Working paper

International Growth Centre

Garment Suppliers Beware

The Global Garments Value Chain is Changing

Shahid Yusuf

December 2012

When citing this paper, please use the title and the following reference number:
S-37044-PAK-1

DIRECTED BY

LSE UNIVERSITY OF OXFORD

FUNDED BY

UKaid from the British people

Garment Suppliers Beware

The global garments value chain is changing

Shahid Yusuf, Chief Economist, Growth Dialogue, George Washington University, Washington DC

ABSTRACT

The industrial takeoff of countries as diverse as China and Mauritius is directly linked to the growth and export competitiveness of their textile and garments industries, and this subsector remains the mainstay of Pakistan, Bangladesh, and Sri Lanka more than three decades after the start of industrialization. Since the mid 1980s, buyer driven global value chains and production networks managed by branded manufacturers from the advanced countries have channeled exports mainly from developing economies to markets in the EU, the U.S. and Japan. For the foreseeable future, these three will remain the focus of trade with other middle-income countries slowly enlarging their import shares. But highly fragmented value chains carrying the imprint of past trade agreements are changing because of the ending of the MFA/ATC, slowing growth in the advanced countries, rising South-South trade, shifts in consumer demand, turnover of producers, technological advances on several fronts, and the efforts by lead firms to optimize their supply chains so as to improve service, and minimize costs and risks. With many countries jostling to enlarge their share of the export market, the pressure on suppliers in Pakistan, Bangladesh and other low-income countries will intensify and only the proactive and strategically minded firms are likely to grow their businesses assisted by government policies that improve the business climate, infrastructure and trade facilitation.

Executive Summary

Garments production is a vital industrial activity in many developing countries. It is moreover, a major export commodity for Asian countries in particular as well as for the EU. Given the variegated nature of technological change and the many innovations likely to sweep through the garments business, the industry can remain a driver of productivity and growth. But like many other manufacturing activities, the garments industry is in the throes of an upheaval and the global production networks and buyer driven value chains that have channeled much of the trade, are being streamlined and trimmed down in response to changes in: consumer demands; the retailing business; logistics costs; and a revolution in manufacturing itself. It would appear in the light of the past history and dynamics of the garments business that incumbents, already tightly hooked on to value chains will have the upper hand even as the industry evolves and chains are transformed. Low wages will be of diminishing importance, instead, skills and technological capabilities, investment in modern production facilities, and the quality of the infrastructure will determine which countries remain as chain participants and increase their share of the value added through design and brand development. A robust global economy will allow for new entrants that participate in possibly realigned global chains; sluggish performance – and with it trade frictions – could lead to heightened competitive pressures, forcing incumbents to struggle to maintain shares and making it much harder for newcomers to gain a foothold.

The smooth functioning of buyer driven supply chains will depend on several factors of which three have been repeatedly underscored: the resourcefulness and multifaceted capabilities of the buyer to manage, design, transfer technology, market and create a governance structure that consistently delivers the desired results. Veteran buyers such as Wal-Mart, Target, M&S, Zara and others know this well enough and their survival depends on ceaseless effort at anticipating and responding to fickle demand, promoting innovation, containing costs and delivering quality. For the foreseeable future the big names seem comfortably ensconced at the top of their respective chains and networks.

The bigger issues are elsewhere: these are the national and firm level determinants of competitiveness in a supply chain context. The checklist of national issues is long and only a few items deserve rehearsing. Macroeconomic stability (a function of benign politics as much as of good policies) and a business environment with effective institutional checks on rent seeking, help to reduce uncertainty, encourage entrepreneurship and stimulate investment in modern production facilities. Moving up the garments value chain is impossible without continual investment in state of the art equipment and processes and such investment is scarce when uncertainty and rent seeking is rampant.

Among the weakest links in a supply chain within developing countries, is the physical infrastructure – hard and soft. Poor land transport and port infrastructures

and security breaches that lead to pilferage and jeopardize the timely delivery of goods, increase costs, eat into narrow margins and discourage buyers. Inadequate and erratic power supplies are the bane of garment factories throughout developing Asia. Yet neglect remains widespread while suppliers plead, governments dither, and export opportunities are lost to others. Considering the stakes, the amounts involved are not excessive, but the gaps are being closed if at all much too slowly. Strengthening supply chains for leaner times demands urgent attention to these inputs. Behind the border trade facilitation and supply chain security, is another bottleneck that needlessly compromises the health of core industrial activity countries and millions of workers rely upon. Ways of sweeping away the sand that causes friction in trade channels are well known to the stakeholders but doing so requires governments to take up cudgels with vested interests and do away with entrenched practices. The mechanics of reforming trade facilitation are relatively straightforward; the socio-politics of reform can be forbidding. Governments that want to see their firms enlarge their presence in supply chains will find ways of grasping the nettle. Those that do not will see their shares in a valuable trade shrink.

For many value chain suppliers, especially the second tier ones, access to finance can be a constraint. Even larger firms can be forced to live dangerously. Full package business involves substantial up front purchases of fabric and other material for trim and packaging and firms in this game require a fund of working capital. Thus the state of domestic and perhaps more importantly, local financial markets can affect the ability to respond to orders as and when they arrive. And it is not just working capital that matters: successful firms are those that keep abreast of advances in technology and make the needed investments in both equipment and plant. An industry, which is starved of capital, risks being marginalized in the supply chain. Much like an unreliable power supply can result in lost business, an inadequate banking system or one that neglects the needs of supply chain bound firms, can stifle the deepening of the garments sector via clustering and value addition.

For too long, the garments subsector has been viewed as a low-tech, unskilled labor-intensive activity, surviving on cheap predominantly female labor and inured to high turnover. But as indicated above, the industry is undergoing a technological renaissance and the more competitive firms will be those that harness new design production and IT technologies and match these with a more skilled workforce. The leading top tier forms are already moving in this direction but for the rest, a sea change is required in hiring, compensation and in-house training practices. But these alone will be insufficient in the absence of public and private initiatives to set up effective vocational training facilities that inculcate a base level of skills, building on adequate foundation of primary and mid-level schooling. Climbing up the value chain will be impossible if the quality of the workforce is not improved and firms do not take steps to retain qualified workers. Leading producers of garments such as China and Turkey have successfully built up the infrastructure of vocational and design institutions and supporting research facilities and tightened their links with global retailers. If Pakistan, Bangladesh, Sri Lanka and Vietnam want a larger piece

of the supply chain, they need to do as much if not more especially if they see their medium term industrialization remaining tied to the fortunes of the garments industry.

Augmenting workforce quality, strengthening the physical infrastructure and improving the business climate can be strands of a strategy to create the urban industrial clusters that assist countries in enlarging and upgrading their roles in networks and value chains. Cluster formation through *glocalization* triggered by participation in value chains is a means of accelerating industrialization as for instance, in Thailand. However, cluster formation is the end result of a number of often serendipitous events and urban policy actions, and it can rarely be engineered through policy alone, although policy can provide many of the preconditions that can lead to *glocalization* once a city becomes hooked on to a tendril of a supply chain.

Governments – central and municipal - must do their share to ensure the competitiveness of garment producers and assist them to upgrade, however, much depends upon the initiatives of firms themselves. High performing and valued suppliers have three attributes. One is the quality of management not just of factory operations but also of the supply channel and logistics – a complementary attribute. Quick reaction, management practices strongly influence productivity. This is hardly surprising but now this commonplace is undergirded by solid empirical evidence from textile plants in India. In the buyer driven supply chain context, good management counts for even more because the pressure to perform, to meet exacting international standards and to be alive to market trends, is far greater.

