The Textile and Apparel Industry in India

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Introduction
The Multi-Fibre Agreement (MFA), that had governed the extent of textile trade between nations since 1962, expired on 1 January, 2005. It is expected that, post-MFA, most tariff distortions would gradually disappear and firms with robust capabilities will gain in the global trade of textile and apparel. The prize is the $360 bn market which is expected to grow to about $600 bn by the year 2010 – barely five years after the expiry of MFA. An important question facing Indian firms is whether their capabilities and their diverse supply chain are aligned to benefit from the opening up of global textile market?

The history of textiles in India dates back to the use of mordant dyes and printing blocks around 3000 BC. The diversity of fibres found in India, intricate weaving on its state-of-art manual looms and its organic dyes attracted buyers from all over the world for centuries. The British colonization of India and its industrial policies destroyed the innovative eco-system and left it technologically impoverished. Independent India saw the building up of textile capabilities, diversification of its product base, and its emergence, once again, as an important global player. Today, the textile and apparel sector employs 35.0 mn people (and is the 2nd largest employer), generates 1/5th of the total export earnings and contributes 4 per cent to the GDP thereby making it the largest industrial sector of the country. This textile economy is worth US $37 bn and its share of the global market is about 5.90 per cent. The sector aspires to grow its revenue to US $85bn, its export value to US $50bn and employment to 12 million by the year 2010 (Texmin 2005).

The Textile and Apparel Supply Chain
The Textile and Apparel Supply Chain comprises diverse raw material sectors, ginning facilities, spinning and extrusion processes, processing sector, weaving and knitting factories and garment (and other stitched and non-stitched) manufacturing that supply an extensive distribution channel (see Figure 1). This supply chain is perhaps one of the most diverse in terms of the raw materials used, technologies deployed and products produced.

This supply chain supplies about 70 per cent by value of its production to the domestic market. The distribution channel comprises wholesalers, distributors and a large number of small
Figure 1: The Textile and Apparel Supply Chain
retailers selling garments and textiles. It is only recently that large retail formats are emerging thereby increasing variety as well as volume on display at a single location. Another feature of the distribution channel is the strong presence of ‘agents’ who secure and consolidate orders for producers. Exports are traditionally executed through Export Houses or procurement/commissioning offices of large global apparel retailers.

It is estimated that there exist 65,000 garment units in the organized sector, of which about 88 per cent are for woven cloth while the remaining are for knits. However, only 30–40 units are large in size (as a result of long years of reservation of non-exporting garment units for the small scale sectors – a regulation that was removed recently). While these firms are spread all over the country, there are clusters emerging in the National Capital Region (NCR), Mumbai, Bangalore, Tirupur/Coimbatore, and Ludhiana employing about 3.5 mn people. According to our estimate, the total value of production in the garment sector is around Rs.1,050–1,100 bn of which about 81 per cent comes from the domestic market. The value of Indian garments (eg. saree, dhoti, salwar kurta, etc.) is around Rs.200–250 bn. About 40 per cent of fabric for garment production is imported – a figure that is expected to rise in coming years.

The weaving and knits sector lies at the heart of the industry. In 2004-05, of the total production from the weaving sector, about 46 per cent was cotton cloth, 41 per cent was 100% non-cotton including khadi, wool and silk and 13 per cent was blended cloth. Three distinctive technologies are used in the sector – handlooms, powerlooms and knitting machines. They also represent very distinctive supply chains. The handloom sector (including khadi, silk and some wool) serves the low and the high ends of the value chain – both mass consumption products for use in rural India as well as niche products for urban & exports markets. It produces, chiefly, textiles with geographical characterization (e.g., cotton and silk sarees in Pochampally or Varanasi) and in small batches. Handloom production in 2003-04 was around 5493 mn.sq.meters of which about 82 per cent was using cotton fibre. Handloom production is mostly rural (employing about 10 million, mostly, household weavers) and revolves around master-weavers who provide designs, raw material and often the loom.
Weaving, using powerlooms, was traditionally done by composite mills that combined it with spinning and processing operations. Over the years, government incentives and demand for low cost, high volume, standard products (especially sarees and grey cloth) moved the production towards powerloom factories and away from composite mills (that were essentially full line variety producers). While some like Arvind Mills or Ashima transformed themselves into competitive units, others gradually closed down. In 2003-04, there remained 223 composite mills that produced 1434 mn. sq. mts. of cloth. Most of these mills are located in Gujarat and Maharashtra. Most of the woven cloth comes from the powerlooms (chiefly at Surat, Bhiwandi, NCR, Chennai). In 2005, there were 425,792 registered powerloom units that produced 26,947 mn. sq. mts of cloth and employed about 4,757,383 workers. Weaving sector is predominantly small scale, has on an average 4.5 power looms per unit, suffers from outdated technology, and incurs high co-ordination costs. Knits have been more successful especially in export channels. Strong production clusters like Tirupur and Ludhiana have led to growth of accessories sector as well, albeit slowly. The hosiery sector, on the other hand, has largely a domestic focus and is growing rapidly.

