The Challenge of Reform: How India's Textile and Apparel Industry is Facing the Pressures of Liberalization

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Summary

As neoliberal policies have opened up protected markets worldwide, labor intensive sectors such as Garments and Textiles, are under intense pressure to restructure. As the largest repositories of employment in many developing countries, textiles and apparel are sectors critical to many national economies, and the prospects of their adjustment to intensified competitive pressures in a volatile and increasingly integrated global economy are of immense policy significance. The rising specter of a post MFA world makes these issues even more urgent.

In light of these rising pressures, policy makers often portray a bleak prognosis for the extent to which labor intensive sectors can anchor national development in a rapidly transforming world. The standard portrayal is that garments and textiles, as classic sunset industries that compete on the basis of low wages, are front runners in the 'race to the bottom,' offering mainly a 'low-road' path to economic development for most supplier countries. On the one hand, export access to the most lucrative industrial markets is increasingly controlled by powerful buyers who prospect the globe for low wage labor, and on the other, a few dominant countries, such as China, appear to have cornered the major share of global apparel supply. Regional pacts such as NAFTA, EU, and ASEAN further lock in producers proximate to the largest markets into tariff advantages denied others. What prospects are there, then, for suppliers from other countries to forge a viable turnaround of their textile and garment sectors?

This paper draws on evidence from Tamil Nadu's textile and garment industry (India's key textile hub) to explore the emerging geographies of production in labor intensive sectors like textile and apparel in response to economic openness in the Indian context. The evidence from Tamil Nadu, and a growing body of case study literature shows that despite the many challenges surrounding this sector, a number of textile and apparel firms that are adjusting successfully to international competition are drawing on new sources of learning and developing a global strategy that builds on emerging comparative advantages other than cheap labor. Specifically, these advantages include capabilities to manage labor-intensive processes under conditions of small orders and uncertainty. The paper discusses these alternative advantages and the conditions under which they arose in the Tamil Nadu case, and raises questions for broader generalization.

Introduction: Liberalization and the Restructuring of labor-intensive Sectors

The textile industry is often portrayed in the literature, and in policy circles, as a quintessential sunset industry. As technological change, skill premiums, and productivity increases shift resources toward other more dynamic sectors of a modernizing economy, the share of textiles and apparel in total employment and output is expected to decline. Yet, even while debates continue in many advanced industrial economies about whether labor-intensive traditional sectors can stay competitive and continue to create good jobs, the textile and apparel industry has remained a crucial manufacturing sector in many industrial economies. Even in an economy as advanced as the United States, where growth is fueled by state of the art technologies and knowledge-based industries of the 'new economy,' the textile and apparel industry, though in long-term turmoil, is still a major employer in several regions.[1] The garment industry is one of New York region's largest employers, and accounts for a third of its manufacturing output (Trebay, 2000). In developing countries the textile and garment sector is an even larger employer, often the largest. Yet, as tariff barriers fall, and markets become increasingly integrated worldwide, the textile and garment industry across countries is under intense pressure to restructure, especially as the global conditions (WTO agreements) governing the trade in textiles and apparel themselves approach a major reorganization in 2005.

Understanding how employment-intensive sectors can restructure to compete in a volatile global environment is therefore important both from the perspective of helping such industries adjust in the short run, as well as from the perspective of understanding, conceptually, how dynamic comparative advantage is created by firms and countries in regions that learn to cope with and succeed in rising beyond the crises. Under what conditions can low-wage sectors can cope with adjustment in ways that are productivity-enhancing, job-generating, innovative and labor-welfare enhancing—rather than defensive, zero-sum and income concentrating?

Gaining concrete insights into these questions would serve also as a caution

[1] See Berger, Gartner and Karty (1997) for a recent discussion of these themes; and Amsden (forthcoming) for the lead, transformative role that the textile industry has played in late development.

against a growing view in some strands of the literature and among some policy makers that countries should let dying sectors die, and instead switch freed-up regional and sectoral resources toward more modern, technology intensive uses.[2] There may be merit to this argument—as demonstrated by the recent upsurge in research and policy interest in the 'new economy' and higher-end, technology and knowledge intensive sectors. But just as the crisis of mass-production showed in the late 1970s, no single set of industries is a panacea for regional resilience. Historical evidence with respect to successful industrial trajectories has shown time and again that the most robust regions are those that have been able to nurture a strong, locally-rooted and diversified industrial base capable of change and transform as exogenous and endogenous pressures change. Understanding the conditions under which labor intensive sectors are able to successfully participate in a global economy is therefore not dichotomous to exploring avenues for higher-tech investments, but a crucial complement to it.

This paper uses evidence from India's Tamil Nadu state—the country's largest center of textile production—to argue that even in low-wage, labor-intensive settings in industrializing countries, innovative adjustments are occurring that do not rely only on low wages. But precisely because low wages, poor working conditions and volatility plague the textile and garment industry more generally, it is useful to look closely at the conditions under which some firms are able to compete in ways that are not labor-exploiting. The paper looks at two ends of the textile value chain in Tamil Nadu—the relatively capital intensive textile and spinning sector, and the opposite end of garment production (a sector reserved for small scale firms) to show how common patterns of adjustment span both, seemingly different ends of these production chains. Both sectors have been criticized as being in trouble; both have turned around in important ways. And as we will see, firms that are adjusting successfully are drawing on new sources of learning and developing a global strategy that builds on comparative advantages other

[2] This view is not really that new. As early as the mid-1980s, the conservative American economist Martin Feldstein testified before the U.S.Congress that "the labor intensive [U.S.] apparel market cannot and should not compete with much lower cost labor elsewhere. The stuff depends on somebody sitting at a sewing machine and stitching sleeves on; it is crazy to hurt American consumers by forcing them to buy that at $4 or $5 an hour of labor. We ought to be out of that business." Cited in Abernathy et. al. 1999.

than cheap labor, namely on their capabilities to manage and distribute labor-intensive goods produced in short runs and small batches under conditions of uncertainty and fragmentation, which has helped them find new niches in a highly segmented global market.

Specifically, these advantages include a new focus on bundling unlikely advantages: management of labor-intensive and fragmented production, new capabilities such as information technology-enabled management of logistics, supply, delivery, and local warehousing combined with strategic improvements in product quality and technology use; the deployment of better trained workers and efforts to improve productivity by reducing indirect labor costs such as energy costs, improved capacity utilization and better turnaround times; as well as an increasingly proficiency at the global search for and entry into global segments of the textile and apparel chain that are less dominated by oligopolistic and consolidated buyers. These responses also embody a new dynamic of offshore investment and production that runs completely counter to the developed-to-developing country flows of capital that the international trade literature focuses on. In some cases it involves the purchase by *developing* country firms of entities in *advanced* industrial economies to gain access to the large markets in the EU and the United States.

Organization of the paper

The rest of the paper is organized around four themes. After presenting an overview of the findings about the sector as a whole, the next section examines the key challenge in the spinning sector, Tamil Nadu's primary textile-related specialty. I begin the section with a consideration of the argument presented by government and the mills for why the sector is doing poorly. I present alternative views that emerged from the field, and then place them in the context of an empirical examination of who is doing well in the mill sector, who is not and why. *Second*, I examine specific strategies of adjustment in the region's new growth sector, garments and apparel that mirror the themes emerging from successful adjustment in the spinning sector. This section also discusses the most striking

strategies of globalization and 'moving out and abroad' that are evident among local firms, and the use of information technology by small firms. *Third*, we examine the remarkable turnaround of Tamil Nadu's handloom sector. *Finally* we look at the highly mixed labor strategy that has emerged from the various adjustment strategies of firms in different segments of the value chain. I have singled out labor for comment because very contradictory findings emerged about labor from the field. Even though firms in this region draw on the same labor pool, and operate under similar institutional (and public) laws about labor, I found "high-road" strategies mixed in with more regressive strategies of labor use. Because of the growing global debates about labor, the rise of credence goods and international labor standards, it is critical to notice the particular ways in which labor figures in "successful" corporate restructuring.

First, a word about the key issues that frame the current debate about the development of the textile industry globally. Two issues dominate this discussion: (1) The first is about the policy histories and institutional legacies that shape the structure of the textile/apparel in particular contexts. How have policy regimes at two levels -- national (such as choices about protection, export orientation, subsidization and so forth), and international (cross-national regulatory devices such as the Multi-Fiber Agreement [MFA]) -- shaped local productive capabilities and institutions of the textile/apparel industry in particular countries and regions. And do these structures and institutions impact the possibilities of adjustment. (2) The second issue relates to prospects for upgrading within the textile industry in a context of increased global integration, and the impending removal in four years of barriers (the quota-regime under MFA and ATC) that developed countries have long used to protect their markets. The key issue here is to understand the conditions under which labor intensive firms in developing countries can upgrade their productive capabilities and participate in the global economy, while simultaneously strengthening their local base.

A conceptual frame that has been frequently used in recent years to analyze how specific industrial sectors change as they become more globalized is that of Global

Commodity Chains. This framework, first developed by the sociologist Gary Gereffi[3] focuses on the various bundles of economic activities and discrete production processes that are part of an industry's supply chain, and which are involved in the production of a finished commodity. The framework distinguishes between two types of commodity chains—'producer driven' and 'buyer driven.' In producer driven commodity chains, large, integrated (often multinational) firms coordinate production networks and play a central role in controlling the industry's backward and forward linkages. Capital and technology-intensive products such as automobiles and heavy machinery are classic examples of producer-driven chains. Buyer-driven commodity chains are characterized by decentralized production networks, usually dispersed globally, that are coordinated by lead firms who control product design, marketing, and branding. Labor intensive sectors such as the apparel and garment industries are quintessential examples of buyer-driven chains where large retailers, marketers and branded manufacturers, such as J.C. Penny, Reebok, Sears, Nike, Liz Claiborne and Wal-Mart, play pivotal coordinating roles.

