CHAPTER VII
SUMMARY, CONCLUSIONS AND POLICY IMPLICATIONS

Textile industry stands out in the global economy but has an exceptional significance for the economies of developing countries. Indian textile industry is older than the world textile industry as the country has been well known for its textile goods since very ancient times. Indian textile industry played a pivotal role through its contribution to industrial output, employment generation, and the export earnings of the country.

For more than four decades, this sector was governed by special regimes: the Short Term Cotton Arrangement (1961), the Long Term Cotton Arrangement from 1962 to 1973 and the Multi-fibre Arrangement from 1974 to 1994. Finally, seven years of complex and difficult negotiations at the Uruguay Round resulted in the Agreement on Textile and Clothing (ATC) to phase out Multi-fibre Arrangement in January, 2005. With the dismantling of the quota regime from 1\textsuperscript{st} January, 2005 as per the WTO Agreement on Textile and Clothing (ATC), the Indian textile industry is expected to be on the threshold of exponential growth. Globalization has brought opportunities for Indian textile industry but at the same time, it is also exposed to threats, particularly from cheaper imports. Thus, the industry has to fight for its share in international textile trade. Even if it is assumed that WTO will mean better distribution of the world trade, in no way will it guarantee trade shares increase and only the fittest will survive.

Objectives of the Study
Considering changes in textile agreements at world level, the present study has been undertaken with the following specific objectives:

1) To study the growth of Indian textile industry at aggregate and disaggregate levels
2) To examine trends in partial factor productivity and total factor productivity in the industry
3) To study and compare the performance of India’s textile exports during pre-WTO sub-period and post-WTO sub-period and structural changes therein
4) To study the direction of India’s textile exports at product-group level
5) To identify the indicators of export competitiveness and factors determining it
6) To bring out the strengths and weaknesses of Indian textile industry in changing international trading environment
7) To examine the opportunities and challenges of the industry and suggest measures for improving India’s textile trade.

**Hypotheses of the Study**

In the light of the above mentioned objectives, the study attempted to test the following hypotheses:

1) Indian textile industry grew at a higher rate during post-WTO sub-period as compared to pre-WTO sub-period.
2) Partial and total factor productivity (TFP) of Indian textile industry increased during post-WTO sub-period.
3) Commodity diversification has been taking place in India’s textile exports.
4) India’s textile exports have diversified to a number of markets during post-WTO sub-period.
5) India’s export competitiveness at the global level has increased during post-WTO sub-period.
6) Exchange Rate, Productivity and Profitability have significant impact on export competitiveness of Indian textile industry.

**Plan of the Study**

To meet the objectives, the study has been organized into seven chapters. The first chapter dealt with introduction of the topic, outlined objectives and plan of the study. Second chapter reviewed the empirical studies related to the topic. The third chapter described data sources and research methodology. Fourth chapter studied the growth performance of Indian textile industry and changes in productivity trends in it and its groups. Fifth chapter analyzed the changes in composition and direction of India’s textile exports. The sixth chapter measured export competitiveness of Indian textile industry and its groups, and examined the determinants. Seventh chapter presented
summary of the findings and suggested measures to increase productivity and export competitiveness of Indian textile industry in post-WTO era.

**Data Base and Methodology**

The study is based on secondary data, covering the period from 1985 to 2007, which was obtained from the following sources:

1) *Annual Survey of Industries (ASI)*, Central Statistical Organization, Government of India (various issues)
3) *UN Comtrade Database*, United Nations
4) *Statistical Abstract*, Central Statistical Organization, Government of India
5) *Handbook of Statistics on Indian Economy*, Reserve Bank of India (RBI) (relevant issues)
6) *Economic Survey*, Government of India (different issues)

Growth of Indian textile industry and its groups—‘Textiles’ and ‘Textile Products’—has been studied by calculating growth rates of 6 variables namely number of factories, gross value added, number of employees, capital stock, total emoluments and average number of persons employed per factory for the whole period (1985-86 to 2005-06) and for two sub-periods, i.e. pre-WTO sub-period (1985-86 to 1994-95) and post-WTO sub-period (1995-96 to 2005-06). In order to study the impact of growth of Indian textile industry on its employment, employment elasticity of output has been calculated for whole period, pre-WTO sub-period and post-WTO sub-period. Partial productivity indices (labor and capital), capital intensity and total factor productivity (estimated through Kendrick Index, Solow Index and Translog Index) have been calculated for Indian textile industry and its groups—‘Textiles’ and ‘Textile Products’.

Export performance and structural changes in India’s textile exports have been studied by taking data from UN Comtrade Database at HS 1996 (Harmonized System of Commodity Classification) at two-digit level (taking 14 product-groups from HS code 50 to HS code 63) and at four-digit level (taking a total of 149 products). Growth rates, average shares and trend values have also been calculated to achieve this
purpose. Hirschman’s Index of Commodity Concentration has been calculated for 14 product groups to examine the commodity diversification of India’s textile exports.

