V. INDIAN TEXTILE AND APPAREL SECTOR: AN ANALYSIS OF ASPECTS RELATED TO DOMESTIC SUPPLY AND DEMAND

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Introduction

The Indian textile¹ and apparel sectors² comprise the second largest employer after agriculture, with more than 33 million persons engaged in this industry. In 2004/05, it contributed 1 per cent to GDP, 15 per cent to the total exports and 8 per cent to the total manufacturing output of India (based on calculations from the *Annual Survey of Industries* and Directorate-General of Foreign Trade, India). By virtue of being among the earliest established industries in the country, and being a major sector responsible for rapid growth of the newly industrialized countries, in addition to the data given above, the textile industry plays a significant role in the Indian economy. This industry has a rich past in India, in addition to its dimensions in culture and heritage, so much so that any study of Indian history would be incomplete without a detailed treatment of the country's textile trade. Textile production has been an integral part of the lives of millions of poor people, including farmers, in India for centuries.³ In addition, textile production has backward linkages with agriculture and allied activities, at least in the case of natural fibres.

A strong and diverse raw material base, cheap labour, an ever-growing domestic market and relatively better technologies⁴ than some of the other developing countries are the key strengths of the Indian textile sector that have resulted in such a pronounced prominence of this industry. The development of a modern textile industry in India gained momentum after a similar trend in Britain, owing to the availability of indigenous cotton, cheap labour, access to British machinery and a well-developed mercantile tradition in India.

Briefly, some fundamental features of the Indian textile and clothing industry are:

- The co-existence of a broad spectrum of production techniques;
- A distinct trend towards decentralized manufacturing in the informal sector;
- Sustained, albeit a considerably reduced predominance of cotton as the raw material;

¹ The textile sector includes spinning that involves producing yarn from fibres, weaving that involves manufacturing fabric from that yarn, and processing that involves chemical treatment and colouration of yarns and fabrics for durability as well as aesthetics.

² The apparel sector includes the processes that result in the manufacture of readymade garments from fabrics.

³ A comprehensive study of Indian textile history is given in Roy, 1996.

⁴ For example, Lakshmi Machine Works, India, is one of the largest textile machinery manufacturers in the world. The presence of companies such as these has ensured that many advanced technologies are accessible to Indian industry.

- A huge ailing public sector;
- A recent trend among manufacturers of adopting e modern techniques; and
- The existence of a number of regulations and a preferential tariff structure (favouring natural fibres and conventional means of production).⁵

Despite being among the world leaders in textile production in 1950 and the fact that India has a self-reliant value chain of textiles, the country had been steadily losing ground in the world textile market, together with a loss of importance in industrialization at home. The decline of the Indian textile industry is very conspicuous relative to the country's other industries as well as the textile industries of other countries in the developing world, as is evident from the steep fall in the share of Indian textiles in the international market and in total Indian exports.

In the 1990s, the Indian textile industry faced a severe recession, both in terms of employment as well as in the number of operational mills/factories, which continued during the mid-1980s and 1991 despite fundamental changes in the tariff structure among other policy aspects. Although symptoms of recovery have been of late, owing to the market expansion resulting from the phasing out of MFA quotas, there was an astonishing decline in export growth from more than 16 per cent in 2005/06 to 10.53 per cent in 2006/07 (Ministry of Textiles, 2007).

However, the objective of this chapter is not to examine the performance of the Indian textile and apparel sectors in international trade. Rather, it focuses on some of the major domestic issues that encompass supply and demand in this industry. With regard to the supply side, performance and employment in organized and unorganized segments are considered separately. The key aspects that are analysed are partial productivity measures, employment, capital and output. As for the demand-side, the focus is on the fiscal and tariff policies in the textile and apparel sectors and their implications for demand.

This chapter is divided into six sections, in addition to this introduction. Section A gives an account of performance of the organised textile sector in India. Section B analyses the performance of the unorganized textile sector. Consumption of textiles by Indians and the factors affecting it are analysed in Section C. In conclusion, Section D and elucidates some policy inferences of the analysis in this chapter.

A. Organized textile sector in India: Performance and employment

During the past few decades, numerous textile mills have been declared ailing and have been closed. However, many of the mills under the National Textile Corporation continued to operate, despite losses, owing to the large number of employees involved. Even in the private sector mills, employment has been a major issue. Although the sector has largely recovered, its performance post-MFA has not been encouraging.

See Misra, 1993 and Sastry, 1984 for elaboration of these aspects.

A wide range of regulations in the textile industry involving bureaucratic difficulties in expansion and the highly distortional tariff structure were partly responsible for this steady recession. For example, hank yarn obligation⁶ required the spinners to allocate a fixed part of their production to handloom weavers. This not only restricted the profits of spinners, but also raw material access and costs for weavers and others further up the value chain. The reservation of the garment sector⁷ under the Small-Scale Industry Act had restricted large-scale investment in this sector, which led to huge losses in efficiency that could have been otherwise achieved by economies of scale.

In the informal or unorganized apparel sector, which is progressing well, the processes are not planned and systematic. The working conditions are not satisfactory as the labour regulations cannot be enforced and a hire-and-fire principle is in place. This is true even in a part of the organized sector, wherein the manufacturers recruit contract labourers in order to minimize the losses they face due to the inflexible labour regulations preventing them from firing their permanent employees even during recessions. In fact, some studies have observed a rapid growth of the informal sector in the textile industry, especially after the reforms of 1991.

Table 1 shows the trends in annual average growth rates of some major variables for the aggregate textile industry. Since it was based on the aggregated textile data, figures could be calculated for four decades with proper concordance of various Annual Survey of Industries reports. It can be seen that output, wages and fixed capital have been growing at an increasing rate from 1961/62 to 1999/2000, except for a small drop in the growth rate from 1991/92 to 1999/2000.⁸ The trend in the employment growth rate is, however, not uniform. Apart for the period between 1971/72 and 1980/81, it has grown at a much lower rate than the other variables in most periods and, in fact, declined from 1981/82 to 1990/91.

Although employment grew on average after the reforms of 1991, its growth was nowhere comparable to the growth of the other variables, especially capital stock, which has grown at about 18 per cent annually.⁹ This observation is even more precise if the 1980/81 to 1997/98 period alone is examined, as employment fell at approximately the same annual average rate at which output grew, despite a remarkable annual growth of capital of more than 8 per cent. It would thus appear that, overall, the textile industry is characterized by substitutability between capital and labour. Given the labour-intensive nature and unionized labour of the organised segment of this industry, entrepreneurs might have had capital to substitute the labour. Even then, the absolute fall of 5 per cent annually in employment while output increased by 5 per cent annually draws attention.

⁶ After coming into effect in 1974, it was fixed at 50 per cent of the total marketable yarn in 1986, reduced to 40 per cent and then to 20 per cent in 2003.

⁷ This requirement was withdrawn with effect from 2 November 2000.

⁸ This might be partly due to the omission of the cotton-ginning sector for the two years after 1997/98, as the National Industrial Classification-1998 classified this sector under agriculture while the pre-1997/98 data are based on National Industrial Classification-1987. The same argument holds for the other variables; therefore, the figures for the period between 1980/81 and 1997/98 have been highlighted.

⁹ This is as expected, since the phasing out of MFA quotas was initiated during this period and firms were apparently preparing for the free trade regime by attempting to invest in both an enhancement of their quality and scale as well as to improve efficiency.

Another striking observation from table 1 is that the period of 2000/01 to 2004/ 05 saw the sharpest growth in organized sector employment. This is seen together with a decent growth in real wages and output. This rise in employment, despite the growth of the unorganized sector and the number of contract workers within the organized sector, has faced stiff cost competition mainly in the wake of the gradual phasing out of quotas during this period. The growth in capital has come down to below 3 per cent, which is another reason to worry since to face the competitive market in the free trade regime, huge investments are required.

