

Development and the Changing Dynamics of Global Production: Global Value Chains and Local Clusters in Apparel Manufacturing*

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Focusing on the apparel industry, this article contends that the global manufacturing context increasingly obliges developing countries to construct or promote regionalised production sites aiming to capitalise on local institutional assets. The dissemination of standardised business practices and procedures by leading multinational firms to their main suppliers has played a critical role in driving this trend. Changes in recent decades in global apparel production as well as new, high-tech systems of supply-chain management are compelling retailers to source from local ‘clusters’ of interrelated firms and institutions. At the same time, this trend may contradict the key contentions of the locally-oriented cluster approach because the adoption of similar apparel contracting, assembly and delivery procedures in diverse developing regions can undercut the logic of emphasising local institutional assets. The rising importance of inter-linked clusters in the global apparel industry supports theoretical conceptualisations that integrate the global value chain and cluster perspectives and delineates how the spread of similar logistics and supply chain management practices by multinational retailers and buyers shape development strategy and, therefore, development prospects.

KEY WORDS Apparel, clusters, value chains, global production, development, developing countries.

Understanding the global manufacturing context is critical for shaping industrial policy and business and labor strategies in industrialised and developing countries alike. What is the nature of global production and what are its implications for development in the current period? An analysis of the global apparel industry is a useful lens for addressing these questions because it is by far the most globalised manufacturing activity in the world: virtually every country has tied its fortunes to the industry at one time or another, the sector has well-developed international production networks and relatively low barriers to entry, and apparel manufacturing is both cost-sensitive and labor-intensive (Bonacich 1994; Dicken 2003). Even the most ardent skeptics of the ‘race-to-the-bottom’ thesis suggest that the

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practices of multinational apparel retailers may indeed lend credence to the globalisation thesis (Wade 1996).

I argue that global apparel manufacturing increasingly obliges developing countries to construct or promote regionalised production sites that aim to capitalise on local institutional assets.¹ The dissemination of standardised business practices and procedures by leading multinational firms to their main suppliers has played a critical role in driving this trend. The demands of new, high-tech systems of supply-chain management and production processes are compelling retailers to source increasingly from local 'clusters' of interrelated firms and institutions. Clusters encompass firms that produce a wide variety of goods and services in a given supply chain as well as research and vocational training institutions and a supportive policy framework (Porter 2000: 15). Collectively, these locally concentrated groups of firms and institutions promote competitiveness on regional or global markets by fostering innovation and productivity gains. In the relatively low-tech apparel industry, innovation occurs mainly through improved management practices and technological changes that speed up particular aspects of the production process rather than replacement of manual labor with mechanised or automated procedures (Dicken 2003: 335). Thus, for most developing countries, which tend to focus on the labor-intensive components of apparel manufacturing, innovation refers to the ability to master time-saving procedures and boost the quality and efficiency of production.²

The changing dynamics of global apparel production have led retailers to change their sourcing patterns. First, fluctuations in consumer demand and industry efforts to stimulate consumption have accelerated the entire supply chain. As a result, geographic proximity to buyers and suppliers of textile and apparel inputs and technical innovation in key segments of production, such as inventory management, are critical. As speed to market gains importance, wage differentials are no longer the primary determinant of competitiveness in many apparel categories. Alternative sources of competitive advantage that are not easily achieved have emerged. Increasingly, manufacturers and self-proclaimed developmental states are trying to *create* local 'industrial districts' of upstream and downstream activities in the value chain to differentiate themselves in a tough global market. Models of 'flexible specialisation' (Piore and Sabel 1984) and 'industrial clusters' (Humphrey and Schmitz 1995; Porter 1998) explicitly and implicitly guide these efforts. The changing exigencies of the global apparel industry as well as local business and policy responses to this larger context have shaped the constitution and geography of apparel production in the current period.

Second, in the 'buyer-driven' apparel commodity chain (Gereffi 1994), the leverage of sourcers (or buyers for wholesale and retail apparel distributors) as well as the competition among producers in developing countries to attract foreign investment have put subcontracting firms under increasing pressure to adopt the business practices of leading firms while local suppliers try to create specialised industrial poles. In a market dominated by large retailers who purchase merchandise globally, buying agents have the power to transmit, if not dictate, a common set of supply chain management systems to potential suppliers throughout the world. This trend both promotes clustering and potentially contradicts the key contentions of the 'industrial districts' and 'flexible specialisation' literatures, which hold that post-Fordist production calls for localised, irregular patterns of manufacturing and employment (Piore and Sabel 1984). Even as manufacturers in middle-income countries scramble to establish industrial clusters by exploiting supposed local competitive strengths, the adoption of similar apparel contracting, assembly and delivery procedures in diverse developing regions may contradict the very logic of decentralised, innovative production.

The rising importance of inter-linked clusters in the global apparel industry underscores the relevance of theoretical conceptualisations of the spatial organisation of production that integrate global value chain and cluster perspectives (Henderson *et al.* 2002; Humphrey and Schmitz 2002; Coe *et al.* 2003; Gereffi *et al.* 2004; Schmitz 2004), even for this quintessential low-wage industry, and has implications for theoretical understandings of globalisation itself. Debates about globalisation either focus on the volume of international exchanges (McKeown 1991; Hirst 1996; Wade 1996) or the spatial geography of international production (Amin 1992; Gereffi 1994; Gereffi 1994; Storper 1997; Scott 1998; Storper 2000). These analyses have made important contributions, in particular by curbing extreme renditions of globalisation arguments (Ohmae 1990; Reich 1992) and by mapping the global geography of production. But these approaches invite further exploration of how the spread of similar logistics and supply chain management practices by multinational retailers and buyers help to shape development strategy. With the standardisation of supply chain operations as part of ‘quick response’ or ‘just-in-time’ production and their supporting technologies, globalisation has occurred through production and management strategies, supporting (yet perhaps in the longer term undercutting) efforts by manufacturers and policy-makers in developing countries to pursue global competitiveness through the establishment of ‘industrial clusters’ based on distinctive, local assets (Porter 1998; Porter 2000).

This article is based on data gathered from diverse sources, including interviews with textile and apparel manufacturers, large retailers and their intermediaries mainly in North Africa, but also in Europe and the United States as well as with journalists, government officials, and labor leaders in Morocco and Tunisia. Although North African apparel production is geared largely towards the European market, similar general management practices hold true for large US and European distributors.³ Further, information from interviews with several top US retailers corroborates and supplements the findings.

The article begins with an overview of textile and apparel manufacturing processes, traces global shifts in the trade and locational dynamics of production in these interconnected industries since World War II and describes recent changes in supply chain management. The third section shows how these trends in global apparel production support an emerging synthesis in the theoretical literature linking the global value chain and clustering perspectives, which were often depicted as competing arguments about the ‘globalisation’ versus ‘localisation’ of manufacturing. The conclusion then highlights some of the promises and pitfalls of the contemporary global production context for developing countries staking their development strategies on exports of low-tech consumer goods such as apparel.

Trends in Global Apparel Production

Components of the Global Supply Chain⁴

In the apparel industry, global markets are highly competitive and low barriers to entry allow almost every country in the world to engage in at least one aspect of the production process. The supply chain encompasses diverse activities intertwined through forward and backward linkages. Figure 1 depicts the diverse upstream activities that link directly or indirectly to apparel manufacturing and might constitute important components of a developed apparel industry cluster.

Textiles constitute the primary input for apparel production, creating a larger, interdependent set of activities, which can be located within the same firm or spread out across the

