop 'quick response' programs³ that increase revenues and lower risks by getting suppliers to manage inventory, illustrate recent techniques that have allowed retailers and marketers to displace traditional manufacturers as the leaders in many consumer goods industries.

2. Big buyers and global sourcing

A fundamental restructuring is underway in the retail sector in the United States and other developed economies. The global retailing industry is dominated by large organizations that are moving toward greater specialization by product (the rise of specialty stores that sell only one item, such as clothes, shoes, or office supplies) and price (the growth of high-volume, low-cost discount chains). Furthermore, the process of filling the distribution pipeline is leading these retailers to develop strong ties with global suppliers, particularly in low-cost countries (Management Horizons, 1993). Nowhere are these changes more visible than in apparel, which is the top merchandise category for most consumer goods retailers. Between 1987 and 1991, the five largest softgoods chains in the United States increased their share of the national apparel market from 35 to 45% (Dickerson, 1995, p. 452). By 1995, the five largest US retailers—Wal-Mart, Sears, Kmart, Dayton Hudson,⁴ and JC Penney—accounted for 68% of all apparel sales in publicly held retail outlets. The next top 24 retailers, all billion-dollar corporations, represented an additional 30% of these sales (Finnie, 1996, p. 22). The two top discount giants, Wal-Mart and Kmart, by themselves control one-quarter of all apparel (by unit volume, not value) sold in the United States.

Although the degree of market power that is concentrated in large US retailers may be extreme, owing to the recent spate of mergers and acquisitions in this

³ An estimated 72% of a sample of large US apparel and textile manufacturers had quick response (QR) programs with their customers in 1995, up from 60% the year before (Jones, 1995, p. 26). These QR programs can reduce the typical production cycle of fashion merchandise from as much as nine months to a few weeks, although the apparel firms that lead in QR adoption tend to have strong brand name identification and consumer loyalty, and the retailers initiating these programs are quite big.

⁴ Dayton Hudson Corporation owns Target, Mervyn's, Dayton's, Hudson's, and Marshall Field.

sector, a similar shift in power from manufacturers to retailers and marketers appears to be underway in most developed nations. Retailing across the European Union has been marked by substantial concentration in recent years. In Germany, the five largest clothing retailers (C&A, Quelle, Metro/Kaufhof, Kardstadt and Otto) in 1992 accounted for 28% of the EU's largest national economy, while the United Kingdom's two top clothing retailers (Marks and Spencer and the Burton Group) controlled over 25% of the UK market in 1994 (OETH, 1995, pp. 11–13). Marks and Spencer, Britain's largest and most successful retailing firm with over 260 stores in the United Kingdom plus stores in other parts of Europe and Canada, itself buys about 20% of all the clothing made in Britain (Dickerson, 1995, p. 472). In both France and Italy, the role of independent retailers in the clothing market has declined since 1985, while the share of specialty chains, franchise networks, and hypermarkets is rising rapidly. In Japan, the 1992 revision of the Large Retail Store Law, which liberalized restrictions on the opening of new retail outlets, has caused a rapid increase in the number of large-volume retailers and suburban chain stores. The Japanese government predicts there will be 20% fewer retailers in Japan in the year 2000 than in 1985, mainly due to attrition among the small and medium retail stores (Japan Textile News, 1996).

From the vantage point of buyer-driven commodity chains, the major significance of growing retailer concentration is its tendency to augment global sourcing. As each type of organizational buyer in the apparel commodity chain has become more actively involved in offshore sourcing, the competition between retailers, marketers, and manufacturers has intensified, leading to a blurring of the traditional boundaries between these firms and a realignment of interests within the chain.

2.1. Retailers

In the past, retailers were the apparel manufacturer's main customers, but now they are increasingly becoming their competitors. As consumers demand better value, retailers have increasingly turned to imports. In 1975, only 12% of the apparel sold by US retailers was imported; by 1984, retail stores had doubled their use of imported garments (AAMA, 1984). According to unpublished data in the US Customs Service's Net Import File, retailers accounted for 48% of the total value of imports of the top 100 US apparel importers in 1993 (who collectively represent about one-quarter of all 1993 apparel imports); US apparel marketers, which perform the design and marketing functions but contract out the actual production of apparel to foreign or domestic sources, represented 22% of the value of these imports; and domestic producers made up an additional 20% of the total⁵ (Jones, 1995, pp. 25–26). The picture in Europe is strikingly similar. European

⁵ These figures do not include the production-sharing activities of US apparel firms in Mexico and in the Caribbean Basin, which also have been expanding very rapidly (USITC, 1997).

retailers account for fully one-half of all apparel imports, and marketers or designers add roughly another 20% (Scheffer, 1994, pp. 11–12).

In the 1980s, many retailers began to compete directly with the national brand names of apparel producers and marketers by expanding their sourcing of ‘private label’ (or store-brand) merchandise. This is sold more cheaply than the national brands but it also is more profitable to the retailers since they eliminate some of the middlemen in the chain. Private label programs have led a growing number of merchants to take on the entrepreneurial functions of normal apparel manufacturers, such as product design, fabric selection and procurement, and garment production or sourcing. Private label goods, which constituted about 25% of the total US apparel market in 1993 (Dickerson, 1995, p. 460), can curtail the business of both manufacturers and well-known designer lines.

Take the case of JC Penney, which like Sears has repositioned itself as primarily a softgoods retailer, and within softgoods has traded up from the mass merchandiser image to higher-cost product lines to lure the traditional department store customer. Squeezed between discounters and fashionable specialty stores, Penney initially tried to move upscale in the early 1980s, but it was snubbed by well-known women’s brands like Liz Claiborne, Estee Lauder, and Elizabeth Arden, who turned their noses up at Penney’s stodgy, middle-brow image. So Penney concentrated on converting its own private labels—such as Hunt Club, Worthington, Stafford, St. John’s Bay, Arizona jeans, and Jacqueline Ferrar—into high-quality brand names, which began to pay considerable dividends at home and abroad. Today, JC Penney’s private label lines account for up to 60% of the women’s apparel volume and they are the fastest growing portion of the chain’s product mix (Dickerson, 1995, p. 460). Penney’s house brands now form the backbone of its thriving overseas business, which includes JC Penney stores in Canada and Mexico, sales of its private label apparel in 300 department stores owned by Aoyama Trading, Japan’s largest retailer of men’s suits, plus licensing agreements in Portugal, Greece, Singapore, Indonesia, Chile, and Middle East locations like United Arab Emirates and Dubai (Ortega, 1994; Warfield et al., 1995, pp. 46–47).

2.2. *Branded marketers*

One of the most notable features of buyer-driven chains is the creation since the mid-1970s of prominent marketers whose brands are extremely well known, but that carry out no production whatsoever. These ‘manufacturers without factories’ include companies like Liz Claiborne, Nike, and Reebok, who literally were ‘born global’ since their sourcing has always been done overseas. As pioneers in global sourcing, branded marketers were instrumental in providing overseas suppliers with knowledge that later allowed them to upgrade their position in the apparel chain.

The cumulative and diffused aspect of this learning is reflected in the remarks of

Jerome Chazen, one of the founders of Liz Claiborne, who comments on his company's early years in Asian apparel sourcing (Chazen, 1996, p. 42):

Sourcing overseas seems commonplace nowadays. When we started our company in 1976, nobody in our price category did any sourcing overseas . . . But the [overseas] manufacturers with whom we dealt back then had little or no experience servicing the United States market. Thus, we had to train and develop them by supplying technical help, trim, findings, and virtually all components. While we counted on them for their labor, we had to tell them exactly how to use the basic skills of their people and we had to watch them carefully, every step of the way. Our manufacturers learned quickly, however. We tested some products with the first company we used in Taiwan, and we found we could deliver better products and better fabric at a better price than the competition and make a respectable margin. Everybody was happy . . . We were very much the leaders as importers of high end merchandise. We sailed in uncharted waters, made our share of mistakes, and attained an enormous competitive advantage.

The competition (both retail and wholesale) that followed us started from a different plateau. They demanded and received more from their manufacturers who, by this time, were much improved. It is as if many of Liz Claiborne's competitors 'leapfrogged' us.

In order to deal with the influx of new competition, branded marketers like Liz Claiborne are adopting several strategic responses that will alter the content and scope of their global sourcing networks: they are discontinuing certain support functions (such as pattern grading, marker making, and sample making), and reassigning them to contractors; they are instructing the contractors where to obtain needed components, thus reducing their own purchase and redistribution activities; they are shrinking their supply chains, using fewer but more capable manufacturers; they are adopting more stringent vendor certification systems to improve performance; and they are shifting the geography of their sourcing configuration from Asia to the Western Hemisphere (see Chazen, 1996). In essence, marketers now recognize that overseas contractors have the capability to manage all aspects of the production process, which restricts the competitive edge of marketers to design and brands.