Direction of India’s textile exports has been studied by calculating growth rates and percentage shares of exports of 14 product groups for 39 countries at three points of time i.e. 1988, 1995 and 2005. To examine geographic diversification of India’s textile exports, Hirschman’s Geographic Concentration Index has been calculated for 14 product groups for 39 countries at three points of time i.e. 1988, 1995 and 2005.

Determinants of India’s export competitiveness have been examined by carrying out regression analysis for individual independent variables along with time. Multiple (step-wise) regression analysis has also been carried out for Indian textile industry and its groups – ‘Textiles’ and ‘Textile Products’. Export competitiveness has been defined in terms of share of exports to total output and the seven determinants which have been considered were (1) Export Profitability Index (2) Labor Productivity Index (3) Capital Productivity Index (4) Total Factor Productivity Index (5) Unit Labor Cost (6) Exchange Rate in terms of dollars and (7) Real Effective Exchange Rate.

**Findings of the Study**

In the chapter entitled “Growth Performance of Indian Textile Industry”, an attempt was made to analyze the growth of Indian textile industry and its groups ‘Textiles’ and ‘Textile Products’ in terms of six variables. It has been observed that

- Growth rate of factories, employees, capital stock and total emoluments was negative in Indian textile industry and ‘Textiles’ group during post-WTO sub-period, while factories, employees and total emoluments in ‘Textile Products’ group showed a positive growth rate during this period, though the rate was lower as compared to pre-WTO sub-period. The positive growth rate of employees in ‘Textile Products’ group indicated its more employment generating potential or more labour-intensive nature of this group as compared to ‘Textiles’ group.

- Gross value added (GVA) grew at slower rate in Indian textile industry and its two groups during post-WTO sub-period as compared to pre-WTO sub-period. A comparison of two groups showed that growth rate of GVA in ‘Textile
Products’ group was higher than ‘Textiles’ group during pre-WTO as well as post-WTO sub-period, indicating better performance of ‘Textile products’ group.

- Indian textile industry and ‘Textiles’ group showed negative employment elasticities during post-WTO sub-period arising out of what we call “employment depressing growth”, while ‘Textile Products’ group showed positive employment elasticity arising out of what we call “employment creating growth”.

An analysis of productivity trends in Indian textile industry and its groups — ‘Textiles’ and ‘Textile Products’ showed that

- There was marginal increase in growth rate of labor productivity in ‘Textiles’ group during post-WTO sub-period, while growth rate of labour productivity in ‘Textile Products’ group was negative during this period. On the whole, the labour productivity in Indian textile industry grew at a slower rate.

- Capital productivity in ‘Textiles’ group grew at a faster rate, while the growth rate of capital productivity in ‘Textile Products’ group was negative during post-WTO sub-period. On the whole, the capital productivity in Indian textile industry increased during this period.

- ‘Textiles’ group experienced positive growth rate in total factor productivity (TFP) (as measured through Kendrick, Solow and Translog indexes), while the growth rate of TFP was negative in case of ‘Textile Products’ group during post-WTO sub-period. On the whole, TFP increased in Indian textile industry during this period.

- There was marginal increase in capital intensity in ‘Textiles’ group, while growth rate of capital intensity in ‘Textile Products’ group was negative during post-WTO sub-period.

- Post-WTO sub-period witnessed a sharp fall in the growth rate of labour productivity, capital productivity, total factor productivity and capital intensity in ‘Textile Products’ group, which appeared to be a serious problem, given the fact that the international market is becoming more and more competitive, requiring high productivity and capital intensity.
In the chapter entitled “Composition and Direction of India’s Textile Exports”, it was observed that India’s share in world textile exports has been continuously increasing. The share increased from 1.92 percent in 1985 to 2.61 percent in 1995 and it further increased to 3.47 percent in 2007. No doubt, the trend was reversed for some years (1986, 1988, 1991, 1995, 1997, 1998, 2001, 2003 and 2007) due to the slow-down in the economies of some of the major importing countries such as US and increased competition from our neighboring countries like China, Bangladesh etc., but for the study period as a whole, the share increased.

The analysis of share of various countries in world’s textile exports showed that India consistently improved its position in the international market from 14th in 1985 to 12th in 1995 and further to 7th in 2007, indicating increased export competitiveness of Indian textile industry.

The share of India’s textile exports in its total exports decreased from 22.42 percent in 1985 to 14.78 percent in 2007, which might be due to rapid growth in exports of other sectors, particularly gems and jewellery, transport equipments and electronic goods.

India’s textile exports increased at compound annual rate of 11.78 percent during pre-WTO sub-period (1988-1995), 8.16 percent during post-WTO sub-period (1996-2007) and 9.26 percent during whole period.