Three measures of partial productivity have been analysed in table 2 – capital productivity, capital intensity and labour productivity. Capital productivity is the ratio of gross output to gross capital. This gives the amount of output produced from a unit of capital. Capital intensity is defined as the ratio of gross capital to total employment. This reflects the relative size of capital and labour in the industries. Labour productivity is the ratio of gross output to total employment, and measures the extent to which labour has been used for production.

Table 2, in terms of lakhs (1 lakh = 100,000) of rupees of gross value of output and gross invested capital per person engaged, makes it more explicit that the textile industry, on an average, has become much less labour-intensive than it was 30 years ago. A rise in the capital-labour ratio, despite a fall in capital productivity, appears to suggest the existence of mere substitution of labour by capital, at least until 1997/98. By

Period	Output	Employment	Real Wages	Real fixed capital
1961/62 to 1970/71	5.034	0.496	2.487	3.645
1971/72 to 1980/81	6.668	3.295	2.882	4.643
1981/82 to 1990/91	8.174	-0.968	5.44	8.802
1991/92 to 1999/00	6.718	0.997	2.378	17.774
1980/81 to 1997/98	5.34	-5.17	5.35	8.11
2001/02 to 2004/05	8.90	4.79	5.18	2.73

Table 1. Average annual growth rates in the organised textile and apparel sector in India (1993/94 prices)

Source: Author's calculations from Annual Survey of Industries.

Table 2. Trends in some ratios of capital (K), output (Y) and employment (N)

Year	Y/K	K/N	Y/N
1973/74	2.569	4.523	11.616
1980/81	3.657	4.364	15.958
1985/86	3.092	7.331	22.664
1990/91	3.614	10.332	37.336
1997/98	1.546	34.122	52.76
2001/02	1.403	3.969	6.443
2004/05	1.777	4.426	7.864

Source: Author's calculations from Annual Survey of Industries.

2001/02, capital productivity, capital intensity and labour productivity had fallen sharply. Even though there had been a slight increase in all these measures by 2004/05, this is a serious problem given the fact that the international market is becoming more and more competitive, requiring high productivity and capital intensity.

Capital productivity (Y/K) was quite stable from the 1970s until 2005, varying between 1.4 and 3.7. However, there are bulges in capital intensity (K/N) as well as labour productivity (Y/N). Strikingly huge increases for these values during 1985/86, 1990/91 and 1997/98 could possibly be a result of a rapid fall in employment, which is in the denominator for both these measures in this period, as can be inferred from table 1. The growth of employment by 2001/02 might have offset the unusually high rise in these ratios before, thus explaining the fall in these ratios to much lower values. However, a not-so-high growth of capital since 2001/02 led to increase in capital productivity by 2004/05, while an impressive output growth rate caused a rise in both capital and labour productivity.

In the recent years, most of the protection measures have been brought in as a part of the reforms. Table 3 shows effective rates of protection for different subsectors of the textile industry over the past few years. The measure used is based on Das (2003), who defined the effective rate of protection as a measure of the extent to which a sector is sheltered from foreign competition. Specifically, this is based on Corden's formula and is the percentage excess of domestic value-added, vis-à-vis world value-added, introduced because of tariff and other trade barriers. This measures the distortion introduced due to tariffs on the input prices as well as the final output prices, and it therefore measures protection of domestic factors of production. This measure of protection is used, because it not only captures the absolute level of the effective rate of protection of above. It is evident from table 3 that protection has fallen in all subsectors, and that this reduction has been strikingly sharp in cotton khadi and handlooms. A fall in protection may have implications for employment to the extent that protected industries that tend to lose because of a fall in protection are employment-intensive.

NIC-1987 codes	Description of sectors	1980-1985	1986-1990	1991-1995	1996-2000
230,231,235	Cotton ginning, spinning and weaving	109.77	125.38	68.38	42.93
262	Embroidery, ornamental trimming and <i>zari</i>	160.91	151.23	95.79	48.22
232,233	Cotton khadi and handlooms	109.36	126.85	70.95	0
234,236	Power looms and processing in mills	109.77	125.38	68.38	42.93
260,265,267	Hosiery, garments and other made-ups	138.33	149.89	98.45	54.25
263	Carpets and other furnishings	102.52	91.8	63.3	44.66
268,269	Waterproof and other specialty textiles	160.91	151.23	95.79	48.2

Table 3. Trends in effective protection rates for different subsectors in the Indian textile sector

Source: Das, 2003.

Note: NIC - National Industrial Classification.

It is useful to examine the employment trends in some subsectors, using past data, and to link them with some policy measures. Figure I shows that employment in handlooms and power looms was more or less stagnant from 1973/974 to 1997/98, except for the fact that the Handlooms (Reservation of Articles for Production) Act of 1985, which was enforced from 1986, caused a sharp increase in employment in that subsector in 1986/87. Subsequently, however, it fell rapidly owing to the liberalization that favoured the power looms and mill sector in the late 1980s, leading to the levels of employment recorded in the recent past.

Figure II shows that employment has been consistently falling in the cotton mill subsector, while it has been almost stagnant in wool, silk and other natural fibres. It has risen sharply in synthetics and made-up textiles, more so after the reforms of 1991. This roughly indicates that the highly regulated conventional cotton mill subsector has suffered the most among all the subsectors of cotton textiles in terms of employment, implying the existence of a negative relationship between labour regulations and employment. This also suggests a positive effect of liberalization, at least in some subsectors that come under the made-ups.

Figure III shows that employment has been rising as a whole in the textile processing sectors that are prime polluters in the industry. However, its fall in 1987/88 and 1995/996 in the overall cotton and synthetic processing sectors indicates the possible existence of a negative impact, at least in the short term, of the Environmental Pollution Act (1987) and the ban imposed in 1995 on certain dyes by some members of the European Union.

Figure IV strengthens the evidence for this statement since the fall in employment is even more conspicuous in the case of the wool and silk processing subsectors, which are more pollution-intensive in nature. Despite all these short-term trends, the long-term increasing trend is still preserved, suggesting that the rise in employment that might be gained by compliance with these regulations may have played a role in increasing employment. This fact is also confirmed by a rigorous econometric exercise based on a comprehensive theoretical framework by Narayanan (2007 and 2005b).

Table 4 shows that the number of factories has increased in the textile and the apparel sectors, implying a spectacular rise in fixed capital, number of workers, total persons engaged, total emoluments and gross output in the apparel sector. The growth in most of the variables has not been so high in the textile sector. However, the growth in the number of factories in the apparel sector has been less than half that in the textile sector, highlighting the massive consolidation and scaling up that has been taking place among apparel manufacturing enterprises. In part, this could be attributed to the fact that the garment sector was de-reserved from the small-scale industries sector in 2000 as well as the resultant mergers of smaller fragments after de-reservation, causing an actual reduction in the number of factories, which could have been outweighed by the number of new factories established.¹⁰ Thus, the organized apparel sector appears to be getting more in tune with the free-trade regime than the organized textile sector, in terms of scaling up even though the latter has always been a large-scale sector compared with the former.

¹⁰ An investment of up to Rs 3 crore (1 crore = 10 million) in plant and machinery and an FDI cap of 25 per cent is permitted, subject to an export obligation of 50 per cent of total garment production, even before de-reservation.



Figure I. Employment trends in non-mill textile sector









Figure III. Employment trends in textile wet processing sector





Source: Author's calculations from Annual Survey of Industries.

Note: Post-1997/98 data exist in NIC-98 classification, which does not allow us to look at the sectors in this scheme of disaggregation, done using NIC-87. Therefore, this analysis stops with 1997/98.