A second attribute is the emphasis a form places on quality, upgrading and technology, including the full harnessing of IT for SCM (supply chain management) purposes. This is tied in with the volume and selectivity of investment in the latest equipment; the capacity to search for and absorb new technology; the attention given to training of the workforce so as to maximize productivity and to quality control in order to reduce wastage and achieve the best possible results; and the resources devoted to research and design so as to keep abreast of advances elsewhere and to promote in-house innovation. As stated earlier, the garment sector is no longer a technology laggard. And technical textiles are shaping up to be an R&D intensive, high tech activity. Rising firms must do their own R&D and collaborate with other firms and research entities to develop products and processes. Governments can assist by supporting R&D through publicly sponsored research, grants and tax incentives but firms must do most of the heavy lifting.

A third aspect of firm performance that has moved to the center of international concern is the adherence to codes and regulations governing workplace conditions, labor rights and minimum wages. Factory fires in Bangladesh, Pakistan, and China, accounts of workers being harassed and forced to accept wages below the legal minimum, substandard if not dangerous working conditions, and long working hours, have aroused resistance in importing nations. Although Western retailers and

brand manufacturers have responded by redoubling their efforts at monitoring and certification and by urging governments to enforce local regulations governing factory work, slippages are frequent because local enforcement is hamstrung by the political clout wielded by industrialists. Thus much depends upon the willingness of firms to self-police and to work with the agencies hired by buyers to check on factory conditions.

Garment Suppliers Beware: The Global Garments Value Chain is Changing

The origins of the modern industrial economy can be traced to a series of innovations in the manufacturing of cotton textiles, which began appearing from early in the eighteenth century. These innovations and the entrepreneurship that promptly harnessed them were responsible for the Industrial Revolution that made Britain the world's preeminent economic powerhouse[1]. The United States and European nations, followed in Britain's footsteps with textiles serving as the springboard to industrialization. Now, more than a century after Japan also initiated the modernization of its economy by importing western textile technologies and the factory system, the textile and garment industry is still the primary industrial building block for developing countries (Brenton and Hoppe 2007). The industrial takeoff of countries as diverse as China and Mauritius can be traced to the growth and export competitiveness of their textile industries, and the textiles subsector remains the mainstay of Pakistan, Bangladesh, and Sri Lanka more than three decades[2] after the start of industrialization. Since the mid 1980s, developing countries have dominated textile exports, however, nearly three quarters of all imports of garments are by the EU, the U.S. and Japan, and for the foreseeable future, these three will remain the focus of trade with other middle income countries slowly enlarging their import shares. Thus major retailers and branded firms from advanced countries will continue to drive global supply chains albeit with many changes in relations between buyers and suppliers resulting from shifts in consumer demand, turnover of producers, technological advances on several fronts, evolution of trade rules and relationships, and the efforts by lead firms to optimize their supply chains so as to improve service, and minimize costs and risks. With many countries jostling to enlarge their share of the export market, the pressure on suppliers in Pakistan, Bangladesh and other low-income countries will intensify and only the proactive and strategically minded firms are likely to grow their businesses.

---

[1] John Kay fired the first shot by inventing the flying shuttle in 1733, which increased the productivity of weavers manifold and led to the creation of factories in the 1740s. This resulted in imbalances that triggered complementary innovations throughout the production chain from the growing of cotton to the production, distribution and marketing of finished products. Hargreaves spinning jenny eased the constraints on the production of yarn. It was followed by Arkwright's water frame, Crompton's spinning mule, the Cartwright-Horrocks power loom, Whitney's cotton gin, Jacquard's loom, high speed sewing machines, chemical dyes, new materials for making buttons, and many others extending through the nineteenth century leading to the mass production of ready made clothing. Innovations on the production front were matched by advances in distribution prompted by the spread of railways and the telegraph network and the rise of the wholesale-jobber, and in retail sales through increased advertising that addressed the growing, status conscious, urban middle class, the emergence of specialty and department stores and mail order sales. A steady flow of product and process innovations continues, as discussed later in the paper, and the mail order business has been revolutionized by online sales and marketing via the Internet.

[2] Pakistan began industrializing in the late 1950s.

The purpose of this paper is to first take stock of global trends in the garments trade[3] and the current status of global value chains that handle much of the trade. A second objective is to take account of technological advances that are impinging upon the pattern, composition and sourcing of garments and the opportunities they are presenting to firms in developing and developed countries. The third objective is to examine how this is being affected by the ongoing restructuring of global value chains and of production networks A final objective is to summarize the implications of these developments collectively for low-income countries such as Pakistan at the lower end of the food chain. As the subject matter is quite vast, the paper will concentrate on recent development with a bearing on the strategies of supplier firms and on policymaking.

1. Garments Trade: In the Global Context

The progressive dismantling of trade barriers and falling transport costs have contributed to the rapid growth of global trade over the past half-century. Even though the financial crisis and the ensuing recession in some of the leading OECD countries, caused trade to contract in 2009, recovery was fairly swift in 2010- 2011 with global exports increasing by almost 14 percent and 5 percent in 2010 and 2011 respectively[4]. Between 2005 and 2010, merchandise exports rose by 3.5 percent per annum and those of manufactures by 4.0 percent per annum; as of 2010, global merchandise exports amounted to $14,851 billion of which $9,962 billion were manufactures (WTO 2011).

Starting in the 1980s and gaining momentum since, the share of export oriented, emerging economies has climbed steadily with East Asia at the forefront. This geographical redistribution of trade flows was – and is – strongly supported by the fragmentation of the production process, the offshoring of the labor intensive elements of production from advanced countries, and by vertical specialization that has served to embed manufacturing activities in a number of developing economies. With respect to the textile and garment industry (t&g), the geographical dispersion of manufacturing was reinforced by trade agreements that sought to restrict imports into the advanced countries by assigning export quotas to developing nations.

Japan emerged as a supplier of textiles and garments in the 1940s followed by the four East Asian Tiger economies in the 1960s. As pressure mounted on producers in Western countries, they introduced Short Term Arrangements limiting imports from Asia in July 1961, and these morphed into Long Term Arrangements some

[3] Textile production and trade is not covered here. That is a separate topic area, textile production being more capital intensive, subject to scale economies and requiring the efficient delivery of electricity, water and infrastructure services and the capacity to manage complex manufacturing processes (Abernathy, Volpe and Weil 2006).

[4] The WTO estimates that trade will increase by less than 4 percent in 2012 because of a sluggish U.S. economy, the persisting problems of the Eurozone and the slowing of the Chinese economy. http://www.wto.org/english/news_e/pres12_e/pr658_e.htm

years later. A rationalization of sorts was arrived at under the 20 year Multi-Fiber Arrangement (MFA), which came into effect in 1974, whereby the United States and other advanced economies negotiated bilateral quotas with the major suppliers of textiles and garments. The MFA was superseded by the Agreement on Textile and Clothing (ATC) in 1995, a byproduct of the Uruguay Round and complemented by a number of Regional/Free Trade Agreements with their own complex rules. The ATC finally expired in 2005, however, forty five years of managed trade in t&g contributed to a scattering of production across the developing world as leading exporters to the West first exhausted their own quotas and then began establishing production platforms in countries not subject to quotas or with quotas to spare[5]. Thus a cotton garment sold at a Wal-Mart store in the U.S. can trace a circuitous path from its origins in a field in Texas, spinning and weaving operations in Korea, its design in Germany, the cutting, trimming and making (CTM) of the garment in China, and its final packaging and shipping through Hong Kong (Rivoli 2005).

It is no surprise therefore, that intra-industry trade and trade in intermediate products have been growing faster than trade in the aggregate and that the fragmentation process has also encouraged greater intraregional trade, with some products crossing nation boundaries a number of times as they move along the value chain. For developed economies, between 56 percent and 73 percent of all trade is in intermediate products and they comprise three quarters of the imports of China and Brazil (Miroudot and others 2009; Ali and Dadush 2011[6]). Over 70 percent of European trade in 2010 was intraregional, 53 percent of Asian trade and almost one-half of exports from North America were to members of NAFTA. Intra-regional trade in clothing alone was valued at $97.6 billion in Europe and $41 billion in Asia. It is also not surprising that this makes it hard to determine with much precision, the domestic value added in any one country along the chain that a product traverses[7].