Product group-wise analysis of growth of India’s textile exports (at HS two-digit level) revealed that out of 14 product groups (from HS code 50 to HS code 63), three product-groups namely ‘Silk, Inc. Yarns & Woven Fabrics Thereof’ (HS Code 50), ‘Vegetable Textile Fibres Nesoi, Yarns & Woven etc.’ (HS Code 53) and ‘Articles of Apparel & Clothing Accessories-Knitted or Crocheted’ (HS Code 61) witnessed increase in exports during post-WTO sub-period, but rapid increase has been observed in case of ‘Silk, Inc. Yarns & Woven Fabrics Thereof’ during this period, indicating its better prospects for future. On the other hand, out of 11 product-groups whose exports decreased during post-WTO sub-period, 3 product-groups namely ‘Wool & Fine or Coarse Animal Hair, Inc. Yarns & Woven Fabrics Thereof’ (HS Code 51), ‘Wadding, Felt & Nonwovens, Special Yarns, Twine, Cordage, Ropes, Cables & Articles’ (HS Code 56) and ‘Impregnated, Coated, Covered or Laminated Textile
Products’ (HS Code 59) experienced rapid decline in their growth rate of exports during this period.

Product-wise analysis of growth of India’s textile exports showed that in case of ‘Silk, Inc. Yarns & Woven Fabrics Thereof’ (HS Code 50), exports of ‘silkworm cocoons’ (HS Code 5001) increased at a faster rate, while ‘raw silk’ (HS Code 5002) experienced a very low growth rate during post-WTO sub-period as compared to pre-WTO sub-period, indicating its poor export performance.

Out of all the products of ‘Wool & Fine or Coarse Animal Hair, Inc. Yarns & Woven Fabrics Thereof’ (HS Code 51), exports of ‘garnet stock of wool or animal hair’ (HS Code 5104), ‘wool & animal hair carded and combed’ (HS Code 5105), ‘yarn of fine animal hair’ (HS Code 5108) and ‘yarn of coarse animal hair’ (HS Code 5110) increased at very fast rates, while major decline in growth rate of exports was observed in case of ‘yarn of combed wool’ (HS Code 5107), ‘yarn of wool or fine animal hair’ (HS Code 5109) and ‘woven fabrics of combed wool’ (HS Code 5112) during post-WTO sub-period.

In case of ‘Cotton, Inc. Yarns & Woven Fabrics Thereof’ (HS Code 52), exports of ‘cotton, carded or combed’ (HS Code 5203), ‘cotton yarn (not sewing thread) un 85% cot no retail’ (HS Code 5206) and ‘woven cotton fabrics nesoi’ (HS Code 5212) increased at rapid rate, while the growth rate of exports decreased in case of ‘woven cotton fabrics, nu 85% cot, wt. ov 200 g/m²’ (HS Code 5209) and ‘woven cotton fabrics, un 85% cot mmf mix, ov 200 g/m²’ (HS Code 5211) during post-WTO sub-period as compared to pre-WTO sub-period.

In case of ‘Vegetable Textile Fibres Neso!, Yarns & Woven Etc.’ (HS Code 53), ‘true hemp, raw etc. not spun’ (HS Code 5302), ‘sisal & other agave text fibres’ (HS Code 5304) and ‘flax yarn’ (HS Code 5306) experienced rapid growth of exports, whereas exports of ‘flax, raw etc. but not spun’ (HS Code 5301) and ‘woven fabrics of flax’ (HS Code 5309) grew at slower rate during post-WTO sub-period.

In case of ‘Man-Made Filaments, Inc. Yarns & Woven Etc.’ (HS Code 54), exports of all products except ‘art monof, n/un 67 dec crs n/ov 1mm’ (HS Code 5405) and
‘manmade filament yarn’ (HS Code 5406) increased at slower rates during post-WTO sub-period.

In case of ‘Man-Made Staple Fibres, Inc. Yarns Etc.’ (HS Code 55), growth rate of exports of all products except ‘synthetic filament tow’ (HS Code 5501), ‘artificial filament tow’ (HS Code 5502), ‘synthetic staple fibres not carded, combed’ (HS Code 5503) and ‘artificial staple fibres not carded, combed’ (HS Code 5504) either increased at slower rate or decreased during post-WTO sub-period as compared to pre-WTO sub-period.

In case of ‘Wadding, Felt & Nonwovens, Special Yarns, Twine, Cordage, Ropes, Cables & Articles’ (HS Code 56), maximum increase in growth rate of exports was found in case of ‘nonwovens, whether or not impregnated etc.’ (HS Code 5603), while major setback occurred to ‘twine, cordage, rope & cables, coated or not’ (HS Code 5607) as its exports grew at a very slow rate during post-WTO sub-period.

In case of ‘Carpets and Other Textile Floor Coverings’ (HS Code 57), exports of ‘carpets & other text floor cover, felt, no tuft’ (HS Code 5704) increased rapidly, while exports of ‘carpets & other textile floor coverings, tufted’ (HS Code 5703) and ‘other carpets & other tex floor cov., whether/not made-up’ (HS Code 5705) grew at slower rate during post-WTO sub-period.