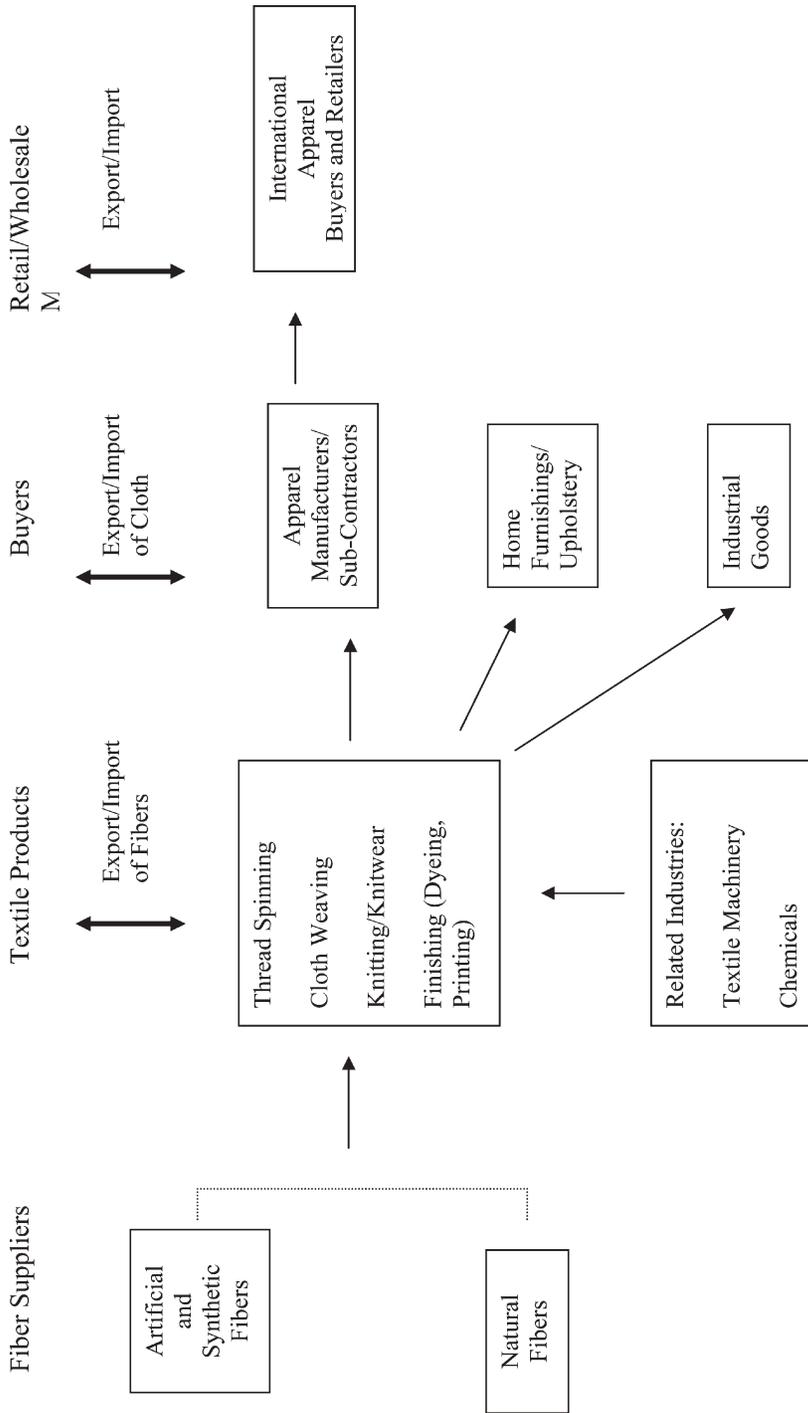


Fig. 1. The interlinkages of the textile and apparel industries.

globe. For apparel, the supply chain comprises at least five components: processing raw materials into fibers; spinning thread and weaving fabric; assembling finished products, often far away from the point of sale; transporting goods to sales destinations, often through intermediaries or traders; and retail sale in department stores, chains, specialty shops, or small boutiques (Applebaum and Gereffi 1994). The organisation of the manufacturing process is constantly evolving as buyers try to optimise costs across the entire supply chain in response to shifts in consumer demand and varied sourcing possibilities.

Textile manufacturing, which includes thread spinning, cloth weaving, and cloth finishing through dyeing and printing, is more capital-intensive and, hence, more concentrated than the apparel sector. The actual manufacturing processes for spinning, weaving and finishing are relatively complex and require particular technical expertise as well as expensive, specialised machinery, access to water and electricity, and elaborate ventilation systems. Weaving fabric from natural fibers is somewhat less complex, permitting thousands of smaller firms to find a place in the industry alongside the handful of large multinationals that dominate global production. The largest and most internationally competitive textile firms are located in the advanced industrialised countries, although the East Asian 'newly industrialised countries' (NICs) became major textile manufacturers in the last two decades, often with vertically integrated spinning and weaving capabilities (Author interview with apparel firm director, Settat, Morocco, 29 November 1999; Clairmonte and Cavanaugh 1981; Toyne 1984).

Ownership in the garment industry is far more fragmented, with many small factories, a significant home-based component and extensive subcontracting relationships between buyers or big retailers and small to medium-sized firms (Dicken 2003). A labor-intensive activity, apparel production for the mass market has traditionally relied on low-wage labor. Clothing assembly is relatively simple, requiring minimal start-up capital and few advanced skills. For woven garments, the sewing machine is the primary piece of capital equipment. Cutting fabric in preparation for assembly, a task that entails great precision, calls for some specialised machinery, but until recently most retailers and their intermediaries supplied subcontractors with pre-cut cloth for assembly.

Textiles and apparel are also linked to other activities, notably synthetic and natural fiber manufacturing, the textile machinery and equipment industries, and the chemicals sector, which supplies products for processing and finishing textile goods. In addition, the supply chain incorporates multiple activities beyond the actual production of finished products, including design, marketing, and packaging. Few countries possess capabilities in all activities and, in the more capital and knowledge-intensive industries such as synthetic textile production and design, major multinational companies and large retailers dominate. National and local context introduces variation in ownership patterns. For example, a few large firms control the British textile sector, while small and medium firms control the field in Italy and West Germany (Toyne 1984). Retail distribution also varies by country: the UK is the most concentrated in Europe, with Marks & Spencer and a few retail other chains maintaining a dominant position, while Italy has the most independent, family-owned stores, but the overall European and US trends are toward concentration (Hines 2001).

An apparel industry cluster, then, might include strong production capacity in the textile and apparel industries and perhaps even in other, related industries. As I discuss below, the capacity for constant innovation is a key asset of the ideal typical cluster and therefore vocational training programs, academic institutions promoting research and development in the textile chain as well as supportive government policy-makers are

other potential features of an apparel cluster. Of course, the types of constituent firms and institutions as well as their interlinkages are context specific.

Production and Sourcing: Waves of Overseas Investment

Relations between buyers and manufacturers in the apparel supply chain vary across time and space, which in part accounts for the shifting conceptualisations of global production discussed below. Constituted by the collective production and sourcing strategies of retailers and manufacturers as well as multilateral and bilateral trade arrangements, the global architecture of production sets the context for industrialisation based on textiles and apparel. This section explores changes in the two industries since the 1960s, emphasising how Western investment shaped and continues to shape the business strategies of manufacturers in apparel-producing countries.

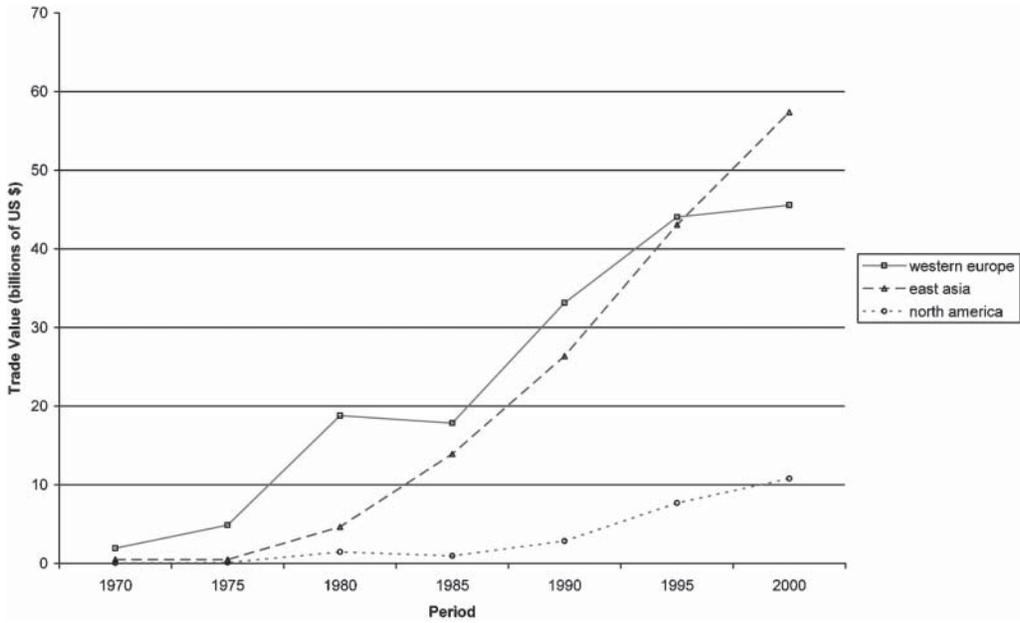
Over the course of the last three decades, the apparel industry has become increasingly globalised, with manufacturing for some retailers dispersed across dozens of countries. Manufacturers have searched for ways to reduce costs while keeping pace with accelerated shifts in consumer tastes. The quest to reduce production costs, largely in response to depressed consumer demand, was an initial impetus for the globalisation of apparel manufacturing in the 1970s, in turn exacerbating the industry's vulnerability to economic downturns. Since then, other considerations have joined cost minimisation in shaping the sourcing decisions of apparel retailers.

An overview of apparel production and employment trends reveals fundamental shifts in the geography of the industry over time. The industrialised countries accounted for most trade in textiles and apparel until the 1970s, when the balance shifted dramatically in favor of the developing world and, in particular, the East Asian countries (Olsen 1978; Clairmonte and Cavanaugh 1981; Aggarwal 1985; Dickerson 1991; Dicken 2003). To cope with declining competitiveness, apparel manufacturers in the industrialised countries began to search for lower cost, off-shore production sites, often through subcontracting relationships with local firms.⁵ As Figure 2 depicts, East Asian apparel exports took off in the mid-1970s and grew steadily through the current period. European exports experienced a slump in the early 1980s and leveled off beginning in the 1990s, while North American exports grew minimally in the same period.