Garments bulk large in the exports of South Asian countries but they accounted for only 2.4 percent of global merchandise exports in 2010 ($351 billion) and 4.3 percent of Asia's exports ($200 billion). Between 2005 and 2010, exports of garments grew globally at a 5 percent per annum rate and Asian exports increased at 8 percent per annum. At the global level, this rate was a little slower than for manufactures overall (6 percent). In the Asian context, garments were among the least rapidly growing items, with only the exports of automotive products expanding more slowly. Over a 25 year period from 1985 to 2010, annual percentage increase in exports of garments slowed from 18 percent in 1985-90 – a period when manufactured exports in virtually all major product categories grew at double digit rates – to 5 percent in 1995-2000 and after increasing to 7 percent

[5] This is how Bangladesh, Mauritius, Sri Lanka and a number Central American and African countries among others, became producers of garments. When East Pakistan became the independent nation of Bangladesh it received half of the quota that had been assigned to Pakistan.

[6] http://ideas.repec.org/p/oec/traaab/93-en.html; http://www.voxeu.org/article/rise-trade-intermediates-policy-implications

[7] All trade data is from the WTO unless otherwise specified.

during 2000-2005, has returned to its earlier pace. Interestingly, with the exception of chemicals – the exports of which grew at a 9 percent rate – export growth of manufactures were all in the 3-6 percent range in 2005-2010. Garments, widely viewed as a low-tech labor intensive and mature commodity has not done badly at all and it has been a big money-spinner for China[8], Bangladesh[9], Mauritius and Pakistan.

By 2010, China was the leading exporter of garments by a wide margin with a 37 percent share up from 18.3 percent in 2000, the EU was second placed with a 28 percent share (unchanged from 2000) and Bangladesh, Turkey and India were ranked 4th, 5th and 6th respectively. Hong Kong was in third place. Pakistan was in 12th place with a 1.1 percent share no different from what it was in 2000. Among the top 15 exporting countries, other than China, which doubled its share, Bangladesh increased its share from 2.6 percent in 2000 to 4.5 percent in 2010; Vietnam went from 0.9 percent to 3.1 percent; and small gains of 0.2 percentage points each were registered by Turkey and India with 3.6 percent and 3.2 percent shares respectively in 2010. Seven of the top 15 countries suffered declines in their shares of the global market, the biggest losses being incurred by the United States and Mexico. What is particularly notable is the high level of export concentration with the top five developing countries (China, Bangladesh, Turkey, India and Vietnam) responsible for 51.3 percent of all exports.

Key trends in Garments Trade Flows

While much is being written about the declining salience of the EU and of the U.S. in the global economy – and of the parallel rise of China – the trade in garments remains western-centric and global supply chains have a North-South orientation. The EU and the U.S. are the biggest markets for exporters of garments and import penetration is in the 90+ percent range. South Asian countries count them among their top two trading partners for garments, and they export between 45 percent (India) and 88 percent (Bangladesh) of their garments to these two destinations. Even China sent 36 percent of its garment exports to the EU and the U.S. A lessening of dependence on the West over the medium term is unlikely (though it probably will in the longer term) with implications discussed further in the next section.

Although intra-regional trade in Asia has passed the $40 billion mark – and although the trade in garments has outpaced the trade in textiles - much of this takes the form of semi-processed garments that are transferred among countries so as to take full advantage of labor cost differentials; of specialized expertise in some area of manufacturing, packaging or logistics; of movements in currency; and country

[8] Garments comprised 8.2 percent of China's exports in 2010 as against 14.5 percent in 2005.
[9] Garments alone accounted for 79 percent of Bangladesh's export earnings in 2011/12. If textiles are included, 88 percent of exports emanated from this one sector – an overwhelming dependence 32 years after the industry took root.

specific trade preferences based on bilateral negotiations or RTAs[10]. In time, Asian countries will absorb larger volumes of finished ready-made garments from each other, but this is likely to occur slowly.

South-south trade has begun attracting attention and its share will continue expanding as incomes rise and consumption by nascent middle classes finds its stride.[11] Much of the trade is within Asia and 60 percent of the trade is in manufactures, but there is increasing evidence of diversification. Asian exports of garments to Africa have risen at a rapid clip – nearly 20 percent in 2010 – to $9.8 billion, three times the level in 2000. Clothing exports to the Commonwealth of Independent States (CIS) have climbed steeply to $11.3 billion and exports to the Middle –East have trebled from $2.5 billion in 2000 to $8.4 billion in 2010. These are promising developments pointing to diversifying opportunities for producers, which will reorient global supply chains, modify the product mix, and encourage innovation in design, distribution and marketing.

Global Value Chains and Production Networks

The recent history of trade in manufactured commodities is inextricably bound up with the emergence and elaboration of value chains and globe spanning production networks. The globalization of the garments industry and trade moved into higher gear in the 1970s following the advent of lean retailing in the United States and while other factors played a role, retailers and branded producers and marketers based in the U.S. were the drivers of the process. Four factors made lean retaining almost inevitable. First was the vast proliferation of products e.g. varieties of shirts, that retailers found that they needed to carry as buyers became more affluent, style conscious and discriminating, advertisers more ingenious, and new entrants made the market far more competitive. Second, the drastic compressing of product life cycles as buyers began to demand and to expect a frequent refreshing of fashions meant that carrying large quantities of a perishable products such as garments was highly risky and could lead to stock outs and loss making, discounted sales. Hence, anticipating demand and tailoring purchasing decisions as well inventories, rose in the scale of priorities. This imperative was facilitated by a third development, which was the spread of technologies that enabled retailers to track sales of individual

---

[10] Not only can RTAs/PTAs help create production networks, countries that are already a part of networks can enter into PTAs so as to deepen and secure their relationships with others as providers of intermediate goods. Orefice and Rocha (2011, p.3) estimate that PTAs that have deepened trade relations between members of production networks have increased trade by up to 35 percent. However, they also point out that the garments industry is less affected because of higher levels of standardization and a lower level of capital intensity.

[11] In 1985, high-income countries accounted for four fifths of global trade, by 2050 they may account for a half or less. (Hanson 2012);
http://unctad.org/en/PublicationsLibrary/webditctab2012d2_en.pdf;
http://www.unctad.info/upload/TAB/docs/TechCooperation/South-SouthTrade/StatisticalAnnex.pdf;
http://www.unctad.info/upload/TAB/docs/TechCooperation/South-SouthTrade/BackgroundNote.pdf

items identified by their bar coded, stock keeping units (SKU) at the checkout counter, monitor inventory within and among stores and replenish items that were in demand from centralized distribution points. Wal-Mart was in the vanguard of the lean retailing revolution and the parallel advances in warehousing and inventory management[12]. It also was in the forefront of the effort to diversify suppliers so as to drive down its costs and to maximize flexibility of supply[13].

Computerization (and electronic data interchange, EDI) and new IT tools helped systematize the collection of detailed information on sales, improved forecasting of demand and served to streamline inventory management[14]. But IT, which steeply reduced communication and transmission costs, and better logistics also facilitated the efficient management of dispersed manufacturing activities, the offshoring of production, starting with low tech commodities such as garments, and the efficient sourcing of products from multiple firms linked to the retailer by long electronic threads. Thus the functionally integrated global value chain as currently understood was born and global production networking took wing. Undoubtedly other factors also played a part, such as trade liberalization noted above, big strides in logistics and the deepening of industrial capabilities in a number of East Asian economies without which globalization would have been anemic indeed. But the American consumer, innovative retailers operating in a large and unusually competitive market and the advent of facilitating IT, were the forces that articulated and energized value chains and made the global garments industry what it is today. Moreover, how the chains evolve, will strongly influence the shape of the industry in the future.