In case of ‘Special Woven Fabrics, Tufted Textiles, Lace’ (HS Code 58), rapid increase in growth rate of exports was observed in case of ‘quilt tex prod pc>1 layer’ (HS Code 5811), while exports of ‘tulles & other net fabrics’ (HS Code 5804) and ‘braids in pc, ornamental trim in piece etc.’ (HS Code 5808) increased at slower rate during post-WTO sub-period.

In case of ‘Impregnated, Coated, Covered or Laminated Textile Products’ (HS Code 59), very low growth rate of exports was experienced by ‘tire cord fabric of high tenacity yarn’ (HS Code 5902) and ‘textile wall coverings’ (HS Code 5905) during post-WTO sub-period.

In case of ‘Knitted or Crocheted Fabrics’ (HS Code 60), exports of ‘file fabrics, knitted or crocheted’ (HS Code 6001) increased at higher rate, while growth rate of
exports decreased in case of ‘knitted or crocheted fabrics’ (HS Code 6002) during post-WTO sub-period.

Out of all the products of ‘Articles of Apparel & Clothing Accessories-Knitted or Crocheted’ (HS Code 61), rapid increase in growth rate of exports was observed in case of ‘men's or boys’ overcoats etc.’ (HS Code 6101), while exports of ‘women's or girls’ slips-knitted or crocheted’ (HS Code 6108), ‘pantyhose, socks & other hosiery’ (HS Code 6115) and ‘gloves, mittens & mitts’ (HS Code 6116) increased at slower rate during post-WTO sub-period as compared to pre-WTO sub-period.

In case of ‘Articles of Apparel & Clothing Accessories- Not Knitted or Crocheted’ (HS Code 62), exports of ‘garments of felt etc.’ (HS Code 6210) increased at rapid rate, whereas exports of ‘women's or girls' slips-not knitted or crocheted’ (HS Code 6208) grew at slower rate during post-WTO sub-period.

In case of ‘Made-up Textile Articles Nesoi, Needlecraft Sets, Worn Clothing, Rags’ (HS Code 63), exports of all products except ‘blankets & traveling rugs’ (HS Code 6301), ‘curtains & interior blinds’ (HS Code 6303) and ‘furnishing articles of textile materials’ (HS Code 6304) increased at higher rate during post-WTO sub-period.

Analysis of structural changes in India’s textile exports in terms of percentage shares at HS two-digit level showed that exports mainly consisted of ‘Cotton, Inc. Yarns & Woven Fabrics Thereof’ (HS Code 52), ‘Articles of Apparel & Clothing Accessories-Knitted or Crocheted’ (HS Code 61), ‘Articles of Apparel & Clothing Accessories-Not Knitted or Crocheted’ (HS Code 62) and ‘Made-up Textile Articles Nesoi, Needlecraft Sets, Worn Clothing, Rags’ (HS Code 63), which accounted for lion’s share of about 78 percent during post-WTO sub-period, while other product-groups contributed very little to total textile exports.

Trend analysis of export share shows that trend coefficients were positive and significant for ‘Man-Made Filaments, Inc. Yarns & Woven Etc.’ (HS Code 54), ‘Man-Made Staple Fibres, Inc. Yarns Etc.’ (HS Code 55), ‘Articles of Apparel & Clothing Accessories-Knitted or Crocheted’ (HS Code 61) and ‘Made-up Textile Articles Nesoi, Needlecraft Sets, Worn Clothing, Rags’ (HS Code 63), indicating that
export shares of these products increased at significant rates, while trend coefficients were negative and significant for ‘Wool & Fine or Coarse Animal Hair, Inc. Yarns & Woven Fabrics Thereof’ (HS Code 51), ‘Cotton, Inc. Yarns & Woven Fabrics Thereof’ (HS Code 52), ‘Vegetable Textile Fibres Nesi, Yarns & Woven Etc.’ (HS Code 53) and ‘Articles of Apparel & Clothing Accessories- Not Knitted or Crocheted’ (HS Code 62), indicating their very poor export performance during post-WTO sub-period.

Within ‘Silk, Inc. Yarns & Woven Fabrics Thereof’ (HS Code 50), the maximum share of 94.72 percent was of ‘woven fabrics of silk’ (HS Code 5007) and its share increased significantly during post-WTO sub-period. A significant decrease in export share was observed in case of ‘silk waste’ (HS Code 5003) during this period.

In case of ‘Wool & Fine or Coarse Animal Hair, Inc. Yarns & Woven Fabrics Thereof’ (HS Code 51), ‘yarn of combed wool’ (HS Code 5107) had the highest share, but its share declined at significant rate during post-WTO sub-period. On the other hand, the shares of ‘wool & animal hair carded and combed’ (HS Code 5105), ‘yarn of fine animal hair’ (HS Code 5108) and ‘woven fabrics of coarse animal hair’ (HS Code 5113) increased at significant rates during this period.