The spinning sector is perhaps most competitive globally in terms of variety, unit prices and production quantity. Though cotton is the fibre of preference, man-made fibre (polyster fibre and polyster filament yarn) is also produced by about 100 large and medium size producers. Spinning is done by 1566 mills and 1170 Small and Medium Enterprises (SME). Mills, chiefly located in North India, deploy 34.24 mn. spindles and 0.385 mn rotors while the SME units produce their yarn on 3.29 mn spindles and 0.119 mn. rotors producing 2270 mn kg of cotton yarn, 950 mn kg of blended yarn and about 1106 mn kg of man-made filament yarn every year. Worsted and non-worsted spindles (producing woolen yarn) have also progressively grown to 0.604 mn and 0.437 mn respectively. Spinning sector is technology intensive and productivity is affected by the quality of cotton and the cleaning process used during ginning.

The processing sector, i.e., dyeing, finishing and printing is mostly small in scale. The largest amongst these would dye and finish about 5000 m/day. The remaining are independent process houses (or part of composite mills) that use automated large batch or continuous processing and have an average scale of about 20,000 m of cloth daily. About 82.5 per cent or 10,397 units are
hand processors who dye cloth or yarn manually and dry in open sunshine. Of the remaining (and these use automated and semi-automated equipment), 2076 are independent process houses.

Cotton remains the most significant raw material for the Indian textile industry. In 2003-04, 3009 mn kg of cotton was grown over 7.785 mn acres. Other fibres produced are silk (15742 tonnes), jute (10985000 bales), wool (50.7 mn kg) and man-made fibres (1100.65 mn kg). Cotton grows mostly in western and central India, silk in southern India, jute in eastern and wool in northern India. Significant qualities of cotton, silk and wool fibres are also imported by the spinning and knitting sectors. (Except for garments, all data in this section was obtained from OTC 2004 and Texmin 2005.)

Managing such a complex supply chain requires coordination through excellent managerial practices, technology and facilitating policies.

**Competitiveness of Indian Textile & Apparel Industry**

India is one of the few countries that owns the complete supply chain in close proximity from diverse fibres to a large market. It is capable of delivering packaged products to customers comprising a variety of fibres, diverse count sizes, cloths of different weight and weave, and a panoply of finishes. This permits the supply chain to mix and match variety in different segments to deliver new products and applications. This advantage is further accentuated by cost based advantages and diverse traditions in textiles.

Indian strength in spinning is now well established – on unit costs on ring yarn, open-ended (OE) yarn as well as textured yarn, Indian firms are ahead of their global competitors including China. Same is true on some woven OE yarn fabric categories (especially grey fabrics) but is not true for other woven segments. India contributes about 23 per cent of world spindles and 6 per cent of world rotors (second highest in the world after China). Fifty five per cent of total investment in technology in the last decade has been made in the spinning sector. Its share in global shuttleless loom, however, is only about 2.8 per cent of world looms (and is ranked 9th in the world). The competitiveness in the weaving sector is adversely affected by low penetration of shuttleless looms (i.e., 1.69 % of Indian looms), the unorganized nature of the sector (i.e., fragmented, small
and, often, un-registered units, low investment in technology & practices especially in the powerloom, processing, handloom and knits) and higher power tariffs. There is, however, a recent trend of investment in setting up hi-tech, stand-alone mid-size weaving companies focusing on export markets. India also has the highest deployment of handlooms in the world (handlooms are low on productivity but produce specialized fabric). While production and export of man-made fibre (and filament yarn) has increased over the years, Indian industry still lags significantly behind US, China, Europe, Taiwan etc. (Texmin, 2005.)

Indian textile industry has suffered in the past from low productivity at both ends of the supply chain – low farm yields affecting cotton production and inefficiency in garment sector due to restriction of size and reservation. Add to this, contamination of cotton with consequent increase in cost (as it affects quality and requires installation of additional process to clean and open cotton fibres before carding operations), poor ginning (most equipment dates back to 1940s), high average defect rates in production process (which also leads to increase in effective labour and power costs), hank yarn requirement, etc. and its competitiveness gets compromised severely. Similarly, processing technology is primarily manual and small batch oriented with visual colour matching and sun drying. This leads to inconsistency in conformance quality. Lead times across the sector continue to be affected by variability in the supply chain – defect rates average over 5%, average % of orders on time is about 80%, variance in order size across firms is high (e.g., the coefficient of variability of average order size for spinning firms is about 2.6), and on an average, 16 days of sales as work-in-process inventory (the highest for garment firms) and an average of 30 days of sales in raw material inventory (the highest for spinning firms) (Chandra 2004). Some of the hurdles (e.g., reservation in the garment sectors) including tariff distortions between the organized and unorganized sectors have now been systematically removed by policy initiatives of Government of India and have opened avenues for firms to compete on the basis of their capabilities.

Trade data of post-MFA performance reveals some interesting trends – Indian firms registered a 27 per cent growth in exports to US (against China’s 52 per cent) during the Jan-April 2005 time period. Most of this growth has been in textiles while apparels show marginal gains. Apparels & accessories constituted 78% of global exports to USA (FICCI 2005). (India is still a relatively
small yet growing player in the global apparel market.) It is expected that India will soon replace Mexico as the second largest apparel supplier to the US.