Trends in development strategies aided the spread of multinational capital. First, many developing countries adopted intensive industrialisation programs after World War II, providing investment opportunities for multinational corporations (MNCs) from industrialised countries. Second, encouraged by new development orthodoxies and pressure from international financial institutions, some late developers adopted aggressive export-oriented industrialisation strategies, linking them to global manufacturing chains. By establishing subcontracting relationships with foreign buyers and MNCs in offshore zones, the simplest way to launch an export-promotion program, they established direct connections to international markets. Finally, mounting competition among new exporters for market share deepened the trend towards the globalisation of manufacturing (Gereffi 1994).

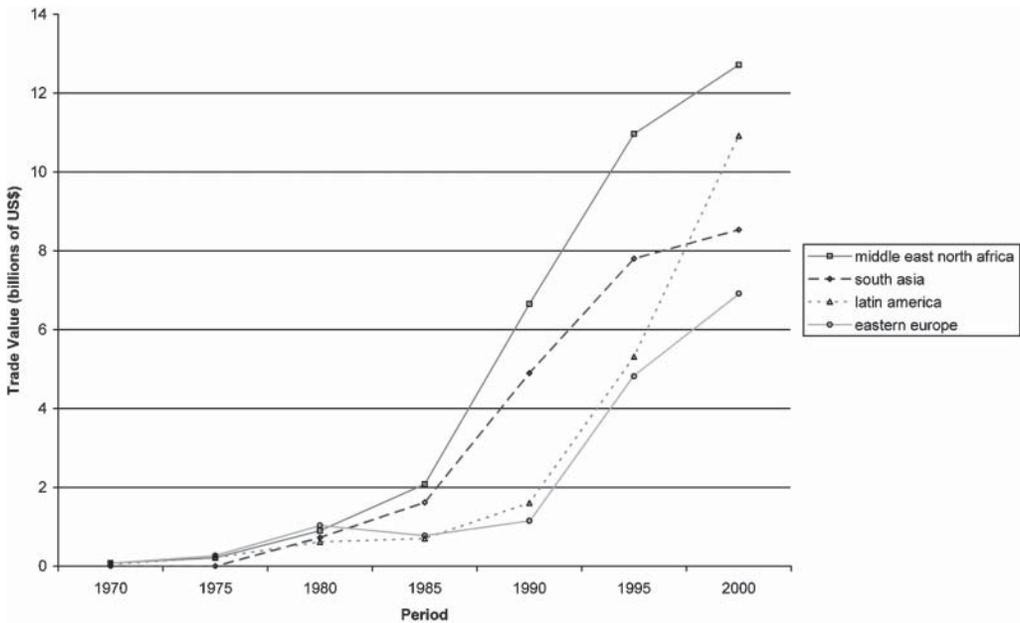
The bulk of firm overseas relocations took place in several waves. Figure 3 demonstrates the growth in developing country exports, which in part reflects the trend towards outsourcing and overseas relocation of firms from industrialised countries.

The first major wave occurred in the early 1970s in response to worldwide recession and the consequent reduction in consumer purchasing power. During this period, developing country exports of clothing boomed, growing more than 20 per cent annually from 1968 to



Source: Data compiled from U.N. Comtrade Database (<http://unstats.un.org/unsd/comtrade/>).

Fig. 2. Apparel exports from West Europe, North America and East Asia (1970–2000).



Source: Data compiled from U.N. Comtrade Database (<http://unstats.un.org/unsd/comtrade/>).

Fig. 3. Apparel exports from developing regions (1970–2000).

1978 and doubling as a share of world trade in the sector from 22 per cent to 41 per cent. Hong Kong, South Korea and Taiwan alone accounted for more than 75 per cent of all developing country exports in apparel, and their example became a model for other countries. At the same time, apparel exports from the industrialised world experienced almost no growth during the 1970s, marking the beginning of a long-term decline (Author interviews with industry association officials, Casablanca, Morocco, 2 November 1999 and 2 March 2000; Germidis 1980; Hoffman 1985). Relatively inexpensive labor costs largely explain the initial transfer of production to developing countries in this period. Industrialised countries were forced to downplay the labor-intensive components of the textile-garment manufacturing chain, notably apparel assembly, while boosting productivity and focusing increasingly on higher-tech, synthetic fibers.⁶

In the early 1980s, a global recession coupled with the second oil shock and mounting inflation fueled a second shift in sourcing patterns. Many European and US apparel firms transferred their operations overseas, particularly to neighboring Mediterranean and Latin American countries. Many major clothing retailers in the industrialised countries went bankrupt and those that survived were forced to change their inventory and sourcing patterns drastically (Author interview with industry association official, Casablanca, Morocco, 2 March 2000; Dickerson 1991).

An economic downturn in the early 1990s ushered in a third wave of relocation to low cost production sites and, by the late 1990s, most retailers sourced clothing and other consumer products on global markets (Wrigley 2001). By the mid-1990s, a new wave of European apparel retailers sought to relocate their sourcing channels to low-cost overseas production sites. The crisis most directly affected textile producers who, unlike apparel manufacturers, had not yet relocated a significant portion of their operations to lower cost overseas sites. Developing countries competed to attract foreign investment from the exodus of European textile manufacturers (Author interview with textile firm director, Casablanca, Morocco, 25 November 1999; Author interview with industry association official, Casablanca, Morocco, 3 March 1999; Author interview with textile firm marketing director, Ben Arous, Tunisia, 11 May). 'Full package' production – a subcontracting arrangement in which manufacturers receive detailed specifications from buyers, acquire all inputs and coordinate most phases of production – was increasingly common, particularly in Asia and, to a lesser degree, in Latin America (Bair and Gereffi 2001; Scott 2002). The model appealed to both subcontractors, who could reap higher profits from the value chain, and buyers, who transferred production and inventory risk to suppliers. Attracting foreign investment from upstream textile producers was therefore important from the standpoint of fulfilling full package production and facilitating cluster-based development strategies.

The rising importance of developing country apparel exports since the 1950s and particularly since the 1970s both intensified competition on global apparel markets and set off alarm bells for industrialised countries with established textile and apparel industries (Vallee 1997). Through a complex series of international agreements instituted in the post-World War II period, the developed countries tried to regulate global trade and shield their own threatened textile and apparel producers. In 1973, the Multifiber Agreement (MFA) replaced arrangements under the General Agreement on Trade and Tariffs (GATT) framework by establishing an elaborate system of quotas organised by product and country. In practice, the agreement limited exports of textiles and apparel from developing countries.⁷ In 1995, the Agreement on Textiles and Clothing (ATC), a multilateral trade regime established under WTO auspices replaced the MFA. By phasing out quotas and discriminatory

import practices, the ATC aimed to fully integrate the textile and apparel trades into World Trade Organisation (WTO) rules by 2005.⁸ The dismantling of the MFA in January 2005 particularly threatens manufacturers who enjoy privileged access to the European and North American markets by putting them in direct competition with highly competitive exporters from Asia (Author interview with integrated apparel firm commercial director, Casablanca, Morocco, 18 January 2000; Author interview with textile firm marketing director, 11 May 2000; Author interview with apparel firm director, Ksar Said Industrial Zone, Tunisia, 7 June 2000). Indeed, preliminary trade data from the Office of the US Trade Representative indicates that these fears are well founded (Becker and Barboza 2005).

The investment and production decisions of producers as well as international agreements collectively constitute the architecture and rules of the world apparel trade. In a tight global market, retailers in developed countries as well as their suppliers and policy-makers in developing countries have sought new ways to differentiate themselves or attract foreign direct investment, reshaping the nature of global apparel manufacturing itself.

Trends in Supply-China Management and the Shifting Geography of Production

Technological changes and new sourcing practices, largely a result of changing consumer demand patterns, have increased the appeal of localised growth centers for multinational corporations and, relatedly, cluster-based strategies for developing countries. At the same time, competition has forced retailers to offer low prices and high quality to maintain customers, encouraging concentration among distributors and, ultimately, even among their distributors. Large multinational buyers and retailers with growing leverage demand rapid delivery to enable reduced inventory holdings and more accurate demand forecasting (Author interview with Lahowchic, op. cit.; Author interview with Lamar, op. cit.; Author interview with Bob Zane, Senior Vice President, Liz Claiborne, Inc., 2 July 2003). In a saturated supply environment, manufacturers are virtually obliged to adopt a standardised set of management strategies disseminated by multinational corporations that enable them to fulfill orders on the buyers' terms (Author interview with apparel firm financial director, Sfax, Tunisia, 13 June 1998; Author interview with textile firm director, Jebel Ouest, Tunisia, 17 June 1998; Author interview with textile firm director, Tunis, Tunisia, 20 June 1998; Author interview with apparel firm director, Marrakesh, Morocco, 3 December 1999; Author interview with apparel firm director, Fes, Morocco, 6 December 1999; Author interview with apparel firm director, Tunis, Tunisia, 16 May 2000; Applebaum and Gereffi 1994: 52, 54).