In case of ‘Cotton, Inc. Yarns & Woven Fabrics Thereof’ (HS Code 52), ‘cotton yarn (not sewing thread) un 85% cot no retail’ (HS Code 5205) and ‘woven cotton fabrics, nu 85% cot, wt. n/ov 200 g/m²’ (HS Code 5208) constituted the major items of export, but their shares decreased at significant rates during post-WTO sub-period.

In case of ‘Vegetable Textile Fibres Nesi, Yarns & Woven Etc.’ (HS Code 53), the major shares were of ‘yarn of jute & other textile bast fibres’ (HS Code 5307) and ‘woven fabrics of jute or other text bast fibre’ (HS Code 5310), but their shares decreased at significant rates during post-WTO sub-period. On the other hand, the export shares of ‘coconut, abacca, rami etc.’ (HS Code 5305), ‘flax yarn’ (HS Code 5306) and ‘woven fabrics of flax’ (HS Code 5309) increased at significant rate during this period.
In case of ‘Man-Made Filaments, Inc. Yarns & Woven Etc.’ (HS Code 54), ‘woven fab of syn fil yarn’ (HS Code 5407) had the maximum share of about 59 percent and experienced an increase in its share (though at non-significant rate), whereas export shares of ‘sewing thread of manmade filaments’ (HS Code 5401), ‘artificial filament yarn’ (HS Code 5403) and ‘woven fab of art fil yarn’ (HS Code 5408) decreased at significant rates during post-WTO sub-period.

In case of ‘Man-Made Staple Fibres, Inc. Yarns Etc.’ (HS Code 55), ‘yarn (no sew thread), syn staple fibre’ (HS Code 5509) experienced significant decline in its share during post-WTO sub-period, but it still remained the major item of exports during this period. Seven products namely ‘artificial filament tow’ (HS Code 5502), ‘synthetic staple fibres not carded, combed’ (HS Code 5503), ‘artificial staple fibres not carded, combed’ (HS Code 5504), ‘waste of manmade fibres’ (HS Code 5505), ‘sewing thread, manmade staple fibre’ (HS Code 5508), ‘yarn (no sew thread), art staple fib.’ (HS Code 5510) and ‘woven fabric, syn. staple fib. nu 85%’ (HS Code 5512) experienced significant increase in their export shares during post-WTO sub-period.

Within ‘Wadding, Felt & Nonwovens, Special Yarns, Twine, Cordage, Ropes, Cables & Articles’ (HS Code 56), ‘twine, cordage, rope & cables, coated or not’ (HS Code 5607) had highest share but its share decreased at significant rate, while export share of ‘knotted net of twine etc., fish net’ (HS Code 5608) increased at significant rate during post-WTO sub-period.

In case of ‘Carpets and Other Textile Floor Coverings’ (HS Code 57), a significant increase in export share was observed in case of ‘carpets & other textile floor coverings, tufted’ (HS Code 5703) and ‘carpets & other text floor cover, felt, no tuft’ (HS Code 5704), while ‘other carpets & other tex floor cov., whether/not made-up’ (HS Code 5705) experienced a significant decline in its share during post-WTO sub-period.

In case of ‘Special Woven Fabrics, Tufted Textiles, Lace’ (HS Code 58), ‘embroidery in the piece, in strips’ (HS Code 5810) had the highest share and experienced a significant increase in its share, indicating its better prospects for future, whereas the
share of ‘woven terry fabrics’ (HS Code 5802) decreased at significant rate during post-WTO sub-period.

Within ‘Impregnated, Coated, Covered or Laminated Textile Products’ (HS Code 59), export share of ‘rubberized textile fabrics’ (HS Code 5906) increased at significant rate, while share of ‘linoleum, floor cover with coat etc. on a text base’ (HS Code 5904) decreased at significant rate during post-WTO sub-period. The product ‘textile fabrics coat etc.’ (HS Code 5903) (with highest share of 41.71 percent) experienced decrease in its share during post-WTO sub-period.

In case of ‘Knitted or Crocheted Fabrics’ (HS Code 60), ‘knitted or crocheted fabrics’ (HS Code 6002) had lion’s share of about 69 percent, but experienced a significant decrease in its share during post-WTO sub-period, while the share of ‘file fabrics, knitted or crocheted’ (HS Code 6001) increased at significant rate during this period.

In case of ‘Articles of Apparel & Clothing Accessories-Knitted or Crocheted’ (HS Code 61), the maximum share was of ‘t-shirts, singlets, tank tops etc.’ (HS Code 6109) and the share experienced a significant increase during post-WTO sub-period, indicating its better future prospects. On the other hand, ‘men's or boys’ shirts’ (HS Code 6105), ‘sweaters, pullovers, vests’ (HS Code 6110) and ‘pantyhose, socks & other hosiery’ (HS Code 6115) experienced significant decline in their export shares.