As export structures shift, the place of different countries in these commodity chains also changes, bringing with it, the prospects for upgrading. In buyer-driven chains such as textiles and apparel for example, firms in low-wage, industrializing countries are typically found at the bottom end of the commodity chain, engaged in assembly or basic production under specification from large retailers or marketers (or their agents), who define the product and its design and control its marketing and distribution. But over time, assemblers may move up to more complex roles—such as full-package production, then OEM production and eventually to OBM (original brandname manufacturing).

A major challenge for firms and policymakers in industrializing countries is to understand how and under what conditions firms can move 'up the commodity chain' so that such industrial upgrading may occur. The dangers are that low-end firms in low cost countries may remain trapped at the lowest level of assembly—without acquiring the capabilities of moving into more complex production activities—and thus dependent on lead firms. If low costs are the only factor driving the lead firm's sourcing decision from a particular set of firms, then such assemblers face the risk of being left behind when

[3] See Gereffi and Korzeniewicz 1994 for an early formulation.

even-lower cost assemblers emerge in other countries. Behind Japan, the most successful 'upgraders' so far, have been textile and garment firms in Taiwan, Hong Kong and South Korea, followed now by Chinese firms. Their upward mobility in the chain has resulted in what Gereffi has called 'triangle manufacturing' networks, where former producers, especially from Taiwan have become intermediaries between foreign buyers and new producers in low-wage nations that have sufficient quotas to supply protected developed country markets (See Gereffi and Pan 1994 and Thun 2000).

Viewed against this framework, the Tamil Nadu case, and the way in which textile firms in this buyer driven sector are responding to their insertion into the global economy, brings to light several, concrete patterns of adjustment that do not quite fit the dominant "central tendencies" described in the commodity chain literature as we will see below.

Table 1. Industry structure and policy levers across the Indian Textile and Apparel value chain

Cotton: non-reserved, but indirectly reserved as a result of the land-ceiling act. **Ginning**: Reserved for Small and Medium firms (SMEs). **Spinning**: Open to all firms, but SME mills get a preferential tariff rate: The differential tax and duty structure gives small and medium mills an advantage of about 5% over large mills.
Weaving: Organized sector (large firms) virtually non-existent now. Died with the rise of the powerloom sector and the differential exemptions (such as excise) enjoyed by the small firm sector.
Knitting: Reserved for SMEs, but otherwise little interference by government, other than training, infrastructure and market support—A very efficient sector in Tamil Nadu's Tirupur region is the country's largest hub and exporter of cotton knitwear.
Dyeing and finishing: The weakest link in the chain in India and Tamil Nadu. **Garments/apparel**: Reserved for SMEs until the government announced a new policy to abolish reservation in early November 2000.

Section 1

The Boom-and-Bust Dilemma of Spinning: Cycles of Overcapacity

The cotton spinning sector is the backbone of Tamil Nadu's textile industry. One of the region's oldest and most prestigious manufacturing sectors, it employs thousands, and has been the leading source of industrial capital, the state's revenues, exports, and industrial entrepreneurship. Tamil Nadu is also the nation's primary hub of cotton yarn production.[4] In 1999, with over 50% of the country's textile mills located in the state, Tamil Nadu produced 35% of all the yarn in the country, and employed over 19% of the nation's textile workers. Even while other regions (specifically Haryana, Punjab, Gujarat and Maharashtra), have grown rapidly in the last ten years, as Table 1 indicates, they have grown from a much smaller base, and their growth has been mainly in non-cotton blended and synthetic yarn/fabric. Despite this increased competition, Tamil Nadu continues to have a 42% market share in the country's output of cotton yarn, 22% in non-cotton yarn (including viscose, acrylic and other man-made materials), and over 18% of the nation's market for blended yarn (Economic Appraisal, 1997, and documentation from South India Mill-owners Association (SIMA), Coimbatore, 2000).

When I began my fieldwork for this study in 2000, according to official and industry accounts, Tamil Nadu's textile industry—the state's oldest and most deeply rooted manufacturing sector—was in trouble. The spinning sector in particular was hurting, officials said, with many textile mills having closed down in the past year.[5] Industry associations in the textile sector echoed this view.

The standard view was that several aspects of the government's Textile Policy introduced in the early 1990s, that favored exporters and protected small firm from several tiers of taxes, have created an uneven playing field between small and large firms, and between exporters and non-exporters. This has led to a burgeoning of surplus

[4] With 821 of the country's 1543 non-SSI spinning mills in 1999, Tamil Nadu had over 53% of the nation's textile mills in the organized sector (Compendium of Textile Statistics, 1999)

[5] Nationwide, about 349 mills have closed down since 1996 (Bana 2000:2).

spinning capacity in the small-scale sector since the early 1990s that has caused severe fragmentation in a sector (spinning) where scale economies have historically been critical. This fragmentation, in the words of one informant is "killing one of the most efficient segments of the country's textile industry (spinning)."

The segmented supply side of the Indian textile industry, that is, the coexistence of different production techniques and scales of production, according to this view, has led to highly uneven responses to openness. Choices that firms are themselves making—and have made historically—with respect to technology, product definition and market served, have led to an odd juxtaposition of a large un-dynamic old-guard still holding on to the 'large-volumes, low-margins' mindset of the protectionist era, and a small emergent segment of the industry that is rapidly modernizing. The weakest firms were predominantly focused on the low end of the spinning, weaving and apparel markets, producing the coarsest (cotton) counts of yarn and/or grey cloth for old, price-sensitive constituencies at very thin margins.[6] Industry officials argued that this narrow focus on low-end cotton by the region's base firms is particularly devastating because international trends, to which Indian firms are now obviously more exposed, have moved away from cotton (yarn and fabric) toward higher quality blends. Even within India, the trends of new growth have been away from cotton yarn toward various kinds of blends.

As noted above, the official account of the spinning sector is the strangulation of the sector by "unfair" competition with small firms. According to them, at least three recent had, together, pushed the organized mill sector to the wall: (1) demand recession globally over the last five years has cut sales just as de-licensing within the Indian textile industry has led to expansion and rapid build-up of capacity; (2) a temporal, macroeconomic factor—namely, the Asian currency crisis of the late 1990s—and the devaluation that ensued across East Asia shifted the terms of trade against Indian

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[6] It is certainly true that for a while—a run of four to five years—Tamil Nadu's (and India's) grey cloth exporters raked in huge profits from exports of grey cloth to Europe and East Asia. However, the anti-dumping suit against India's grey cloth exports by the EU at the WTO effectively killed this industry, even though the suits were ultimately won by India (dismissed as being without merit). Some firms managed to

exporters; and (3) recent fiscal policies of the government of India have inadvertently encouraged fragmentation in spinning and militated against consolidation as a cost-cutting strategy domestically.[7]

Is this malaise in the spinning sector a problem of low efficiency and outdated technology or poor quality? In an interview with a group of textile mill owners in Coimbatore, the "textile city" which has borne the brunt of recent losses and shutdown, industry officials vehemently dismissed that the problem in the spinning sector is one of efficiency. To the contrary, as local mills insist, the spinning sector is internationally competitive today and has gained significant international stature in the past decade. "Indian yarns have been very well received in the world market in recent years," one industry official noted.[8] "Indian yarn exports have done very well in Japan, Europe and East Asia." In 1997 India accounted for over 30% of the world's trade in yarn—an impressive statistic by any measure. Indeed, as the president of SIMA put it, "India's mill sector is internationally competitive today. In the mid-range counts, 50-60% of the world trade in yarn is from India. Exports have boomed throughout the late eighties and early 1990s. Two independent international consulting firms [Roland Berger, and Technopak] have recently called India's mills sector 'one on the world's most efficient.' The quality of Indian yarn is very good. We have an excellent textile machinery industry. About 20% of the Indian mills that export are capable of producing world class quality.[9] And

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sustain revenues by shifting to finer counts; the less dynamic firms simply reverted back to the domestic market or to other low-end export markets.

[7] Indeed, all the association officials and firms that I interviewed, expressed a strong appreciation of the GoTN for having initiated efforts to understand the issues they were facing. As the secretary of SIMA noted, "The textile industry figures very prominently in the state's revenue, its employment and exports. It has a high social impact. In the last five years the spinning segment has gone through unprecedented crises. A lot of representation has been made at the Center and the State, so it is welcome news that the State government is taking an interest in the Textile industry. It is a welcome change" (Interview, October 12, 2000, Coimbatore).

[8] One of the largest markets for yarn, the U.S. market, though is virtually foreclosed to Indian exporters because of miniscule quotas awarded to India by the US (an astonishingly low 200 tons annually as compared to 32,000 tons for EU).

[9] The top end of the yarn trade has historically been with Italy, Japan, Korea and Switzerland. Korea is swiftly entering into value added products, and moving plants to Eastern Europe. China if also focusing on higher value products, and already dominates the synthetic yarn trade, and is strong in the middle-range counts (20s-40s). But according to industry officials, "Increasingly, the top end is now with Indian spinners—especially for yarn counts in the 50s and 60s range" (SIMA, 2000). Pakistan has been growing

yet, the mills are making the biggest losses today." [10] Why?