In the 1980s, in response to flagging sales, retailers sought ways to boost consumer interest. Creating multiple fashion 'seasons' or 'fashion change' was a prime strategy to maintain and attract customers in a sector characterised by relatively inelastic demand (Dicken 2003: 328). By the mid-1980s, the standard six-month season was fragmented into at least six fashion cycles and many retailers began to offer about twelve distinct product lines annually.⁹ To keep pace with new marketing practices, retailers had to maintain constant turnover, reduce costs, improve delivery reliability, and generate more accurate forecasts of stocking needs to reduce inventory risk. In a rapidly changing fashion environment, retailers strove to replenish fast-selling stock keeping units (SKUs), or apparel categories, and phase out less popular items quickly (KSA, 'Floor-Ready', 1996; KSA 'Soft Goods', 2000; KSA, 'Inventory', n.d.; KSA, 'Vision', n.d.).¹⁰

Accelerated apparel production cycles and the need for rapid turnaround from order to delivery have changed the prerequisites for competitiveness in some apparel categories. As

retail markets further segment into 'fashion' and 'commodity' products, cost is no longer the primary basis for boosting market share for certain items. Fashion items, based on current trends, account for between 20 per cent and 40 per cent of SKUs in Western Europe, the US and Japan. Highly time sensitive, cost plays a lesser consideration in order fulfillment of fashion items. The remaining 60 per cent to 80 per cent of apparel items are commodity-like and, hence, are more price-sensitive. Sourcing decisions in these different categories involve trade-offs between geographic proximity, which reduces the time elapsed from order to market, and low wage overseas production sites, which reduce labor costs. In a consumer-driven environment, availability at the right moment is more critical than price for some items. Non-financial costs may also compel retailers to seek local or geographically proximate suppliers. Time, effort and money spent sourcing items from afar and monitoring overseas production as well as the opportunity cost of lost sales from late or incomplete delivery favor relationships with reliable, nearby manufacturers (Hines 2002: 32–35; Dicken 2003: 330–331).

New management practices have emerged to meet challenges from changing demand patterns.¹¹ Low inventory holdings by retailers of an expanding array of goods have generated the need for rapid replenishment of orders and frequent but smaller shipments, shifting risks to manufacturers and subcontractors and pressuring them to speed up production and delivery. These changes put pressure on manufacturers, who could no longer plan production well in advance and work according to predictable guidelines. The keys to success for garment subcontractors became 'flexible' production techniques that could respond to rapid changes in fashion trends.

Coined in 1985, the Quick Response (QR) management system greatly accelerated the apparel supply chain by speeding up order fulfillment and enabling retailers to respond quickly to shifting consumer tastes through improved information and merchandise flows (KSA, 'Quick Response', n.d.; Hines 2002).¹² Implementing QR entails three steps: first, retailers adopt sales coding technologies such as the UPC, a computerised barcode for product identification; electronic point of sale technologies, which establish instantaneous communications between sales, reordering and production units; the UCC Code 128, a barcode for shipping container identification; and Electronic Data Interchange (EDI) or comparable computerised inventory and production management systems to exchange business documents with purchase orders and product specifications more easily.¹³ Next, firms redesign internal processes by adopting standardised management techniques that facilitate faster turnaround of merchandise and few inventory holdings. Finally, retailers and manufacturers set up an integrated supply chain with joint product development planning and inventory forecasting. By now, most companies have implemented the first phase, but only a few, larger multinationals have adopted the subsequent steps (KSA, 'Quick Response').

Technology plays a critical role in the practical implementation of QR. Although different buyers and, therefore, suppliers have different EDI software with varying protocols, the general processes of placing, receiving, and tracking orders and types of data transmitted are comparable from system to system.¹⁴ Big retailers invest significant time and resources in bringing their suppliers up to speed on their designated procurement systems and training factory management to work with computer technology and the internet. Once they achieve an effective management system within a given factory, sourcing executives try to generalise the system over a number of supplier factories. EDI demands tightly coupled planning, allocation, logistics and inventory tracking operations as well as close relations

between buyers and suppliers. With automated tracking systems, buyers can readily obtain information on the status of any order, factory, or shipment, facilitating more efficient inventory management (Author interview with Lahowchic, *op. cit.*). The contemporary security climate, particularly in the US, has heightened the need for effective, computerised supply chain management systems: US customs regulations now require suppliers to provide precise details on shipment contents, container numbers and shipping identification information 24 hours before loading merchandise on a boat (Author interview with Lamar, *op. cit.*).

Industry consultants and buyers constantly seek new ways to accelerate the time elapsed from product development to delivery – that is, to shorten the supply chain. Longer import lead times make it more difficult for retailers to replenish merchandise, which forces them to lose potential sales, and compel them to place larger orders, which create excess inventories. Under the traditional ‘warehouse-ready’ mode, suppliers were responsible for manufacturing and delivering the product to the buyer or retailer, who prepared the goods for store display by adding tickets, labels, and, where applicable, hangers. The new predominant merchandising approach, Floor-Ready Merchandise (FRM), calls for cooperation between retailers and manufacturers on product development, inventory management and related logistics. FRM shifts the display preparation from the retailer to the supplier, who now affixes price tags, UPC bar code tickets, hangers and security tags, and presses and packages items for direct delivery to stores.¹⁵ Retailers benefit by cutting inventory costs and transferring responsibility for in-store display to the supplier. The approach requires fundamental changes in both the information technology and physical layout of the factory, introducing logistical challenges. For example, different retailers use different label and packaging requirements, compelling American retailers to propose the adoption of national voluntary standards for these areas. In addition, suppliers must redesign their information systems to track each product from the time of manufacturing to arrival at the storefront and interface with buyer EDI systems (Author interview with former industry association official and apparel firm manager, Casablanca, Morocco, 9 September 1999; KSA, ‘Floor-Ready’). Multinational buyers and retailers often work with key suppliers to support the adoption of new technologies and management techniques.

Shifts in the global supply chain have altered capital concentration and, hence, power dynamics in apparel manufacturing. Transformations in the nature of the industry have attracted new kinds of investors. In the past, low barriers to entry invited investment by relatively small capital holders. With the increasingly technical and computerised nature of the production process – not so much in terms of automation but more in terms of the information technology required for product tracking and delivery – as well as the larger warehouses needed to fulfill the demands of FRM, the average size of internationally competitive suppliers must increase. Dominant retailers increasingly seek out large factories that can produce an entire fashion line, including pants, skirts, tops and jackets. As in the modular production model of the consumer electronics industry (Sturgeon 2002), apparel manufacturing is more concentrated both at the retail and supply stages – at least on the initial tier of subcontractors (Author interview with textile firm marketing director, Ben Arous, Tunisia, 18 June 1998; Author interview with Zane, *op. cit.*; Schmitz and Nadvi 1999: 1505; KSA, ‘The ABCs’).¹⁶ Large retailers increasingly assume the tasks of fashion forecasting and marketing and are more involved in direct contracting (Author interview with former industry association official and apparel firm manager, Casablanca, Morocco, 20 September 1999; Toyne *et al.* 1984: 19; Bonacich *et al.* 1994: 4; Applebaum and Gereffi 1994: 125–126).

Trends in supply chain management shape the geography and terms of production in tangible ways. 'Quick response' boosts the importance of geographic proximity to major buyers and provides niche markets in which nearby middle-income producers can excel, notably in restocking of medium to high value-added products.¹⁷ For example, North African suppliers have significantly higher costs than many Asian manufacturers, but their geographic proximity gives them an edge in the European market.¹⁸

Recent firm relocation trends – particularly during the 'third wave' in the 1990s – reflect and reinforce changes in sourcing patterns. Textile manufacturing in the EU and other OECD countries faces mounting competition from global suppliers. Throughout the 1990s, more and more European cloth weaving firms opted to import thread and cloth, largely from India, Turkey, China and Pakistan. But the largest textile firms were still based in Western, industrialised, countries. Table 1 depicts the concentration of textile manufacturers in OECD countries.

In the 1990s, European and North American textile manufacturers began to transfer their operations overseas in increasing numbers, either by setting up their own factories or establishing joint ventures in low-wage countries or areas with significant emerging consumer bases.¹⁹ An important impetus for overseas relocation of textile firms was also to move close to regions with strong apparel manufacturing industries, which would benefit from local access to internationally competitive textile inputs (Author interview with apparel firm director, Ain Sebaa, Morocco, 18 January 2000; Author interview with apparel firm director, Ksar Said Industrial Zone, Tunisia, 22 May 2000; KSA, 'Cross Border'; KSA, 'Vision'). With mounting pressure to achieve quick turnaround production, retailers increasingly source their products from countries with established upstream and downstream activities.