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Year	Sector	Factories	Fixed capital (Rp lakhs)	Workers	Total persons engaged	Wages to workers (Rp lakhs)	Total emoluments (Rp lakhs)	Gross output (Rp lakhs)
0011000	Tovtiloe	10 667	2 021 180	919 LOO L	1 180 104	445 047	R07 216	
2001/02	Annaral	100 21	340 821	1 UU4 640 272 524	317 080	86 647	127 017	0 2U2 U4C
2001/02	Total	07070		+7C 7LC F	600 /1C	00 04/ 531 664	116 171	041 004 -
2001/02		10 840	4 242 310	1 2// 3/2	1 499 213	100 120 100 110	744 054	76/ 909 6
2004/05	lextiles	13 521	4 629 094	1 076 480	1 264 427	480 456	714 951	11 108 327
2004/05	Apparel	3 397	470 132	387 606	450 175	139 024	222 732	2 374 789
2004/05	Total	16 918	5 099 226	1 464 086	1 714 602	619 480	937 683	13 483 116
			Ave	erage annual g	Jrowth rates			
2001-2005	Textiles	2.559	5.915	2.376	2.321	2.655	6.240	11.811
2001-2005	Apparel	1.157	17.085	14.076	13.990	20.150	24.707	21.007
2001-2005	Total	2.269	6.733	4.872	4.789	5.506	9.475	13.198

A higher growth rate in the number of workers than in total employment, coupled with conspicuously higher growth rates in total emoluments than in wages, indicate that despite an increased demand for production workers pay increases are becoming higher for supervisory and managerial staff, i.e., more skilled employees.

However, a word of caution is needed while mentioning employment in organised textile sector. Given the high labour costs and rigidities in the labour market, coupled with the ailing factories, employers have been subcontracting employees from the unorganized sector, thereby reducing employment in the organized sector. This, in addition to showing up as a decline in employment, is not a healthy trend as far as the welfare of employees is concerned, as they are not protected by any legislation given their unorganized nature. This needs to be taken care of by the policy makers, possibly by ensuring income security for the workers coupled with some labour flexibility for the employers, so that they are discouraged from subcontracting.

Having analysed the employment trends in India's organized textile sector, it is essential to link these observations with a perspective of development. The apparel sector has performed quite well in terms of employment in recent years, showing a recovery from the earlier decline; however, the same is not fully true in the case of the textile sector. This appears to be a good indication of the country's development in general, given the immense contribution of the textile sector to the economy. The story of employment and the performance of textile industry would not be complete, however, without a comprehensive examination of the trends in the unorganized textile sector. Therefore, section B analyses the performance, in terms of partial productivity trends as well as several other factors.

B. Performance of India's unorganized textile sector

In India, the unorganized manufacturing sector is defined as a collection of those manufacturing units:

- (a) Whose activities do not come under any statutory Act or legal provision; and/or which do not maintain any regular accounts; or
- (b) That are not registered under Sections $2m(i)^{11}$ and $2m(ii)^{12}$ of the Factories Act, 1948; and
- (c) That are registered under Section 85¹³ of the Factories Act, 1948.

As table 5 reveals, the unorganized manufacturing sector contributes 28 per cent of the gross value added and 73 per cent of employment to total manufacturing including the organized sector, thus playing a vital role in the Indian economy.

As Table 5 illustrates, the unorganized textile and apparel sector comprises 31 per cent of gross value added and 79 per cent of employment in the entire textile and apparel sector in India. In fact, the unorganized apparel sector, which contributes about

¹¹ Factories using power and employing 10 or more workers on any working day.

Factories not using power and employing 20 or more workers on any working day.

¹³ Factories that have less than 10/20 workers with or without power, and specially notified by the State Government.

Subsector	Sector	Per cent share in gross value added	Per cent share in employment
Unorganized manufacturing Unorganized textiles Unorganized apparel	Total manufacturing Total textiles Total apparel	28 18 59	73 74 89
Unorganized textiles and apparel	Total textiles and apparel	31	79
apparel	Unorganized manufacturing	29	31

Table 5. Shares of various subsectors in different sectors for 2000/01 (current prices)

Source: Author's calculations from Annual Survey of Industries and National Sample Survey Organisation data for 2000/01.

59 per cent to gross value added and 89 per cent to employment in the apparel sector in India is predominantly unorganized. Thus, any study of Indian textile industry cannot claim completeness unless it considers the unorganized sector in its analysis.

Misra (1993) noted that the unorganized segment of India's textile sector comprises handlooms, power looms, small power-processors and traditional hand-processors in addition to the numerous small-scale garment firms in the woven as well as hosiery subsectors. Power looms either operate on an independent basis or serve a master-weaver system, in which they just process the orders from the master-weaver providing the raw materials and charges based on the quantity of cloth produced. They acquire loans from non-bank sources, while handlooms in rural areas rely on non-institutional sources such as village moneylenders, unlike the organized weaving mills, at a higher rate of interest and from undeclared, untaxed and often illegal income.

In the urban areas, where this sector is dominant, labour is mostly drawn from migration from the rural areas, is non-unionized and is thus obtained at marketdetermined wage rates that are much lower than in the organized sector. These factors, in addition to the exemption of grey fabric from excise duty and sales taxes, and long working hours, provide a competitive advantage for the unorganized power loom subsector over the organized mill subsector. In fact, the rapid growth of the power loom sector after the deregulatory measures were introduced in 1985 could be attributed to its unorganized labour market, well-developed input markets, ease of entry and flexible specialization.

Although there are some large handloom production centres in urban areas, a major part of this subsector is small-scale, often as an ancillary activity to agriculture in rural areas. Many of the Indian handlooms are even non-commercial, such as those in the north-east, which produce for local or domestic consumption. There are small-scale power-processors as well as hand-processors using traditional techniques in India. The fact that the cost of raw material, cotton, is around one-fourth of the total value, and that the three stages of spinning, grey weaving and processing each progressively add one-fourth of the final value, clearly illustrates the importance of processing and weaving in the cotton textile value chain.

Further down the value chain, most of the knitted garment manufacturers are in the unorganized sector. For example, many firms in Tiruppur, an industrial town in Tamil Nadu, are either unorganized or depend heavily on subcontracting to firms in unorganized sector. Most of these firms are export-oriented and are seasonal/casual in operation, depending on orders from the foreign buyers. These firms are usually specialized¹⁴ and small, and hence complete their job orders¹⁵ with the help of numerous suppliers. Even some of the woven garment manufacturers, such as a few in Mumbai, Gurgaon, Chennai and Bangalore, are unorganized.

It is worth mentioning that the aforementioned characteristics are more or less typical for the cotton sector. However, the features of the other sectors such as wool, silk and synthetics, which involve similar processes, remain the same. The jute sector, which is concentrated in rural and urban areas of West Bengal as well as a few other States, has gone through major transformation from prosperity during preindependence to difficult times in recent years. The coir sector is a major cottage industry in many rural areas in Tamil Nadu and Kerala. Other miscellaneous sectors include furnishings, manufacturing textiles for industrial purposes such as nylon tyre cords, metallised yarns and rubber thread or cord covered with textile material, specialty textiles such as tapes, cords and nets, fancy textiles such as embroidery, zari work, and wadded textiles.

As MFA quotas are being phased out, Indian textile sector is facing both opportunities and threats. While the organized segment of the sector appears poised for a boom, due to its relatively better economies of scale, the large unorganized sector is expected to suffer because of its lack of competitiveness and technical efficiency among other related factors such as insufficient scales of operation, which limits the level of efficiency and competitiveness that these firms can achieve.

Furthermore, de-reservation of the garment sector under the small-scale industries sector in 2000 is likely to have adverse effects on the unorganized sector, as the enterprises in this sector now face stiff competition from big players entering the market with this development in policy. In fact, this is already threatening the export sector, as the upper limit of investment was previously higher, as footnoted elsewhere in this chapter. Given the huge contribution of the unorganized segment to the textile sector, this is certainly a serious issue for the sector as a whole. On the other hand, small firms are becoming competitive after the recent trade reforms, as decentralised production does have some strengths in terms of costs. In addition, mergers of smaller firms into bigger ones could offer a solution in the face of competition from big players. Combined effluent treatment plants established in clusters of small textile dyeing units, in places such as Tiruppur, are examples of how small firms can join hands in eliminating their disadvantage resulting from the lack of economies of scale.