The short "official" answer, as industry associations and some government officials tell it is, stagnant demand, surplus capacity, and fragmentation—much of the new capacity created in spinning after liberalization is small in scale, contrary to the logic of scale economies that characterize spinning.[11] The persistence of the un-viable fragmentation in the industry is the result of "the uneven playing field" created by the government's lopsided use of (excise and other) tax policy to protect small producers. In short, the industry and some government officials alike painted a compelling picture of the industry's woes.

However, upon closer examination of firms in the field and analysis of economic data, it became clear that the "crisis" of spinning was not uniform across the industry. Despite the problems of the past five years, some firms were doing very well (as we will see below). Others had been able to use the crisis to move up-market into superior quality yarn and other products; some had integrated forward from spinning into garments; yet others had found new markets abroad and at home; and almost all the better-performing firms had upgraded technologically. Clearly, not all spinning firms were suffering equally. Why were some firms able to respond well to the same crisis while others were not?

I would argue that the official explanation of the textile sector's problems as residing in government policy obscures the deeper sources of malaise in the spinning sector. The problem with the spinning sector, stems not simply from any structural decline, but from the very character of its recent boom. Long sheltered behind tariff walls, many of the worst performing firms are the largest and oldest mills that have

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rapidly, fueled by a price advantage derived largely from the high yearly depreciation of its currency; However, its export strength is growing powerfully in the lowest yarn counts (20s and below).

[10] Interview with Mr. Manickam, President SIMA, Chennai October 9, 2000.

[11] Analysts have also pointed to other policies such as the government's hank yarn obligation, which requires Indian mills to produce a certain proportion of their yarn output for the Handloom sector, and

refused to—or been slow—to adjust to competition from more efficient, lower cost world producers. In contrast to them, many other local firms have done very well under the same structural conditions that the poor performers lament about. The bigger point is that cycles of overcapacity often follow booms led by currency depreciation or sudden spikes of global demand. If the boom-times were overleveraged, then the slackening of demand that follows will naturally create financial crises for poorly managed firms. Focusing on these downturns or crises in and of itself themselves is just as problematic as assuming that the demand-spike led growth is indeed indicative of productivity driven growth rooted in real improvements in productive and organizational capacity of firms.

The policy surrounding the textile sector began to change in the mid-1980s. First, the Indian government de-licensed the textile industry in 1989[12], and in 1991, opened the economy to greater trade and instituted incentives to encourage exports. Aided by favorable demand conditions internationally (a spurt in cotton textile consumption in western markets), unprecedented world prices for cotton yarn, and incentives on the supply side domestically, yarn exports boomed throughout the early 1990s. The dramatic reductions in (input related) import constraints after economic liberalization in 1991 and the signing of the GATT, led to spectacular growth in textile and especially cotton yarn exports. Between 1986 and 1995, cotton yarn exports rose by 27% per year, and textile export revenues (as a whole) grew in real terms by 12% annually or 25% faster than total merchandise exports (World Bank 2000, p. 74-75).

This growth occurred in the shadow of two other long-standing policies oriented toward limiting yarn exports to ensure that the powerloom sector was adequately supplied: the hank yarn obligation policy and the restrictions on the export of yarn. Yet, increasing profits and lower barriers to entry attracted new investment. While a

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restrictions on exports that further militate against rationalization and consolidation in Indian spinning sector.

[12] The reforms in the textile industry actually began with the government's Textile policy of 1985 where it dismantled a sector approach to the industry, adopted a multifiber orientation, adopted a flexible raw-material policy, removed entry and exit barriers and emphasized modernization and technical upgrading (see World Bank, 2000). These changes, especially the institution of a modernization fund, contributed in significant ways to the upgrading of the textile sector, which allowed the firms that had upgraded the most to benefit from the liberalization that followed in 1991.

significant amount of new investment went into Export Oriented Units (EOUs), the largest increases in capacity came in the 'independent mill' sector, including small-scale units with less than a 2500 spindle capacity that mushroomed steadily during the boom years. It was not until exports slowed in the mid-1990s that industry and government realized that significant excess capacity had built up in the sector.

Several unrelated events coalesced in 1995-96 to lead to a reversal that many in the industry point to today as the spinning industry's growing crisis—the problem of fragmentation and declining profitability. First, external events cut severely into the profits mills were making. The slackening of demand from Europe for cotton yarn not only slowed orders for Tamil Nadu's spinning mills, but yarn prices fell at the same time as seasonal shortages of cotton in the domestic market pushed cotton prices up and squeezed profits for spinners. Second, this squeeze in profitability came at the same time as another set of external factors—namely the Asian currency crisis, and the devaluation of currencies across East Asia that followed—and shifted the terms of trade in cotton yarn away from Indian exporters. It also brought to light the limits of Indian price advantage in cotton yarn exports as a new array of competitors with devaluation-driven price advantages entered the market (such as Pakistan).

These externally-driven crises that lowered exports and cut profitability have shed light on a key weakness of the spinning sector: its low profit margins, and highlighted the role of a third factor—domestic policy—that has deepened the sector's current downturn. As spinning firms sought to cut costs to compete in the troubled external market, they confronted a fresh dilemma. Spinning is a capital intensive sector—the capital to labor cost ratio in spinning, for example, is estimated at 10 to 1 (ICCI and Jaikumar 1995 cf. World Bank 2000:46). An obvious path to restructuring in spinning is therefore consolidation; scale economies can lower costs and allow firms to absorb more efficient technologies. This is where the fragmented nature of the excess capacity generated by the rapid rise of small-scale mills in the 1990s posed a problem. Ordinarily, as one mill-owner said, it would be easy for firms to get around this fragmentation by a policy of de-facto consolidation through forming job-working networks of small mills allied with

large mills on a profit share basis (SIMA Chairman, October 2000).[13] But a recent policy by the government, that caught the industry by surprise in 1999, has prevented this from occurring: the exemption of small scale mills from excise tax.

Scale, at one level, is political. In the late 1990s, as the 'crisis' of spinning deepened, the government of India announced a decision to exempt small scale mills from excise tax, in an apparent bid to provide some relief to an important political constituency. The organized mill sector was stunned, and over the past year has protested vigorously against "this badly flawed decision," and has lobbied heavily for its repeal.

Their argument is deceptively simple: the overwhelming economies of scale in spinning make it unreasonable for the government to artificially shore up profitability in small scale units purely on the basis of tax exemptions. Indeed, association officials point to the logic of the government's own past policies in making their case—until the recent about-face, the government has always refused to exempt small spinners from paying excise tax on the grounds that scale economies make the idea of small mills non-viable (Interview, Coimbatore 2000).

The segments of the spinning industry most affected by this policy are SME and non-SME mills *serving the domestic market* (exports are not subject to excise). Industry officials calculate that the tax-exemption provides small mills serving the domestic market an advantage of 2.5% (due to the 'broken MODVAT chain' because powerloom fabric is not excisable) over large mills *ceteris paribus*. At a time when the spinning industry is looking to restructure itself and cut costs, this steep differential between large and small mills is unsustainable. "Large mills cannot make up for the 2.5% advantage that small mills get simply from not having to pay excise" (Interview, Chennai, October 2000). Most damaging, industry officials contend is the 'rent-seeking' leakage that this policy has engendered. Perversely, this concession to small producers has become a shelter for loss-making *large* firms. "1300 small mills have sprung up in one year. On

[13] Indeed over sixty mills have already begun to organize precisely such networks.

paper they generate profits; but they are 'paper mills,'" or fronts for larger, loss making enterprises (Interview, Chennai, October 2000).

Industry officials point to a second discriminatory tax policy that is pitting spinning firms against each other. Just as the excise exemption puts small and medium firms in competition in the domestic market, differing fiscal regimes governing 100% EOUs and non-EOU exporters are pitting dedicated versus non-dedicated exporters against one another. Overall, according to the calculations of Industry Association SIMA's president, this gives EOUs a 5% advantage over non-EOUs.[14] As a result, faced with the same conditions, EOU exporters manage to make a 2-3% profit while non-EOU exporters are doing much worse.

On these two counts, spinning industry officials make an argument that just as differential tariffs killed the organized weaving sector in India, the government's current use of differential tax policies to artificially protect small scale spinning mills would be devastating for the textile industry. "The government is killing a vibrant and efficient mill sector that desperately needs to consolidate and restructure. By shoring up a sector than cannot compete without government support, in four years [when the industry opens up to unrestricted trade under WTO rules,] the organized spinning sector will have been killed, and the small scale spinning sector left artificially standing will be unable to face open competition. In four years there will be no spinning sector in India" (Manickam interview, Chennai, October 2000). The industry is thus asking for the lifting of the excise tax exemption to small mills, and the fixing of a DEPB to create a level playing field between EOU and non-EOU exporters. [15]

Scale is clearly important to spinning; and evidence from countries around the world supports the view that fragmentation in spinning—the textile industry's most

[14] EOU's pay no sales tax, or excise tax and are allowed duty free import of capital goods and inputs. Meanwhile, exporting non-EOUs' only relief is through the duty-drawback scheme.

[15] The garment industry has its own version of this complaint. Firms as well as government officials argue that pitting Domestic Tariff Areas (DTAs) and Export Processing Zone (EPZ)-based exporters against each other by treating the two as falling under distinct tariff regimes has done severe damage to the garment sector's competitiveness.

capital intensive segment—inhibits the adoption of more efficient technologies.[16] Several countries have differential policy regimes within the same sector, but they are rarely aimed at firms of different sizes. Rather, they are aimed at processes or bundles of activities within production segments, and have clear goals and objectives. China, for example, used for a period of time, a policy of favoring, 'processing-based [value-adding] operations' over other operations via differential tariff structures. The aim of the policy was to help deepen local capabilities by encouraging the industry to move into more value-added processes. Similarly, the government's policy of linking bonuses and wage bills of textile factories to output levels pushed firms to make shop-floor related organizational changes to improve productivity (Chandra, 1999).

