CHAPTER II
REVIEW OF LITERATURE

The present chapter attempts to review some available empirical studies regarding growth and productivity of Indian industrial sector with special reference to textile industry. It also reviews studies examining export performance, composition, direction of India’s exports, indicators of India’s export competitiveness and the factors affecting it.

Verghese (1979) made an attempt to measure the changes in the international competitiveness of India during 1971-78. The competitiveness of India was analyzed with reference to its 11 major competitors in the world markets for manufacturers. The competitors included Belgium, Canada, Italy, France, Japan, West Germany, Netherlands, Sweden, Switzerland, UK & USA. Other competitors like South Korea, Taiwan, and Hong Kong were considered separately with reference to the particular export items. The determinants of competitiveness of India in the analysis included relative unit value of exports of manufactures, relative consumer price indices, relative wholesale price indices, relative GDP deflator, relative unit labor costs, and relative profitability (using three measures of profitability – (a) ratio of unit value of export of manufactures to wholesale prices of manufactures (b) ratio of import unit values of manufactures to wholesale prices, and (c) ratio of the price deflator for exports to the price deflator of GDP). All the measures (except relative unit value of exports of manufactures) related to changes in general international competitiveness of India vis-à-vis major trading competitors. A rise in the index of various measures reflects a fall in the competitiveness of India and a fall in the indices reflects a rise in competitiveness. The analysis showed that there was a steady improvement in the international competitiveness of India relatively to that of major competitors. In the case of relative unit value of exports of manufactures, USA and Italy registered higher competitiveness than other competing countries. It has been concluded that the obstacles to improvement in competitiveness of Indian exports lay in other areas like quality, marketing and supply constraints.

Goldar (1986) analyzed the growth of total factor productivity (TFP) in Indian industries during the period 1951-79 and also for two sub-periods 1951-65 and 1959-
He also analyzed productivity experience of small scale sector for the period 1960-78. Analysis of productivity trends at a disaggregated level was undertaken for five broad industrial groups (textiles, metals, chemicals, engineering and other industries) for the period 1951-65 and for thirty seven major 3-digit industries for the period 1960-70. Inter-industrial differences in productivity growth were evaluated using a multiple regression framework. It was found that for Textiles, growth rates of value added, labour and capital, were lower than those for aggregate-CMI, while TFP experienced substantial gain during 1951-65.

Jain (1988) studied the export marketing of textiles & garments and argued that in view of the changes in the international scenario and the unprecedented increase in competitiveness, there was a need for refocusing the strategies for textile and garment exports. The study provided an empirical analysis of India’s textile export performance in developed markets and also the export performance of other developing countries like Hong Kong and South Korea. An important feature of the study was the analysis of the impact of quantitative restrictions imposed by the developed countries on textile and clothing exports from developing countries. It was found that quantity restrictions in most of the developed countries were helpful to India in maintaining her share in textile & garment exports. Strategies were suggested to achieve optimum diversification of exports and to enhance the competitiveness in the world market so as to improve the export performance in the future, by improving the export marketing of garments through product development. Market diversification also needed attention by the export marketing firms.

Erzan, Goto and Holmes (1989) studied the extent of the restrictiveness and effectiveness of MFA with respect to the developing country suppliers of textile products for the period 1981-1987 and the extent to which these restrictions yielded trade gains for the unconstrained or less established developing country suppliers. The developments in the markets were reviewed in terms of share of trade subject to bilateral restrictions, quota utilization rates and shipments which fell under binding quotas. The supply and market response of individual developing exporters were characterized on the basis of the proportion of their trade covered by these quotas and their average quota utilization rates. They studied the changes in the volume and unit value of shipments subject to highly or fully utilized quotas as evidence of
restrictiveness/effectiveness of Multi-fiber Arrangement (MFA). Trade diversion in a representative sample of apparel products was analyzed in a more rigorous framework using a system of simultaneous equations depicting the demand and alternative supply conditions. The study found that in all the four markets considered, the binding constraints faced by the established developing country suppliers, were associated with loss of market shares. Except in US, the scope of this seemed rather small. The observed changes in market shares were not necessarily or fully attributable to MFA, rather such changes could be due to shifts in comparative advantage.

**Erzan and Holmes (1990)** studied quota phase-out proposals. They investigated the main instruments and suggested parameters of the two leading approaches by exploring their implementation with actual data. They analyzed historical MFA quota growth in EC and the US and hence concluded that post quota growth is a key input for an agreement on any phase-out scenario based on transitional quotas. It also depicted a phase-out within the framework of the MFA which relied on accelerated quota growth based on historical record. They also studied a phase-out based on global quotas along the lines of the US proposals. They investigated the immediate consequences of this shift by applying it to the US market. The study found that quota growth rates were closely and inversely related to quota levels and the performance of the exporters in filling them.