Given the heterogeneity of the unorganized textile segment coupled with the potential strengths and drawbacks, as explained above, it is imperative that the productivity trends in this sector are examined in those recent years for which detailed data are available.

¹⁴ A handful of firms carry out all the activities involved in the textile value chain.

¹⁵ Most firms are order-based, although there are few that also market their own products.

This analysis uses the aggregate summary results of fortieth, forty-fifth, fifty-first and fifty-sixth rounds on unorganized manufacturing of the National Sample Survey Organisation (NSSO), (1989, 1994, 1998 and 2002). The different types of enterprises covered in this study are: (a) own account manufacturing enterprises (OAMEs) consisting of no employees other than the working owner; (b) non-directory manufacturing establishments (NDMEs) employing less than six persons other than a working owner; and (c) directory manufacturing establishments (DMEs) employing more than six persons other than a working owner.

Based on this data,¹⁶ the average annual growth rates in employment, fixed assets, wages and output are analysed here (see table 6). While employment and wages fell, on average, from 1984 to 1990, they increased in the early 1990s and their growth was much higher in the late 1990s. This was despite a fall in fixed assets and output throughout this period, although the decline was not as high in 1990s as it was in 1980s. The interesting observation herein is that this trend is exactly the reverse of what has happened in the organized sector – a decline in employment despite a rise in capital and output.

Period	Employment	Fixed assets	Wages	Output
1984-1990	-11.803	-24.19	-8.787	-24.512
1989-1995	2.724	-8.412	9.174	-3.276
1994-2001	6.781	-9.123	10.946	-7.251

Table 6. Annual average growth rates in the unorganized textile sector (based on 1993/94 prices)

Source: Author's calculations based on National Sample Survey Organisation data (1989, 1994, 1998 and 2002)

Partial productivity measures should be analysed in order to obtain an overview of the performance of the unorganized textile sector. Three of the measures are analysed here: (a) capital productivity (no units); (b) labour productivity; and (c) capital intensity (in rupees per employee). In large-scale or capital-intensive industries, capital productivity can be expected to be much lower than unity, as output produced will require capital much larger than the value of output, owing to the capital-intensive nature of production. However, as the unorganized sector is not very likely to include such enterprises, this ratio may be even greater than one. This indicates the extent to which capital has been used for production.

To facilitate inter-temporal comparability, the measures were expressed in constant prices (base year: 1981/82) by deflating the fixed assets using WPI for textile machinery and gross output using WPI for the respective products, i.e., textiles and apparel.

¹⁶ The demerits of National Sample Survey Organisation data on the unorganized manufacturing segment are the possibility of unrepresentative sampling, response errors, inadequate sample sizes and the absence of sampling error estimates. Owing to the absence of any better source of data for the unorganized textile sector, these data were used for this analysis while acknowledging these limitations.

Tables 7 and 8 show the trends and growth rates, respectively, for capital intensity, capital productivity and labour productivity across different enterprises and areas in the two subsectors of the textile sector, i.e., textile manufacture (NIC-98 code: 17) and apparel manufacture (NIC-98 code: 18).

Year	Subsector	Sample	Enterprise type	Capital productivity	Capital intensity	Labour productivity
1984/85	Textiles Apparel Textiles Apparel Textiles Apparel Textiles Apparel	Rural Rural Urban Urban Rural Rural Urban Urban	OAME OAME OAME NDME NDME NDME NDME	0.902 0.251 0.687 0.108 0.863 0.884 3.263 0.695	2 016.479 8 600.825 3 679.076 39 475.000 5 204.038 4 554.780 3 648.323 9 940.026	1 819.410 2 154.820 2 527.268 4 281.939 4 488.943 4 026.569 11 903.930 6 906.713
1989/90	Textiles Apparel Textiles Apparel Textiles Apparel Textiles Apparel	Rural Rural Rural Urban Urban Urban Urban	OAME OAME NDME OAME OAME NDME NDME	1.021 1.253 1.740 1.757 0.713 1.069 1.871 1.303	1 742.425 1 879.168 2 435.485 3 445.447 4 247.893 4 832.785 10 575.990 12 223.040	1 778.319 2 354.176 4 238.551 6 054.648 3 030.697 5 165.134 19 787.060 15 922.370
1994/95	Textiles Apparel Textiles Apparel Textiles Apparel Textiles Apparel Textiles Apparel Textiles Apparel	Rural Rural Urban Rural Rural Urban Rural Rural Urban Urban Urban	OAME OAME OAME NDME NDME NDME DME DME DME DME DME	1.143 1.166 0.836 0.889 1.279 2.310 1.251 0.493 1.578 2.244 1.804 2.800	2 033.080 1 596.906 4 524.921 5 100.408 4 335.058 1 965.746 11 294.630 24 059.050 5 905.005 3 438.526 9 804.714 6 893.022	2 323.994 1 862.392 3 782.379 4 532.575 5 542.978 4 541.748 14 133.050 11 871.760 9 320.225 7 717.756 17 688.040 19 301.480
2000/01	Textiles Apparel Textiles Apparel Textiles Apparel Textiles Apparel Textiles Apparel Textiles Apparel	Rural Rural Rural Rural Rural Urban Urban Urban Urban Urban Urban	OAME OAME NDME DME DME OAME OAME NDME DME DME	0.906 0.612 1.160 0.794 1.575 1.201 0.653 0.430 1.490 0.539 1.452 1.049	$\begin{array}{c} 2 \ 577.797 \\ 4 \ 986.596 \\ 4 \ 680.898 \\ 6 \ 554.459 \\ 6 \ 661.292 \\ 5 \ 341.884 \\ 6 \ 369.440 \\ 10 \ 000.640 \\ 15 \ 329.540 \\ 15 \ 875.740 \\ 16 \ 719.660 \\ 16 \ 444.340 \end{array}$	$\begin{array}{c} 2 \ \ 336.765 \\ 3 \ \ 050.152 \\ 5 \ \ 429.882 \\ 5 \ \ 202.371 \\ 10 \ \ 490.510 \\ 6 \ \ 418.246 \\ 4 \ \ 159.148 \\ 4 \ \ 296.527 \\ 22 \ \ 846.260 \\ 8 \ \ 554.678 \\ 24 \ \ 275.790 \\ 17 \ \ 243.160 \end{array}$

Table 7. Trends in partial productivity measures in the unorganized textile sector in India

Source: Author's calculations based on National Sample Survey Organisation data (1989, 1994, 1998 and 2002)

Period	Subseetor	Sample	Enterprise type	Capital productivity	Capital intensity	Labour productivity
1984/85	Textiles	Rural	OAME	2.623	-2.718	-0.452
to	Apparel	Rural	OAME	80.007	-15.63	1.85
1989/90	Textiles	Rural	NDME	20.351	-10.64	-1.116
	Apparel	Rural	NDME	19.756	-4.871	10.073
	Textiles	Urban	OAME	0.772	3.092	3.984
	Apparel	Urban	OAME	177.059	-17.551	4.125
	Textiles	Urban	NDME	-8.532	37.977	13.245
	Apparel	Urban	NDME	17.495	4.594	26.107
	Textiles	Rural	OAME	2.4	3.336	6.137
1989/90	Apparel	Rural	OAME	-1.381	-3.004	-4.178
to	Textiles	Urban	OAME	-4.358	-1.274	-5.354
1994/95	Apparel	Urban	OAME	-3.37	1.108	-2.449
	Textiles	Rural	NDME	-5.306	15.599	6.155
	Apparel	Rural	NDME	6.296	-8.589	-4.997
	Textiles	Urban	NDME	-6.624	1.359	-5.715
	Apparel	Urban	NDME	-12.424	19.367	-5.088
	Textiles	Rural	OAME	-4.14	5.359	0.11
	Apparel	Rural	OAME	-9.51	42.453	12.755
1994/95	Textiles	Urban	NDME	-1.856	1.596	-0.408
to	Apparel	Urban	NDME	-13.129	46.687	2.909
2000/01	Textiles	Rural	DME	-0.045	2.562	2.511
	Apparel	Rural	DME	-9.294	11.071	-3.368
	Textiles	Rural	OAME	-4.376	8.153	1.992
	Apparel	Rural	OAME	-10.331	19.215	-1.042
	Textiles	Rural	NDME	3.821	7.145	12.33
	Apparel	Rural	NDME	1.841	-6.803	-5.588
	Textiles	Urban	DME	-3.904	14.105	7.449
	Apparel	Urban	DME	-12.511	27.713	-2.133

Table 8. Growth trends in partial productivity measures in the unorganized textile sector of India

 $\mathit{Source:}$ Author's calculations based on National Sample Survey Organisation data (1989, 1994, 1998 and 2002)

First, a comparison is made of the trends in these variables for each year across different enterprise types, areas and subsectors. Second, we look at the average annual growth rates in them during a few recent years. Third, overall inferences are derived from this analysis.