What a narrow focus on fragmentation may obscure: Other views from the mill sector

The elimination of the dual tax structure on small versus large firms may address the problem of fragmentation plaguing the spinning sector; and by closing the tax-exemption loop-hole behind which some un-dynamic and loss-making large mills take shelter, it may push the industry to undertake deeper reforms. But this policy is not a panacea, and will not automatically solve all problems facing the industry.[17] While consolidation is important for spinning, it is also important that the industry recognize that there are other structural, technological, and organizational problems that are inhibiting the sector's productivity. Too much emphasis on differential tariffs as the main culprit in the sector's

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[16] It is important to note that the Indian government allowed small firms the excise exemption in the first place because it wanted to 'level' the playing field for them, vis-a-vis the organized sector—the economies of scale in operation (and in input procurement, and marketing) that larger mills enjoy. But as we saw, artificially shoring up a segment's profits through fiscal incentives militates against precisely the long-term effect that is desired: structurally improving the segment's ability to compete in an open market. Thus, if the government's interest is to help small mills compete better, it can put in place programs that tackle the problem of productivity directly: programs that help groups of small mills acquire improved skills, lowering their input costs by pooling demand across a group of mills, and devising programs that help small mills make demand-driven and focused changes in their organizational and technical capabilities that enhance productivity more directly.

[17] The policy is after all, only a year old, and does not account for the woes of the spinning sector in previous years. It moreover affects only a subset of the spinning industry--mills who supply the domestic market, and therefore cannot explain the performance of other subsets of firms.

declining profitability may divert attention from other important causes that need to be addressed.

First, the trend worldwide is toward greater variety and smaller batches in yarn and fabric. While scale economies are important in spinning, the most successful textile mills are able to produce a large variety of yarns (and many have moved up-market into producing many varieties of fabric as well) not just a standardized few in large volumes. Textile mills in Hong Kong for example, can produce up to 70 different types of blended yarn a month, compared to eight in China (Berger and Lester 1997), and possibly even fewer in India. A combination of effective production and supply management, timely delivery, higher design content, and the use of higher quality fabric has led to higher unit values so that some textile firms in Hong Kong have increased 'sales realization' even as individual production runs and total quantities exported have fallen (Ramaswamy and Gereffi1998). Enabling firms to consolidate by creating a level policy field may be a first step toward creating the conditions for firms to invest in these capabilities and flexibility, but it certainly does not ensure automatic success. Firms will need to know where the competition is headed, and make investment choices that will allow them to move in this more sophisticated direction.

A second set of problems that prevents firms in Tamil Nadu's textile industry from moving in these new directions are a legacy of past policies of protection that influenced firms' (a) choice of technology (older technology vs. upgraded, new technology), (b) their choice of product (coarse vs. finer yarn; cotton vs. more sophisticated blended yarn), and (c) their choice of market segment (domestic vs. exports, and low vs. high end).[18] It is not surprising that the mills that are faring the worst are those that produce primarily gray cloth and coarse counts—and compete directly with

[18] With respect to technology, it is commendable that local firms have been seriously upgrading equipment base. Many observers have noted that most of the spinning sector's impressive performance over the past decade has come through large-scale investments in new ring spinning machines. In 1996, India purchased over 53% of new ring machines sold worldwide that year (Chandra 1999, cf. Strolz, 1997). Yet, competitors like China are investing in even more efficient technologies. According to Strolz (1997), in the fabric segment, about half of the world's 3.6 million shuttle-looms are in India. By contrast, between 1987-1996 China invested in 68,000 shuttle-*less* looms, Korea invested 81,000, and Indonesia 30,000; compared to only 8000 in India.

small mills and weaving units. Indeed, the data show that the fastest growth in the Indian yarn market has been in the lowest count ranges—the 10s and 20s (World Bank 2000). To gain on the competition, firms will need to aggressively diversify their base: they will need to develop capabilities to produce a higher quality yarn, and finer counts, and to broaden their product mix to include blended yarns[19]—which is where global demand is headed—and to generally attain a higher level of production capability.[20]

Third, the focus on dual tariff structures does not speak to one of the weakest links in Tamil Nadu's textile chain, namely, the wet-processing industries, dyeing, bleaching and finishing. Many analysts have noted that dyeing, bleaching and finishing are the key activities where the quality of garments, fabric or yarn is established (Belliti, 1997 cf. Tewari 1999). Having control over this portion of the production process gives a region tremendous leverage over how well locally produced final goods (garments and fabric) are able to meet the standards of quality that customers demand with respect to fastness of color, wear and tear, chemical composition of dyes and color, consistency, and durability. Leaping over the localization of this stage in a region's textile value chain is tantamount to skipping over a key foundational stage of the production process that determines core product value, product quality, and tremendous scope for innovation and control over the nature of the final output. But, wet-processing is also the most energy and water intensive portion of the textile production process—precisely because it is polluting. It is also an area that requires heavy investment in testing and certification. Currently, Mexico and China are the leading locus of wet-processing investments worldwide—where foreign firms and national governments are investing massive resources to help build an extensive water and energy infrastructure appropriate to the

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[19] The industry has already gone through one round of restructuring in the 1990s: production data show that one of the striking trends in the region is that in the past ten years, a large proportion of the mills had gone from producing mainly fabric (gray cloth) to producing mainly yarn.

[20] For example, what is striking about the Chinese market is their ability to marshal production capabilities to supply a variety of products to rapidly penetrate global markets—in the same region, or across regions. For example, Chinese firms, together with Hong Kong producers dominate 8 out of 17 key product categories in the US market of garments (Ramachandran 2000).

localization of bleaching, dyeing and finishing activities in these countries (American Association of Textiles and Colors, interview 2001).

As Tamil Nadu's textile and leather sectors recently discovered when Germany banned the use of PCPs and Azo dyes in 1994-96, access to good quality dyeing, bleaching, finishing and testing is critical if local firms are to comply with growing demands by overseas buyers for compliance with tough environmental standards (See Pillai 2000). Tamil Nadu's own successful efforts in dealing with the PCP and Azo dye challenge demonstrate how creative partnerships between local industry associations, central-government sponsored R&D institutions, and state government agencies can cut through the bottlenecks needed to strengthen this weak link in the textile/leather production chain. Similarly, Tirupur's successful private and public partnership in its new water project that recently won funding from USAID is another example of successful initiatives. But, to catch up with global efforts in this important area, both government and industry will need to do more. The challenge is to follow through and develop a plan to ensure, while minimizing effluent-based pollution, that the region has the water, electric power, testing and R&D resources it needs to localize high quality dyeing, bleaching and finishing—with or without overseas investment—to achieve low cost and efficient compliance with environmental regulations, product quality, and timely delivery.[21]

Finally, the contention that differential tariffs are not the only or even the main problem facing Tamil Nadu's textile mills is illustrated by the fact that not all spinning mills are doing badly because of the tariff problem. Some mills have circumvented the problem by initiating innovative reforms and are thriving despite the existence of the tariff problem.[22]

[21] Indeed, unless industry and government officials succeed in developing a long-term water and energy plan for this sector, the problem will only get diffused to new areas and in surprising directions. In Tirupur, for example, the new trend is that dyeing and bleaching firms are increasingly moving to—or expanding into—the region's rural vicinity where water availability is less of a problem (Interview, Tirupur 2000).

[22] Some observers point to the existence of larger problems by taking issue with the complaints of large textile mills that competition with small mills is hurting them: "Why is it that their [the large mills'] backs are suddenly to the wall? If a mill in the organized sector is doing well, a small firm cannot possibly

Some observers sum this up by drawing a contrast between mills that are doing well and those that are not. "The mills that are complaining [that they cannot compete with small mills] haven't modernized their equipment; they have a mindset to produce the same old standard product, in the same old way" (Interview, Tirupur, October 2000). Calling the well performing mills 'new' and the un-modernized mills 'old' these observers point out that new mills are doing well because: "New mills are able to sell yarn at higher rates because their yarn quality is better. Old mills are providing a particular type of average quality yarn that caters only to the domestic powerloom sector. They have not diversified their yarn variety of market segment. New mills have better equipment, higher productivity and lower labor costs." Labor costs as a percentage of turnover for some of the best mills are 4%, while they are 14-18% for older mills (Interviews, Coimbatore, Tirupur, October 2000).

The evidence from the field echoes this view. The most successful firms are adapting in quite innovative ways, and the spinning mills that are flourishing are doing one or all of three things: (1) Undertaking **strategic technological modernization**; (2) **Moving up-market** toward higher-end markets, better (finer) counts, and most importantly, blended cotton yarn; and (3) **Integrating forward** with value adding activities like garments and weaving. Indeed, integration across sectors has also occurred from the other direction. Some successful knitwear firms have now integrated backwards and set up their own spinning and knitting business, and are doing quite well.

Apart from these specific strategies, all firms are trying to cut costs in a variety of ways. This involves (a) consolidation through the use of job-workers on a profit-sharing basis, which in some cases has resulted in a significant cutting back of labor (25% in the in the case of one large mill); (b) training and multi-skilling of workers; (c) technical upgrading, selective automation, and at a more regressive level, firms are hiring lower-cost female workers, fuelling a rapid feminization of the spinning and apparel workforce.