**Challenges facing Indian Textile and Apparel Industry**

Textile supply chains compete on low cost, high quality, accurate delivery and flexibility in variety and volume. Several challenges stand in the way of Indian firms before they can own a larger share of the global market:

**Scale:** Except for spinning, all other sectors suffer from the problem of scale. Indian firms are typically smaller than their Chinese or Thai counterparts and there are fewer large firms in India. Some of the Chinese large firms have 1.5 times higher spinning capacity, 1.25 times denim (and 2 times gray fabric) capacity and about 6 times more revenue in garment than their counterparts in India thereby affecting the cost structure as well as ability to attract customers with large orders. The central tendency is to add capacity once the order has been won rather than ahead of the demand. Customers go where they see both capacity and capabilities. Large capacity typically goes with standardized products. These firms need to develop the managerial capabilities required to manage large work force and design an appropriate supply chain. For the size of the Indian economy, it will have to have bigger firms producing standard products in large volumes as well as small and mid size firms producing large variety in small to mid size batches (the tension between the organized and un-organized sectors will have to be addressed first, though). Then there is the need for emergence of specialist firms that will consolidate orders, book capacities, manage warehouses and logistics of order delivery.

**Skills:** Three issues must be mentioned here: (a) there is a paucity of technical manpower – there exist barely 30 programmes at graduate engineering (including diploma) levels graduating about 1000 students – this is insufficient for bringing about technological change in the sector; (b) Indian firms invest very little in training its existing workforce and the skills are limited to existing proceses (Chandra 1998); (c) there is an acute shortage of trained operators and supervisors in India. It is expected that Indian firms will have to invest close to Rs. 1400 bn by year 2010 to increase its global trade to $ 50 bn. This kind of investment would require, by our calculations, about 70,000 supervisors and 1.05mn operators in the textile sector and at least
112,000 supervisors and 2.8mn operators in the apparel sector (assuming a 80:20 ratio of investment between textiles and apparel). The real bottleneck to growth is going to be availability of skilled manpower.

**Cycle Time**: Cycle time is the key to competitiveness of a firm as it affects both price and delivery schedule. Cycle time reduction is strongly correlated with high first pass yield, high throughput times, low variability in process times, low WIP and consequently cost. Indian firms have to dramatically reduce cycle times across the entire supply chain which are currently quite high (Chandra, 2004). Customs must provide a turnaround time of ½ day for an order before Indian firms can they expect to become part of larger global supply chains. Indian firms need a strong deployment of industrial engineering with particular emphasis on cellular manufacturing, JIT and statistical process control to reduce lead times on shop floors. Penetration of IT for improving productivity is particularly low in this sector.

**Innovation & Technology**: A review of the products imported from China to USA during January–April 2005 reveals that the top three products in terms of percentage increase in imports were Tire Cords & Tire Fabrics (843.4% increase over the previous year), Non-woven fabrics (284.1% increase) and Textile/Fabric Finishing Mill Products (197.2% increase) (FICCI, 2005). None of these items, however, figure in the list of imports from India that have gained in these early days of post-MFA. Entry into newer application domains of industrial textiles, nano-textiles, home furnishings etc. becomes imperative if we are to grow beyond 5–6% of global market share as these are areas that are projected to grow significantly. Synthetic textiles comprise about 50 per cent of the global textile market. Indian synthetic industry, however, is not well entrenched. The Technology Upgradation Fund of the government is being used to stimulate investment in new processes. However, there is little evidence that this deployment in technology has accompanied changes in the managerial regimes – a necessary condition for increasing productivity and order winning ability.

**Domestic Market**: The Indian domestic market for all textile and apparel products is estimated at $26 bn and growing. While the market is very competitive at the low end of the value chain, the mid or higher ranges are over priced (i.e., ‘dollar pricing’). Firms are not taking advantage of
the large domestic market in generating economies of scale to deliver cost advantage in export markets. The Free Trade Agreement with Singapore and Thailand will allow overseas producers to meet the aspirations of domestic buyers with quality and prices that are competitive in the domestic market. Ignoring the domestic market, in the long run, will peril the export markets for domestic producers. In addition, high retail property prices and high channel margins in India will restrict growth of this market. Firms need to make their supply chain leaner in order to overcome these disadvantages.

**Institutional Support** : Textile policy has come long ways in reducing impediments for the industry – sometimes driven by global competition and, at other times, by international trade regulations. However, few areas of policy weakness stand out – labour reforms (which is hindering movement towards higher scale of operations by Indian firms), power availability and its quality, customs clearance and shipment operations from ports, credit for large scale investments that are needed for upgradation of technology, and development of manpower for the industry. These are problems facing several sectors of industry in India and not by this sector alone.

In conclusion, competitive strategies are developed by sector level firms and its their individual and collective initiatives that secure higher market share in global trade. While one has to be ever vigilant of non-tariff barriers in the post MFA world, the new market will be won on the basis of capabilities across the supply chain. Policy will need to facilitate this building of capabilities at the firm level and the flexible strategies that firms will need to devise periodically.

**Reference :**