2.3. Branded apparel manufacturers

Given that foreign production can often provide similar quantity, quality, and service as domestic producers, but at lower prices, apparel manufacturers in developed countries have been caught in a squeeze. They are responding in several different ways. In the United States and Europe, an 'If you can't beat them, join

them' attitude has evolved among many smaller and mid-sized apparel firms, who feel they can not compete with the low cost of foreign-made goods and thus they are defecting to the ranks of importers.

The decision of many larger manufacturers in developed countries, however, is no longer *whether* to engage in foreign production, but how to organize and manage it. These firms supply intermediate inputs (cut fabric, thread, buttons, and other trim) to extensive networks of offshore suppliers, typically located in neighboring countries with reciprocal trade agreements that allow goods assembled offshore to be re-imported with a tariff charged only on the value added by foreign labor. This kind of international subcontracting system exists in every region of the world. It is called the 807/9802 program or 'production sharing' in the United States (USITC, 1997), where the sourcing networks of US manufacturers are predominantly located in Mexico, Central America, and the Caribbean; in Europe, this is known as outward processing trade (OPT), and the principal suppliers are located in North Africa and Eastern Europe (OETH, 1995); and in Asia, manufacturers from relatively high-wage economies like Hong Kong have outward processing arrangements (OPA) with China and other low-wage nations (Birnbaum, 1993).

A significant countertrend is emerging among established apparel manufacturers, however, who are de-emphasizing their production activities in favor of building up the marketing side of their operations by capitalizing on both brand names and retail outlets. Sara Lee Corporation, one of the largest apparel producers in the United States—whose stable of famous brand names includes L'eggs hosiery, Hanes, Playtex, Wonderbras, Bali, and Coach leather products, to name a few—recently announced its plans to 'de-verticalize' its consumer-products divisions, a fundamental reshaping that would move it out of making the brand-name goods it sells. "As the world opens up to do business," according to a Sara Lee spokeswoman, "the operating model for today's exemplary companies no longer needs to include significant manufacturing assets . . . We've determined that we no longer need to own all the assets needed in manufacturing the products we sell" (Miller, 1997, p. A3). Other well-known apparel manufacturers like Phillips-Van Heusen and Levi Strauss & Co. are also emphasizing the need to build global brands, frequently through acquisitions of related consumer products lines, while many of their production facilities are being closed or sold to offshore contractors.

The strengthening of brand names has led to a new focus on 'concept stores' that typically feature all the products offered by manufacturers and marketers, such as Levi Strauss, Nike, Disney, and Warner Bros. These stores provide a direct link between manufacturers and consumers, bypassing the traditional role of retailers. Levi Strauss, the largest apparel company in the United States, had 126 Levi's retail stores in 1993, all operated by a retail specialist, Designs Inc. Over half of Levi Strauss's profits in 1993 were generated from overseas operations, which included about 900 franchised Levi's shops in 30 countries in Europe, Asia and

Latin America (Warfield et al., 1995, pp. 80–81). Thus, a de-verticalization of production co-exists with a re-verticalization of brands and stores.

3. Trade shifts and industrial upgrading in the apparel commodity chain in Asia

The world textile and apparel industry has undergone several migrations of production since the 1950s and they all involve Asia. The first migration of the industry took place from North America and Western Europe to Japan in the 1950s and early 1960s, when Western textile and clothing production was displaced by a sharp rise in imports from Japan. The second supply shift was from Japan to the 'Big Three' Asian apparel producers (Hong Kong, Taiwan and South Korea), which permitted the latter group to dominate global textile and clothing exports in the 1970s and 1980s. During the past 10–15 years, there has been a third migration of production—this time from the Asian Big Three to a number of other developing economies. In the 1980s, the principal shift was to mainland China, but it also encompassed several Southeast Asian nations and Sri Lanka. In the 1990s, the proliferation of new suppliers included South Asian and Latin American apparel exporters, with new entrants like Vietnam waiting in the wings (Khanna, 1993; Gereffi, 1996).

This most recent shift is seen in sharp relief in Table 1, which looks at apparel imports to the United States, the world's largest market. In 1983, the Asian 'Big Three' (Hong Kong, Taiwan and South Korea), plus China, were responsible for two-thirds of US apparel imports; by 1997, this share had dropped to one-third. During the past 15 years, we see two main trends in US apparel imports: (1) a shift within Asia from the 'Big Three' to the growing importance of successive waves of exporters: first China, followed by capitalist Southeast Asia, South Asia, and now socialist Southeast Asia (Vietnam, Laos, and Cambodia); and (2) a growth in non-Asian sources of apparel supply, especially the importance of Central America and the Caribbean as a region (which doubled its share of US apparel imports from 8% in 1990 to 16% in 1997) and, most notably, Mexico (which nearly quadrupled its share of US apparel imports from 3% to 11% in the same period).

How can we explain these trade shifts in the apparel commodity chain? A simple market explanation is that the most labor-intensive segments of the apparel commodity chain will be located in countries with the lowest wages. This account is supported by the sequential relocation of textile and apparel production from the United States and Western Europe to Japan, the Asian Big Three, and China, given that each new tier of entrants to the production hierarchy had significantly lower wage rates than their predecessors. The cheap-labor argument does not hold up as well, however, when we get to the proliferation of new Asian and Caribbean suppliers, whose US market share expanded even though their wage rates are often

Table 1
Trends in US apparel imports by region and country

Country source	1983 value		1986 value		1990 value		1993 value		1995 value		1997 value	
	US\$ million	(%)										
<i>Northeast Asia</i>												
China	759		1661		3439		6187		5895		7450	
Hong Kong	2249		3392		3977		4019		4342		4028	
Taiwan	1800		2621		2489		2332		2157		2166	
South Korea	1685		2581		3342		2539		1841		1665	
Macao	132		229		417		483		757		930	
Total	6625	68	10 483	60	13 663	54	15 558	46	14 991	38	16 239	33
<i>Southeast Asia</i>												
Indonesia	75		269		645		1114		1359		1789	
Philippines	319		473		1083		1361		1633		1650	
Thailand	125		213		483		943		1172		1468	
Malaysia	93		257		604		973		1199		1244	
Singapore	193		386		621		517		424		290	
Total	806	8	1598	9	3436	13	4907	14	5787	15	6440	13
<i>South Asia</i>												
India	220		344		636		1079		1263		1508	
Bangladesh	7		154		422		740		1072		1442	
Sri Lanka	126		257		426		834		970		1242	
Pakistan	32		92		232		442		620		705	
Total	385	4	847	5	1716	7	3094	9	3924	10	4897	10
<i>Central America and the Caribbean</i>												
Dominican Republic	139		287		723		1443		1753		2234	
Honduras	20		32		113		510		934		1688	
El Salvador	7		11		54		251		583		1052	
Guatemala	4		20		192		552		691		976	
Costa Rica	64		142		384		653		757		851	
Jamaica	13		99		235		388		531		471	
Other CBI	142		207		284		218		239		392	
Total	389	4	797	5	1985	8	4015	12	5486	14	7665	16
Mexico	199	2	331	2	709	3	1415	4	2876	7	5350	11
All other countries	1328	14	3283	19	4009	16	4914	14	6595	17	7664	16
Total apparel	9731	100	17 341	100	25 518	100	33 904	100	39 660	100	48 492	100

Source: Compiled from official statistics of the US Department of Commerce, US imports for consumption, customs value. Data before 1989 are estimated.

considerably higher than China's. Furthermore, although the share of US apparel exports represented by Hong Kong, South Korea and Taiwan has declined during the past decade, these NIEs still rank among Asia's top apparel exporters to the United States in 1997, despite having the highest apparel labor costs in the region, excluding Japan (see ILO, 1995, pp. 35–36)

Exchange rates and trade policies help to explain some of these discrepancies. A critical factor in the sharp decline of Taiwan's and South Korea's apparel exports in the late 1980s was not only their rising wage rates, but the sharp appreciation of their local currencies vis-à-vis the US dollar after the Plaza Agreement was signed in 1985. Between 1985 and 1987, the Japanese yen was revalued by close to 40%, the New Taiwan dollar by 28%, and from 1986 to 1988 the Korean won appreciated by 17% (Bernard and Ravenhill, 1995, p. 180). The most important policies that shape US apparel imports from Asia, the Caribbean, and elsewhere, however, are quotas and preferential tariffs. Since the early 1970s, quotas on apparel and textile items were regulated by the Multifiber Arrangement (MFA). The MFA has been used by the United States, Canada, and various European nations to impose quantitative import limits in a wide variety of product categories.