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compete with it. Clearly it is a sign that there is something wrong. Why are they [the large mills] in the same segment [as small mills]? They should be concentrating on areas where the returns are high – not competing with small firms at the low end" (Interview, Tirupur, October 2000)

Firms that have linked forward into the garment business have relied heavily on the latter two strategies. For some core tasks they have trained workers with new and varied skills. These skills involve training workers to perform two or three tasks, or to operate different kinds of machines. For other repetitive tasks, such as sewing labels, and buttonholing in the case of garments, they have procured special purpose machines. One firm reported now saving over Rs. 2.5 million per month as a result of this three-part rationalization (Interview, Chennai October 9, 2000).

Second, as the experience of one firm illustrates, some very successful—and novel--forms of forward linkage to garments involve a surprising strategy of developing joint ventures overseas, by acquiring equity stakes in businesses in *advanced* industrial economies that serve as distribution hubs for the Indian suppliers. This is just the opposite of what is usually expected of developing country-based firms in a low-end traditional sector like textiles. This sector has been characterized in the literature as being a quintessential buyer driven chain—where large first world retailers control markets and product design, and hence profits and power.

Indeed, as noted at the outset, one of the most striking findings of the fieldwork was the extent to which firms are expanding out and abroad as a crucial competitive strategy to gain access to new markets that will open up after 2004. There is a lot of positioning going on in the mill sector, among yarn and garment producers—firms in all the key segments, except the fabric segment. These firms are not just entering new overseas markets, they are expanding abroad—not shutting down local operations, but developing a global strategy. We examine one such case in the next sub-section.

Alternative Sources of Comparative Advantage: Integrating forward from Spinning to Garments – A Case Study

The main point emerging from this case, as we will see below, is the surprising sophistication of some key textile firms in developing a global strategy that builds on comparative advantages other than cheap labor. In this case the hook was low-cost but sophisticated logistics and non-traditional niches such as technical textiles and

specialized garments where the competition is less severe, where the scales are smaller, but potential returns can be significant.

Like other firms that were integrating forward from textiles, in the mid-1990s a large multi-unit spinning company decided to invest its profits from the spinning boom of the early 1990s into garments, as a way to move away from an increasingly crowded spinning sector into a higher value added segment of the textile chain, and as a way to stake a position in the industry's new growth area. The company had to make two key decisions: what to produce, and how to link up with the export market (which segment to enter, via what sorts of channels).

The firm's first strategic decision was to enter the *non-quota* segment of garment exports, rather than to become enmeshed in the hotly competitive quota segment. The regime of quota and non-quota segments in the garment industry is an artifact of the current Multi-Fibre Agreement that is set to expire in 2004. Under this agreement, large first world markets such as the US and EU restrict entry by potential exporting countries by assigning each country specific export quotas against specific items that they can sell in the US and EU markets. The most popular items covered by the quota regime are shirts, trousers, and inner and outerwear for men, women and children. Quotas for these items are vigorously fought over and traded within the respective exporting countries, and hefty premiums have accrued around the most popular items (Kumar 1999, World Bank 2000). It is precisely this quota regime that is scheduled to be abolished with the expiration of the MFA after 2004, when, barring other kinds of restrictions by the US and EU, most product segments in the garment industry will be open to free competition. The company considered this impending change in deciding about the choice of segment. It chose to go into an unrestricted, non-quota niche that included technical textiles and specialized garments such as uniforms; and it did so in part to avoid the quota wars over the next four years and to get a foothold in a specialized niche market that would give it a strong base from which to compete after 2004.

Two institutional implications arose out of entering a non-quota niche involving technical textiles and specialized garments. First, the firm became connected to a very different set of buyers in Europe and the US than the traditional retail chains that dominate the quota-based segment of the garment industry. The market for uniforms is, for example, very different from the market for general clothing. The firm's chief customers are either small or large private companies that buy uniforms for their own workers (airport workers, construction workers) or the public and quasi-public sector such as the postal service, hospitals, hotels, utility companies, municipalities (for their road-workers and others) and a range of other *stable buyers*. There is considerably *less competition* in these market segments, and orders are given on the basis of global tenders that are quite standardized and widely accessible—most can be downloaded from the Internet. These items also have a *less volatile design cycle* because designs for uniforms tend to be stable, longer-lasting and relatively simple compared to the mercurial shifts in tastes and fashion that characterize the general clothing industry. The volatility of the apparel market is precisely the challenge that new entrants into export markets find difficult to cope with in the early stages of entry into export market—without external help from agents or established buyers. Institutionally, then, choosing an item like uniforms means that there is less premium on branding and design—just the bundle of operations that gives such clout to powerful retail chains (such as Nike, Liz Claiborne, Reebok or retail distributors such as Wal-Mart, J.C.Penny, and Macy's)—and hence give more room for maneuver to individual producers like the one discussed here.

Second, in choosing technical textiles, the firm (a multi-unit company) also chose to differentiate itself from its competition by wielding one of its comparative advantages: its spinning and fabric making base, and its ability to access higher-end technology and capital intensive processes. For example, the company has recently invested in new machinery to produce flame resistant, acid resistant garments and high-end down quilt shells.

The firm made a second strategic decision—one that it had not anticipated, when it got its first long-term overseas buyer. The decision involved figuring out what sort of

organizational form the company's relationship with its overseas buyer should take from the perspective of growth, distribution, and control. This is where, counter-intuitively, the Tamil Nadu company decided to *purchase* a majority equity stake in its Italian buyer. The decision was not made overnight, but evolved almost unexpectedly, as buyer and supplier worked through their mutual collaboration. The buyer was a small-scale wholesaler based in central Italy, and had been in the uniform business for a while. It had suppliers in several countries—India and Tunisia, including others. As the buyer began its relationship with the Tamil Nadu firm, distinct areas of comparative advantage emerged on both sides. First, the Italian firm had something of a name-recognition in the Italian public sector market for uniforms and had successfully bid for utility tenders previously. Its European status meant that it could apply for tenders not just in Italy but across the European Union.

Second, the Italian buyer had comparative knowledge about producer productivity, which turned out to be a crucial learning mechanism for the Tamil Nadu firm. At the time the Tamil Nadu company got its first order in 1996, its productivity was five boiler suits per tailor per day. Part of the contractual agreement between the customer and supplier was that the Tamil Nadu company would have to improve its productivity. The buyer insisted that the company match the productivity of its other suppliers, such as its Tunisian producers, who delivered 12 boiler suits/tailor/day. After initially resisting this pressure—and believing that the buyer was trying to trap it—the Tamil Nadu company agreed to visit the Tunisian plants with the buyer. That visit, according to the chairman of the company was an "eye-opener," and proved to be a turning point for the company's garment business. The company implemented some of the same strategies that it saw in Tunisia—two tightly structured shifts, teams, fixed production targets for each team and new automated equipment—and within months, the Tamil Nadu firm had surpassed the Tunisian producers by improving productivity to 16 boiler suits/tailor/day. This productivity-enhancing feedback from the buyer was critical to the upgrading of the Tamil Nadu firm. An interesting irony is that the Tamil Nadu company was several times larger—in size, scale and financial worth, than its small Italian buyer; Yet the production related learning and knowledge that flowed from the

small buyer to the large producer, rooted as it was in the buyer's insights into international productivity comparisons and best-practice, was immensely valuable. This reverses to some extent, our assumptions that the direction in which the flow of new knowledge runs is from large firms to small. The small buyer in this case, became a virtual consultant to the Tamil Nadu company, playing a role that buying-agents often play in the clothing industry.

But a different kind of knowledge flowed in the other direction as well—from the large Tamil Nadu firm to the small overseas buyer. The Tamil Nadu company found itself with an unexpected comparative advantage, logistics, that it was able to leverage powerfully. On his first visit to the Italian buyer's warehouse in central Itlay, the chairman of the Tamil Nadu company found deep inefficiencies and redundancies in the way firm the firm manages its sales and warehouse. The owner, with the help of one other person, manually sorted out orders from each container shipped from its various suppliers in China, Tunisia and other countries. "They would first sort item by item, then size by size (e.g. separating size 40 pants from size 42 pants), then order by order. They managed to do only one container per month; we saw they should be able to do more than 15" (Chennai interview, October 2000). The Tamil Nadu company developed a detailed plan to restructure the firm's logistics. As it did so, it ended up becoming a partner in the Italian company with a 50% equity stake.

Logistics involved setting up a warehouse in India, putting in place a sophisticated computer program and Information Technology system to track inventories in India, Italy and other markets on a daily, and even hourly basis, conducting extensive, ongoing research in the actual costs of procuring from different countries (e.g., how many emails does it take to get a reply from a Chinese supplier; and how much do such delays add to the buyer's cost), developing a system of using pallets to deliver goods by order, rather than merely by size or country of origin. With these changes in place, the Tamil Nadu company and its Italian affiliate are now able to deliver orders in 24 hours instead of the one week it took previously. Costs are down and profits are significantly up (until the Euro fell in the past year, the group's profit margin was around 35%); the company

can sell over 15 containers a month currently, instead of the one or two containers it sold earlier; and business has grown steadily.[23]

The role of logistics in this unusual and counter-intuitive joint venture was critical. "The backbone [of the partnership] was logistics. When the scale of the order is greater than 1000 garments, the logistics are all handled in India. [European companies] cannot compete with this combination of production and logistics based in India at Indian costs " (Firm interview, Chennai, October 2000). The firm now has a 50% stake in a Greek company and is in negotiations with a company in the UK. What is striking is that while the integration with overseas partners was through logistics, the main motivation of the Tamil Nadu firm was "not to earn dividends overseas," or merely gain access to a new market—it was to "use the European company as a key *channel for distribution*" for their own products.