Within ‘Articles of Apparel & Clothing Accessories- Not Knitted or Crocheted’ (HS Code 62), the export shares of ‘men's or boys’ suits’ (HS Code 6203), ‘shawls, scarves, mufflers, mantillas’ (HS Code 6214) and ‘gloves, mittens & mitts’ (HS Code 6216) increased at significant rates, while a significant decline in export share was experienced in case of ‘men's or boys' shirts’ (HS Code 6205) and ‘handkerchiefs’ (HS Code 6213) during post-WTO sub-period.

In case of ‘Made-up Textile Articles Nesoi, Needlecraft Sets, Worn Clothing, Rags’ (HS Code 63), the product ‘bed linen, table linen, toilet linen’ (HS Code 6302) experienced a significant increase in its export share, while a significant decline in share was observed in case of ‘furnishing articles of textile materials’ (HS Code 6304) during post-WTO sub-period.
Reasons were brought out for the decline in exports of the textile products which included the use of old/outdated machinery and technology in the processing segment, resulting in inadequate quality of finished products, the fall in global demand for woollen products, sluggish market conditions, over-stocking in major markets and South East Asian currency crisis. The growth rate of exports of raw silk decreased because of poor quality of the raw silk, which did not meet requirements of international customers. Export competitiveness of cotton decreased due to cotton contamination caused by hand-picking, where foreign matter (such as polypropylene strands from picking bags) might be accidentally introduced, and ginning, where seed coats might not be adequately removed, and wire or metal break-off of machinery could remain embedded within the fibres. Export competitiveness has also decreased due to a hike of almost 30 percent to 50 percent (depending on quality) in the Minimum Support Price of cotton by the Government, general recession in major markets and the frequent use of anti-dumping action by European Union on our cotton textile products. Increased use of synthetics has been responsible for decline in the growth rate of exports of vegetable textile fibres. India faced stiff competition from developed countries (Korea, Taiwan, Hong Kong and Singapore) and developing countries like Indonesia, Thailand and Malaysia; and neighboring countries like Bangladesh and Myanmar and China in case of articles of apparel and clothing.

The need to curtail the downtrend in these products in post-WTO era was highlighted, which included measures like strengthening the R&D effort and extension work for increasing the output and productivity of the silk sector, right from mulberry plantation, cocoon production till weaving and value added products. Bridging the gap between demand and supply, in terms of both quality and quantity of silk would further help in increasing its exports. The government support and incentives were required to encourage domestic production of fibres to ensure adequate supply of fibres to the industry over the long term. Also there should be fibre neutral excise policy to eliminate the current discrimination in excise duties between natural and man-made fibres. To boost apparel exports, India should enter into regional trade agreements with its trading partners like NAFTA which allows free trade among Mexico, the US and Canada.
Product concentration, measured in terms of Hirschman Index of Product Concentration, was found to be higher than its minimum value of 26.74 \((100/\sqrt{14}=26.74)\), indicating that India’s textile exports were concentrated to a few product-groups like ‘Silk, Inc.Yarns & Woven Fabrics Thereof’ and ‘Vegetable Textile Fibres Nesoi, Yarns & Woven etc.’. However, this concentration somewhat decreased during post-WTO sub-period (as index of concentration decreased from 45.93 in 1996 to 41.12 in 2007). Thus, though the index was higher than its minimum value, but it has the tendency to decline, indicating that diversification of India’s textile exports has taken place in post-WTO era due to quota phase-out.

The study of direction of India’s textile exports at aggregated level revealed that USA remained the major market for India’s textile exports throughout the study period as a whole with 30 percent share in 2005. Italy, UAE, Belgium/Luxembourg and Spain gained importance in India’s textile exports, whereas Germany (due to imposition of strict environmental and labour standards), Japan, Netherlands, Switzerland, Australia and Singapore lost importance in India’s textile exports.

Analysis of structural changes in direction of commodity composition of India’s textile exports revealed that USA remained the major importer of all categories of India’s textile exports except Cotton (share decreased from 12.09 percent in 1988 to 3.80 percent in 2005). UAE also constituted an important export market for most of the categories of textile exports (share increased in case of ten product-groups). The share of UAE in export of ‘Wadding, Felt & Nonwovens, Special Yarns, Twine, Cordage, Ropes, Cables & Articles’ (HS Code 56) decreased in 2005, but still it remained the major market with 11.66 percent share. Apart from USA and UAE, Italy, Spain, France and Republic of Korea have been found to be the major importers of most of the categories of India’s textile exports. UK was also found to be the major market (share increased in case of six categories of textile exports), but its share decreased in most of the categories of textile exports due to which its share in total textile exports decreased from 10.37 percent in 1995 to 8.62 percent in 2005. Former USSR and Germany, which were significant importers of India’s textile exports in 1988, lost their importance in 2005. Yugoslavia, which imported 13.60 percent of India’s wool exports, lost importance in 2005. Other countries whose share decreased in 2005 included Japan, Switzerland, Australia, Belgium/Luxembourg and China Hong
Geographic concentration, measured in terms of Hirschman’s Index of Geographic Concentration, revealed that three product-groups namely ‘Impregnated, Coated, Covered or Laminated Textile Products’ (HS Code 59), ‘Knitted or Crocheted Fabrics’ (HS Code 60) and ‘Vegetable Textile Fibres Nesoi, Yarns & Woven Etc.’ (HS Code 53) found new markets in 2005, while two product-groups namely ‘Carpets & Other Textile Floor Coverings’ (HS Code 57) and ‘Made-up Textile Articles Nesoi, Needlecraft Sets, Worn Clothing, Rags’ (HS Code 63) were found to be concentrated to a few nations in 2005. ‘Cotton, Inc. Yarns & Woven Fabrics Thereof’ (HS Code 52) was found to be the most diversified product throughout the study period.