1. Capital productivity

In 1984/85, NDMEs were more capital-productive than OAMEs in almost all categories except the rural textile sector, where both were comparable. While the urban textile NDME subsector produces output that is more than thrice that of capital, output is as high as capital in most other subsectors except apparel OAMEs. In all cases except rural NDMEs,¹⁷ the apparel subsector is less capital-productive than the textile

¹⁷ In this case, both the textile and the apparel subsectors are equally capital-productive.

subsector. Rural textile NDMEs are the only exception for the observation that all categories in rural areas have been more capital-productive than those in urban areas.

In 1989/90, all categories except rural textile OAMEs recorded capital productivity measuring above unity, exhibiting higher levels compared to those in 1984/85, except urban textile NDMEs in which it was halved. Further, NDMEs were more capital-productive than OAME in all categories, thereby comprising the four best ones among them in terms of capital productivity. All categories in rural areas have been more capital-productive than those in urban areas, except textile NDMEs, as was the case in 1984/85. Further, in all categories except urban NDMEs, the apparel sector has been more capital-productive than the textile sector.

In 1994/95, DMEs were also including in the analysis, owing to the availability of their data from the same source (National Sample Survey Organisation, 1998). In that year, all categories of NDMEs, except for the urban apparel subsector, were more capital-productive than OAMEs, while those in the DME category, except the rural apparel sector, were better than those in the NDME category. Compared to 1989/90, capital productivity fell in all categories except rural apparel NDMEs. While urban textile NDMEs had been the most capital-productive of all categories until 1989/90, it was just an average category in these terms in 1994/95. Except in urban NDMEs, capital productivity was higher in the apparel subsector than in the textile subsector in all enterprise types and areas. Enterprises in urban areas had higher capital productivity than in rural areas only in the case of DMEs while the reverse holds true for other enterprise types.

In 2000/01, capital productivity declined markedly in all categories. All categories of DMEs, except urban textiles, were more capital-productive than were the other categories, while those in the OAME category were worse than in the other categories. One striking observation is that capital productivity in the apparel subsector was lower than that in the textile subsector for all enterprise types and areas. In all cases except textile NDMEs, enterprises in rural areas were more capital productive than those in urban areas.

As shown in table 7, the annual average growth rate of capital productivity from 1984/85 to 1989/90 was two-digit or even higher in all categories except textile OAMEs where it was less than 10 per cent, and urban textile NDMEs where it fell. From 1989/ 90 to 1994/95, the average annual rate of decline in all categories, except textile OAMEs and apparel NDMEs in the rural sample¹⁸, ranged from 1 per cent to 12 per cent. Between 1994/95 and 2000/01, enterprises became 0.05 per cent to 13 per cent less productive every year, on average, except in the case of urban NDMEs, where they became more productive at an average annual rate of 1.8 per cent to 3.8 per cent. These rates of decline were much higher in the apparel subsector than in the textile subsector. Even in urban NDMEs, the apparel subsector became more productive at a rate lower than that at which the textile subsector had become. A decline in capital productivity, wherever it occurred, was more rapid in urban enterprises than in rural enterprises.

⁸ Note that capital productivity grew in these categories during this period.

2. Capital intensity

In 1984/85, capital intensity varied between Rs 2,000 and Rs 10,000 per employee, with an outlier of more than Rs 39,000 for the urban apparel OAME subsector. Capital intensity was much higher in the apparel subsector than in the textile subsector, except in rural NDMEs, wherein it was the other way round. Except in textile NDMEs, the enterprises in urban areas were more capital-intensive than those in rural areas. With the exception of the rural textile subsector, NDMEs were less capital-intensive than OAMEs.

While these figures varied between Rs 1700 and Rs 12,000 in 1989/90, enterprises in the apparel subsector, urban areas and NDMEs were uniformly more capital-intensive than those in the textiles subsector, rural areas and OAMEs, respectively, with no exceptions. Except for the enterprises in urban textile OAMEs and urban NDMEs, capital intensity fell in all categories, the sharpest fall being more than eight times in the case of urban apparel OAMEs.

In 1994/95, capital intensity ranged from Rs. 2,000 to Rs. 24,000, and the textile subsector was more capital-intensive than the apparel subsector in the enterprises in rural areas and DMEs, although urban apparel NDMEs were the most capital-intensive among all categories. Urban enterprises and NDMEs were more capital-intensive than rural enterprises and OAMEs, respectively. While DMEs in rural areas were more capital intensive than NDMEs in the same areas, DMEs in urban areas were less capital-intensity fell in all categories in 1994/95, compared with 1989/90.

Unlike in 1994/95, urban DMEs were the most capital-intensive (approximately Rs 16,000, while the lowest was some Rs 2,600) category in 2000/01, pushing urban NDMEs into second place. The apparel subsector was more capital-intensive than the textile subsector in all categories except DMEs. OAMEs were less capital-intensive than NDMEs, which were less capital-intensive than DMEs in all categories except the rural apparel subsector, wherein DMEs were less capital-intensive than NDMEs. Further, it can be seen that enterprises in urban areas were much more capital-intensive than those in rural areas. Capital-intensity was much higher during 2000/01 than that during 1994/95 in all categories.

Except for urban NDMEs and textile urban OAMEs, enterprises in all categories became less capital-intensive, at annual rates of 3 per cent – 18 per cent from 1984/85 to 1989/90. However, the annual growth rate was as high as 38 per cent in textile urban NDMEs. This decline in capital intensity could not be offset by growth in a few categories from 1989/90 to 1994/95, because rapid growth occurred only in the categories that had, to begin with, grown in capital intensity since 1984/85. Where growth did occur in the other categories, it was not high relative to the rates of decline in the previous period.

Unlike the previous periods, capital-intensity grew quite rapidly in most categories from 1994/95 to 2000/01, with the annual average growth rate ranging from 2 per cent to 47 per cent, the only exception being urban apparel DMEs. One more noteworthy observation is that the apparel subsector became capital-intensive much faster than the textile subsector did, wherever it grew, which explains why the apparel subsector became more capital-intensive than the textile subsector in 2000/01, in contrast with 1994/95 figures. While the growth rates were much higher in the textile subsector, with the exception of DMEs. The other observations in growth rates may be made directly from table 7.

3. Labour productivity

While the textile subsector was less labour-productive than the apparel subsector in OAMEs during 1984/85, the reverse held true for NDMEs. NDMEs were more labour-productive than OAMEs in all sectors and areas. Urban enterprises were more labour-productive than were those in rural areas. While rural textile OAMEs were the least labour-productive (Rs 1,800), urban textile NDMEs were the most labour-productive (approximately Rs 12,000).

Except for rural textile enterprises, labour productivity increased in all categories from 1984/85 to 1989/90. Urban enterprises and NDMEs were more labour-productive than rural enterprises and OAMEs, respectively, during 1989/90. The apparel subsector was more labour-productive than the textile subsector except in the case of urban NDMEs, where they were the most labour-productive (about Rs 19,800). Rural textile OAMEs was the least labour-productive at about Rs 1780 per person.