This example clearly points to areas of comparative advantage in the Tamil Nadu (and Indian) spinning sector that are currently underdeveloped and could potentially serve as a powerful base from which to compete. This example also emphasizes the powerful flow of knowledge, resources and gains in both directions between small-scale first world buyers (firms in the $1million to $40 million turnover range)[24] and developing-country suppliers, and calls into question our assumptions about the place of Indian (or other developing country players) in a buyer driven sector like garments where many have warned about the dangers of small developing country producers getting too dependent on large advanced industrial country buyers (Harris-Pascal et. al.). This example clearly shows some of the conditions under which developing country garment producers may counter this dependence and convert it into a partnership with small

[23] Recently the joint company won two large public sector contracts in the EU—from the postal service, and another from a public utility.

[24] The Chairman of the Tamil Nadu company said that they have been approached by firms of various sizes for partnerships of the sort it developed with the Italian firm. But they have decided to delay going in for partnerships with large firms because it takes too much time to "set them right" the way they could the small Italian buyer. In the future, when their own learning curve has matured, they may venture in this direction eventually. (Interview, October 9, 2000).

overseas players in specialized niche products. Rather than going into branding, this firm went with logistics and distribution as its core strengths with an eye toward increasing sales, learning about new products, accessing a new demanding market, and learning about new ways to increase its productivity in the process—all despite its low margins, and the MFA regime that gives disproportional clout to large branded retail chains.

In sum: The current poor performance of the spinning sector ironically is rooted in the same set of factors that led to its boom in the early 1990s: policy change domestically (de-licensing) that affected supply, and broader shifts in the world market including currency devaluation in competitor economies, that affected demand. However, the downturn has also revealed structural weaknesses in the spinning sector in Tamil Nadu. Far too many firms in the spinning sector are stuck at the bottom end of the market—producing the coarsest counts (or at best medium-counts (30s-40s)) and relying too heavily on the domestic market. Firms that are doing the least well are those whose choice of product type and market segment pits them against the small mills that have entered the industry since the late 1980s. A case can be made against the fragmentation that has affected the industry in recent years; but as we saw in this section, this fragmentation is by no means the only cause behind the industry's malaise. Focusing too narrowly on the problem of fragmentation or surplus capacity risks obscuring from debate other, deeper causes of the inability of many of the region's large mills to compete.

The downturn has also shown glimpses of the sector's considerable strengths. Many firms in the region are indeed coping successfully and innovatively with the downturn and making significant and quite surprising shifts in their business strategies: (1) Firms that are doing well are integrating forward from yarn and fabric into garments, or across other segments of the textile value chain. (2) Exporters are in general doing better than those relying solely on the domestic market—although most exporters talk about the importance of having a stake in the domestic market as well, especially as it is undergoing its own restructuring and expansion. (3) Large firms that are doing well have upgraded their technology; moved upmarket. And, (4) Some of the most innovative firms

have forged bold ties with partners abroad, and are making strides in positioning themselves advantageously for entry into western markets after MFA is phased out in 2005.

As we see in the next two sections, the emerging pattern of adjustment described in the case of forward integration here (from spinning to garments), is far from isolated or unique. It is echoed in the experience of other firms, in downstream textile sectors ranging from garments to handlooms, as they restructure in the face of liberalization.

Section 2: Managing information and regional positioning in the apparel chain and its surprising impact on human resource management: A case

Local firms realize that the field of competition in the garment industry is changing constantly. Several firms said that Indian garment firms no longer enjoy the lowest labor costs—Bangladesh and others have wage rates that are half of India's. Therefore, to compete, firms realize they will need to find other advantages.
This view was just the opposite of what I had expected going in. The assumption had been that in a buyer-driven sector like garments, maneuvering for an advantage beyond low labor costs would be difficult, especially when the common consensus is that India's –and Tamil Nadu's --garment producers were too new at the export game, and have sharp learning curves about product quality, design and timely delivery ahead of them. But the evidence on the ground showed that several innovative firms had moved rapidly to position themselves strategically to capture the benefits of an open world economy. Ironically, nearly all the large firms I interviewed await 2005 with eager anticipation instead of the dread (about WTO) that is more generally presumed in the literature. They see 2005 as a "great opportunity" to enter the largest market for garments—the US—after the dissolution of the MFA agreement opens it up for freer trade in textiles and apparel (Interviews, October 9, 12, 2000).

As we saw in Section 1, some new sources of advantage for Tamil Nadu's garment producers are combining production with expertise in logistics. The successful business strategy of one such firm was to integrate forward into garments, and to develop partnerships with overseas firms using logistics and niche markets as points of entry. In other cases firms that seem to be quintessential 'job-work' oriented garment producers

(i.e., importing all inputs and designs and only processing the garment in Tamil Nadu according to the buyer's specification) are also surprisingly developing overseas expansion strategies to take advantage of the post-MFA phase commencing after 2004, as we see below.

As noted, once in the field, I was surprised by the extent to which my initial assumptions about the limitations of a cost-driven adjustment strategy of a labor-intensive traditional sector like apparel were proven erroneous. The prevalent assumption, based in part, on the larger paradigms of development that equate labor intensive sectors "naturally" with exploitation, has been that export growth predicated on low labor costs was inherently a dead-end strategy from the perspective of firms in Tamil Nadu. Initial visits to a few garment firms confirmed that in some firms all inputs are imported, and only processing and the actual production of the garment are carried out locally. Low production costs, based on low labor costs seemed to be the only driver.

One of the garment firms I visited illustrated this dynamic quite well. The firm produces a large volume of shirts for well-known US retail chains. Its primary buyers are relatively high-end: J. Crew, Gap, and Banana Republic, with the largest orders coming from Banana Republic for its "$68"dress shirts. All raw materials are imported—linen from Ireland, cotton fabric from Israel, accessories from Hong Kong and all other ancillaries from other East Asian countries. Except for the clear plastic wrapping, virtually all material comes from abroad—sourced from suppliers that the buyer selected and designated. The buyers provide the firm with patterns and specifications. The firm's task is to cut, sew, dye, finish and put together the complete shirt according to the specifications of the buyer. Even though the firm has grown rapidly, with exports virtually doubling on an annual basis, and even though it produces for high-end buyers, initially it seemed that with product design, market control and product definition in the hands of overseas buyer chains, this was a limited strategy.

However, it turned out that much more was involved here than just low labor costs, or low production costs. The effects of the firm's growth, and of the nature if its association with particular buyers—high-end retail chains like Banana Republic and

Gap—have been far-reaching. Most striking are the organizational changes that have occurred within the firm, notably in working conditions and in production management.

Labor standards, productivity, and the role of high-end foreign buyers

Many analysts have noted that large retailers, especially upmarket retailers such as Banana Republic, insist that their suppliers improve productivity and meet higher (product) quality standards. But not all suppliers are able to meet these stringent demands. In this case, local agents for Banana Republic worked closely with the Chennai firm to help upgrade its technology and equipment, re-organize its process flow and factory floor to improve efficiency and lower in-process inventories, and provide training to workers in all production segments. Regular visits by officials from the retailers' US offices have helped create an ongoing environment of learning and feedback. This encouraged the Chennai supplier to invest substantial capital in putting in place a 'high performance' work environment, including getting ISO 9000 certification.

During a visit to the firm's plant within the Madras Export Processing Zone, I was struck by the level of importance that the firm had given to high quality human resource management. Unlike the relative neglect of working and labor conditions that one would expect in a factory whose main comparative advantage was low labor costs, this firm had a large, airy, clean shop-floor. All workers wore the same uniform, from the management down to the assembly workers. All workers—again, including management—ate in a large, well-appointed, modern yet simple cafeteria. Everyone ate the same food, which is cooked on site and is subsidized slightly by management.

The bulk of the workforce was female; that in itself is not surprising. Many garment firms often employ a common, but problematic "labor strategy" that focuses on female workers who are willing to work for lower pay than men, and who have a natural attrition rate (through marriage and childbirth). In this firm, however, there was a well equipped day-care center on the firm's premises, so mothers could visit their children during breaks. The company provided subsidized bus transportation to its workers—especially its female workers. Bonuses, retirement and health care benefits were also available to "all workers." [25]

Furthermore, the firm emphasized the importance of training in its business strategy. Multiskilling of workers, providing them with training to use complicated new machines, and some job rotation, is central to its view of improving productivity. These good working conditions, and higher labor standards in a firm that competes on low labor costs, is impressive and surprising. According to interviews and factory visits to the company's domestic (non-export oriented) units in Chennai, it is clear that comparable working conditions prevail in the firm's older, non-export units as well. The personnel manager of the domestic units admitted that many of the human resource improvements in the domestic factories had occurred in recent years after the firm saw the productivity effects of good working conditions in its export units. Clearly, we are talking here of a well-established garment house that has been in business in the domestic and export market for over a decade, and smaller, single units firms may not be able to afford some of these changes. But the point that the firm's manager made about working conditions was an important one: the connection between good working conditions and achieving high productivity and good quality is central to the firm's competitiveness. It is central also to the firm's ability to retain its high-end buyers—Gap, Banana Republic—who helped introduce the higher standards in the first place, and who insist on a close scrutiny to ensure that those standards are maintained. Increasingly, other well-performing firms have also understood this link, though it is unclear how stringently these standards are actually enforced. The bigger point about labor standards reform in garment firms, and

[25] I was, however, unable to determine an important aspect of worker benefits: that is the degree to which contract workers got all of these benefits. Firm officials insisted that "all workers" were covered.

its link to the new scrutiny by upmarket overseas buyers of their suppliers working conditions is a critical one (and one that we will return to later). Many observers have made this point in the literature recently (Tendler 2000, Gereffi 2000, Thun 2000). But so far there is little understanding---and empirical documentation of the conditions under which developing country firms do actually carry out working condition reforms. Cases such as the one discussed above are thus critical for government to understand more closely, in order to draw lessons about an important process that will only become more pronounced after 2004. The mechanisms through which good labor standards are maintained because of because of their relationship to quality of production can cut both ways. Labor standards that are linked to quality are an improvement over no or very poor labor standards, but then, one also needs to ask what happens in the cases where there is no or little relationship to quality (as when firms do not have links with demanding buyers), where are the incentives or institutional pressures to treat workers fairly in those cases?