Although the clear intent of these policies was to protect developed country firms from a flood of low-cost imports that threatened to disrupt major domestic industries, the result was exactly the opposite. Protectionism heightened the competitive capabilities of developing country manufacturers, who learned to make sophisticated products that were more profitable than simple ones. Protectionism by the industrialized nations also diversified the scope of foreign competition, as an ever widening circle of exporters was needed to meet booming North American and European demand. In recent years, the creation of the European Union and the North American Free Trade Agreement (NAFTA) has led to preferential tariffs in these trade blocs, and promoted a growing consolidation of supply chains within regions.

The ability of the East Asian NIEs to sustain their export success over several decades, and to develop a multilayered sourcing hierarchy within Asia, is only partially related to wage rates and state policies. From a commodity chain perspective, East Asia must be viewed as part of an interrelated regional economy. The apparel export boom in the less developed southern tier of Asia has been driven to a significant extent by the industrial restructuring of the northern tier East Asian NIEs. As Northeast Asian firms began moving their production offshore, they devised ways to coordinate and control the sourcing networks they created. Ultimately, they focused on the more profitable design and marketing segments within the apparel commodity chain to sustain their competitive edge. This transformation can be conceptualized as a process of industrial upgrading, based in large measure on building various kinds of economic and social networks between buyers and sellers.

Industrial upgrading is a process of improving the ability of a firm or an

economy to move to more profitable and/or technologically sophisticated capital- and skill-intensive economic niches. Industrial upgrading operates at several different levels of analysis: (1) *within factories*—upgrading involves moving from cheap to expensive items, from simple to complex products, and from small to large orders; (2) *within inter-firm enterprise networks*—upgrading involves moving from mass production of standardized goods to the flexible production of differentiated merchandise; (3) *within local or national economies*—upgrading involves moving from simple assembly of imported inputs to more integrated forms of OEM and OBM production, involving a greater use of forward and backward linkages at the local or national level; and (4) *within regions*—upgrading involves shifting from bilateral, asymmetrical, inter-regional trade flows to a more fully developed intra-regional division of labor incorporating all phases of the commodity chain from raw material supply, through production, distribution, and consumption.

While the national and international dimensions of industrial upgrading will be analyzed in the following sections of the paper, the organizational basis for industrial upgrading within factories and enterprises will be outlined here. At the organizational level, industrial upgrading in East Asia's apparel commodity chain was produced by the information flows and learning potential associated with the buyer–seller links established by different types of lead firms (retailers, marketers and manufacturers), and also by a distinctive pattern of organizational succession among these lead firms, who placed varied kinds of demands on their overseas suppliers.

The retailers, marketers and manufacturers involved in global sourcing play similar structural roles as big buyers in the apparel commodity chain because they are all major garment importers. What differs across the production and sourcing networks they set up is not the role of these companies as organizational buyers, but rather the kind of information that is transmitted and thus the kind of local learning that can take place, given the position of each of the buyers in the chain. Manufacturers engaged in production sharing arrangements, for example, require the lowest level of expertise from their apparel suppliers: the assembly of cut parts into finished garments. The knowledge gained is relevant only to the production segment of the commodity chain. Retailers and marketers, however, need suppliers with the capability to make garments *and* the logistical know-how to find all the parts needed in the finished product.⁶ Thus, they require more advanced full-package or OEM companies who, in turn, may subcontract out parts of these orders to other local firms. Besides learning how to organize production networks, full-package companies also learn about the marketing side of the business. It is

⁶ Some large retailers or designers, like The Limited or Liz Claiborne, also purchase fabric for their overseas contractors and participate in the quality control inspections for finished goods. However, they typically leave all other aspects of the sourcing process to the offshore garment makers.

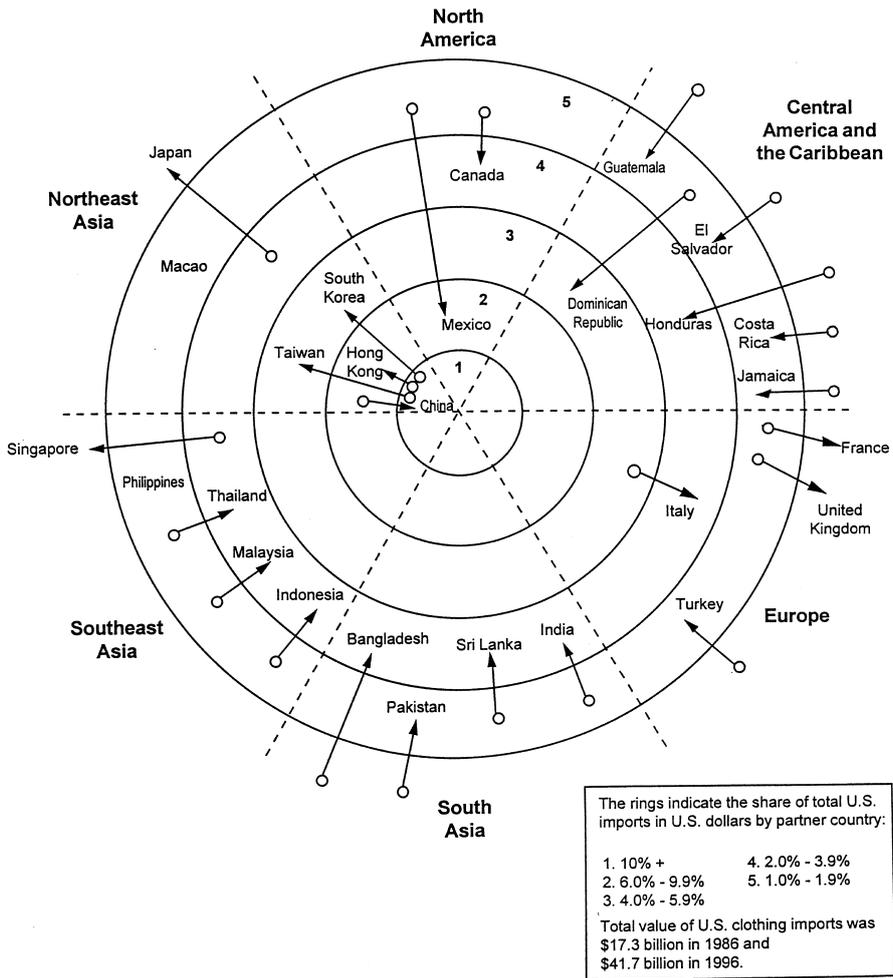
this learning that allows the Asian suppliers to move from the OEM to the OBM export roles.

A second key mechanism for the industrial upgrading of apparel suppliers in Asia is the pattern of organizational succession among different kinds of buyers, who contribute in unique ways to the geographic expansion and industrial upgrading of these buyer-driven chains. There is a clear status hierarchy among US retailers that affects where and how they engage in global sourcing (Gereffi, 1994, pp. 110–113). Fashion-oriented retailers that cater to an exclusive clientele for ‘designer’ products get their expensive, nationally branded goods from a small group of premium-quality apparel exporters (e.g., Italy, France, Japan). Department stores and specialty chains that emphasize private label products source primarily from the East Asian NIEs and more established Third World apparel exporters. The large-volume discount stores that sell the most inexpensive products import from the lowest-cost suppliers, which frequently make relatively simple or standardized goods.

Organizational succession in the apparel commodity chain refers to the fact that different types of foreign buyers pass through each tier in the global sourcing matrix (see Fig. 2 for an illustration), as the countries in that tier develop their export capability. Discount chains like Kmart and mass merchandisers like JC Penney, for example, frequently were the first buyers to open up the capabilities for volume production in new export sites in Asia. When department stores or specialty stores willing to pay significantly more money for higher quality versions of the same garments came along, the discounters and mass merchandisers were ‘pushed out’ of these factories. They either had to move to less experienced factories in the same country or to less expensive countries. The process was repeated as higher status buyers came in and gained factory space for more expensive merchandise. Generally some large-volume orders were retained, along with high-value but smaller orders, so that factories could smooth out their production schedules. This succession of foreign buyers thus permitted manufacturers to upgrade their facilities as they met buyer demands for more sophisticated products.⁷

Small trading companies operate as ‘industry scouts’ on the fringes of the international production frontier in order to help develop potential new sources of supply for the apparel commodity chain in places like Saipan, Yap and Myanmar.

⁷ This pattern of upgrading is well illustrated in the following quote about Thailand from a 25-year veteran of Asian apparel sourcing: “Thailand has evolved the way of Korea, Taiwan and Hong Kong, in that manufacturers only cater to high quality, high price branded product. In prior days, I bought merchandise there to sell to the mass market retailers. Today, this is almost impossible to do. I visited the factory of a close friend of mine who has a completely vertical operation. He knits, dyes and sews knit tops. Before, he only did promotional shirts for mass market discounters. Today, he only manufactures for brands such as Polo, Tommy Hilfiger and Donna Karan, and makes the same amount of units he did 20 years ago, except he has more than doubled his making charges. This is the true reality of manufacturing in Thailand today” (Bresky, 1997).