The trend towards overseas relocation potentially supports the efforts of producers and policy-makers in developing countries to boost local production capabilities across the

TABLE 1
Largest Global Apparel Companies, 1998 (in millions of Euros)

Company name	Country	Revenues
Sara Lee	US	6636
Levi Strauss Associates	US	5352
VF Corporation	US	4951
Calvin Klein	US	4817
Holding di Partecipazioni	Italy	3140
Adidas Konzern Clothing	Germany	2184
Benetton Clothing	Italy	1973
LVMN Clothing	France	1818
Triumph International	Germany	1375
Zara International	Spain	1356
Marzotto Abbigliamento	Italy	963
Max Mara Fashion	Italy	924
Coats Viyell Clothing	UK	859
Courtaulds Clothing	UK	837

Source: Euratex, Bulletin 2000/01 (<http://europa.eu.int/comm/enterprise/textile/statistics.htm>).

NB: In May 2000, Sara Lee took over Courtaulds.

supply chain. Countries with significant apparel assembly sectors now compete to attract foreign direct investment from European, American and Asian thread and cloth firms (Author interview with textile firm director, Casablanca, Morocco, 16 November 1999; Author interview with textile firm director, Ain Sebaa, Morocco, 18 January 2000; Author interview with apparel firm director, Ain Sebaa, Morocco, 19 January 2000). A French apparel manufacturer with multiple factories in Tunisia described how the shifting geography of textile manufacturing influences firm choices and national development strategies.

It is imperative to develop the textile branch [in Tunisia]. This is particularly true as global production structures experience shifts in supplier chains. Nowadays, many European clients want to place orders with a supplier who will obtain all the inputs needed to fulfill the order. This mode of sourcing is becoming increasingly common, replacing systems in which clients provided key inputs along with the garment specifications and design. This sourcing mode requires that the supplier have access to all inputs and, therefore, a local textile industry is increasingly important for ready-to-wear garment manufacturers. If Tunisia does not develop its textile industry, the local export-oriented clothing industry will disappear. Foreign companies . . . will leave to produce elsewhere where local textile capacity is more developed. (Author interview, La Marsa, Tunisia, 8 November 2000)

Similarly, a Moroccan government official declared,

The Government of Morocco is particularly interested in wooing big international textile companies and there is good reason to believe that the strategy may work because many textile companies increasingly want to be geographically close to their clients – that is, the apparel assembly factories that buy their cloth . . . The government is trying to attract foreign direct investment in whatever form it wishes to operate. Even 100 percent foreign investment is fine. All of this is part of our strategy to integrate the textile and clothing sectors. (Author interview with Ministry of Industry official, Rabat, Morocco, 1 March 2000)²⁰

Thus, in the contemporary global production context, the overseas relocation strategies of textile firms as well as the goals of firms and governments in developing countries are encouraging the construction of locally integrated production sites.

Contractual relations between buyers and suppliers also reflect and reinforce the new geographies of production and supply chain management. Multinational retailers and sourcing firms seek contractors who can manufacture high-quality finished products and not just carry out assembly work. Until recently, the dominant contractual relationship called for assembly by the supplier, who obtained all the pre-cut inputs from the buyer with explicit instructions on how to sew together the various components of the finished product. This arrangement has low value-added and essentially amounts to ‘selling minutes’ of labor to the client. A second type of contract, informally called ‘Cut, Make and Trim’ (CMT), is slightly more involved. Under CMT, the contractor obtains the accessories, such as buttons and zippers, from local sources while the buyer provides pre-cut fabric. A third, increasingly common contractual form involves production of a finished product from start to finish, which entails the highest value-added but the greatest inventory and sourcing risks for the manufacturer. In this ‘full-package’ production model, the contractor obtains all inputs for the finished product and sews the garment according to buyer specifications. A common sourcing mode combines elements of CMT and full package production. The buyer asks the contractor to purchase all inputs from pre-selected suppliers at established terms. Then, the manufacturer assembles the garment according to buyer specifications. To cut time in the production cycle and shift sourcing and even financing responsibilities to the supplier,

buyers increasingly opt for the second and third types of contracts (Author interview with apparel firm manager, Sfax, Tunisia, 9 June 1998; Author interview with apparel firm financial director, Casablanca, Morocco, 1 February 2000; Author interview with apparel firm director, Chargaia I Industrial Zone, Tunisia, 29 May 2000; Author interview with Lamar, *op. cit.*).²¹

East Asian manufacturers have excelled at full-package production, which compels large retailers to source more and more production from China and other Asian countries at the expense of manufacturers in other developing regions (Author interview with Lamar, *op. cit.*). Indeed, the combination of full package production and low wages has made China virtually unbeatable in world apparel markets (Gough 2004; Kahn 2004). For most US and European distributors, East Asia is geographically *inconvenient* when compared to production in Latin America, North Africa or Eastern Europe. But East Asian dominance in the global apparel industry is also due to the perception that workers in countries such as Hong Kong, Taiwan and China as well as more recent entrants to the industry such as Vietnam, Cambodia and Indonesia are highly skilled. Similarly, managers from Hong Kong, Taiwan and neighboring countries have a reputation among buyers in industrialised countries for boosting factory productivity and easily adapting to new technological systems – whether their factories are located in Chinese-speaking countries or overseas.²² The combination of high-skilled production, relative technological savvy, and low wages means that the full dismantling of the MFA, which occurred on 1 January 2005, will ultimately lead to further concentration of global apparel production in East Asia and in China in particular (Todaro 2003). Under the new regime, in which buyers are no longer compelled by the quota system to source in diverse countries, it may be more cost-effective to ship some time-sensitive items by air freight from Asia rather than to source locally.²³ At the same time, East Asian producers and trading companies are establishing operations in countries closer to the North American and West European markets and geographic proximity may remain important, particularly for rapid replenishment (Author interview with Lahowehic, *op. cit.*).²⁴

Production trends, globally disseminated management practices such as quick response, and new relationships between buyers and suppliers are boosting the appeal of clusters of upstream and downstream firms in the apparel supply chain. At the same time, East Asian competition based on full-package production reinforces the rush in other developing regions to establish local, innovative industrial centers. Whether or not it is feasible for many developing countries, establishing industrial clusters has become the prescription *du jour* for global competitiveness.²⁵ As buyers try to streamline the sourcing process, working with manufacturers who have local access to inputs is increasingly attractive. The trend towards clustering – both real and prescribed – suggests that global apparel production may become more geographically concentrated, as certain countries excel at constructing localised growth poles and attracting foreign investment in complementary industries. In addition, suppliers that are better able to adopt management practices designed to cut down production and delivery times and work with accompanying software packages disseminated by multinational buyers will have an advantage.

What do these evolving trends in the procedural management and geography of global apparel manufacturing imply for theoretical conceptualisations of global production? How can the analysis of apparel industry developments contribute to our understanding of the linkages between regionally based clusters and global supply chains? The next section aims to address these questions.

Development Strategy in the Contemporary Global Economic Context: Clusters in Global Value Chains

The global trade in cotton goods dates back at least two centuries, but since the 1990s apparel manufacturing has become more globally integrated than ever before (Evans 1998; Held 2000). The developments in the evolution and management of supply networks described in the previous section have altered the nature and geography of textile and apparel manufacturing. In what ways has the global dispersion of apparel manufacturing and distribution accommodated or even encouraged the emergence of local industrial concentrations?

Earlier conceptualisations of textile and apparel production depicted distinct and even opposing spatial dispersions of production, crudely characterised as ‘global’ versus ‘local’. More recent work on the changing reality of production focusing in particular on the global apparel industry, however, aims to theorise the interlinkages and synergies between global value chains and local industrial clusters, demonstrating that clusters are important components of larger commodity chains.²⁶ This article builds on this work by highlighting that the sourcing and management strategies of multinational corporations – the key units driving the construction of global value chains, particularly in ‘buyer-driven’ chains (Gereffi 1994) – have in fact promoted the rise of clusters of interrelated firms in developing countries.

The concept of the ‘global commodity chain’ (GCC) has been reviewed and discussed extensively elsewhere but a brief overview is warranted given that many efforts to theorise global production either build on or respond to this framework.²⁷ At a basic level, the GCC approach depicts the global apparel industry as a geographically dispersed, globally extended production system with manufacturers in distinct parts of the value chain coexisting in the same space. Building on the notion of a ‘commodity chain’, or a network of work and production processes resulting in a finished commodity, the GCC encompasses households, firms and states operating across national boundaries. Because technological and organisational advances have facilitated a vast expansion of production and sourcing on a global scale, multinational corporations have dispersed their operations across an unprecedented number of countries (Gereffi 1994).