Mechanisms of learning and feedback: Not only was the evolution of the issue around labor standards interesting in the case of this firm, but equally striking was the sophistication of the management's awareness of its immediate and medium term options in this highly competitive garment segment. This awareness had come as a result of working first, in the domestic market, and then using that strength to win orders from high end European and US buyers. Winning orders from high-end retailers such as Gap, Banana Republic, Old Navy was not accidental—it was a clear business decision. The firm reported how it had received inquiries and potential orders from larger chains such as J.C. Penny, but decided not to go with them because it wanted to establish its reputation as a "serious" player. This meant working for demanding customers, as well as working with customers "who will give you higher rates."

A critical piece that came along with this was feedback and learning—the quality of feedback that the buyer would give the company in order to help it improve its production standards, product quality, and productivity. Firms like J.C. Penny that gave large volumes [orders] but low rates do not give the degree of "training" that more

specialized and higher end chains like Banana Republic do. Even within the chain of companies it does work with, the company is cognizant of hierarchy—Banana Republic is higher up in the chain than Gap, J. Crew and old Navy. As one manager said, if the North American managers of Banana Republic and Gap come for a factory visit the same week, the firm's highest manager would be assigned to Banana Republic, while the next lower level executive would attend to and work with Gap. The learning that has come from this interaction has been critical to the firm's improvement of its work quality and productivity in the export unit; but this knowledge about how to produce high quality items has spilled over into the firm's domestic sector units. As one interviewee put it, with changes underway in the domestic market toward better quality and more varied ready-made products, this is one sector where domestic and international strategies of growth can be closely tied together, with the effects spilling over into all sorts of directions.

Overseas expansion and regional re-positioning: Importance of the geography of markets, and the geography of buyers: In contrast to the pitfalls of being a "labor-job" producer in a buyer driven value chain that is controlled by powerful retail groups (like Gap and so on), it was striking to find that the firm being discussed here (Ambattur), had charted a clear and far-reaching growth strategy, based once again, on active overseas engagement. One manager reported how the firm had plans to locate [a unit] on the European Rim in the Gulf (Bahrain) in the next year or so—well before 2004. This overseas unit would cater exclusively to the EU and US markets, initially taking advantage of the quotas available in that country for garment exports to the US. But the main reasons for locating in that region were three-fold. First, and most important, the firm wanted to position itself near a major market that was set to open up in 2005—EU (and the US)—so that by the time 2005 arrived, Ambattur would be firmly established in a region proximate to that market.

A related factor that is driving some firms to seek strategic overseas locations is a strong concern about the ascendancy of Regional Blocs such as NAFTA, ASEAN, AGOA, EU's trade agreements with countries on the European Rim. Many firms across

the textile value chain in Tamil Nadu raised the issue and said they were worried that the growing importance of regional trade agreements was going to severely undermine the ability of firms in countries left out of the Blocs to access Northern Markets, especially after the abolition of MFA at the end of 2004. Having a foot in some of these regional blocs was important, even if it was in an easy-to-enter country that was not in any Bloc but proximate to them. This explained in part the importance that many of the firms interviewed assigned to having a presence in Latin America—that it might be a way to counter Mexico's advantage in accessing the US market via NAFTA. It was striking the extent to which firms were aware of, and planning for the fiercer competition that will ensue after 2004. On the one hand there is concern about improving one's competitiveness, and productivity. But on the other hand there is an anticipation that the removal of ATF and MFA will open up hard-to-get-into western markets—which all firms saw as a good thing. At the same time, there is concern that this same openness will be compromised by the regional and bilateral agreements that are likely to cut some countries out of preferred regional deals. Therefore, in their view using the next four years to locate oneself strategically in or near key markets will be important —either through partnerships and outright ownership as the spinning company did in Europe, or through "platform" locations like some garment companies are starting to do.

A second reason why the interviewed firm sought to expand offshore, was that agents for the firm's overseas buyers—Banana Republic, Gap and J. Crew had informally conveyed to the firm that the U.S. government has an "unofficial" list of countries and region's where it wanted to promote the rise of garment firms who wanted to do business with the US. The Gulf is one such region that is on this list. Again, unofficially, the rationale of the list is to develop a geographic supplier base to counter the unusually heavy dependence of the US on Chinese exports. This reinforced the firm's own decision to expand production out into the Gulf.

Finally, the choice of location to expand into was driven by the firm's "labor strategy." As the manager reported, the firm wanted to pick a site where (a) US quotas were still available and (b) where it could "import labor" (Interview, March 2000). This

"importing of labor" was striking. One the one hand it underscored clearly that for firms like these, labor costs still remain the primary driver of competition. What was unexpected was the degree to which Tamil Nadu's nascent garment industry is already "Taiwanized" in terms of its long-run business strategy. As Thun (2000) and Gereffi (2000) have shown Taiwan's firms have moved up the garment value chain by becoming "middle-men" or brokers of international demand and low cost production. They manage the production process and get orders from large buyers, but the production can take place in several overseas platforms where labor costs are low. "What varies is the nationality of the work-force [in these Taiwanese run plants], not who controls them," Thun finds. In this case as well, the firm's idea is to import not Indian but *Sri Lankan* workers into the Gulf (Dubai and Bahrain)—because they are the "cheapest and most mobile." These problematic notions were shocking to hear openly, but the manager went on: "We prefer to hire women workers. Indian women will never travel without their whole family. Sri Lankan women are more willing to go alone." The firm had also scoped out similar "production platforms" in other countries and the cost of labor was a factor in all of them. For example it ruled out locating in South Africa because "the government has stopped allowing workers to be brought in from third countries." In Latin America, after considerable (and ongoing) research the company has tentatively picked Chile, Uruguay and Paraguay as possibilities. The latter two were "ideal" because they give the firm a Latin American base and low labor costs, but relative to other low-cost Latin American countries they are politically stable. Chile is of interest because of its deep industrial institutions and its recent, quite successful, market-oriented restructuring of its industries. The company feels it can "learn a lot." These new patters and drivers of migration need to clearly be explored further, in future research.

By way of conclusion: The draw of good labor standards and issues surrounding labor

Perhaps the most impressive story of the current restructuring of Tamil Nadu's Textile industry is the remarkable turnaround of the region's Handloom industry. What is surprising about this shift is that, in the end, the sector that turned out to be the most dynamic, active and innovative, and which has gone the longest distance in making

changes in the organization of production was one that had been the most behind—the government-run handloom cooperative sector. Arguably, the costs of *not reforming* quickly were also probably the highest in this sector: its very survival was at stake. Its chronic losses and poor performance of the past had observers gunning for its elimination or "privatization." A recent report by the Satyam Committee on reforms in the Textile industry, according to some industry associations, had recommended scrapping these Handloom Boards. Although a detailed examination of what innovative government officials are doing to improve this long moribund and hopelessly deadlocked government agency is outside the scope of this paper, I want to make a single point here. That the revival of handlooms illustrates an ironic finding -- how improving the lives of workers can improve trade.

The distinctive feature of the Government-run handloom Coops was that workers and weavers could not be arbitrarily struck off the rolls—they were government employees. The government was committed to paying them a package of wages and benefits that conformed to regular government standards. The wages were usually higher than the market wage—at least the official minimum, subject to annual increases like other government jobs. Over the past 25 years, various governments of all political parties had crafted a series of welfare/benefits packages targeted toward Coop workers: access to housing subsidies, work-shed subsidies, training programs, savings schemes and retirement funds. These initiatives, taken together, had improved working conditions for the weavers, but led to bitter complaints by private mills that the government was coddling inefficient weavers and indirectly raising labor costs for the entire industry. And indeed, there was evidence to support their claims—the weaving cooperatives and spinning cooperatives were consistently loss making organizations; few ever found stable buyers in the private sector.

After liberalization, this picture has changed dramatically. A series of institutional reforms have followed the regional government's policy of partially decentralizing responsibility and resources to the agency directly in-charge of the coops; however the most striking shift has been the rising rate at which the Handloom Coops, as well as

related agencies like the Handloom and Handicrafts Export Council have been able to find export markets and overseas, private buyers. The improved performance of the restructured handloom coops is evident in the striking rise in exports by the cooperatives in the past year. As the tables in the appendix show, exports have grown over 45 times from $0.22 million in 1997 to $10 million in the first quarter of 2000. Since the Coops began exporting in 1997, *rejection rates* have fallen dramatically: they have gone from a high of 50% in the first year of exports to less than 3% in 2000 (Interview, Chennai 2000).