*The 1996 position corresponds to the ring where the country's name is located; the 1986 position, if different, is indicated by a small circle. The arrows represent the magnitude and direction of change over time.

Source: Compiled from official statistics of the U.S. Department of Commerce, U.S. imports for consumption, customs value.

Fig. 2. Shifts in the regional structure of US apparel imports from 1986 to 1996.

The difficult role of industry scouts is captured in the poignant remark of a long-time Asian sourcing specialist: “Amateurs dream of traveling to the ends of the earth to produce garments. Professionals have already been to the ends of the earth, and they know the pressing there is not good” (Birnbaum, 1993, p. 139). With this conceptual backdrop to the organizational foundations of production and

trade networks in buyer-driven commodity chains, we can now look more closely at the evolution of apparel trade patterns and industrial upgrading in Asia.

4. The evolution of the apparel commodity chain in Asia

Industrial upgrading within the apparel commodity chain in Asia involves the use of networks to create new sources of national and regional competitive advantage. We trace this process through four stages: the building of locally integrated manufacturing and marketing networks, involving close ties with foreign buyers; the internationalization of the apparel commodity chain to encompass new tiers of low-cost suppliers in Asia, in response to a combination of supply-side constraints and external pressures; the coordination of these buyer-driven chains through different types of trade networks; and the completion or regionalization of the apparel commodity chain within Asia. This industrial upgrading cycle in Asia is locally rooted, but it has important repercussions on how the apparel industry is organized in other regions of the world, such as North America and Europe.

4.1. Building commodity chains: OEM and OBM in East Asia

The East Asian NIEs are generally taken as the archetype for industrial upgrading among developing countries. They made a rapid transition from the initial assembly phase of export growth (typically utilizing export-processing zones located near major ports) to a more generalized system of incentives that applied to all export-oriented factories in their economies. The next stage for Taiwan, South Korea, Hong Kong and Singapore was OEM production. The OEM model has the following features: the supplying firm makes a product according to the design specified by the buyer; the product is sold under the buyer's brand name; the supplier and buyer are separate firms; and the supplier lacks control over distribution. East Asian firms soon became full-range package suppliers for foreign buyers, and thereby forged an innovative entrepreneurial capability that involved the coordination of complex production, trade, and financial networks (Gereffi, 1995).

The OEM export role has many advantages. It enhances the ability of local entrepreneurs to learn the preferences of foreign buyers, including international standards for the price, quality, and delivery of export merchandise. It also generates substantial backward linkages in the domestic economy because OEM contractors are expected to develop reliable sources of supply for many inputs. Moreover, expertise in OEM production increases over time and it spreads across different types of activities. The OEM supplier learns much about the downstream and upstream segments of the apparel commodity chain from the buyer. This tacit knowledge can later become a powerful competitive weapon.

Particular places such as the East Asian NIEs thus retain an enduring competitive edge in export-oriented development. However, East Asian producers confront intense competition from lower-cost exporters in various parts of the Third World, and the price of their exports to Western nations has been further elevated by sharp currency appreciations during the past decade. Under these circumstances, it is advantageous to establish forward linkages to developed-country markets, where the biggest profits are made in buyer-driven commodity chains. Therefore, a number of firms in the East Asian NIEs that pioneered OEM are now pushing beyond it to the original brand name manufacturing (OBM) role by integrating their manufacturing expertise with the design and sale of their own branded merchandise.

South Korea is the most advanced of the East Asian NIEs in OBM production, with Korean brands of automobiles (Hyundai), electronic products (Samsung), and household appliances (Samsung and Goldstar), among other items, being sold in North America, Europe and Japan.⁸ Taiwanese companies have pursued OBM in computers, bicycles, sporting equipment, and shoes, but not in apparel. In Hong Kong, clothing companies have been the most successful in making the shift from OEM to OBM. The women's clothing chain Episode, controlled by Hong Kong's Fang Brothers Group, one of the foremost OEM suppliers for Liz Claiborne in the 1970s and 1980s, has stores in 26 countries, only a third of which are in Asia. Giordano, Hong Kong's most famous clothing brand, has added to its initial base of garment factories 200 stores in Hong Kong and China, and another 300 retail outlets scattered across Southeast Asia and Korea. Hang Ten, a less-expensive line, has 200 stores in Taiwan, making it the largest foreign-clothing franchise on the island (Granitsas, 1998).

There have been significant reversals in the OBM experience, however. Mitac Corporation, the main competitor to Acer in Taiwan's personal computer market, reduced its own-brand computers from 70% of its total sales in 1990 to 40% in 1993 (Selwyn, 1993). Daewoo, Korea's third-largest appliance and consumer-electronics company (after Samsung and Goldstar), moved from years of brand-building back to the OEM game (Asiaweek, 1995).

Why has the OEM role proved so resilient? To a large degree, the answer lies with core competencies and networks. C.S. Ho, the president of Mitac, says that his firm was more profitable when it concentrated on its core competencies: "We asked ourselves: What functions are we best at? Our strengths are in R&D, design and manufacturing. We are now focusing on designing and supplying products and key components for major OEM customers, whose brands are better-known but which have withdrawn from fully integrated manufacture" (Selwyn, 1993, p. 24). S.H. Bae, Chairman and Chief Executive Officer of Daewoo, says, "Our strength

⁸ In a survey of approximately 100 South Korean export firms carried out in 1976, more than two-thirds reported that some or all of their exports to foreign markets consisted of their own brand name products (Rhee et al., 1984, p. 123).

is in manufacturing. If our margins are adequate, we don't mind making products for others" (Asiaweek, 1995, p. 56). Bae expects a shakeout in appliances and consumer electronics by the year 2000, and concludes that companies will have to become dominant producers in core products.

To keep OEM profitable under conditions of intense wage competition among developing countries and protectionism in Western markets, East Asian NIE companies have set up elaborate offshore production networks. Daewoo, for example, has 16 offshore plants in China, Vietnam, Central Asia, Europe and Mexico. Through worker-training programs, Bae claims that "[Daewoo's] Vietnam plant is almost as efficient as local ones" (Asiaweek, 1995, p. 57). Thus, the key to profitability in OEM production for East Asian NIEs seems to be manufacturing expertise (including substantial spending in research and development), and learning how to flexibly manage overseas production networks. This can be seen in Hong Kong's apparel manufacturers, Taiwan's footwear companies, and Singapore's computer firms. Network flexibility thus has become one of the major organizational assets utilized by the NIEs in their internationalization strategies.

4.2. Internationalizing commodity chains: Offshore sourcing by the East Asian NIEs

In each of the East Asian NIEs, a combination of domestic supply side constraints (labor shortages, high wages, and high land prices) and external pressures (currency revaluation, tariffs and quotas) led to the internationalization of the textile and apparel complex by the late 1980s and early 1990s. Typically, the internationalization of production was sparked first by quotas, but the process was greatly accelerated as supply-side factors became adverse. Quotas determined *when* the outward shift of production began, while preferential access to overseas markets and social networks determined *where* the firms from the East Asian NIEs went. In this international division of labor, skill-intensive activities were retained in East Asia⁹ and labor-intensive activities were relocated.

4.2.1. Hong Kong

The internationalization of Hong Kong's firms was triggered by textile import restrictions imposed by the United Kingdom in 1964, which led Hong Kong manufacturers in the late 1960s to shift production to Singapore, Taiwan and Macao. The Chinese population in these three countries had cultural and linguistic affinities with Hong Kong investors. In addition, Macao benefited from its

⁹ In the apparel sector, the activities associated with OEM production that tended to remain in the NIEs were jobs such as product design, sample making, quality control, packing, warehousing, transportation, quota transactions, and local financing through letters of credit. These provided relatively high gross margins or profits.

proximity to Hong Kong, while Singapore qualified for Commonwealth preferences for imports into the United Kingdom. In the early 1970s, Hong Kong apparel firms targeted Malaysia, the Philippines and Mauritius. This second round of outward investments again was prompted by quota restrictions, coupled with specific host-country inducements. For example, Mauritius established an export-processing zone in an effort to lure Hong Kong investors, particularly knitwear manufacturers who directed their exports to European markets that offered preferential access in terms of low tariffs.