In its early renditions, the GCC framework drew a sharp distinction between ‘core’ and ‘peripheral’ regions in the supply chain.²⁸ Core nodes, usually located in advanced industrialised countries, reap disproportionate shares of the profits and differentiate themselves through innovation breakthroughs in design, marketing and sourcing. Any part of the production process that requires computerised technology or specialised skills and training inevitably locates in advanced, industrialised countries. Nodes in the periphery, concentrated in developing countries, carry out the lower value-added components of the manufacturing process and operate in a more cut-throat atmosphere, where low wages are the primary basis of competitiveness. Because MNCs have the flexibility to shift sourcing patterns easily in the buyer-driven commodity chain, manufacturers and subcontractors in low-wage countries are essentially ‘price-takers’ and ‘merchants’, or the executives who coordinate sourcing, exercise significant power (Author interview with apparel firm manager, Ben Arous, Tunisia, 19 April 2000; Author interview with multinational clothing firm regional director, Les Berges du Lac, Tunisia, 15 October 2000; Hoffman 1985; Mody and Wheeler 1987; Bonacich 1994; Gereffi 1994; Gherzi 1999).²⁹ Earlier versions of the GCC framework provided a static snapshot of commodity chains, which could not easily explain the success of the East Asian high-growth economies or why some developing countries

have excelled in certain manufacturing industries, but subsequent elaborations show how organisational learning through participation in certain trade networks can enable firms in developing countries to advance up the supply chain (Gereffi 1999).³⁰ A modified version of the GCC framework, for example, elaborates on what happens when global production circuits ‘touch down’ (Bair and Gereffi 2001). Focusing on the case of Torréon, Mexico, the analysis demonstrates that manufacturers increasingly recognise the importance of full-package production, which incorporates upstream and downstream activities in the textile-apparel commodity chain in the same location or even factory, rather than low value-added assembly work. Torréon could be an exception, given the special relationship between the US and Mexico through NAFTA and the historical development of trade links between the two countries.³¹ Furthermore, most production sites in developing countries lack the horizontal networks between firms that propel the innovation-driven growth characteristic of some localities in industrialised countries, such as the renowned ‘Third Italy’. Relatedly, multinational merchants typically ensure that the most lucrative design, production planning and distribution activities remain in-house – although some large-scale suppliers, notably in East Asia, increasingly offer these services as well to international buyers (Gough 2004; Kahn 2005) – while few firms in developing countries have the technical and material resources to design and market their own garments. The revised GCC approach, emphasising the imperatives of full-package production, hints at the importance of local production arrangements in shaping development outcomes but still emphasises the dynamics of buyer-driven value chains.

An established literature on localisation focuses less on the global dispersion of production as well as the vast leverage of multinational buyers and more on the importance of local assets in shaping prospects for success in global production.³² The globalisation of markets has not swept away the importance of regions, which remain integral sites of interaction and knowledge exchange in a global economy. Although nation-states are still robust, subnational regions and cities, even in so-called ‘peripheral’ areas, are increasingly important units of economic and political authority. These regions act as nodes within broader commodity chains and constitute key motors of the global economy (Scott 1998: 4, 11, 21, 68). Regions possess ‘untraded interdependencies’, or location-specific factors such as conventions, informal rules, and habits, that affect production processes by coordinating individuals under conditions of uncertainty. Globalisation will not wipe out ‘economies of proximity’ because the region is a critical locus for learning and innovation (Storper 1997: 5, 22; Storper and Scott 1986: 11–12).³³

Derived from evolving MNC sourcing patterns, ‘nodes’ and ‘networks’ models provide another conceptualisation of industrial localisation in a global economy. Even in industries such as apparel and footwear, where low-tech manufacturing puts a premium on cost reduction, sourcing patterns do not spread out evenly across the globe in search of the lowest factor costs. Instead, MNCs may source some of their products from regions with extensive upstream support industries, constituting a node in a more extensive set of vertical and horizontal networks or production relationships between firms. Further, sub-contracting firms may hire other, smaller firms to fulfill some of their production commitments, resulting in a complex, often hierarchical network of firm relationships around a particular node (Donaghu and Barff 1990). The ‘modular production network’ is a related conceptualisation: in response to the demands of ‘hollowed-out’ manufacturing firms in industries such as consumer electronics, component suppliers have refashioned themselves into full-service outsourcers serving multiple clients (Sturgeon 2002: 455).

At first glance, the empirical reality of geographic concentration among firms in related industries or within a few large, vertically integrated subcontracting firms contradicts the logic of the global commodity chain. But a more accurate depiction of global production should emphasise the coexistence of and interlinkages between global value chains and localised growth poles. An attempt to incorporate insights from the localisation and global value chain perspectives builds on the concept of industrial districts. In this model, the Marshallian industrial ‘atmosphere’ remains critical in particular production sites or ‘neo-Marshallian nodes’, which operate in global corporate networks with indirect transactions (Amin and Thrift 1992: 571–587). Even in a ‘decentred’ global economy, ‘centres’ are hubs for information exchange and spur innovation through interaction, particularly in industries with knowledge-based competition and volatile markets. Yet the approach highlights tensions between localisation and globalisation-based arguments by pointing to the progressive deterritorialisation of some nodes – particularly in Western Europe – which threatens to undermine a central aspect of the Marshallian district, notably how proximity enables information exchange and trust among firms (Amin and Thrift 1992; Asheim 2000: 419).

Still, many claim that localised growth poles remain the most effective base from which to compete in global markets. The idea of industrial ‘clusters’ explicitly addresses global economic challenges to industrial districts: clusters, proponents claim, can enhance national or local competitiveness in a broader context. Competitive advantage, which entails a supportive and innovation-friendly institutional environment and not just favorable factor costs, lies in the geographic locations in which firms operate. Competitive relations among geographically proximate firms can drive knowledge generation, making local groupings of firms in distinct parts of the supply chain a key source of competitive advantage.³⁴ The industrial clusters approach has specific policy implications, compelling business and government to create the conditions fostering innovative growth. Porter admits that creating clusters may not be viable or useful in developing countries, which often lack the resources to support knowledge-based innovation,³⁵ yet his recipe for competitiveness has profoundly influenced the industrialisation and investment strategies of planning agencies and firm owners throughout the developing world (UNIDO 2001; UN ESCWA 2002). Increasing competition in the industry and the corresponding push by MNCs for full package sourcing has only reinforced the trend.

But Porter’s framework overlooks the constraints that position in global value chains often places on the ability to construct or foster clusters in developing countries. The emerging synthesis in the literature on global manufacturing stresses the importance of integrating key insights from the global value chain approach into studies of how national or subnational institutions, policies and strategies affect industrial upgrading. For most producers in developing countries, the development of internationally competitive production has occurred as part of integration in global production networks.³⁶ This is particularly true for the last two decades, with the increasing globalisation of production in many industries (Held *et al.* 2000). Buyers and large retailers exert tremendous pressure on suppliers, notably in setting the terms of sales but also on how and what contractors and sub-contractors produce. For this reason, a synthetic approach integrating insights from the value chain and cluster perspectives cannot simply claim that ‘everything matters’ – that is, that both the global and local contexts shape the prospects for upgrading for producers in developing countries – but must instead identify the power dynamics embedded in global value chains, which shape local choices about what, when and how to produce (Humphrey and Schmitz 2002: 1018; Henderson, Dicken *et al.* 2002: 439).³⁷

A cluster-based approach, then, tends to overlook the realities of global manufacturing in developing countries by suggesting unrealistic possibilities for upgrading given the ‘right’ institutional mix in specific localities.³⁸ Regional assets – understood as local concentrations of knowledge, skills and expertise as well as cooperative institutional relationships that foster collaborative inter-firm relationships and exchange of information – lend themselves to the production of specific goods and services but are only assets in so far as they fit the needs of global production chains. The dynamics of national and subnational regional development, therefore, may be as much global as they are local (Coe *et al.* 2003: 12–13, 17). Of course, global production networks alone do not determine the ability to upgrade. As Coe *et al.* (2003: 13) argue,

[R]egional development is conceptualised as a *dynamic outcome of the complex interaction between territorial relational networks and global production networks within the context of changing regional governance structures* . . . [I]t is these interactive effects that contribute to regional development, not some regional advantages or rigid configurations of globalisation processes.

Regional assets are necessary but not sufficient causes for national or subnational regional upgrading. Such regional characteristics must fit the ‘strategic needs’ of multinational buyers and firms in global value chains (Coe *et al.* 2003: 15).

In general terms, clusters in industrialised and developing countries fit into global production chains in very different ways. While developed country clusters often contain global leading firms and dominate design and innovation, developing country clusters ‘tend to work to specifications that come from outside’ (Schmitz 2004: 4). Lead firms have a vested interest in maintaining tight control over chain governance, or the ‘coordination of economic activities through non-market relationships’ (Humphrey and Schmitz 2002: 1018; see also Humphrey and Schmitz 2004: 97). With the heavy emphasis on branding, design and product differentiation in apparel and other consumer industries, retailers must ensure that their exact specifications are met. The risk of supplier failure are particularly high when retailers differentiate themselves on non-price related factors such as quality, safety and other standards, production and delivery speed and reliability, and rapid turnover of merchandise (Schmitz 2004: 6). Even as more and more production functions pass from buyers to suppliers, large multinational retailers have a consistent need for tight control over the production chain. Furthermore, even in areas where price-based competition prevails the need for chain governance rather than market-based relations remains strong. In the current retail environment, in which speed-to-market and reliability are critical, the quest for new, lower cost suppliers may entail greater risk of supplier failure and therefore call for even greater attention to controlling the supply chain (Humphrey and Schmitz 2004: 106–107).