What are these beasts and how do they work? The value chain concept grew out of the work of Michael Porter in the 1980s (Porter 1985). It represents "a sequence of related and dependent activities that are needed to bring a product or a service from conception, through the different phases of production, to delivery to final consumers and after sales services, and finally to disposal or recycling." The GVC is complemented by the global production network, which is constituted of "specialized independent enterprises, capturing complex relationships between firms that are of systemic nature … It reflects the fragmentation of activities in some value chains", a result of technological modularization that permits the separation of design and other knowledge intensive or downstream activities from the production process and also allows for the decomposition of production itself into specialized operations performed by independent producers in geographically removed locations (UNIDO 2004, p. 5-6). Inevitably GPNs and GVCs overlap with one GPN

---

[12] Other firms, such as JC Penney and Sears were also active. Wal-Mart's use of cross-docking which minimized the time goods resided in warehouses was a significant innovation. http://www.usanfranonline.com/wal-mart-successful-supply-chain-management/; http://www.ame.orgwww.ame.org/sites/default/files/target_articles/04-20-3-Crossdocking.pdf. More recently the use of RFIDs has contributed to increased efficiency.

[13] Abernathy and others (1999).

[14] See the comment by Robert Baldwin (2012) http://www.economist.com/economics/by-invitation/guest-contributions/supply-chains-changed-growth-model/print

contributing to several value chains as contract manufacturers frequently do. However, the distinctive characteristic of a GPN is that it comprises of a constellation of tiered supplier firms[15] headed by a flagship retail buyer/brand leader e.g. Wal-Mart, C&A, Hugo Boss or Nike, a contract manufacturer e.g. Flextronics or Foxconn, or an a supply chain manager such as Li & Fung[16] that determines its organizational architecture, strategic direction, and governance.

The utility of the GVC is that it enables lead buyers or suppliers with an encompassing view of the chain to determine who creates value, how much, where it is distributed along the value chain, and how such value can be enhanced through suitable innovation and/or investment. Garments, a relatively low-tech commodity subject to codified production processes, falls in the domain of 'buyer driven supply chains' because here the retailer or branded firm can conduct arms length transactions with numerous independent suppliers that are able to produce and deliver according to the specifications. Producer driven supply chains involve the manufacture of more complex products requiring closer linkages among firms with affiliates of the lead firm serving as key suppliers. Although firms such as Esquel[17] maintain a vertically integrated albeit geographically dispersed system, most garment value chains are relatively fragmented with many independent suppliers.

During the past three decades the spread and elaboration of production networks can be traced to parallel initiatives by lead firms and by governments. The former needed production platforms where garments could be produced at least cost and they targeted countries with an elastic supply of low wage labor and with textile quotas and/or preferential access to western markets. Meanwhile governments in developing countries, eager to promote industrialization were on the lookout for avenues to exploit their comparative advantage in low-tech, labor-intensive manufactures. Thus Daewoo Corporation of the Republic of Korea having exhausted its textile quota sought and found a well connected entrepreneur in Bangladesh in 1979, assisted him through technology transfer to set up Desh Garments and launched the Bangladesh garments industry – with the government providing incentives that reduced input and transaction costs. In Mauritius and China, governments created Free Trade Zones and offered a panoply of tax, trade and land price incentives and invested in infrastructure to attract garment manufacturers

---

[15] Top tier firms can be technologically more sophisticated and maintain their own small scale GPNs and distribute their orders among a number of lower order firms, which in turn can do business with a number of suppliers belonging to other networks. Relationships in GPNs can be vertical, horizontal and diagonal.

[16] Based in Hong Kong, Li &Fung, is a one stop shop for retailers such as Target, designing garments organizing production through subcontracts with suppliers throughout East Asia and shipping them to buyers mainly in developed countries. Two thirds of the trading company's business is in garments. Recently the company's business has been hit by the downturn and by retailers preferring to deal directly with full package suppliers and ODMs.

[17] Hong Kong based, family-owned Esquel is the leading global supplier of men's shirts with a vertically integrated set-up that extends all the way to cotton growing farms in Xinjiang. http://www.esquel.com/en/; http://www.cotton247.com/article/1809/from-fiber-to-shirt-chinas-esquel-is-all-cotton

from Hong Kong and Taiwan who were on the lookout for alternative production sites not only because of quota issues but also because of rising wages. A pool of local entrepreneurial talent ensured that FDI catalyzed the entry of locally owned firms that initially served as second tier subcontractors to foreign firms. Later some of these firms entered the ranks of first tier suppliers in the production network. In other words, the push to offshore production and the capacity to manage dispersed production plus the piecemeal and selective deconstruction of trade restrictions fused with the industrial objectives of developing countries to create production networks in all their current complexity.

Successful networks have shared at least three characteristics. First network participants have benefitted from technology transfers of all kinds that have raised productivity, response time to changing market demand, and time to market, thereby bolstering the collectively shared profitability of the network. Such technology sharing includes process innovations that reduce wastage and raise quality; the introduction of products new to a firm; functional innovation that modifies the product mix; a repositioning of a supplier within a value chain in recognition of changing comparative advantage; and perhaps most importantly, the germination of innovation capacity that serves to avoid institutional locking in (on which more below). Second, the network is anchored to a number of clusters of producers in advantageous locations which enjoy labor market pooling that reduce commuting and job search costs, permit agglomeration specific knowledge and permit technological spillover advantages. The local agglomeration gains reinforce those derived from the overarching global scale of networking activities, in particular when a cluster acquires a host of input suppliers and encompasses a larger chunk of the value chain. Third, the most effective networks from the perspective of both lead firms and countries hosting clusters, are ones where participating firms have been able to progressively upgrade, specialize, innovate, and move up the value chain becoming full package suppliers or better. As Yeung (2008, p.94) observes, "value chain specialization entails a more strategically focused role played by the global lead firms in the upstream (R&D) and downstream (marketing and distribution) segments of the value chain, leaving much of the manufacturing portion of the value chain to its international strategic partners and supply chain managers."

To apprehend what participation in a network, upgrading and moving up the value chain imply in practical terms, the value chain needs to be viewed in its entirety. At the apex stands the lead firm, which can be a mass or specialty retailer – a Target, an M&S or a Mango; it can be a brand marketer such as Polo or Diesel; or it can be a brand manufacturer such as Hanesbrands or Zara. The lead firm deals with a number of "full package suppliers" which take responsibility for delivering a ready to be shelved product. These firms engage in the acquisition of fabric and trim material, the basic cut-make-trim (CMT) operations, the laundering, pressing, packaging, quality checks, labeling and pricing (as specified by the lead firm) and delivery to the retailer's distribution warehouse. The full package firm can conduct

its own in-house CMT work or it can contract some or all of this activity to second tier assemblers on the lowest rung of the value chain.

One rung above the full package firm is the Own Design Manufacturer (ODM), which does its own designing as well thereby realizing additional value. And a few of the most enterprising ODMs can make the transition to the Own Brand category (OBM) and eventually become apex firms in their own right with their own regional or global brand. Developing countries have all started out as assemblers doing CTM operations on material provided by an apex firm or its first tier full package suppliers. They have in time and with the help of clustering, become full package suppliers. Such firms have proliferated in Bangladesh, Turkey, China and to a lesser extent in Pakistan. However, few firms have advanced to the ODM stage – several in Turkey and China, a small number in Bangladesh. OBMs with global brands from developing countries are a rarity. Becoming OBMs and creating their own global value chains, is the challenge for the leading firms in the industrializing countries and is probably the only avenue out of the low value adding upgrading trap that countries such as Bangladesh, Pakistan and Sri Lanka are in after decades of serving as the foot soldiers in western production networks and value chains. Technological change in textiles and garments offers a way forward but it involves a change in industrial strategy.