The greatest spur to the internationalization of Hong Kong's textile and apparel companies was the opening of the Chinese economy in 1978. At first, production was subcontracted to state-owned factories, but eventually an elaborate outward-processing arrangement with China was set up that relied on a broad assortment of manufacturing, financial, and commercial joint ventures. The relocation of industry to the Chinese mainland led to a hollowing out of Hong Kong's manufacturing sector during the late 1980s and early 1990s. In 1991, 47 000 factories were employing 680 000 workers in Hong Kong, a figure 25% below the peak of 907 000 manufacturing jobs recorded in 1980 (Khanna, 1993, p. 19). The decline was particularly severe in textiles and apparel. Employment in the Hong Kong textile industry fell from 67 000 in 1984 to 36 000 in 1994—a drop of 47%. Meanwhile, Hong Kong's clothing jobs plummeted from 300 000 in 1984 to 137 000 in 1994—a decrease of 56% in a single decade (De Coster, 1996a, p. 65).

While manufacturing declined, trading activities in Hong Kong grew to encompass approximately 70 000 firms and 370 000 jobs in 1991, a fivefold increase in the number of firms and a fourfold increase in the number of workers in the trading sector compared to 1978 (Khanna, 1993, p. 19). Thus, trading companies to a large extent have replaced factories as the key economic agent in Hong Kong's export-oriented growth.

In 1995, Hong Kong entrepreneurs operated more than 20 000 factories employing an estimated 4.5–5 million workers in the Pearl River Delta alone in the neighboring Chinese province of Guangdong (De Coster, 1996b, p. 96). Considering that total employment in Hong Kong industry had shrunk to 386 000 in 1995, or just over 15% of the Hong Kong workforce (Berger and Lester, 1997, p. 9), Hong Kong manufacturers in effect increased their domestic labor force well over tenfold through their outward processing arrangement with China.

This extreme reliance of Hong Kong apparel manufacturers on low-cost Chinese labor has several sources of vulnerability that may undermine the viability of this model in the future (Berger and Lester, 1997, pp. 158–162). First, although Guangdong province was once a zone of low wages and an abundant workforce, both wages and land costs have been rising rapidly. As costs in Guangdong go up, Hong Kong manufacturers who wish to retain this Chinese-based production system will have to move their facilities deeper and deeper inland into China, where they will once again encounter bad roads, inadequate water and power systems, and lack of commercial infrastructure. Second, as production moves

inland, it will be increasingly difficult to maintain an adequate supply of Hong Kong managers. Rather than trying to replicate the Pearl River Delta pattern on a large scale further inland, it probably would be better to try to upgrade the operations in the Guangdong plants. Third, new low-cost apparel exporting nations are emerging in Asia—Indonesia, Sri Lanka, India, Myanmar, Vietnam, and others—while Mexico and the Caribbean Basin economies loom as cheap production sites with closer proximity to the large US market. Hong Kong has no special advantages in many of these locations, which suggests that it should avoid being locked into low-wage offshore manufacturing networks and instead take fuller advantage of the global trend toward service-enhanced manufacturing where Hong Kong retains a strong competitive edge.

4.2.2. *South Korea*

As in Hong Kong, the internationalization of South Korea's and Taiwan's apparel producers began as a response to quota restrictions. Korean garment firms lacking sufficient export quotas initially set up offshore production in quota-free locations like Saipan, a US territory in the Mariana Islands. More recent waves of internationalization have been motivated by the domestic constraints of rising wages and worker shortages. The low-wage regions that have attracted the greatest number of South Korean companies are Latin America, and Southeast and South Asia. The preference of Korean firms for investment in Latin America (Guatemala, Honduras, the Dominican Republic, etc.) is stimulated by its proximity to the US market and easy quota access. The pull of Asian nations such as Indonesia, Sri Lanka and Bangladesh comes mainly from their wage rates, which are among the lowest in the world.

4.2.3. *Taiwan*

When Taiwanese firms moved offshore in the early 1980s, they also confronted binding quotas. While Taiwan's wages in the late 1970s and early 1980s were still relatively low, quota rents were high. Firms had to buy quotas (whose value in secondary markets fluctuated widely) in order to be able to expand exports, thereby causing a decrease in profitability for firms without sufficient quota (Appelbaum and Gereffi, 1994). This led to a growing emphasis on non-quota markets by Taiwan's textile and apparel exporters. Quota markets (the United States, the European Community, and Canada) accounted for over 50% of Taiwan's textile and apparel exports in the mid-1980s, but this ratio declined to 43% in 1988 and fell further to 35% in 1991. The United States, which had been Taiwan's largest export market for years, claimed one-quarter of Taiwan's textile and apparel exports in 1991, the European Community 8%, and Canada just 2%. The main non-quota markets, which absorbed nearly two-thirds of Taiwan's textile and apparel exports in the early 1990s, were Hong Kong (30%), Japan (6%) and Singapore (3%) (Khanna, 1993, pp. 29–30). Hong Kong, now Taiwan's leading

export market, is mainly a conduit for shipping yarns, fabrics, and clothing to China for further processing and re-export.

4.3. Coordinating commodity chains: Triangle manufacturing and overseas buying offices

One of the most important mechanisms facilitating the geographical expansion and the shift to higher-value-added activities for mature export industries like apparel in East Asia is the process of ‘triangle manufacturing.’ The essence of triangle manufacturing, which was initiated by the East Asian NIEs in the 1970s and 1980s, is that US buyers place their orders with the NIE manufacturers they have sourced from in the past, who in turn shift some or all of the requested production to affiliated offshore factories in low-wage countries (e.g., China, Indonesia or Vietnam). The triangle is completed when the finished goods are shipped directly to the foreign buyer under the US quotas issued to the exporting nation. Triangle manufacturing thus changes the status of NIE manufacturers from established suppliers for US retailers and marketers to middlemen in buyer-driven commodity chains that can include as many as 50–60 exporting countries (Gereffi, 1994).

Triangle manufacturing networks are historically and socially embedded. The early traders in Asia established long-distance supply routes that relied heavily on social ties between Asian producers and their export markets. The Japanese *sogo shosha* were involved in transferring textile, apparel and footwear production from Japan to Hong Kong, Taiwan and Korea during the 1950s. They mainly handled the logistics of providing machinery, intermediate goods, and working capital to East Asian apparel and footwear exporters. The British merchant houses, originally founded as intermediaries for trade between China and the West, were instrumental in the transition of Hong Kong from an entrepôt to a manufacturing-based economy. They gave Hong Kong’s industrial enterprises the knowledge and logistical support needed for exports to distant countries, and they helped to establish confidence and goodwill for Hong Kong products among foreign buyers. But as markets for Hong Kong garments diversified following the Second World War to include North American and other European countries, Chinese-owned companies became an increasingly important channel of exports from the mid-1950s onward. These Chinese merchants played a crucial intermediary role because most of the first-generation Chinese manufacturers in Hong Kong did not speak English and thus could not communicate effectively with foreign buyers or merchants. Less well-known but also crucial for the early development of Hong Kong’s garment industry were the Indian trading companies, who were part of a network of Indian merchants scattered in Asia and Africa who specialized in exports to the Middle East and Africa (Leung, 1997, Chap. 5).

Today, each of the East Asian NIEs has a different set of preferred countries where they set up their new factories. Hong Kong and Taiwan have been the main

investors in China and Southeast Asia; South Korea has been especially prominent in Indonesia, Guatemala, the Dominican Republic and North Korea; and Singapore is a leading force in nearby Malaysia and Indonesia. These production networks are explained in part by social and cultural factors (e.g., ethnic or familial ties, common language), as well as by unique features of a country's historical legacy (e.g., Hong Kong's British colonial ties gave it an inside track on investments in Mauritius and Jamaica). However, as the volume of orders expands in new low-wage production sites, the pressure grows for the large US buyers to eventually bypass their East Asian intermediaries and deal directly with the factories that fill their orders.

The most direct link between US buyers and their Asian suppliers are the overseas buying offices of the major US retailers, which join the seasonal orders¹⁰ coming from US headquarters with the output from their offshore supply networks that include as many as 200–400 factories. The organizational capabilities of these buying offices began to expand as retailers got more heavily involved in product development to supply their growing collections of private label merchandise. Prior to the formation of offshore buying offices, importers were the main link between US retailers and foreign factories. However, as the volume and range of imported products began to grow, retailers decided to initiate direct purchases offshore not only to save the commission paid to importers, but also to have a greater degree of control over the quantity, quality, and timing of their orders. Sears, Montgomery Ward, and Macy's were the first American companies to establish buying offices in Hong Kong in the 1960s, mainly to purchase hard goods (such as household appliances, lighting fixtures, furniture, kitchenware and toys). The really big apparel orders came when Kmart and JC Penney set up their Hong Kong offices in 1970, quickly followed by branch offices in Taiwan, Korea and Singapore. By the mid-1970s many other retailers, such as the May Department Stores Company, Associated Merchandising Corporation (AMC), and Woolworth, had jumped on the direct-buy bandwagon in the Far East (Gereffi and Pan, 1994).