In 1994/95, except in urban OAMEs and DMEs, labour productivity, which varied from around Rs 1,800 to Rs 19,000, was less in the apparel subsector than in the textile subsector. Urban enterprises, DMEs and NDMEs were more labour-productive than rural enterprises, NDMEs and OAMEs, respectively.

During 2000/01, DMEs were more labour-productive than NDMEs, which in turn, were more labour-productive than OAMEs. With the exception of OAMEs, the apparel subsector was more labour-productive than the textile subsector. Urban enterprises were more labour-productive than rural ones. Labour productivity varied from Rs 2,300 to Rs 24,000 during this period.

From 1984/85 to 1989/90, labour productivity grew in all categories at an average annual rate ranging from 1.8 per cent to 26 per cent, except in the textile subsector in the rural sample, where it declined at relatively lower rates. In contrast, it declined in all categories except the rural textile subsector, where it grew at about 6 per cent per year from 1989/90 to 1994/95. This decline was slightly more pronounced in the apparel subsector than in the textile subsector.

From 1994/95 to 2000/01, labour productivity grew in the textile subsector in all categories except rural NDMEs, in which it declined at an annual rate of less than 1 per cent. In the rural areas, apparel subsector labour productivity grew at between 3 per cent and 13 per cent per year, except in DMEs, which saw a decline of around 3 per cent per year. Urban apparel enterprises became less labour- productive in all categories at between 1 per cent and 6 per cent per year.

4. Overall inferences on partial productivity measures

With a few exceptions, NDMEs, rural enterprises and the textile subsector were more capital-productive than OAMEs, urban enterprises and the apparel subsector, respectively, in 1984/85. While capital productivity grew between 1984/85 and 1989/90 in most categories, the other observations are the same as for 1984/85, except that the apparel subsector was more capital-productive than was the textile subsector. From 1989/90 to 1994/95, capital productivity declined in almost all categories, with that of DMEs being the highest among all enterprise types. The observation that DMEs in urban areas were more capital-productive than were those in rural areas is the only other difference between the figures for 1994/95 vis-à-vis those for 1989/90. In 2000/01,

capital productivity declined conspicuously in all categories, more so in urban than in rural areas, explaining the fact that enterprises in rural areas were more capitalproductive than were those in urban areas. One striking observation is the fall in capital productivity in the apparel subsector, both in absolute and relative terms, and hence the apparel subsector was less capital-productive in the apparel subsector than in the textile subsector.

In 1984/85, capital intensity was much higher in the apparel subsector, urban areas and NDMEs than in the textile subsector, rural areas and OAMEs, respectively, with few exceptions. The same is true for 1989/90 with no exceptions, although capital intensity fell sharply in most categories from 1984/85. Between 1989/90 and 1994/95, there was little, no or negative growth in capital intensity.

The textile subsector was more capital-intensive than the apparel subsector in rural DMEs. While rural DMEs were more capital intensive than rural NDMEs, urban DMEs were less capital-intensive than urban NDMEs in 1994/95. The other observations are identical to those in 1989/90. In 2000/01, the apparel subsector was more capital-intensive than the textile subsector in all categories except DMEs. Urban enterprises were much more capital-intensive than were rural ones. Capital intensity was much higher during 2000/01 than that during 1994/95 in all categories.

While the textile subsector was less labour-productive than the apparel subsector in OAMEs, the reverse held true for NDMEs during 1984/85, when urban enterprises and NDMs were more labour-productive than were rural enterprises and OAMEs, respectively. This increased in most categories from 1984/85 to 1989/90. Except for the fact that the apparel subsector was more labour-productive than the textile subsector in most cases, the relative positions remained the same as in 1984/85. In 1994/95, labour productivity was lower in the apparel subsector than in the textile subsector in all categories except urban OAMEs and DMEs.

Urban enterprises, DMEs and NDMEs were more labour-productive than rural enterprises, NDMEs and OAMEs, respectively. While labour productivity grew in most of the textile subsector between 1994/95 and 2000/01, with the exception of OAMEs, the apparel subsector was more labour-productive than the textile subsector.

To highlight the findings of this section, two observations can be mentioned at this point. First, urban enterprises performed better than rural enterprises in most subsectors and measures in the unorganized textile subsector. This underscores the dominant problem of the rural-urban divide even in this section of the economy. Second, DMEs performed better than NDMEs, which in turn performed better than OAMEs in this sector. This supports the argument that smaller firms may not be in a position to perform better than larger ones, highlighting the need to encourage the relatively susceptible segments of the industry, in order to provide a level playing field. Having examined the organized and unorganized segments of the Indian textile sector, which form the sector's supply side, it is useful to look at some aspects of domestic demand for textiles and clothing. An attempt is made to do this in the next section.

C. Domestic consumption of textiles in India

Household textile demand has an immense significance for the Indian economy. Given India's population, and more importantly its exploding growth rate, as a part of the subsistence trio (food, clothing and shelter) textiles are poised to be among the key factors of demand. Tables 9 and 10 illustrate the fact that the share of clothing in the total expenditure of an average Indian household has been 6 per cent to 7 per cent in recent years.

Per capita expenditure	1989/90	1993/94 ⁻	1999/2000	2000/01	2001/02	2002/03	2003/04	2004/05
Clothing (Rs)	10.52	21.20	33.28	35.94	35.33	37.68	38.58	39.80
Non-food	57.28	108.30	197.36	216.34	221.92	239.21	255.68	260.1
Total (Rs)	158.10	286.10	486.16	494.90	498.27	531.49	555.55	616.57
Clothing's share								
in non-food	0.18	0.20	0.17	0.17	0.16	0.16	0.15	0.15
Clothing's share total	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07

 Table 9. Trends in per capita consumption expenditures and shares on clothing in rural India (current prices)

Source: Author's calculations from the National Sample Survey Organisation, 2005.

 Table 10. Trends in per capita consumption expenditures and share of clothing in urban India (current prices)

Per capita expenditure	1989/90	1993/94	1999/2000	2000/01	2001/02	2002/03	2003/04	2004/05
Clothing (Rs)	15.00	32.70	51.76	58.16	57.81	60.83	60.08	62.48
Non-food	110.18	214.00	444.08	514.01	530.48	582.18	593.56	619.74
Total (Rs)	249.92	464.30	854.92	914.57	932.79	1 011.97	1 022.68	1 104.84
Clothing's share in non-food	0.14	0.15	0.12	0.11	0.11	0.10	0.10	0.10
Clothing's share total	0.06	0.07	0.06	0.06	0.06	0.06	0.06	0.06

Source: Author's calculations from the National Sample Survey Organisation, 2005.

The share of textiles and clothing in total expenditure could be an indicator of development for countries, because the more the households in a country spend for clothing, the more developed and comfortable they are with their other basic necessities, especially food. Thus, there appears to be some scope for increasing the per capita demand for clothing, which could show up as an increase in the share of clothing in total expenditure. In urban households, the share of clothing in non-food expenditures has been much lower than in rural households. This is partly because the basket of non-food commodities (both goods and services) is bigger in urban areas, hence rendering the share of clothing relatively low. However, these shares have been slowly falling both in rural and in urban areas.

Further, the problem of various ailing textile mills in the past has been largely attributed to the lack of demand in India by several studies (see, for example, Goswami, 1985 and 1990; and Murty and Sukumari, 1991). Although most of the studies were

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based on the data and scenario up until the late 1980s, a demand constraint could be expected to have remained persistent in the textile sector, at least until 2005, when the MFA quotas were phased out, leading to a boom in the external demand sector. Thus, demand for clothing appears to have two dimensions relevant to a country's development – its own intrinsic value as an indicator of development, and its implications for the supply-side and hence the employment aspects.

Table 11 shows that the aggregate household purchases of textiles have grown over recent years, although the per capita purchases either have been stagnant or have fallen, unlike exports, which have been increasing for decades despite the quota system. The domestic demand trends are not in line with the trends in domestic production, as illustrated by table 11. Hence, textiles in India clearly face a domestic demand constraint.