The shifting structure and geography of production has important implications for capital concentration in supplier countries. Because multinational retailers and their agents demand suppliers who can meet strict quality control criteria and tight production and delivery deadlines, their supplier base has narrowed and will likely continue to narrow, at least on the first tier of contractors (but not necessarily on the level of subcontractors and sub-subcontractors). Local firms with sufficient production capabilities and scale, as well as positive working relationships and experience with multinational firms and their agents, have a decided advantage and may exercise considerable authority in choosing suppliers or sub-contractors for their local operations.

This shifting structure of local production has implications for the structure of clusters on the local level, and notably who or which firms will be able to benefit from clustering, as

well as for how clusters integrate into global value chains. As Humphrey and Schmitz (2002: 1020) argue, the relatively 'benign' view of local upgrading in some conceptualisations of global commodity chains (Gereffi 1999) neglects the fact that buyers have an incentive to prevent any upgrading that competes with their core competencies. Political dynamics at the level of the cluster, too, affect firm-level prospects of benefiting from integration global value chains, specifically by determining which capital holders can benefit from linkages to multinational firms and buyers. In particular, large local firms that establish tight linkages to global buyers either as relational or, increasingly, turn-key suppliers (Sturgeon 2002; Gereffi *et al.* 2004: 9) undoubtedly seek to limit the number of local firms that can attain this status. Indeed, given the relatively high barriers to entry in terms of minimum capital endowments and economies of scale needed to attain local lead firm status, it is not difficult for dominant firms to protect their close relationships with multinational buyers.

Conclusion

The imperatives of production for world markets directly shape the organisation of manufacturing in developing countries. Multinational strategies of chain governance or control over globally dispersed production networks increasingly promote the construction of local clusters of firms and supporting institutions in supplier countries in the developing world. In response to rapid shifts in consumer tastes, large retailers have devised and disseminated a variety of operations management strategies and supporting technologies. Firms in supplier countries work with a narrowing group of dominant US and European retailers, who dominate global distribution of apparel and serve markets with similar consumer taste patterns. Sourcing executives and buying agents for large retailers seek manufacturers who can meet the demands of supply chain management, such as tight delivery deadlines, flexible order fulfillment, and merchandise warehousing and preparation for sale, and adopt the necessary technology to support these operations. To win contracts with large retailers, suppliers are virtually obliged to adopt a relatively standard set of firm-level management practices.

Paradoxically, just as the operations management strategies of firms in Mexico, Morocco or Malaysia who work for the same retailers begin to resemble each other, governments and business associations increasingly stress the virtues of the 'local'. Creating innovation-friendly industrial clusters, which capitalise on contextual advantages such as networks, customs and habits as well as economic policies and institutional interlinkages, is a popular strategy to boost competitiveness throughout the developing world. Policymakers are scrambling to create clusters of complementary research and business institutions and promote vertical and horizontal linkages among locally-based firms in order to differentiate their national or subnational territories in near-saturated global markets. In the current development context, a tension has emerged: at the same time that government and business champion the advantages of the local, key components of local management practices and institutional relationships are more and more standardised.

Whether it is possible for most developing countries to *create* innovative, knowledge-intensive regions is debatable. But promoting a modified version of industrial clusters, which boosts production efficiency by attracting firms in complementary industries and workers with relevant skills, could enable apparel manufacturers – even in some non-Asian, middle-income countries – to survive or even thrive in the contemporary world historical juncture, despite falling worldwide barriers to trade. Thanks to the spread of uniform supply

chain management systems by multinational buyers and suppliers, however, the blueprints for creating apparel industry clusters are increasingly similar in diverse contexts.

In the extreme, the standardisation of business practices threatens the very regional specificities that could, theoretically, constitute a source of local differentiation and promote sustainable development in a tough global economy.³⁹ As a result, differentiation must be based on ever more sophisticated capacity to adopt the management practices disseminated by multinationals and to anticipate the needs of global retailers by mastering additional functions in the supply chain. Because many firms in developing countries will not be able to meet these challenges, the field of suppliers will narrow, promoting concentration among first-tier contractors and giving them increased leverage in local political economies, if not in global production networks. The commodification of knowledge could also have harmful macro-industrial effects: if more and more firms use the same business models, exogenous shocks such as sudden drops in consumer demand will cause more firms to shut down. These trends do not wipe away national and regional differences but pose a new set of obstacles to industrialisation and development. In such a context, local institutional assets will matter most when they are conducive to the ready adoption and even improvement of the latest global production and management techniques.

Notes

- * I thank Kiren Aziz Chaudhry, Andrew Schrank, Richard Walker, the participants of the Development Studies Seminar at the Watson Institute for International Studies at Brown University and two anonymous reviewers for their valuable comments, as well as Akshay Krishnan for research assistance. The Social Science Research Council, the American Institute for Maghrib Studies, the Institute for International Studies at UC Berkeley and Brown University provided generous funding for the research of which this essay is a part. Any errors of omission or commission are my own responsibility.
- 1 Of course, clustering is not a development panacea and different countries and subnational regions experience varying degrees of success with the approach. Furthermore, clustering and upgrading 'success' can be defined in different ways, ranging from increased or improved production quality and efficiency to expansion into 'higher' order production activities (Schmitz 2004).
- 2 This largely corresponds to 'process upgrading' or 'transforming inputs into outputs more efficiently by reorganising the production system or introducing superior technology' (Humphrey and Schmitz 2002: 1020).
- 3 European retailers face the same global market conditions and have adopted the same management strategies such as 'lean retailing', store-ready factories shipments, reducing inventories and computerising supplier factories (Author interview by telephone with Nick Lahowchic, President and CEO, Limited Brands Logistics Services, Inc., 24 July 2003). In addition, a steady trend towards concentration in retailing has occurred in both the US and Europe, notably in the UK but also in Germany, France and even Italy (Humphrey and Schmitz 2004: 105–106). Nonetheless, evidence suggests that many US retailers may apply greater pressure on and provide more extensive technical assistance for their main suppliers than their European counterparts (see Bazan and Navas-Alemán 2004). At the same time, the European Union has integrated more products into the post-quota system, which took effect on 1 January 2005 with the dismantling of the Multi-Fiber Accords (MFA). The post-MFA transition should, in theory, operate more smoothly in Europe than in the US (Author interview with Steve Lamar, Senior Vice President, American Apparel and Footwear Association, 2 July 2003).

- 4 The notion of a global value or supply chain is often used to describe the structure of globalised manufacturing in apparel and other industries. Although I often use the term ‘chain’ in this article, the concept of a ‘network’ is generally more accurate because a chain emphasises vertical linkages while a network implies multiple linkages – horizontal and diagonal as well as vertical – between firms (Henderson *et al.* 2002: 442–448).
- 5 Subcontracting is more than purchasing components from suppliers; it entails a contract between two firms specifying the order. Manufacturers or retailers may deal through intermediaries or directly with subcontractors, who may then fulfill part or all of the order through sub-subcontractors. See Germidis 1980; Holmes 1986: 5.
- 6 For now, machinery cannot replace workers. Plans to automate sewing have not yielded strong results, particularly with limp fabrics. But automation dominates in key areas in the pre and post-assembly phases such as design, cutting, handling and merchandise control (Hoffman 1985; Mody and Wheeler 1987: 1278; Dickerson 1991: 118–120, 130; European Community 1977).
- 7 For an overview, see Aggarwal 1985: chs 4 and 5; Olsen 1978: 1250–1256; Clairmonte and Cavanaugh 1981: 187. The MFA was renewed in 1977, 1981, 1985 and 1991 (Spinager 1991).
- 8 Still, the ATC will not ensure totally ‘free’ trade. During the transition period, the agreement permits temporary suspension of the process in the event of harm to the importing country and allows special treatment for new market entrants, small suppliers and the least developed countries. The WTO accords will theoretically eliminate most privileged market access accorded by regional and bilateral accords such as NAFTA or the EU Free Trade Agreements with the Mediterranean countries.
- 9 The four basic seasons remain, but each receives multiple influxes of merchandise (Author interview with Zane, *op. cit.*).
- 10 Retailers rely heavily on in-house or external trend forecasting services (Gale and Kaur 2002: 136–139).
- 11 See Abernathy *et al.* (1999, 2003), who refer to these new practices as ‘lean retailing’.
- 12 More recent management models aim to reduce the risk of excess inventory for suppliers: the ‘modular manufacturing’ model, founded on a small, team-based approach to apparel assembly rather than a larger line of separate sewers, increases turnaround time from order to delivery, enabling manufacturers to reduce holdings in the factory (KSA, ‘Modular Manufacturing’, 2001).
- 13 EDI originated in the transportation industry in the 1970s and is a generic system of standardised business languages used to transmit information from business to business. Typically, the buyer’s computerised procurement system sends a signal to its designated EDI software, which transforms the data into an EDI format message. The message then goes to a special service provider or, ‘Value Added Network’ (VAN) operator, which routes it securely to the seller’s EDI software. More recently, another generic technology, Extensible Markup Language (XML), emerged as a standard system for transmitting data via the internet and is viewed as the likely replacement for EDI (XML Global).
- 14 This complicates the production process for factories with more than one client. Manufacturers must have sufficient know-how to be able to deal with different technological requirements for different customers (Author interview with Zane, *op. cit.*).
- 15 FRM achieves full-package production *par excellence*. Ultimately, retailers want to ‘send a sketch and a check’ to suppliers and receive floor-ready merchandise to individual stores (Author interview with Zane, *op. cit.*; Todaro 2003). FRM can be complex, with different store locations requiring different combinations of merchandise (Author interview with Lahowchic, *op. cit.*; Hines 2002: 37; KSA, ‘Soft Goods’).
- 16 See also Hoffman and Rush (1984) and Mody and Wheeler (1987). Accelerated supply cycles have also encouraged manufacturers to adopt more flexible capital equipment. In certain apparel categories, notably jeans and men’s underwear, machines are standardised and therefore cannot convert easily to other uses. For many apparel products, however, manufacturers must adjust their production processes rapidly, allowing small firms that use flexible production techniques