2. Innovating Up the Value Chain

The lesson from the Japanese, Korean and Taiwanese experience for countries in South and Southeast Asia is that the manufacture of garments is an important way station on the road to development. This industry can be a launching pad and it can remain one part of a suite of industries, but the industry must evolve and it needs to provide firms with the resources to diversify. In other words, garment manufacturers must set their sights on not just becoming full package suppliers and eventually ODMs but in acquiring the technological capacity to absorb the most advanced technologies, thereby raising their productivity and manufacturing a wider range of high value products offering much higher profit margins. The building of such capacity can lead in time to innovation capability that can underpin a transition to fashion garments as well as into a range of technical textiles. Ideally the innovation capability nurtured in the garments sector can then become a vehicle for diversifying into other manufactures and services with innovation helping to buttress competitiveness. Governments can serve as handmaidens but firms necessarily must take the lead as they did throughout East Asia by nurturing global ambitions, setting ambitious targets, and devoting the managerial effort and resources to achieving them. Conventional wisdom has consigned garments and textiles to the technological backwater but they are far from being technologically stagnant and in fact there is tremendous potential to be tapped and technological progress is unceasing.

Many factors are influencing and will continue to affect the make-up and appearance of garments. The development of new materials is one big factor.

Already specialty clothing for the military, emergency workers and sporting activities (swimming bicycling) has introduced a range of material to protect the body (e.g. Kevlar, silk) and to streamline it. Now both inner and outer garments are incorporating polymers that can conduct electricity, respond to changes in temperature, humidity or the presence of biochemical substances and electromechanically change the characteristics of the garment. Nanotechnology and new antibacterial compounds permit manufacturers of specialty clothing to create garments that reduce odor (using silver nanoparticles)[18] and bacteria that can cause skin ailments. New materials are also making it possible to produce disposable garments and garments that are made entirely from "sustainable" material like the suit developed by Marks and Spencer and using trimmings made from bacteriostatic vegetable matter and even from fermented wine[19]. With climate change and much greater variability of the weather – "the warming, spikeness, and smearing out of the seasons, will call for layered clothing of traditional styles, materials and design. Smart clothing that is made of intelligent materials will be worn over a wide range of temperatures (Coates 2005, p.108-109)". Digital technologies are making customized – bespoke tailoring into a reality for the mass market. With the help of body scanners, producers of clothing can create garments for customers that are close to a perfect fit. Two companies, Bodymetrics and Styku have developed scanners that can enable individuals to do fittings in stores equipped with their scanners and then order products on line[20]. Coates (2005, p.109) observes, that once "information is in the database, no more visits to the department or clothing store [are] needed." Tesco has introduced the Aurasma app for smartphones that offers the user a new and interactive experience when purchasing apparel online.

A flavor of the technological product offerings can be gleaned from recent articles in Textiles International. For example there is a fabric that dispenses body cream some with "firming" properties and the capacity to reduce cellulite. There is a polymer that can store or release heat allowing the garment to regulate the temperature. Another process invented by Clariant International helps to make a fabric softer to the touch and at the same time water repellant and with greater tear strength. GE has gone a step further by introducing a water repellant material that also breathes and does not require a polyurethane film. In contrast, Teijin Fiber has brought out a polyester fabric that absorbs moisture rapidly but also dries out quickly, which is good for sportswear and for uniforms. For protective clothing usable by medical and industrial personnel, Darlington Fabrics has created Fasten Air an unusually strong and stretchable fabric that can be made odor free and wicks moisture away from the skin. And from Texas[21] A&M and FR Safety Yarns come polymer coatings to make fabric flame resistant. Active wear will be improved by Nilit's smooth, flexible, cool

[18] Other anti microbial treatments for home textiles are also available.
[19] See Textile Outlook International (2012, September).
[20] This technology could minimize the number of times people have to try on clothing to determine if it fits and it greatly eases online purchases. See "Body scanners offer perfect fit for reluctant online clothes shoppers" Financial Times, Sept 15/16th 2012, p.19.
[21] Technology Outlook International No.157, August 20

touch fabric that keeps the wearer comfotable because of a weave that enhances ventilation and the addition of titanium dioxide to the polymer. Columbia Sportswear and Jensen Cycling have fielded similar "cooling" materials using different technologies. While a jacket marketed by Li and Co. that incorporates high visibility LED lights, will increase the safety of motorcyclists.

Advances in materials, in customizing apparel, and in online purchasing are going hand in hand with parallel gains in the production of garments. A system designed by Dassault Systems gives the user the software to collect information on trends and the CAD capability to construct a product on a tablet computer without having to go to the trouble of creating a physical prototype. The software also allows for the testing of different fabric types to check for the suitability and to see how they drape and perform when moved and stretched. The design and production of customized clothing and items such a gloves and backpacks, will also be facilitated by a 3D scanner developed by the Hohenstein Institute. Further assistance comes from Real Form a new and highly realistic mannequin designed by Shapely Shadow.

Actual production of clothing is being made more efficient and the quality improved by new machinery for knitting, linking, pleating, decorating and embroidering. Now an entire garment can be manufactured in one piece by a computerized knitting machine without the need for linking. Furthermore, being seamless, the garment can drape better and has greater structural integrity. High tech linking, pleating and decorating machinery is taking some of the effort and drudgery out of these activities and also reducing the time needed to train operators. Producers of fashion garments, who lose millions each year at the hands of counterfeiters, can breathe easily by incorporating specialized DNA into fibers and fabrics each with its own unique code that can be detected by specialized scanners at border entry points[22].

Over the medium term, e-textiles are likely to surface increasingly in specialized and active wear clothing with electronics woven in. Already, garments with e-textiles include (Textile Outlook International April 2010, p.100) "interfaces with i-pods and mobile phones …and battery recharging functions [and] those which monitor vital physiological signs, such as heart rate, temperature and blood pressure." These and other technical textiles for construction, transport, packaging and protective clothing are the focus of intensive R&D activity and items that are likely to be commanding large markets. Recent trend rates of growth have been appreciably faster than for conventional garments and textiles and this is likely to persist. For instance, technical textiles account for 50 percent of the output of the German textile industry having grown by 40 percent in real terms since the 1990s[23].

As Coates (2005, p.110) remarks, "Over the next generation, our clothes will be more comfortable, better fitting, more durable and easier to clean or discard. They will also guard our health and safety, respond to the environment, improve our

[22] See Textile Outlook International No. 144, April 2010.
[23] Deutsche Bank Research, Textile and Clothing Industry, July 13th 2011.

work and recreation, and communicate with people and things automatically or at the wearer's discretion". This is still some years away and traditional clothing is not going away so countries in South Asia have time, however, if they are going to hold on to garments and textiles as a leading sector, developing the technological capacity to anticipate and meet emerging demands, to innovate and to invest in the machinery and the IT hardware and software will be arguably the only way to sustain growth, climb the value chain and to generate the technological spillovers that will promote other activities that leverage off technologies catering to the garment industry.

3. Shrinking Chains

Deepening manufacturing capabilities, stimulating innovation, increasing local value added and enlarging the share of technical textiles is taking on a greater urgency for the frontrunners because the nature of global value chains is being altered by a number of developments most of which are incentivizing consolidation of production in fewer locations and by larger full package suppliers or ODMs. While predicting how the global production landscape might look like a decade from now is always hazardous, there are a number of clues as to the direction of change[24]. The termination of the MFA/ATC and the greater liberalization of trade has diminished the forces acting to disperse production among countries not mainly because of a comparative advantage in the manufacture of garments but because these countries enjoyed preferential access. Such fragmentation involved costs and these were borne because firms in quota constrained countries could see no other way of expanding market share. These forces are much weaker now although RTAs continue to exert a pull. Countries that have not gained a comparative advantage in producing garments during their spell of infancy could see their industry atrophy and loose their place in the value chain. Others that might have attracted industry because of preferential trade arrangements may not do so. Economies enjoying early mover advantages that have built up a substantial domestic integrated production and technological capacities are more likely to survive and thrive. Thus South and Southeast Asian economies would appear to have the edge over African and Latin American countries.