In the chapter on Export Competitiveness and its Determinants, export competitiveness was defined as share of exports to output. Various variables which could affect the export competitiveness included Export Profitability Index (EPI), Labour Productivity (LP), Capital Productivity (CP), Total Factor Productivity (TFP), Unit Labour Cost (ULC), Exchange Rate in terms of Dollars (ER) and Real Effective Exchange Rate (REER). Of these variables, three variables namely Export Profitability Index, Exchange Rate and Real Effective Exchange Rate were common for Indian textile industry and its groups – ‘Textiles’ and ‘Textile Products’ exports.

The results of regression analysis revealed that variable Exchange Rate (having theoretically correct sign) positively and significantly affected the export competitiveness of Indian textile industry and ‘Textiles’ group, while for ‘Textile Products’ group, it turned out to be non-significant. REER (having theoretically correct sign) negatively and significantly affected the export competitiveness of Indian textile industry and the ‘Textiles’ group, while it non-significantly affected the export competitiveness of the ‘Textile Products’ group. Export Profitability Index (having theoretically expected sign) turned out to be positive and significant in case of ‘Textiles’ group, while it was found to be non-significant in case of Indian textile industry and ‘Textile Products’ group. Capital Productivity (having theoretically expected sign) and Total Factor Productivity (having theoretically expected sign) positively and significantly affected the export competitiveness of the group ‘Textile
Products’, but these variables turned out to be non-significant for Indian textile industry and for ‘Textiles’ group. Labour Productivity turned out to be non-significant for ‘Textiles’ and ‘Textile Products’ groups, and also for Indian textile industry. Unit Labour Cost was found to be non-significant in case of Indian textile industry and also for its two groups.

The results of multiple (step-wise) regression analysis showed that the most important combination of variables that affected export competitiveness of Indian Textile Industry was found to be of the variables Exchange Rate, Capital Productivity and Export Profitability Index. The two variables Exchange Rate (having theoretically correct sign) and Capital Productivity (having theoretically correct sign) positively and significantly affected export competitiveness (possibly due to devaluation of rupee in 1991, government’s attempts to promote modernization and technological upgradation in the industry through the Textile Modernization Fund Scheme (1988-1994) and launching of Technology Upgradation Fund Scheme in April 1999 and Technology Mission on Cotton launched in 2000), while Export Profitability Index (having theoretically correct sign) positively and non-significantly affected it. The export competitiveness of the group ‘Textiles’ was positively and significantly affected by the variables Exchange Rate (having theoretically correct sign) and Capital Productivity (having theoretically correct sign), while it was negatively but non-significantly affected by Real Effective Exchange Rate (having theoretically correct sign). The most important combination affecting export competitiveness of ‘Textile products’ group was of the variables Exchange Rate and Total Factor Productivity. Total Factor Productivity (having theoretically correct sign) positively and significantly affected export competitiveness of this group, whereas Exchange Rate affected positively and non-significantly the export competitiveness of this group.

Thus, the results revealed that Exchange Rate and Capital Productivity were significant variables in affecting the export competitiveness of Indian textile industry and ‘Textiles’ group, while Total Factor Productivity had significant impact on export competitiveness of ‘Textile Products’ group.
On the basis of the above analysis, the results about the testing of the hypotheses are as follows:

1. Indian textile industry grew at a higher rate during post-WTO sub-period as compared to pre-WTO sub-period (Hypotheses is rejected).
2. Partial and total factor productivity of Indian textile industry increased during post-WTO sub-period (Hypotheses is rejected).
3. Commodity diversification has been taking place in India’s textile exports (Hypotheses is accepted).
4. India’s textile exports have diversified to a number of markets during post-WTO sub-period (Hypotheses is accepted).
5. India’s export competitiveness at the global level has increased during post-WTO sub-period (Hypotheses is accepted).
6. The hypothesis that Exchange rate, Productivity and Profitability have significant impact on India’s textile exports could not be conclusively accepted or rejected because exchange rate had significant impact while export profitability index had non-significant impact on competitiveness of India’s textile exports.