- and specialise in small orders to remain competitive (Author interview with apparel firm director, El-Jedida, Morocco, 2 February 2000; Mody and Wheeler 1987; Gherzi 1999: 42–43).
- 17 Also, irregular shipments with smaller lots make transport more complex, thereby boosting costs and making geographic proximity more efficient for retailers and suppliers (Storper 2000: 146). Still, low-wage countries retain a decided advantage in producing low value-added, commodity-like garments such as T-shirts.
 - 18 North African producers offer quick turnaround times, delivering orders within three weeks, and accept small orders, usually with a minimum of 2000 pieces, allowing European retailers to try out different products, assess sales volume, incorporate necessary modifications, and change collections quickly. Meanwhile, Asian suppliers traditionally demanded full payment in advance and large order sizes – often forty to fifty thousand pieces – and required long lead times (Author interview journalist, *L'Economiste*, Casablanca, Morocco, 16 September 1999; Author interview with former industry association official and apparel firm manager, Casablanca, Morocco, 20 September 1999; Author interview with manager at Caisse de Depot et Gestion, Rabat, Morocco, 21 September 1999; Author interview with textile firm director, Ain Sebaa, Casablanca, 6 October 1999; Author interview with industry association official, Tunis, Tunisia, 26 June 1998).
 - 19 In the Moroccan case, examples include Tavex, a Spanish denim fabric firm, which established Settavex in Settat, and Caulliez Frères, a French thread spinning firm, which established a factory in Fes, Morocco (Author interview with multinational textile firm director, Settat, Morocco, 29 November 1999; Author interview with multinational textile firm director, Fes, Morocco, 25 February 2000).
 - 20 A statement by Moroccan business association official (Author interview, Casablanca, Morocco, 11 October 2000) confirmed the trend: ‘The EU countries are now studying the possibility of relocating in Eastern Europe and North Africa. This would be an incredibly important opportunity for Morocco, especially because Morocco really needs upstream industries. And it also needs a geographic *rapprochement* between its apparel and textile industries. For the moment, the industry’s main strategy is to increase the attractiveness of investing in Morocco, especially attracting European investment.’
 - 21 Gap International, for example, does not work with apparel assembly factories but rather with firms capable of carrying out the entire manufacturing process (Author interview with director of Gap North Africa office, Sidi Maarouf, Morocco, 24 November 1999; Author interview with director of Gap North Africa regional office, Les Berges du Lac, Tunisia, 24 April 2000).
 - 22 Some industry executives claim that Mexican factories are far less productive, a fact that they ascribe to inferior management practices and an alleged difficulty in mastering the technological requirements of full-package production. For these reasons, many US apparel retailers prefer to source in East Asia (Personal communication with designer, Tommy Hilfiger, 2 July 2003; Interview with Production Director of Roca Wear, New York, NY, 2 July 2003).
 - 23 Industry executives emphasise that all kinds of trade barriers may not disappear with the elimination of quota restrictions and the true nature of the trade regime to replace the MFA is unclear. US retailers will undoubtedly stop buying apparel from some countries where the availability of production quota allotments largely justified sourcing decisions, but anti-dumping challenges may restrict some imports from East Asian countries (Author interview with Zane, op. cit.; Author interview with Lahowchic, op. cit.). Preliminary evidence suggests that such factors have already prevented a massive shift to Chinese suppliers by multinational buyers (Rozhon 2005).
 - 24 Li and Fung, the premier supply chain management and trading firm in the apparel industry, notes: ‘While cost considerations have resulted in the concentration of manufacturing activities in Asia, recent years have seen an expansion of Li & Fung’s quick-response capabilities in areas like the Mediterranean, Eastern Europe and Central America that are closer to customers in Europe and the US’ (Li & Fung Ltd 2003).
 - 25 Studies of global textile and apparel markets explicitly promote Porter’s framework (Singleton 1997). See also Schmitz and Nadvi (1999: 1509).

- 26 As Henderson *et al.* (2002: 442) observe, the juxtaposition of the global value chains and regional perspectives sets up a false dichotomy between the global and the local. I discuss this point further below.
- 27 For a useful summary and set of critiques of the GCC framework developed by Gereffi and his collaborators, see Henderson, Dicken *et al.* (2002: 440–442).
- 28 In this respect, Gereffi's work traces its intellectual roots to dependency theory and the new international division of labor approach (Henderson *et al.* 2002: 440).
- 29 For a twist on the 'core' and 'periphery' framework, see Loo (2002).
- 30 Still, the GCC approach offers little insight into the relationship between production sites and the larger supply chain. How do producers and policy makers actually respond to shifting incentives and challenges from world markets? Do responses look the same, suggesting that all developing countries tend to follow the same industrialisation paths? Local politics are underdeveloped in the model. For a discussion of how politics shape industrial responses to economic change, see (Cammatt 2005). See also Henderson *et al.* (2002: 441–442, 446).
- 31 For a critique of Bair and Gereffi (2001), see Schrank (2004).
- 32 Studies of regional production dynamics often build upon or respond to the notion of the 'industrial district', which is based on the work of Alfred Marshall on nineteenth-century England. The notion embodies both a vertical division of labor among firms as well as an 'atmosphere' supporting interaction and collaboration (Storper 1997: 5; Asheim 2000: 418). Piore and Sabel's (1984) 'flexible specialisation', in which the rapid redeployment of labor and machinery enables production of a changing array of specialised, high quality goods, builds on the concept. On the differences between flexible specialisation and Marshallian industrial districts, see Amin (2000). For a critique, see Donaghu and Barff (1990: 547).
- 33 How knowledge exchange occurs and promotes innovation is relatively underexplored (Feldman 2000: 389). For one interpretation, see Saxenian (1994).
- 34 Porter stresses competition, but inter-firm *cooperation* may be more conducive to innovation (Beat Hotz-Hart 2000: 436).
- 35 Because rapid communication technologies have decentralised the production of knowledge, innovation may not need to concentrate in production sites as much as claimed (Beat Hotz-Hart 2000: 442; Walker 2000: 125). Porter admits that clusters are less valuable in developing countries. Here, Porter's logic – which holds that clusters in places with more sophisticated kinds of competition and the 'concomitant rise in knowledge and innovation intensity' will be more effective (i.e. drive more innovation and productivity) – is tautological (Porter 2000: 23). With the implied increasing returns dynamics, is it ever possible to *create* a competitive and innovative cluster? Further, politics and, particularly, the sociology of power are conspicuously absent in industrial clusters. Localities are not blank slates upon which healthy competition and cooperation between firms can be constructed. Political connections, privileged social networks, wealth and capital holdings and other, immaterial resources such as preexisting stocks of knowledge and technical know-how shape the incentives that firm owners face when making choices about production and upgrading strategies. Smith, too, claims that cluster models neglect power but provides few concrete suggestions about how to address this lacuna (Smith 2003: 17–40).
- 36 Humphrey and Schmitz (2004: 369–370) suggest that upgrading to more skill-intensive activities may not occur through exporting but rather by focusing on production for the regional or national market. If their contention is true, this does not bode well for the vast majority of manufacturers in developing countries, which have small national and regional markets and therefore offer limited possibilities for production targeting local markets.
- 37 Humphrey and Schmitz (2002) affirm that integration in global value chains can foster supplier upgrading but emphasise that such improvements are confined to more limited types of upgrading, which focus on improving production efficiency and introducing superior technology, rather than more advanced forms of upgrading, which entail the production of more sophisticated goods or increased skills context in the production process. The possibilities for upgrading

- depend on the nature of the global value chains and, specifically, the relationship between suppliers and leading firms or major buyers (Humphrey and Schmitz 2002: 1022).
- 38 Porter cautions that few places (particularly in the developing world) can actually construct successful clusters, however the major reason behind this caveat has to do with local institutional endowments rather than constraints imposed by power dynamics in the global production context.
- 39 Henderson *et al.* (2002: 441) make a similar point in their critique of the GCC approach.

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