A second factor inducing value chain consolidation is scale and agglomeration economies, especially when these result in networked clusters with technology absorptive capacity. Industrial districts in Third Italy have long maintained their competitiveness and their capacity to innovate because of inter cluster knowledge and I-O linkages. The appearance of such technologically absorptive clusters in China and their slowness to take root in Pakistan and Bangladesh possibly accounts for the rapidity with which China moved to the forefront of the garments industry – and in fact is beginning to borrow from and displace Italy in the production of fashion garments – while Pakistan with a long head start continues to wallow in the lower reaches of the global value chain. Agglomeration can have a high and

[24] See Gereffi and Frederick (2010).

persistent productivity pay-off and to offset rising wage costs to some extent. Hence even though wage pressures are mounting in China, Bangladesh, Vietnam and elsewhere in Asia, clustering effects, investment in the latest technologies and innovation that responds to evolving market trends could lead to a greater concentration of the garment value chain in Asia.

The ceaseless effort by buyers and lead firms to reduce transaction costs is a third factor that checks the geographical dispersion of a value chain whether of garments or other commodities, and in fact makes for leaner value chains. For lead firms and retailers, fragmentation can under some circumstances reduce costs but having to deal with multiple suppliers is cumbersome, and time intensive, imposes supervisory and monitoring costs (to ensure adherence to standards) and is a tax on management. Moreover, larger firms – often with a greater degree of vertical integration - are usually more productive and better able to respond flexibly to the demands of retailers and lead firms. Fewer and larger firms in a smaller number of locations are preferable to many small geographically dispersed firms and the prevailing global trading environment is inducing a trimming and reshaping of value chains and networks.

Complex and highly fractionated value chains materialized during an era of low energy and falling transport costs. That era is now past. Energy prices are much higher and likely to rise further and the worrisomely high carbon emissions from surface (and air) transport are a fourth factor undermining the economics of dispersed production and especially so as ceaseless automation drives down the share of labor costs even in the production of garments. Thus a system that requires semi-finished goods to crisscross national boundaries during the course of production is increasingly unsuitable and particularly so as no significant innovations in transports and logistics are on the horizon that could appreciably reduce shipping costs. Insourcing from within the country or region is gaining currency in Europe with Marks and Spencer for example, overhauling its supply chain so as to cease inter-hemispherical purchases. Although garments were not affected, the Fukushima tsunami in 2011 starkly highlighted the vulnerability of sprawling supply chains, the risks posed by fragmented production networks and the critical role of certain suppliers of parts. [25]

[25] The flooding of a factory owned by Renesas producing electronic microcontrollers for auto engines drastically reduced auto production in Japan and elsewhere. Earlier, floods in Thailand hurt Toyota's operations and also those of hard disc drive manufacturer Western Digital. However, supply chain participants were quick to respond to the plight of the Renesas plant in Hitachinaka. Toyota, Honda and other companies dispatched hundreds of engineers to restore production with the result that by June 2011 production restarted and was back to pre tsunami levels by September. Clearly key producers in a supply chain can count on massive assistance from lead firms in emergencies, which does enhance the integrity of the chain. http://spectrum.ieee.org/semiconductors/processors/how-japanese-chipmaker-renesas-recovered-from-the-earthquake; http://www.ft.com/intl/cms/s/0/c531d416-bc6b-11e0-acb6-00144feabdc0.html#axzz2EOnZXsNM

Customization and production in smaller lots on much shorter ordering cycles and a concomitant shift towards the final stages of production closer to the consumer, is a fifth factor streamlining value chains. As noted above, buyers in middle and high income countries that account for the majority of sales are more style and quality conscious – and no less cost conscious. To meet this demand and to do so speedily – as Internet shoppers can be impatient – firms must not only be alert to shifts in trends and fashions and also respond to the differing requirements of what is too often a segmented clientele with older age groups comprising a growing share. Production closer to the market; the capacity to produce in small lots at great speed; ability to meet high standards of quality and delivery; ability to refresh fashions with regularity and to go from design to production quickly using the new technologies have been gaining momentum, driving technological change and forcing value chains to pursue compactness[26]. It is unclear whether this presages a reflux of production back to the advanced countries, but it can certainly dampen further offshoring and fragmentation of production.

Last but not least, greater technological sophistication of processes and products, the increasing share of technical textiles serving the needs of other sectors of the economy and the cross-disciplinary nature of the technologies that are feeding the "new" garments industry, are likely to encourage greater R&D, closer linkages between firms and research institutes and universities, greater interaction between equipment producers and end users, and hence the migration of garment production back to the major urban centers where the markets are located and the fashions arise. In effect, technological change appears to be pointing towards an earlier era when value chains were highly compressed and largely concentrated within the confines of a core city, as in New York[27].

There are countervailing factors at work also. One is the increase in South-South trade and rising costs in Asia that could in time geographically reorient production networks and transfer some production to African countries for example[28]. In other words, a subset of the CTM operations could move to African countries with lower labor costs and growing domestic markets. Whether African countries do begin to

---

[26] As Lant Pritchett has observed (2012), Once "people get richer the proportion of their value that is from material value added relative to that which is immaterial falls. Between the increasing proportion of "cool" in consumption baskets on the demand side and labor saving technological progress on the supply side, the scope for new country entrants into the production of stuff for rich country markets as a growth strategy, is narrowing." http://www.economist.com/economics/by-invitation/guest-contributions/rich-countries-can-only-buy-so-much-stuff

[27] The garments district in New York was justly famous and in a much-attenuated form still survives. Whether it could be revived by technological change and regain its earlier scope and vigor is a million dollar question. http://www.nytimes.com/2012/08/02/opinion/long-live-the-garment-district.html?pagewanted=print; http://www.nbcnewyork.com/blogs/threadny/THREAD-Physical-History-of-the-Garment-District-118160474.html. The garments cluster in Los Angeles is a low tech variant, which also could grow if the winds shift.
http://en.wikipedia.org/wiki/Fashion_District_(Los_Angeles)

[28] Firms in China, Turkey and India are also focusing more of their attention on their domestic markets as export prospects have dimmed. (Gereffi and Frederick 2010).

figure more prominently in the global garment supply chain depends at a minimum on the effective mobilization of labor for urban factory jobs and investment in infrastructure and in trade facilitation.

A second factor highlighted by the Fukushima disaster, the Thailand flooding referred to above and the threat posed by political frictions that can interrupt supplies, is the desirability of building redundancy into a value chain by cultivating multiple sources of supply for critical items. This can be expensive and may only be needed if at all in the auto and electronics industries and that too for a few specific products, which are more likely to be high tech and their production located close to the lead firm/assembler rather than being sourced from a distant location. On balance, the likelihood of compaction seems, at this juncture, to be greater than further fragmentation of value chains and of production networks. This is buttressed by I-O based research by Fally (2012)[29], which shows that production of goods – even standardized ones – have become more complex and technologically sophisticated, their production has become less vertically fragmented than it was in 1947[30].

4. Implications of GVC Transformation for South Asia

A trend favoring lean supply chains, if it persists as would appear likely, has a number of implications for existing suppliers and for nations aspiring to become members of global supply chains/production networks. For the latter, the bar has been raised. Newcomers will have to meet exacting standards of performance, price and quality and demonstrate that they can outdo or at least match the capabilities of incumbents. Low labor costs alone will be increasingly insufficient given the evolution of technologies and market demand. Customization and efficient production in small lots is likely to be key. South-south trade will not make life easier, in fact on the contrary as margins will be narrower, market penetration more difficult and the competition much harsher. African countries hoping to benefit from offshoring by Chinese suppliers – or their loss of competitiveness – have their work cut out. Slowing growth in OECD countries[31] unless offset by the performance of others will put pressure on all suppliers – existing and prospective. A shakeout of retailing in western countries could result in the dissolution of some supply chains. Of course, rapid growth of developing countries and buoyant South-South trade fed by new and realigned supply chains could salvage the situation for all concerned, but the probability of this scenario materializing is lower today than it was as recently as five years ago when growth and trade were both booming.