**Conclusions and Policy Implications**

The dismantling of quota-regime from January 1, 2005 as per WTO Agreement on Textile and Clothing (ATC) has thrown the textile industry open to severe competition. The onset of globalization and economic liberalization within the country has posed new challenges and opportunities for the Indian textile industry. There is an urgent need for improvement in productivity and hence competitiveness of this industry.

The study of growth performance and productivity trends in Indian textile industry and its groups brought out somewhat pessimistic picture of Indian textile industry largely due to decrease in growth rate of productivity in ‘Textile Products’ group. Improvement in productivity means getting more output from the same inputs or alternatively using fewer inputs to obtain the same output, for which there is a need to upgrade the technology level by encouraging firms to utilize larger funds available under Technology Upgradation Fund Scheme (TUFS). Even in ‘Textiles’ group, technological change requires to be strengthened further as this sector is still plagued
with out-dated technology. An estimation of employment elasticities has shown ‘Textile Products’ group to be having more employment potential, so the use of advanced technology may lead to retrenchment of labour in this group. This suggests the use of intermediate technology which will be more productive than "inefficient" traditional technologies, but less costly than the technology of industrialized societies. It will also increase employment and be environment-friendly.

There is need to check the downward trend in the exports of ‘yarn of combed wool’ (HS Code 5107), ‘cotton yarn (not sewing thread) un 85% cot no retail’ (HS Code 5205), ‘artificial filament yarn’ (HS Code 5403), ‘woven fab of art fil yarn’ (HS Code 5408), ‘woven fabric, syn st fib un 85%, cot mix, n/ov 170g/m²’ (HS Code 5513), ‘text wadding and article’ (HS Code 5601), ‘twine, cordage, rope & cables, coated or not’ (HS Code 5607), ‘other carpets & other tex floor cov., whether/not made-up’ (HS Code 5705), ‘knitted or crocheted fabrics’ (HS Code 6002), ‘men's or boys’ shirts-knitted and crocheted’ (HS Code 6105), ‘men's or boys' shirts-not knitted and crocheted’ (HS Code 6205) and ‘furnishing articles of textile materials’ (HS Code 6304). Performance of ‘Wool & Fine or Coarse Animal Hair, Inc. Yarns & Woven Fabrics Thereof’ (HS Code 51), ‘Cotton, Inc. Yarns & Woven Fabrics Thereof’ (HS Code 52) and ‘Articles of Apparel and Clothing Accessories-Not Knitted or Crocheted’ (HS Code 62) in terms of export performance and percentage shares has not been impressive during post-WTO sub-period. To encourage technology upgradation in wool industry, import duty on certain machinery required for the woollen industry which is not manufactured in the country, needs to be rationalised. Since Indian sheep lack in producing fine quality wool, the emphasis should be on developing such sheep breeds which can produce finer variety of wool, suitable for apparel making. At the same time, it should also focus on carpet grade wool producing sheep, mainly through successful cross-breeding at ‘farm’ conditions. Given the gap between demand and domestic production, and the fact that the domestic industry will not be able to produce adequate quantity of raw wool, there is a need to rationalise import duty on raw wool and on woollen yarn & fabrics. There is also need to rationalise import duty on waste of wool and bring it at par with raw wool since we are dependent on imports. The export competitiveness of cotton has declined due to cotton contamination caused by hand-picking and a slow down in exports of cotton textiles in recent years, which is attributed to fall in cotton yarn
exports due to general recession in major markets and the frequent use of anti-
dumping action by European Union on our cotton textile products. For this, India
should ensure most judicious and efficient utilisation of the country’s strength for
sustainable development of all the sub sectors of the cotton sector through backward
and forward integration. The cotton sector must be strengthened and its vibrancy
improved through an upgraded and a reformed marketing system and through
conscious branding of cotton for use. India should evolve a strategy that aim at faster
product innovation, quick response to changes in consumer preferences to excel in
garment exports.

To increase commodity and geographical diversification of textile exports, further
adequacy of infrastructure, quality upgradation of export products through enhanced
research and development activity, foreign direct investment in garment sector, less
cumbersome regulatory environment are some of the pre-requisites, which would also
help in improving international competitiveness.

Further, India needs to rationalise tariff and non-tariff barriers in order to sharpen its
competitive edge. As India’s textile exports to those countries have decreased which
have imposed environmental and labour standards like Germany, India requires
adopting environment-friendly technology to pre-empt the adverse impact of non-
tariff barriers by promoting labels like RUGMARK (carpets) in textiles to satisfy the
customers that the child labor has not been employed. Indian Government should
negotiate higher share from USA/EEC in accordance with its sizes and capabilities.
Depreciation in rupee can make export cheaper and imports dearer and will increase
the demand for exported goods, but it has limited scope as it increases the cost of
imported inputs.

India’s competitiveness is lost on account of lower labor productivity and higher input
and material cost. Better capacity utilization, credit disbursements by commercial
banks and better availability of electricity at reasonable rates will increase
productivity in Indian textile industry. Only bold measures such as these would help
the post-WTO challenges being converted into opportunity rather than threat.