Period	Aggregate household purchases	Per capita household purchases	Exports	Supply (production)
1975-1980	3.519	0.991	3.877	6.35
1980-1985	4.742	2.225	0.402	4.841
1986-1994	0.875	-1.08	14.478	10.518
1995-2000 2000-2005	3.026 4.001	1.129 2.028	19.045 10.205	5.033 8.9

Table 11. Indian textile and apparel subsectors – trends in growth of supply and demand

Source: Author's calculations from different Annual Survey of Industries yearbooks, Compendium of Textile Statistics, Directorate-General of Foreign Trade and consumer's purchases in textiles.

The demand constraints are attributed to the excise structure that is highly biased towards cotton and other natural fibres as well as the textile commodities that are manufactured by relatively less efficient ways, such as without power and steam. Table 13 shows the excise structure over recent years for different textile fibres, while tables 14 and 15 show the same for different yarns and fabrics.

Before examining the figures given in tables 14 and 15, it is imperative to note a few facts. First, natural fibres, hank yarn (plain reel and cross reel up to 25s), all fabrics processed without the aid of power and steam, and products of factories owned by/ registered to the National Handloom Development Corporation, State Government Handloom Development Corporations, and Khadi and Village Industries Commission pay no excise duty to begin with. Second, since 1995/96, a provision has been made in the budget to take a part of excise duty in lieu of sales tax for all fabrics; hence, the figures from 1995/96 are a bit higher than what they effectively are, compared with those for previous years. Third, handloom cotton fabrics and those processed by independent power processors approved by the Government pay an excise duty that is 40 per cent of that for the mill and power-loom subsector.

Woollen fabrics made of shoddy yarn have been exempted up to the value of Rs 60/m² until 1992/93 and Rs 100/m² since 1993/94. The hank yarn exemption was withdrawn from 2002/03, but the exemption for coarse hank yarns counts up to 2s (English

Year	Acrylic, viscose	Polyester	Nylon	Acetate	Poly- propylene
1992/93	15.6	13.65	59.15	15.6	17.87
1993/94	14.95	12.65	14.95	14.95	17.25
1994/95	23	23	23	23	23
1995/96	23	23	23	23	23
1996/97	23	23	23	23	23
1997/98	20.7	20.7	20.7	20.7	20.7
1998/99	20.7	20.7	20.7	20.7	20.7
1999/2000	18.4	18.4	18.4	18.4	18.4
2000/01	18.4	18.4	18.4	18.4	18.4
2001/02	18.4	18.4	18.4	18.4	18.4
2002/03	18.4	18.4	18.4	18.4	18.4
2003/04	18.4	18.4	18.4	18.4	18.4
2004/05	16.32	16.32	16.32	16.32	16.32

Table 12. Trends in excise structure of various textile staple fibres in India, 1992-2005

Source: Compendium of Textile Statistics, Office of the Textile Commissioner, Ministry of Textiles, Government of India, 1994-2005.

count, i.e., number of 840 yards of yarn in one pound). Since 2004/05, duties with centralized value added taxes for natural fibre yarns and all fabrics have been applied.

Considering the fact that the recent figures for excise duties consist of what was previously sales tax as well, it can be seen that there is a falling trend in almost all commodity groups. Another inference is that the excise structure is now much simpler than it was previously. For example, while it was different for each type of staple fibre, in recent years it has been the same for all synthetic stable fibres. Filament yarns in general, and polyester in particular, are the commodity groups for which the excise duties appear to be the highest.

For the purpose of simplicity, the excise structure of the intermediates involved in the production of synthetics is not shown. For most of them, it has remained static at around 15 per cent to 18 per cent for the past 10 years. Thus, it is very clear that the excise structure is still highly biased towards natural fibres, although this has been reduced to great extent. Further, less efficient ways of manufacturing, such as those that do not use power and steam, pay less excise duties, thus leading to higher relative marginal costs of production for the more efficient manufacturers. This type of differentiation is removed only in the case of woollen fabrics, as noted in table 14.

A recent exercise in demand estimation was undertaken by the author,¹⁹ using a dynamic and almost ideal demand system, and was performed for a monthly household-level survey data on textile purchases from 1994 to 2003. The exercise shows that the cross-price elasticities among the 12 major commodity groups within textiles are negligible compared to own-price elasticities, which are very high for the synthetic and blended textiles and low for cotton textiles. These findings are in line with previous

¹⁹ Details of this model are available on request from the author (see Narayanan, 2007).

Viscose Wool ilament yarn	5.2-19.5 0	.18-19.55 0	1.5-17.25 11.5	1.5-17.25 11.5	1.5-23.0 11.5	9.2-20.7 9.2	9.2-20.7 9.2	18.4 9.2	18.4 9.2	18.4 18.4	18.4 18.4	13.8 13.8	16.32 8.16
Nylon filament f	25-71.5	26.5-57.5 5.	23-34.5 1	23-34.5 1	23-34.5 1	20.7-34.5	20.7-34.5	27.6	18.4	18.4	18.4	13.8	16.32
Polyester filament	80.6	69	69	57.5	46	34.5	34.5	34.5	36.8	36.8	36.8	27.6	24.48
Polyester wool	15.6	16.1	23	23	23	20.7	20.7	18.4	18.4	18.4	18.4	13.8	8.16
Polyester cotton	7.8	8.05	23	23	23	20.7	20.7	18.4	18.4	18.4	18.4	13.8	8.16
Polyester viscose	15.6	16.1	23	23	23	20.7	20.7	18.4	18.4	18.4	18.4	13.8	8.16
Cone yarn	0.35-9.75	0.58-9.78	5.75	5.75	5.75	5.75	5.75	9.2	9.2	9.2	9.2	9.2	9.2
Hank yarn	0.39-2.60	0.23-2.30	3.45	3.45	3.45	3.45	3.45	0	0	0	0-9.20	0-9.20	0-9.2
Year	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/2000	2000/01	2001/02	2002/03	2003/04	2004/05

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studies on textile demand, showing that not much has changed in the textile consumption pattern in India over the years. This is summarized in table 15, where own-price elasticities and expenditure elasticities are shown in bold font. It is evident that the cross-price elasticities are negligible compared with these figures. Further, own-price elasticities are strikingly higher in synthetics than in cotton and wool.

Year	Cotton fabrics	Blended/ synthetic fabrics	Woollen fabrics ^a	Woollen fabrics ^b	Woollen fabrics ^c
1992/93	0.2-2.5+20%				
	of value > Rs 40/m ²	0.5-20	2.0-9.0	7.1-14.4	10.86-18.00
1993/94	0.2-2.5+20%				
	of value > Rs 40/m ²	0.5-20	2.0-9.4	7.95-15.50	10.75-18.80
1994/95	10	10-20	0-16.50	16.5	16.50-22.25
1995/96	5-10	10-20	22.25	22.25	22.25
1996/97	10-20	20	22.25	22.25	22.25
1997/98	10-20	20	22.25	22.25	22.25
1998/99	10-20	20	22.25	22.25	22.25
1999/2000	13-16	16	21	21	21
2000/01	16	16	21	21	21
2001/02	16	16	16	16	16
2002/03	12	12	12	12	12
2003/04	10	10	10	10	10
2004/05	4.08	8.16	8.16	8.16	8.16

Table 14. Trends in excise structure of various textile fabrics in India, 1992-2005

Source: Compendium of Textile Statistics, Office of the Textile Commissioner, Ministry of Textiles, Government of India, 1994-2005.

Notes: The units are percentage ad valorem for all except woollen fabrics, for which the units are rupees per m^2 , unless otherwise mentioned.

^a Manufactured by independent processors.

^b Manufactured by decentralised sector and processed by mills.

^c Manufactured and processed by composite mills.