The agency undertook several reforms to improve incentives that producers and suppliers faced, linking them with outside markets through various kinds of "market exposure" programs, nurturing of a new design sensibility, especially in the home-fabrics area with the help of expatriate design consultants from Europe and the US (including hooking up with IKEA, the Scandinavian retailer who has set up a facility in Tamil Nadu), and the retraining of coop staff and supervisory officials to boost morale and energize them. But ironically, according to the Director of the Handlooms Board, the single most important factor that has brought overseas buyers to the weaving cooperatives – and allowed the Coops to successfully compete for orders with private weaving firms – has been precisely the **welfare package** that had been discredited over the last 20-25 years as raising labor costs**.**

The director handlooms expressed "surprise" at the draw that the Handloom Board's welfare package has for its overseas buyers. Yet, the growing global concern over labor standards explains nicely this new—and hopeful—dynamic of demand. Driven by concerns over labor standards in international markets for final goods, and the need to have guarantees about environmental standards, overseas buyers like Liz Claiborne, J.C. Penny, Wal-Mart and a host of large European chains are drawn to the cooperatives because of their welfare benefits: they talk of being "impressed with the possibility to maintaining good working conditions," by a willingness of the government agencies to offer training to the weavers based on buyer needs, and the weavers' capacity to learn new ways to doing things. In this regard, it is interesting to note that the buyers of handloom madeups that have placed the biggest orders are middle-of-the road chain

stores—JC Penny, Wal-Mart—as opposed to the more upscale buyers who dominate the private segment of the garment industry discussed above. In contrast to the smaller orders placed by the latter, the mid-level chains buying from the Handloom Coops are bulk buyers.

Reciprocally, after seeing the "surprising" importance to overseas buyers of their welfare programs, the Handloom Board which overseeing the Cooperatives (under Davidar) has responded by strengthening even further, and streamlining the welfare packages they offer workers and weavers. The agency has cut down red-tape by putting down all the procedures of access in a simple booklet that is distributed to all weavers, and has worked to make the programs more accessible as well as meaningful to workers. The point is that when abrupt shifts occur in policy regimes—such as moving from import substitution to export promotion—old institutional legacies are often precisely the material with which new responses are crafted. The welfare packages derided as being populist and costly, are now, in the current climate where labor standards, environmental standards are critical components of international trade, can be seen as key sources of strength.

The importance of the Handloom Board's welfare benefits and their surprising role in helping promote exports illustrates powerfully that good working conditions and decent labor standards are *not inimical to* strong and successful export growth, even in a highly competitive and labor intensive sector such as handlooms and garments. To the extent that evidence such as this helps debunk the myth that upholding labor standards will necessarily undermine and compromise the competitiveness of small firms, it offers a powerful lesson about the prospect of forging an economic development strategy that is *supportive of labor* in an era when the rhetoric about competitiveness is often predicated on stripping labor of its gains.[26]

Yet, it would be naïve to believe that the issue is straightforward. In sharp contrast to the labor-supportive nature of the Handloom industry's export success, a very

[26] See also Tendler 2000. "Social Policy.."

different image of labor emerges from the strategies of the successful mill and garment sector firms discussed earlier. They see labor as too coddled, too disruptive, and too much the problem in the successful restructuring of Tamil Nadu's textile industry. Clearly, new forms of compromise will be essential for the industry to bring in new, more modern industrial relations into the sector. But, with their backs to the wall, and under pressure from intensified competition, many spinning mills and garment firms are scrambling to cut costs, and labor is the first target. Many spinning mills have routinely started to bypass in-house unionized workers by contracting out to job workers. Consolidation, to the extent that it is occurring in the spinning industry has increasingly begun to take the form of organizing networks of job-workers who share in profits with the mills and do the work that would have gone to in-house workers.

A second trend has been the feminization of the spinning (and garment) workforce. Mill owners openly admit that they prefer to hire female workers because "male workers can never support their day-to-day livelihood [their responsibilities of supporting a family] on the salary that a female worker gets [about Rs. 1500 per month at the lowest end]" (Interview, October 2000). In a surprising tactic to achieve this feminization of the workforce, some mills recently got a group of rural women workers to file suit on equal opportunity grounds to win the "right" to work night shifts like men can. Indian labor law has restricted women to day shifts on security grounds; but the mills helped the women file the suit to "demand equal rights." The women, with the mills backing them, recently won. Now they can work all shifts like male workers, but nothing has changed with respect to the substantially lower wage rates they earn compared to what men would command. Indeed, it is precisely because of this differential that the right to have women work in spinning mills in all three shifts was so eagerly wrested from the courts. The point is not that getting women to work all shifts is a problem in itself, but rather the language of progressivism, and equal rights hides the motivation for the use of female workers as a cost-cutting mechanism because equal work continues to fetch unequal pay.

Seeking a largely female workforce is nothing new in several industries that look for low costs, and natural attrition and exit rates in their workforce (through marriage and so on). What is novel in this example is how local firms were able to use one institution of the state—the courts—to bypass rules set by another part of the state—the legislature. It is interesting, how in the process of responding to growing competition, different parts of the state (the courts and the executive branch in this case) can end up being pitted against each other and used in quite contradictory ways, or at least with contradictory outcomes.

My point here is not to criticize the equal opportunity suit brought by the mills (via their female workers). I want to emphasize, rather, that as we seek to understand the impact of globalization and liberalization on regional industry, it is not enough to look simply at the extent to which exports have grown or not, or the extent to which firms have modernized their technologies or business strategies, or even the number of jobs that they created or did not create. It is not even enough to look at the role of powerful global buyers and retailers who have so far organized trade and production in the global apparel industry. Institutions are changing in new and unpredictable ways, and as a reality check about the impact of liberalization, it is critical to look at what is actually happening on the ground as a result of it.

As we have seen through the examples discussed in this paper, looking closely at the surprises in Tamil Nadu's own experience of what has worked and what has not[27] can offer important lessons about how to forge a more inclusive and innovative set of responses to the challenge of liberalization to 'traditional' sectors. Indeed, we find that the very term "traditional" is an anomaly because the processes we saw illustrated in this paper challenge our notion that industries or firms develop in some "natural progression" from traditional to "modern" or from being assemblers to eventually becoming branded

[27] For example: the surprising global reach of local textile and garment firms, the growing use of IT by small producers and large as an important tool to compete, new comparative strengths of Tamil Nadu's textile industry—production and logistics, and how some past policies that were till recently criticized as wasteful are turning out to be a surprisingly 'modern' draw to buyers at a time when new standards in labor and the environment are critical to export success

producers. As we saw in this paper, in many cases the move is not from "traditional" to "modern" sectors as if the two were distinct and separate. Rather, "modern" production is newly inserted/established, and may have little to do with the "traditional" firms in the industry that produce in the same area—they may have parallel existences, or even interlocking existences. Or as we saw, parts of the same firm can span both characterizations: progressive, "modern" practices and processes that respond innovatively to contemporary pressures and opportunities coexisting with practices within the same firm that are regressive, as exemplified by the problematic labor practices that continue despite "modernization"—or precisely because of the squeeze that current demands for low prices, timely delivery good quality and very tight delivery times impose on firms. Exploring these contradictory spaces requires concrete analysis of the variation within similar sectors, exactly the variation that is missed when attempts are made to describe central tendencies in whole clusters or sectors, as the official narratives of malaise in the Indian spinning sector sought to do.

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Appendix-1

Export Performance of HHEC (Handloom and Handicraft Export Council)

Turnover of Actual Exports, and Profits on Turnover are in Millions of Rupees

Year	Turnover (Rs. Million)	% Change (Annual)	Profit (Rs. Million)	% Change (Annual)
1990-91	131.246		17.559	
1991-92	190.094	45%	31.885	82%
1992-93	246.558	30%	45.372	42%
1993-94	397.647	61%	73.648	62%
1994-95	318.148	-20%	35.369	-52%
1995-96	321.752	1.3%	33.230	-6.0%
1996-97	292.160	-9.1%	19.717	-41%
1997-98	352.866	21%	45.026	128%
1998-99	347.298	-1.6%	47.891	6.4%
1999-2000	487.582	40%	86.539	81%

Source: Handloom and Handicrafts Export Promotion Council, Greams Road, Chennai. October 11, 2000.

Exports of non-garment made-ups from Tamil Nadu's Handloom Cooperatives:

(Made-ups include furnishing material, table mats, bedsheets, cushion covers, mats, rugs, curtian cloth, upholstery fabric)

Year	Value (in US Dollars)	% change	Direction of Exports
1997-1998	< US $ 0.22 million		
1998-1999	US $ 1 million	355%	Netherlands, France Germany
1999-2000	US $ 6 million	400%	US, Netherlands, France, Germany, UK
2000-1st Quarter	US $ 10 million	66%	Same

Source: Director, Department of Handloom and Textiles, Tamil Nadu

International Comparisons of Cotton Production and Yield (Selected countries), 1999-2000

Country	Production ('000 bales)	Area ('000 Ha.)	Yield (Kg/Ha.)
China	19000	3900	1061
USA	16531	5425	663
India	12700	8700	318
Tamil Nadu	550	223	420
Pakistan	7800	3000	566
Turkey	3900	725	1171
Australia	3100	450	1500
Brazil	2100	850	538
Greece	1750	425	897
Syria	1400	240	1270
Egypt	1075	275	851
Mexico	600	160	816
Spain	550	110	1089
Israel	125	15	1814
World Total	87346	32805	580

Source: Cotton World Markets and Trade, November 1999. Cf. Compendium of Textile Statistics, Office of the Textile Commissioner, Government of India, 1999.