Table 2 provides a detailed look at the top 10 US retailer buying offices in Taiwan in 1992. Kmart and Wal-Mart, the two biggest US retailers, did the largest volume of business in Taiwan, with annual orders in 1992 of \$500 million and \$300 million, respectively. JC Penney, AMC (a member-owned group buying office for 40 different US stores), Mast Industries (the major overseas sourcing arm of The Limited), Montgomery Ward, and Woolworth all purchased between \$100 million and \$200 million in merchandise through their Taiwan offices, while Sears, May Department Stores, and Macy's did \$50 to \$75 million in business. Note that these amounts refer to the value of *orders* placed with the retail buying offices in Taiwan by their US headquarters, not to the volume of *shipments* from

¹⁰ Nowadays the fashion year is split up into at least six to eight seasons.

Table 2
The triangle sourcing networks of the top ten US retail buying offices in Taiwan, 1992

Company	Value of orders placed in Taiwan (US\$ millions)	Types of merchandise		Sourcing channels for apparel		Source of apparel shipments ^c (main countries)
		Softlines ^a (%)	Hardlines (%)	Taiwan ^b (%)	Offshore (%)	
Kmart	500	45	55	35	65	Indonesia, United Arab Emirates, Philippines, plus ten additional countries
Wal-Mart ^d	300	30	70	50	50	People's Republic of China, Indonesia, Sri Lanka
JC Penney	200	50	50	25	75	Philippines, Indonesia, Thailand, Bangladesh
Associated Merchandising Corporation (AMC) ^e	180	65	35	70	30	Philippines, Singapore, Malaysia, Indonesia, Thailand, People's Republic of China
Mast Industries ^f	140	100	0	100	0	None
Montgomery Ward	135	35	65	33	67	Indonesia, Thailand, Philippines, Chile
Woolworth	110	46	54	75	25	People's Republic of China, Indonesia, Sri Lanka, Bangladesh, Vietnam, Lesotho
Sears	75	40	60	92	8	Bangladesh, Philippines
May Department Stores	70	65	35	80	20	Indonesia, Singapore, Philippines
R.H. Macy & Company	50	73	27	85	15	Philippines, Indonesia

^a The softlines percentages are exclusively apparel, with the following exceptions: Kmart—apparel, handbags, and home fashions; Wal-Mart—apparel (70%) and footwear (30%); and Montgomery Ward—apparel and footwear (minimal).

^b The Taiwan percentage refers to the proportion of each retail buying office's orders that are made in and shipped from Taiwan.

^c Offshore shipments refer to orders given by the retail buying offices to local manufacturers in Taiwan, who in turn transfer the orders to affiliated offshore factories for production and export under the quota of the designated countries. Offshore sources are listed in their relative order of importance to Taiwan's buying offices.

^d Wal-Mart's sole sourcing agent in Taiwan, and much of the rest of Asia as well, is Pacific Resources Export Limited (PREL). Although registered as a Hong Kong trading company, PREL is owned by Indonesia's Salim Group, one of the biggest industrial conglomerates in Asia.

^e Associated Merchandising Corporation is a group buying office that serves about 40 different stores in the United States, including Dayton-Hudson, Federated Department Stores, Target, and Bradlees.

^f Mast industries is the main overseas sourcing arm and a wholly owned subsidiary of The Limited.

Source: Interviews in Taiwan by the author.

Taiwan. Generally, a substantial portion of the orders placed in Taiwan in the early 1990s were transferred to lower-cost countries by the Taiwanese manufacturers, via the process of triangle manufacturing described above. Taiwan nonetheless served as the logistical center for filling the orders that were moved offshore, typically through the supply of fabric and other intermediate materials still made in Taiwan,¹¹ and the coordination of a variety of needed services, such as quality control inspections, shipping, and the transfer of funds for letters of credit.

The proportion of apparel orders placed with the Taiwanese buying offices of US retailers that were actually sourced domestically is also shown in Table 2. There is wide variation in company strategies. Whereas three retail buying offices (Kmart, Montgomery Ward, JC Penney) gave just 25–35% of their orders to local factories, six others sourced 70% or more of their apparel orders in Taiwan, and Mast Industries, the largest apparel sourcer from Taiwan, placed 100% of its orders with Taiwanese factories. The reasons for these differences in company strategy reflect a range of factors, including quota availability in Taiwan for the types of products ordered, the retailer's preference for low cost or high quality, and the speed with which the order must be filled. Mast Industries, which specializes in 'speed sourcing' and is reputed to have the fastest turnaround time in the business (30–40 days from order to shipment), filled all its orders in Taiwan because local factories there were the only option that allowed Mast to meet its short lead times.

Finally, we see in Table 2 the main countries to which Taiwan's US retail buying offices transferred the offshore portion of their orders. In many of the countries on this list, there is a sizable overseas Chinese business community that supplies the Taiwanese firms with political contacts, a business infrastructure, and the local knowledge necessary for lowering risks in an offshore operation. Thus, social ties shape sourcing networks.

4.4. Completing commodity chains: From export platform to branded marketing in Asia

Two trends—the shift from OEM to OBM, and the growing importance of non-quota markets for the NIEs—point to an important fact: production and trade networks in the apparel commodity chain are becoming increasingly concentrated in Asia. There has been a sharp decline in Asian clothing exports to North America (from 27% of the global total in 1984 to 16% in 1996), a drop in Asian apparel exports to Western Europe (down to 11% of global trade), and a striking increase in intra-Asian trade in apparel (from 4.3% in 1980 to 12.3% in 1996).

¹¹ Between 1985 and 1996, Taiwan's exports of clothing declined from 56% to 20% of its textile and apparel total, while the share represented by intermediate goods (textile fibers, yarn and fabrics) rose from 44% to 80% (Gereffi and Pan, 1994, p. 130, supplemented by more recent data from the Taiwan Textile Federation).

This rise in intra-Asian trade is even stronger in textiles, where it increases from 13% of the world total in 1980 to nearly 28% in 1996 (see Table 3).

Asia's growing prominence as a market for its own textile and apparel output, and the continuing migration of production to low-cost supply sites around the world, suggest a general restructuring may be underway that is leading to parallel processes of regionalization of the apparel commodity chain within Asia, North America and Europe. The emerging supply relationships that are being fashioned with nearby low-cost producers in each area (South Asia and Vietnam in Asia, Central America and the Caribbean vis-à-vis North America, and North Africa and Eastern Europe for the European Union) are likely to strengthen intra-regional trade and production networks in the apparel chain, thereby giving rise to new forms of economic coordination and competition among local as well as global firms.

Table 3
Regional trade patterns in world exports of textiles and clothing

	1980	1984	1987	1990	1993	1996
<i>Textiles</i>						
World (US\$ billions)	55.6	53.9	80.2	104.8	115.4	150.2
World (percentages)	100.0	100.0	100.0	100.0	100.0	100.0
Intra-Western Europe	40.1	34.9	40.0	41.4	32.8	30.0
Intra-Asia	13.1	17.4	18.2	20.6	26.6	27.6
Asia to Western Europe	1.6	4.6	5.9	5.6	5.8	5.3
Western Europe to C./E. Europe/ Baltic States/CIS ^a	NA	NA	NA	2.3	3.1	4.4
Asia to North America	2.9	5.4	4.9	3.6	4.3	3.5
Asia to the Middle East	NA	NA	NA	2.2	3.0	2.8
Western Europe to Asia	1.6	2.4	2.0	3.0	2.6	3.1
Western Europe to North America	1.6	3.2	2.9	2.4	2.3	2.0
Other	39.1	32.1	26.1	18.9	19.5	21.3
<i>Clothing</i>						
World (US\$ billions)	41.8	48.2	81.9	106.4	133.0	163.3
World (percentages)	100.0	100.0	100.0	100.0	100.0	100.0
Intra-Western Europe	36.6	29.3	33.7	35.2	28.7	28.1
Asia to North America	14.8	26.8	22.5	19.5	19.6	15.8
Intra-Asia	4.3	6.2	6.0	8.8	10.5	12.3
Asia to Western Europe	14.4	11.0	13.2	12.9	13.6	11.0
Latin America to North America	1.7	2.1	2.3	2.4	3.9	5.1
C./E. Europe/Baltic States/CIS ^a to Western Europe	NA	NA	NA	NA	NA	4.1
Africa to Western Europe	1.9	1.2	2.1	NA	3.0	NA
Other	26.3	23.4	20.2	21.1	20.7	23.6

^a Includes Central and Eastern Europe, the Baltic States, and the Confederation of Independent States. NA = Not Available.