All these observations taken together point towards two major facts. The first one is the biased nature of the excise structure that has kept not only synthetic/blended textiles more expensive than they should have been, but also has encouraged the less-efficient means of production, albeit for developmental purposes such as equity. Second is that a reduction of this bias by lowering the excise on synthetics/blended textiles as well as more efficient means of production, would not cause a fall in demand for conventional textiles, as the cross-price elasticities hardly play a role in the scene. Further, such a reduction would enhance the demand for all non-cotton commodity groups, without affecting the demand for cotton and other conventional commodity groups.

Given the above description, it is quite understandable that a cut in excise duties of synthetic and blended textiles will be beneficial to the Indian textile sector as a whole. While presenting the Union Budget for the year 2006/07, India's Finance Minister probably had these issues in mind while reducing the excise duty of man-made and blended fibres from 16 per cent to 8 per cent. This was, indeed, a welcome step. While this analysis has focused only on domestic demand, this also has implications for India's

Elasticity of:	Acrylic	Viscose	Cotton	Cotton- viscose	Nylon	Polyester	Polyester- cotton	Silk	Polyester- viscose	Polyester- wool	Mo
Acrulic	-0.851	0.008	0.045	0.013	0.073	020 0-	-0.036	-0.001	-0.109	-0.033	
Viscose	0.010	-0.920	0.035	0.025	0.134	-0.056	0.046	-0.024	-0.031	-0.002	0.0
Cotton	0.007	-0.020	-0.667	-0.024	-0.054	0.042	-0.323	0.002	0.034	0.036	0.02
Cotton-viscose	0.006	0.010	-0.010	-0.876	-0.099	-0.001	-0.017	-0.001	-0.001	0.003). 0.0
Nylon	0.012	0.023	-0.010	-0.037	-1.334	0.009	-0.036	0.009	0.046	0.036	0.0
Polyester	-0.061	-0.053	0.117	0.001	0.054	-0.948	0.188	-0.019	-0.043	-0.032	-0.0
Polyester-cotton	-0.022	0.055	-0.340	-0.023	-0.157	0.198	-0.906	0.015	-0.012	0.036	0.07
Silk	-0.001	-0.067	0.149	0.005	0.158	-0.054	0.025	-0.936	0.011	-0.133	80.0 9
Polyester-viscose	-0.043	-0.014	0.040	0.001	0.107	-0.020	-0.011	0.001	-0.688	-0.042	-0.04
Polyester-wool	-0.021	-0.004	0.044	0.004	0.126	-0.024	0.021	-0.033	-0.066	-0.730	-0.04
Wool	-0.035	-0.049	0.110	-0.045	-0.001	-0.109	-0.059	-0.057	-0.179	-0.126	-0.71
Textile Expenditure	1.000	1.039	0.487	0.982	0.941	1.018	1.129	1.037	1.005	0.981	1.0

international competitiveness vis-à-vis other countries in the textile sector. With reduced protection, Indian industries are likely to become more competitive and some raw material inputs are likely to become cheaper due to lowered duties.

Thus, it may be said with a reasonable degree of confidence that the Indian textile sector is going to benefit immensely because of such steps as tariff and tax reduction. The major point emphasised in this section, but which is less obvious, is that a cut in duties will not affect the conventional textile sector, owing to the low cross-price elasticities between the textile commodity groups. This is not only essential for the well-being and better performance of the sectors, per se, but also the standards of living of the public, in terms of textile consumption. It should be highlighted that the consumption of textiles itself is as much a measure of development as is the consumption of food. Hence, enhancing textile consumption should be an inherent feature of developmental policies. In addition, enhanced textile demand would benefit the supply side, which is immensely significant for development of the economy in general.

D. Conclusion

With the objective of analysing the structure of India's textile sector, both from the supply and demand perspectives, this chapter has considered the performance and employment in the organized and unorganized subsectors, and the fiscal and tariff policies and their impacts on domestic consumption of textiles and clothing in India.

Examining the organized textile and apparel sector has shown that employment remained stagnant while capital and output were increasing until 2000/01, after which employment started to rise as well. The apparel subsector has expanding tremendously in terms of output, capital and employment, despite a much lower increase in the number of factories than in textile subsector, indicating a structural change in terms of huge investments and an increase in scales of operation since its de-reservation from the small-scale industry subsector in 2000. Better prospects of employment are possible in the apparel subsector, although it should be enhanced in the textile subsector as well, by promoting huge investments. Even in the unorganized subsector, smaller firms are worse off than the bigger ones, in terms of various productivity measures. Hence, even small firms could be encouraged to expand by investing more while preserving their merits in being small, especially flexibility and customized production possibilities.

Investment could be encouraged by better credit disbursement policies. In this connection, it should be noted that the credit disbursement through the Technology Upgrading Fund Scheme (TUFS), as a fraction of credits applied for, has been reasonable as shown in table 16.²⁰ A glance at the figures in table 16 suggests that the disbursement of credit has been fairly good, especially in the case of those agencies responsible for promoting SSIs (such as the Small Industries Development Bank of India), with an application-rejection rate of less than 2 per cent and credit disbursement rate of around 70 per cent. However, the figures are less impressive for the agencies that lend to all industries (such as the Industrial Credit and Investment Corporation of India, the Industrial Development Bank of India and the Export Import Bank). To the extent that SSIs are more dependent on the sources of credit such as TUFS than are the other industries, these figures show that credit disbursement is not a major issue. In fact, the same can be said for the other industries, although not to the

²⁰ See Narayanan, 2005a for more details in this regard.

Nodal agencies	Credit application	s received	Credits Disbursed	Number of applications rejected
	Number of applica- cost ^a	Amount of Ioan required ^a	Number Project Amount of applica- cost ^a sanctioned ^a tions	
Agencies that lend to all industries	1 290 23 031.07	7 12 237.79	950 14 224.00 6 682.58 $(73.64)^{b}$ $(61.68)^{b}$ $(55.00)^{b}$	118 (9.15) ^b
Agencies that lend only to SSI	2 379 2 498.38	3 1 480.32	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	44 (1.85) ^b
Total	3 669 25 529.45	5 13 718.11	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	162 (4.42) ^b

Table 16. Credit applications that were received and disbursed under TUFS, 2004/05

Source: Author's calculations from a report, "Progress of TUFS as on 30 November 2004", by the Office of the Textile Commissioner, Mumbai.

Notes: ^a Project costs/amount sanctioned are in crores of rupees (1 crore=10 million).

Percentage of the corresponding total.

extent of SSIs. Thus, the reasons for the low investment may be a lack of awareness among the entrepreneurs about these schemes; therefore, the Government should take steps to promote such useful schemes.

As for the unorganized textile subsector, employment has been increasing despite falls in capital and output, an issue that is in striking contrast to that in organized textile subsector. From the late 1990s until 2001, capital productivity declined in this subsector, more so in urban than in rural areas. Capital intensity was much higher during 2000/01 than that during 1994/95 in all categories. While labour productivity grew in most of textile subsector between 1994/95 and 2000/01, with the exception of OAMEs, the apparel subsector was more labour-productive than the textile subsector. Enterprises in rural areas were more capital-productive, less capital-intensive and less labour-productive, more capital-intensive (except in DMEs), and more labour-productive than in the textile subsector. These trends also varied across enterprise types. A major observation from the analysis of the unorganized textile subsector is that there has been a divide between various segments within the textile sector, in terms of performance.

The analysis of household demand has shown that the per capita textile purchases have been declining in real terms during the past few years. The excise and customs duties on man-made fibre textiles have been a barrier to increasing their purchases due to the fact that these duties are reflected in the prices and that the demand for these products is highly own-price elastic. Given the fact that the crossprice elasticity between cotton and these fibres is negligible compared with the ownprice elasticities, a rise in demand for textiles without a fall in demand for conventional textiles could be ensured by a fall in prices of man-made fibre textiles. However, this would be possible only by cutting excise and customs duties on these products, as has been done during recent years. This appears to be a significant step towards fostering development in the country, from the supply side and demand side viewpoints.

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