---

[29] http://37.188.122.157/article/has-production-become-more-fragmented-international-vs-domestic-perspectives?quicktabs_tabbed_recent_articles_block=0

[30] Levine (2010, p. 1) makes the point that "long chains of production are vulnerable to failure of a single link (and) while long chains permit a high degree of specialization and so a large quantity of output, they are also more prone to failure." Also see WEF (2012, Pp.14-15).

[31] The financial crisis may have reinforced trends dragging down the potential growth rates of the major OECD economies into the 2 percent and sub 2 percent range.

For major suppliers of garments, which are already part of supply chains, growth in volume and more importantly in domestic value added, in a world market that may be expanding somewhat more slowly, will require a redoubling of efforts at enlarging technological, manufacturing and design capabilities plus other links in the supply chain that have a bearing on competitiveness. The smooth functioning of buyer driven supply chains depends on several factors of which three have been repeatedly underscored: the resourcefulness and multifaceted capabilities of the buyer to manage, design, transfer technology, market and create a governance structure that consistently delivers the desired results. Veteran buyers such as Wal-Mart, Target, M&S, Zara and others know this well enough and their survival depends on ceaseless effort at anticipating and responding to fickle demand, innovation, containing costs and delivering quality. For the foreseeable future the big names seem comfortably ensconced at the top of their respective chains and networks.

The bigger issues are elsewhere: these are the national and firm level determinants of competitiveness in a supply chain context. The checklist of national issues is long and only a few items deserve rehearsing. Macroeconomic stability (a function of benign politics as much as of good policies) and a business environment with effective institutional checks on rent seeking, help to reduce uncertainty, encourage entrepreneurship and stimulate investment in up to date production facilities. Moving up the garments value chain is impossible without continual investment in state of the art equipment and processes and such investment is scarce when uncertainty and rent seeking is rampant.

Among the weakest links in a supply chain within developing countries, is the physical infrastructure – hard and soft (Portugal-Perez and Wilson 2012)[32]. Poor land transport and port infrastructures and weak security increase costs[33], eat into narrow margins and discourage buyers. Inadequate and erratic power supplies are the bane of garment mills throughout developing Asia. Yet neglect remains widespread while suppliers plead, governments dither, and export opportunities are lost to others. Considering the stakes, the amounts involved are not excessive, but the gaps are being closed if at all much too slowly. Strengthening supply chains for leaner times demands urgent attention to these inputs. Behind the border trade facilitation and supply chain security, is another bottleneck that needlessly threatens the golden goose countries and millions of workers rely upon. A warehouse full of studies have identified ways of sweeping away the sand that causes friction in trade channels but doing so requires governments to take up

[32] The WEF's Enabling Trade Index (WEF 2012a) assigns low rankings to all the leading developing country exporters of garments. From a sample of 132 countries, China was ranked 56th in 2012, Turkey 62nd, Vietnam 68th and Bangladesh, India and Pakistan, lower still. Pakistan was the lowest ranked at 116th place. Clearly there is much room for improvement.

[33] An acute problem in Bangladesh where the road/rail transport is clogged and Chittagong port is highly inefficient. Mckinsey and Co (2012). In landlocked African countries, one half of the time between when goods leave the factory and are finally shipped out is spent in ports. The cost of this cargo dwell time is high (Raballand and others 2012).

cudgels with vested interests that profit from regulatory checks, and minimize reporting requirements, the need for clearances, and of (redundant) form filling that confront the exporter (Grainger 2007). The mechanics of reforming trade facilitation are relatively straightforward; the socio-politics of reform can be forbidding. Governments that want to see their firms enlarge their presence in supply chains will find ways of grasping the nettle. Those that do not will see their shares in a valuable trade shrink.

For many suppliers, especially the second tier ones, access to finance can be a constraint. Even larger firms can be forced to live dangerously. Full package business involves substantial up front purchases of fabric and other material for trim and packaging and firms in this game require a fund of working capital (Bair and Gereffi 2001). Thus the state of domestic and perhaps more importantly, local financial markets can affect the ability to respond to orders as and when they arrive[34]. And it is not just working capital that matters: successful firms are those that keep abreast of advances in technology and make the needed investments in both equipment and plant. An industry, which is starved of capital, risks being marginalized in the supply chain. Much like an unreliable power supply can result in lost business, an inadequate banking system or one that neglects the needs of supply chain bound firms, can stifle the deepening of the garments sector via clustering and value addition.

For too long, the garments subsector has been viewed as a low-tech, unskilled labor-intensive activity, surviving on cheap predominantly female labor and inured to high turnover. But as indicated above, the industry is undergoing a technological renaissance and the more competitive firms will be those that harness new design production and IT technologies and match these with a more skilled workforce. The leading top tier forms are already moving in this direction but for the rest, a sea change is required in hiring, compensation and in-house training practices. But these alone will be insufficient in the absence of public and private initiatives to set up effective vocational training facilities that inculcate a base level of skills, building on adequate foundation of primary and mid-level schooling. Climbing up the value chain and entering the ranks of ODMs and OBMs will be impossible if the quality of the workforce is not improved and firms do not take steps to retain qualified workers. Leading producers of garments such as China and Turkey have successfully built up the infrastructure of vocational and design institutions and supporting research facilities and tightened their links with global retailers. If Pakistan, Bangladesh, Sri Lanka and Vietnam want a larger piece of the supply chain, they need to do as much if not more especially if they see their medium term industrialization remaining tied to the fortunes of the garments industry[35].

---

[34] When local finance is scarce, suppliers become more dependent on lead firms and buyers. Gereffi and Frederick (2010).

[35] See Fernandez-Stark and others (2011). Leading firms from Turkey and Sri Lanka have established offices in a few western cities so as to be closer to their buyers and to work with them on design and product development.

Augmenting workforce quality, strengthening the physical infrastructure and improving the business climate can be strands of a strategy to create the urban industrial clusters that assist countries in enlarging and upgrading their roles in networks and value chains. Cluster formation through *glocalization* triggered by participation in value chains is a means of accelerating industrialization as for instance in the case of Thailand. However, cluster formation is the end result of a number of often serendipitous events and urban policy actions, and it can rarely be engineered through policy alone, although policy can provide many of the preconditions that can lead to *glocalization* once a city becomes hooked on to a tendril of a supply chain.

Governments – central and municipal - must do their share to ensure the competitiveness of garment producers and assist them to upgrade, however, much depends upon the initiatives of firms themselves. The supply chain literature attaches the greatest importance to three attributes of high performing and valued suppliers. One is the quality of management not just of factory operations but also of the supply channel and logistics – a complementary attribute. As Nick Bloom and others (2012) have shown most recently, quick reaction, management practices strongly influence productivity. This is hardly surprising but now this commonplace is undergirded by solid empirical evidence based on a survey of textile plants in India. In the buyer driven supply chain context, good management counts for even more because the pressure to perform, to meet exacting international standards and to be alive to market trends, is far greater.

A second attribute is the emphasis a form places on quality, upgrading and technology, including the full harnessing of IT for SCM (supply chain management) purposes. This is tied in with the volume and selectivity of investment in the latest equipment; the capacity to search for and absorb new technology; the attention given to training of the workforce so as to maximize productivity and to quality control in order to reduce wastage and achieve the best possible results; and the resources devoted to research and design so as to keep abreast of advances elsewhere and to promote in-house innovation. As stated earlier, the garment sector is no longer a technology laggard. And technical textiles are shaping up to be an R&D intensive, high tech activity. Rising firms must do their own R&D and collaborate with other firms and research entities to develop products and processes. Governments can assist by supporting R&D through publicly sponsored research, grants and tax incentives but firms must do most of the heavy lifting.