Source: GATT, *International Trade*, and WTO, *Annual Report*, various years.

5. Implications of the Asian experience for North America

Our analysis of the apparel commodity chain in Asia suggests two main hypotheses for the future of the textile and apparel sector in North America. First, the relative decline of finished apparel exports from the East Asian NIEs is producing a ‘supply gap’ in the North American apparel commodity chain. This is partly due to the greater geographical distances and logistical complexity involved in managing Asia’s triangle manufacturing networks, as well as the tendency for more direct marketing in Asia as local manufacturers shift from OEM to OBM. Second, since Asian apparel supply to the United States has primarily been oriented to filling the OEM orders of US retailers and branded marketers, apparel manufacturers in North America will need to develop the capability to carry out full-package supply. Previously this had only been done by the East Asia NIEs for the US mass market, or in the fashion centers of Europe for high couture. An interpretive sketch that offers a tentative response to these two hypotheses will be outlined in the remainder of this article.

Fig. 2 reveals significant shifts in the regional patterns of US apparel sourcing between 1986 and 1996. During this 10-year period, US apparel imports rose from \$17.3 to \$41.7 billion. The five rings correspond to different levels of importance by the supplying nations: those in the central circle each account for 10% or more of the total value of clothing imports in 1995, while each of those in the outer ring makes up only 1.0–1.9% of total imports. In other words, as we move from the inner rings to the outer ones in this sourcing chart, the relative importance of the clothing suppliers decreases.

Several key aspects of the direction and magnitude of change in US apparel sourcing are revealed in Fig. 2. First, there are striking regional differences in the pattern of US apparel imports. West European suppliers, as well as the NIEs in Northeast Asia, are becoming less important in US apparel sourcing, while Southeast Asia, South Asia, Central America and the Caribbean, and Mexico are all becoming more significant. Second, despite considerable mobility within the past decade, there is a strong core–periphery pattern that dominates the geography of export activity in the US apparel sourcing matrix.¹² Only four economies (Hong Kong, Taiwan, South Korea and China) were core US suppliers (i.e., a US apparel import share of 10% or greater) during the past decade, and only China currently holds that distinction. There is a wide dispersion of apparel suppliers in the outer two rings (indicating 1–4% shares of the US apparel market). Only six nations are in the inner three rings. Third, while for most countries (19 of 27) the degree of change from 1986 to 1996 has been relatively modest (they changed their position by one ring or not at all), other nations have shown more substantial degrees of

¹² Borrowing from Krugman (Krugman, 1991, Chap. 1), the core–periphery pattern resulting from geographic concentration in US apparel imports can be related to the demand externalities and dynamics of imperfect competition in buyer-driven commodity chains.

advancement (Mexico, the Dominican Republic, Honduras and Bangladesh) or decline (South Korea, Taiwan, Japan and Singapore). Nonetheless, inward shifts of even one ring may be quite significant for smaller economies, given the substantial overall growth of US apparel imports in the past ten years.

Two other very important features of US apparel sourcing are not revealed by this chart, however. First, there are two contending production systems reflected in US apparel sourcing: export-processing assembly (production sharing) and full-package supply (OEM production). The countries that have penetrated the US apparel market most deeply either have been experts at OEM supply (Hong Kong, Taiwan and South Korea) or they are currently trying to develop full-package capabilities (China and Mexico). All of the other countries on this list are relegated to production sharing. Second, different kinds of networks are involved in these export success stories, and these networks link the countries on this chart in different ways. We have already discussed the triangle manufacturing scheme in East Asia, but we still need to consider the networks relevant to the North American sourcing mix.

If one envisions the complete apparel commodity chain as encompassing raw materials, yarn and synthetic fibers, textiles, apparel, and the distribution of apparel to retailers (Appelbaum and Gereffi, 1994), then the Mexican and US commodity chains are quite distinct. Mexico has several large, reasonably successful synthetic fiber companies, a multitude of *maquiladora* firms that export apparel products to the United States, and an emergent retail sector that is fashioning a number of strategic alliances with their US counterparts. The weakest link in the Mexican production chain, by far, is the textile segment. The vast majority of Mexico's textile companies are undercapitalized, technologically backward and inefficient, and they produce goods of poor quality. By contrast, the United States is very strong in synthetic fibers, textiles and retailing, but limited in its garment production capability, especially for women's and children's apparel. The Mexican apparel chain thus appears to be strongest where the US chain is relatively weak: garment production.¹³

This picture becomes more complex when we consider the differentiated nature of apparel production systems, and if we expand the borders of North America to include Central America and the Caribbean.¹⁴ Export-oriented assembly in Latin America is centered in Mexico and the Caribbean Basin because of this area's low wages and proximity to the US market, where over 90% of their exports are sold. The *maquiladora* sector has benefitted most dramatically from Mexico's opening to trade in 1988. Between 1990 and 1997, total US imports of apparel assembled from US parts (under the 807/9802 production sharing program) rose from \$2.4 billion to \$11.7 billion. Mexico has been the star performer in the 1990s. Its

¹³ Empirical support for this argument is provided in OTA (OTA, 1992, Chap. 9) and Gereffi (1997).

¹⁴ Canada is at best a niche player in the North American apparel sector. Canada's considerable textile strengths are oriented to the home furnishings market (upholstery, rugs and curtains). Within apparel, Canada's main export niche to the United States is wool suits.

apparel exports to the United States from Mexican *maquiladora* plants increased sevenfold from just over \$600 million in 1990 to \$4.4 billion in 1997. Assembly trade predominates in the North American garment sector, accounting in 1997 for 82% of US apparel imports from Mexico and 84% of those from the Caribbean and Central America (Gereffi and Bair, 1998, p. 28).

From a regional perspective, Mexico competes for the US market most directly with the Caribbean Basin Initiative (CBI) countries. In 1997, the total apparel exports (*maquila* and non-*maquila* trade combined) from CBI countries were almost 50% higher than Mexico's total (\$7.7 billion vs. \$5.4 billion, respectively). The leading CBI apparel exporter was the Dominican Republic (\$2.2 billion), which actually had a higher level of garment exports than Mexico in the early 1990s before Mexico pulled ahead in 1994. The other leading CBI apparel exporters in 1997 are: Honduras (\$1.7 billion), El Salvador (\$1.1 billion), Guatemala (\$980 million), Costa Rica (\$850 million) and Jamaica (\$470 million) (see Table 1). However, the lack of NAFTA parity for the Caribbean Basin has severely truncated the growth of export-oriented apparel assembly in these smaller economies. In 1995 and 1996, more than 150 apparel plants closed in the Caribbean and 123 000 jobs have been lost "as a direct result of trade and investment diversion to Mexico," according to the Caribbean and Apparel Institute in Kingston, Jamaica (Rohter, 1997).

Given the power shifts that are occurring among North American textile, apparel and retail firms, the key question is: Who will be the main 'organizing agents' in modernizing Mexico's apparel commodity chain? The notion of organizing agents is used here to refer to those firms, foreign and domestic, that could enhance the competitiveness of the apparel commodity chain in Mexico through backward or forward linkages with major producers and retailers. Potential organizing agents, located in every segment of the commodity chain, have already begun to undertake major investments in Mexico: fibers (Celanese Mexicana, Cydsa, DuPont); textiles (Burlington Industries, Guilford Mills, Cone Mills, Grupo Kalach, Grupo Saba); apparel (Sara Lee, VF Corporation, Levi Strauss); and retailers (JC Penney, Sears, Kmart-Liverpool, Wal-Mart-Cifra). There are substantial differences in the scope and content of these varied attempts at vertical and horizontal integration in the Mexican economy (Gereffi and Bair, 1998).

The creation of new production and trade networks between the United States and Mexico in textiles and apparel is linking the US South and the northern and central regions of Mexico ever more tightly together. The US South is in a position to become the coordinating hub of the North American apparel commodity chain. North Carolina and Texas are the nerve centers of the manufacturer-centered US–Mexico networks. North Carolina is of central importance because it is the headquarters for most of the big US textile plants, many of which are making new investments in Mexico. When NAFTA becomes fully implemented, US textile companies expect to be able to supply Mexican apparel plants duty free from textile production centers located inside Mexico.

The lead firms in these manufacturer-centered and retailer-centered networks in the North American apparel commodity chain are in a position to play a direct role in upgrading Mexican domestic industry. US textile manufacturers are entering into production joint ventures with Mexican counterparts to build large textile complexes in northern and central Mexico to supply local apparel plants. US apparel manufacturers can provide both the technology and incentives for their Mexican affiliates to meet international competition. The next step would be for the US retailers that are going into Mexico to play a similar role in upgrading local supplier networks.