A third aspect of firm performance that has moved to the center of international concern is the adherence to codes and regulations governing workplace conditions, labor rights and minimum wages[36]. Factory fires in Bangladesh, Pakistan, and China,

[36] Exporting countries are also subject to rules governing human rights in OECD countries. Pakistan for example, stands to loose some of the trade concessions granted by the EU following the floods

accounts of workers being harassed and forced to accept wages below the legal minimum, substandard if not dangerous working conditions, and long working hours, have aroused alarm in Western importing countries. Although Western retailers and brand manufacturers have responded by redoubling their efforts at monitoring and certification and by urging governments to enforce local regulations governing factory work, slippages are frequent because local enforcement is hamstrung by the political clout wielded by industrialists[37]. Thus much depends upon the willingness of firms to self-police and to work with the agencies hired by buyers to check on factory conditions[38].

5. Concluding Observations

The production of garments is a vital industrial activity in many developing countries and it maintains a substantial presence in advanced economies as well. It is moreover, a major export commodity for Asian countries in particular as well as for the EU. Given the variegated nature of technological change likely to sweep through the garments business, the industry has a bright future. But like many other manufacturing activities, the garments industry is in the throes of an upheaval and the global production networks and buyer driven value chains that have channeled much of the trade, are being streamlined and trimmed down in response to changes in consumer demands, the retailing business, logistics costs and a revolution in manufacturing itself. It would appear in the light of the past history and dynamics of the garments business that incumbents, already tightly hooked on to value chains will have the upper hand even as the industry evolves and chains are transformed. Low wages will be of diminishing importance, instead, skills and technological capabilities and the quality of the infrastructure will determine which countries remain as chain participants and increase their share of the value added through design and brand development. A robust global economy will allow for new entrants that participate in possibly realigned global chains; sluggish performance – and with it trade frictions – could lead to heightened competitive pressures, forcing incumbents to struggle to maintain shares and making it much harder for newcomers to gain a foothold.

References

---

that devastated the country in 2010, because of the execution of a military office found guilty of murder. http://www.atimes.com/atimes/South_Asia/NK22Df01.html

[37] Destructive fires that have destroyed garment factories in Bangladesh and Pakistan have focused renewed attention on the difficulty foreign buyers face in enforcing regulations in hundreds of factories when government support is lukewarm and the willingness of factory owners to comply is uncertain. http://www.nytimes.com/2012/12/08/world/asia/bangladesh-factory-where-dozens-died-was-illegal.html; http://www.nytimes.com/2012/08/24/world/asia/as-bangladesh-becomes-export-powerhouse-labor-strife-erupts.html?pagewanted=all; http://www.nytimes.com/2012/09/13/world/asia/hundreds-die-in-factory-fires-in-pakistan.html?pagewanted=all.

[38] See Merk (2012).

Abernathy, Frederick, Anthony Volpe, and David Weil. "The future of the apparel and textile industries: prospects and choices for public and private actors." *Environment and Planning* 38 (2006): 2207-2232. Print.

Abernathy, Frederick H. John T. Dunlop, Janice H. Hammond and David Weil. 1999. *A stitch in time: lean retailing and the transformation of manufacturing--lessons from the apparel and textile industries*. New York: Oxford University Press.

Bair, Jennifer, and Gary Gereffi. "Local Clusters in Global Chains: The Causes and Consequences of Export Dynamism and Torreon's Blue Jeans Industry." *World Development* 29.11 (2001): 1885-1903.

Bloom, Nicholas, Benn Eisert, Aprajit Mahajan, David Mckenzie, John Roberts. 2012. Does Management Matter? Evidence from India. Dept. of Economics Stanford University, Palo Alto. http://www.stanford.edu/~nbloom/DMM.pdf

Brenton, Paul, and Mombert Hoppe, 2007. Clothing and Export Diversification: Still a Route to Growth for Low Income Countries? PREM Working Paper No.4343. Washington DC. World Bank.

Coates, Joseph, F. 2005. The Future of Clothing. *Technological Forecasting and Social Change*. 72: 101-110.

Fernandez-Stark, Karina; Stacey Frederick; and Gary Gereffi (2011). The Apparel Global Value Chain: Economic Upgrading and Workforce Development. November. Ducke Center on Globalization, Governance and Competitiveness.

Frederick, S, and N Cassill. "Industry clusters and global value chains: analytical frameworks to study the new world of textiles." *The Journal of the Textile Institute* 100.8 (2009): 668-681.

Gereffi, Gary, and Stacey Frederick, 2010. The Global Apparel Value Chain, Trade and the Crisis: Challenges and Opportunities for Developing countries. In Cattaneo, Olivier, Gary Gereffi, and Cornelia Staritz. *Global value chains in a post-crisis world: a development perspective*. Washington, D.C.: World Bank, 2010.

Grainger, Andrew (2007). Trade Facilitation: A Review. Advice Research Training Solutions. June. Surrey, United Kingdom.

Hanson, Gordon H (2012). The Rise of Middle Kingdoms: Emerging Economies in Global Trade. National Bureau of Economic Research. Working Paper 17961. March. Cambridge MA.

Levine, David K (2010). Production Chains. National Bureau of Economic Research. Working Paper 16571. December. Cambridge MA.

McKinsey and Co. 2012. Bangladesh's Ready-made Garments landscape: The Challenge of Growth

Merk, Jeroen. Working Paper #6: Tier 1 firms in the global garment industry: new challenges for labor rights advocates. Rising Powers and Global Standards. 2012.

Miroudot, Sebastien, Jehan Sauvage, Ben Shepherd. 2009. Trade in Intermediate Goods and Services. Paris OECD Publishing.

Orefice, Gianluca, and Nadia Rocha. "Deep integration and production networks."

Centre for economic policy Research Policy Insight 60 (2011): 1-5.
Portugal-Perez, Alberto, and John Wilson. "Export Performance and Trade Facilitation Reform: Hard and Soft Infrastructure." *World Development* 40.7 (2012): 1295-1307.
Raballand, Gael; Salim Refas; Monica Beuran and Gozde Isik. "Why Cargo Dwell Time Matters in Trade." *The World Bank: Economic Premise* 81 (2012).
Rivoli, Pietra. *The travels of a t-shirt in the global economy: an economist examines the markets, power and politics of world trade*. Hoboken, N.J.: John Wiley & Sons, 2005.
UNIDO (2004). Inserting Local Industries into Global Value Chains and Global Production Networks: Opportunities and Challenges for Upgrading With a Focus on Asia. United Nations Industrial Development Organization Economy Environment Employment. Working Papers. Vienna.
World Economic Forum. Insight Report: The Global Enabling Trade Report 2012; Reducing Supply Chain Barriers. Geneva, Switzerland.
World Economic Forum (2012a). Global Agenda Council on The Global Trade System: The Shifting Geography of Global Value Chains: Implications for Developing Countries and Trade Policy. Geneva, Switzerland.
World Trade Organization. International Trade Statistics 2011. Geneva, Switzerland.
Yeung, Henry Wai-chung, 2008. Industrial Clusters and Production Networks in Southeast Asia: Global Production Network Approach. In Ikuo Kuroiwa, and Mun Heng Toh. *Production networks and industrial clusters: integrating economies in Southeast Asia*. Singapore: ISEAS Pub.

The International Growth Centre (IGC) aims to promote sustainable growth in developing countries by providing demand-led policy advice based on frontier research.

Find out more about
our work on our website
www.theigc.org

For media or communications
enquiries, please contact
mail@theigc.org

Subscribe to our newsletter
and topic updates
www.theigc.org/newsletter

Follow us on Twitter
@the_igc

Contact us
International Growth Centre,
London School of Economic
and Political Science,
Houghton Street,
London WC2A 2AE

IGC
International
Growth Centre

DIRECTED BY
LSE
UNIVERSITY OF OXFORD

FUNDED BY
UKaid
from the British people

Designed by soapbox.co.uk