In contrast to the evolution of the apparel commodity chain in Asia, which utilized East Asian NIE apparel manufacturers as the hubs of triangle manufacturing networks that knit together suppliers from countries at different levels of development throughout the region, the coordinating agents in the North American apparel commodity chain are likely to be large US firms located in each of the main segments of the chain (fibers, textiles, apparel production, marketing and retailing). The main reasons for such a different outcome are various. First, Mexico and the CBI countries are both geographically and culturally closer to the United States than are Asian suppliers. This allows US firms to play a far more dominant role in the North American chain. Second, the role of trade policies is key here. The NAFTA pact provides Mexico at least a temporary edge over CBI suppliers, who thus far have not been granted NAFTA parity with Mexico. Even if parity is granted, Mexico has a big edge in developing a full-package supply capability because textile production in Central America and the Caribbean is virtually nonexistent. Finally, we would predict that sourcing intermediaries will emerge in Mexico to perform the same kind of ‘full package’ services that trading companies and integrated manufacturers provided in East Asia. Although the apparel commodity chain in North America remains buyer-driven, suppliers are likely to form rival networks across supply-chain segments to compete for large orders.

References

- AAMA (American Apparel Manufacturers Association), 1984. *Apparel Manufacturing Strategies*, AAMA, Arlington, VA.
- Appelbaum, R.P., Gereffi, G., 1994. Power and profits in the apparel commodity chain. In: Bonacich, E., et al. (Eds.), *Global Production: The Apparel Industry in the Pacific Rim*, Temple University Press, Philadelphia, PA.
- Asiaweek, 1995. What’s in a name? After years of building a brand, Daewoo’s back to the OEM game, May 12, pp. 56–57.
- Berger, S., Lester, R.K., 1997. *Made By Hong Kong*, Oxford University Press, New York.
- Bernard, M., Ravenhill, J., 1995. Beyond product cycles and flying geese: Regionalization, hierarchy, and the industrialization of East Asia. *World Politics* 47 (2), 171–209.
- Birnbaum, D., 1993. *Importing Garments Through Hong Kong*, Third Horizon Press, Hong Kong.

- Boruss, M., 1997. Left for dead: Asian production networks and the revival of US electronics. In: Naughton, B. (Ed.), *The China Circle: Economics and Technology in the PRC, Taiwan, and Hong Kong*, Brookings Institution Press, Washington, DC.
- Bresky, B., 1997. Thai sourcing scene much changed. *Bobbin* 38 (12), 40.
- Chazen, J.A., 1996. Notes from the apparel industry: Two decades at Liz Claiborne. *Columbia Journal of World Business* 31 (2), 40–43.
- De Coster, J., 1996a. Hong Kong and China: The joining of two giants in textiles and clothing. *Textile Outlook International* 68, 63–79.
- De Coster, J., 1996b. Productivity: A key strategy of the Hong Kong textile and clothing industry. *Textile Outlook International* 68, 80–97.
- Dickerson, K.G., 1995. *Textiles and Apparel in the Global Economy*, 2nd ed., Prentice Hall, Englewood Cliffs, NJ.
- Doner, R.F., 1991. *Driving a Bargain: Automobile Industrialization and Japanese Firms in Southeast Asia*, University of California Press, Berkeley, CA.
- Finnie, T.A., 1996. Profile of Levi Strauss. *Textile Outlook International* 67, 10–37.
- Florida, R., Kenney, M., 1991. Transplanted organizations: The transfer of Japanese industrial organization to the United States. *American Sociological Review* 56 (3), 381–398.
- Gereffi, G., 1994. The organization of buyer-driven global commodity chains: How US retailers shape overseas production networks. In: Gereffi, G., Korzeniewicz, M. (Eds.), *Commodity Chains and Global Capitalism*, Praeger, Westport, CT.
- Gereffi, G., 1995. Global production systems and Third World development. In: Stallings, B. (Ed.), *Global Change, Regional Response: The New International Context of Development*, Cambridge University Press, New York.
- Gereffi, G., 1996. Commodity chains and regional divisions of labor in East Asia. *Journal of Asian Business* 12 (1), 75–112.
- Gereffi, G., 1997. Global shifts, regional response: Can North America meet the full-package challenge?. *Bobbin* 39 (3), 16–31.
- Gereffi, G., Bair, J., 1998. US companies eye NAFTA's prize. *Bobbin* 39 (7), 26–35.
- Gereffi, G., Pan, M.-L., 1994. The globalization of Taiwan's garment industry. In: Bonacich, E., et al. (Eds.), *Global Production: The Apparel Industry in the Pacific Rim*, Temple University Press, Philadelphia, PA.
- Gereffi, G., Tam, T., 1998. Industrial upgrading through organizational chains: Dynamics of rent, learning, and mobility in the global economy, paper presented at the 93rd Annual Meeting of the American Sociological Association, San Francisco, CA, August 21–25.
- Granitsas, A., 1998. Back in fashion: Hong Kong's leading garment makers are going global—learning to add value and high technology. *Far Eastern Economic Review* 21, 52–54.
- Henderson, J., 1989. *The Globalisation of High Technology Production: Society, Space and Semiconductors in the Restructuring of the Modern World*, Routledge, New York.
- Hill, R.C., 1989. Comparing transnational production systems: The automobile industry in the USA and Japan. *International Journal of Urban and Regional Research* 13 (3), 462–480.
- ILO (International Labor Organization), 1995. *Recent Developments in the Clothing Industry, Report I*, ILO, Geneva.
- Japan Textile News, 1996. Japan's distribution and retail industry, *JTN Quarterly* 2(2), 14–30.
- Jones, J., 1995. Forces behind restructuring in US apparel retailing and its effect on the US apparel industry, *Industry, Trade, and Technology Review* (March), 23–27.
- Kaplinsky, R., 1998. Globalisation, industrialisation and sustainable growth: The pursuit of the nth rent, Discussion paper 365, Brighton: Institute of Development Studies, University of Sussex.
- Khanna, S.R., 1993. Structural changes in Asian textiles and clothing industries: The second migration of production. *Textile Outlook International* 49, 11–32.
- Krugman, P., 1991. *Geography and Trade*, MIT Press, Cambridge, MA.
- Krugman, P., 1994. The myth of Asia's miracle. *Foreign Affairs* 73 (6), 62–78.

- Leung, H.-C., 1997. Local lives and global commodity chains: Timing, networking, and the Hong Kong-based garment industry, 1957–1993, Unpubl. Ph.D. Dissertation, Department of Sociology, Duke University, Durham, NC.
- Management Horizons, 1993. Global Retailing 2000, Management Horizons Division of Price Waterhouse, Columbus, OH.
- Miller, J.P., 1997. Sara Lee plans 'fundamental reshaping,' Wall Street Journal, September 15, pp. A3, A10.
- OETH (L'Observatoire Européen du Textile et de l'Habillement), 1995. The EU Textile and Clothing Industry 1993/94, OETH, Brussels.
- Ortega, B., 1994. Penney pushes abroad in unusually big way as it pursues growth, Wall Street Journal, February 1, pp. A1, A6.
- OTA (Office of Technology Assessment), US Congress, 1992. US–Mexico Trade: Pulling Together or Pulling Apart? ITE-545, US Government Printing Office, Washington, DC.
- Porter, M.E., 1990. The Competitive Advantage of Nations, Free Press, New York.
- Rhee, Y.W., Ross-Larson, B., Pursell, G., 1984. Korea's Competitive Edge: Managing the Entry into World Markets, Johns Hopkins University Press, Baltimore, MD.
- Rohrer, L., 1997. Impact of NAFTA pounds economies of the Caribbean, jobs flowing to Mexico, New York Times, January 30, p. 1.
- Scheffer, M., 1994. The Changing Map of European Textiles: Production and Sourcing Strategies of Textile and Clothing Firms, OETH, Brussels.
- Selwyn, M., 1993. Radical departures, Asian Business, August, pp. 22–25.
- USITC (United States International Trade Commission), 1997. Production Sharing: Use of US Components and Materials in Foreign Assembly Operations, 1992–1995, USITC Publication 3032, USITC, Washington, DC.
- Young, A., 1994. Lessons from the East Asian NICs: A contrarian view. *European Economic Review* 38, 964–973.
- Young, A., 1995. The tyranny of numbers: Confronting the statistical realities of the East Asian growth experience. *Quarterly Journal of Economics* 110 (3), 641–680.
- Warfield, C., Barry, M., Cavendar, D., 1995. Apparel retailing in the USA—Part 1. *Textile Outlook International* 58, 37–91.
- World Bank, 1993. The East Asian Miracle, Oxford University Press, New York.