**Goto (1990)** established a simple general equilibrium trade model to estimate the effects of the MFA on world trade in clothing especially on exports from developing countries. The model considered two markets and six groups of suppliers and analyzed various effects of MFA - the trade suppressing effect (how much the clothing exports from restricted less developed countries (LDCs) were suppressed due to MFA), the trade diversion effect among markets and the spill-over effect. The model was applied to clothing trade in 1986. By using the model, various scenarios of liberalization of clothing trade had been analyzed -(1) simultaneous removal of MFA quotas (2) unilateral removal of MFA quotas by either the US or EC (3) simultaneous removal of MFA quotas and tariffs. It was found that the major beneficiary of the MFA was the domestic producer in the importing developing countries. Due to the MFA, the value of shipments of clothing by US producers was more than $ 3 billion
higher ($400 million for EC producer) than otherwise. When MFA quotas and tariffs were taken together, the value of clothing shipments by the US producer was $8 billion higher ($1.5 billion for the EC producer) than under no such restrictions. The spill-over to unrestricted developing countries (such as most Latin American countries) was much smaller than often alleged. It was observed that the results of the estimates depended very much upon the chosen values of the parameters such as supply elasticities and elasticity of substitution among differentiated products.

Trela and Whalley (1990) employed a general equilibrium model to analyze the effects of bilateral quota restrictions imposed by the US, Canada and the EC on 14 product categories from 34 developing countries (including Hong Kong). The methodology for obtaining the supply price of quota restricted products involved the use of data on Hong Kong quota prices. They computed the Hong Kong supply price by subtracting the quota price from the US price. Then they computed the production costs of quota restricted products in other exporting countries by multiplying the unit cost in Hong Kong with the ratio of the exporting country's relative wage rate in the textile and apparel industry compared to Hong Kong. Using 1986 data, they estimated both global and national welfare costs of the MFA. The results suggested global gains of more than $17 billion from the elimination of quotas and tariffs, of which $11 billion accrued to the developing countries and gains to the US from the removal of quotas was of $3 billion.

Erzan, Krishna and Tan (1991) tested whether the license price inclusive Hong Kong price adjusted for tariffs and transport costs was equal to the domestic (US) price. A deviation between the two prices indicated rent-sharing. The data utilized in this study covered the time period 1981-88 and pertained to three broad areas—domestically produced apparel, imported apparel from Hong Kong and licenses for apparel imports from Hong Kong. Ten apparel groups were defined and the domestic price for each of the ten apparel groups was computed as a quantity-weighted average of the unit values of the production groupings which make up the group. The authors tested the hypothesis with homogeneous goods, modified it to take into account compositional differences and finally considered differentiated goods. The study found that historical data did not conform to the evidence that importers retained a substantial portion of the MFA quota rents. Rent-sharing substantially affected the
estimated magnitude of welfare losses that exporting developing countries suffered because of MFA quotas and for that matter, because of any voluntary export restraints (VERs) in other sectors.

**Erzan and Holmes** (1992) studied the extent to which MFA quotas had restricted East European exports of textile and clothing to the major industrial countries and the issue whether the composition of East European textile exports to the industrial countries had any predictive value for further export patterns. The data utilized in this study covered the time period 1985-89 and related to five Eastern European countries—Bulgaria, Czech and Slovak, Federal Republic, Hungary, Poland and Romania and as markets, the EC and the US which accounted for about 80 percent of all OECD imports of textile and clothing from non-OECD (plus Turkey) sources. As competitors, they used the "East Asian Four", composed of China plus Hong Kong and Taiwan (China) and Republic of Korea and all MFA suppliers. It was observed that between 1985 and 1989, the textile coverage ratio averaged 59 percent for East European and above 57 percent for all MFA suppliers. The study concluded that the trade-restraining impact of MFA on the East European countries was not very different from that of other MFA suppliers. The average capital intensity of East European exports was relatively high as compared to other MFA suppliers and their degree of specialization was relatively low. It was found that in the case of East European countries, the distinct pattern of their exports to the EC was not influenced significantly by the MFA.

**Chandrasekaran and Sridharan** (1993) measured the productivity trends in cotton textile industry in India by using data from Annual Survey of Industries for the period 1973-74 to 1986-87. Total and partial factor productivity indices were calculated to analyze the operating performance of the industry. TFP was estimated by using Kendrick’s Index. The study observed that labor productivity in the cotton industry increased at a higher rate than capital productivity and contributed to the growth of output and efficiency. Improvement in labour productivity was mainly due to retrenchment and reduction of labour force. It was concluded that cotton industry could improve its efficiency and grow over the years, seizing the opportunities in the
Faini, Melo and Takacs (1993) attempted to identify the various distortions, sources of inefficiencies and the transfers among groups that were created by the bilateral quotas for the time period 1982-1990. The MFA caused inefficient allocation of production activities between exporters in restrained countries and producers in the protected import markets, between various constrained exporters and between constrained and unconstrained exporters. Evidence from data on market shares of developing and developed country exporters of fibers, textiles and apparels indicated that the MFA succeeded in arresting the growth in the less developed country's share of textile and apparel imports into the EC and US. The study also found that there appeared to be market segmentation within Europe in textile and clothing products. EC quotas tended to be binding and it was observed that coefficient of variation for prices and quota utilisation rates for China, Hong Kong and Korea were significantly and positively correlated, indicating that differences in prices were related to the "bindingness" of trade restraints.

Ghosh and Neogi (1993) examined the impact of advanced technology on the efficiency of factor use and the factors determining labor productivities in Indian industries. The study examined the performance of twenty-nine ‘sunrise’ Indian industries in terms of labor productivity and capital intensity by using Annual Survey of Industries (Factory Sector) data for the period 1974-75 to 1986-87. It was observed that increasing use of overhead capital did not produce any significant improvement in productivities. The industries were found to be inefficiently using their resources. The study found skill formation, capital-labor ratio and/or electricity to be the important factors influencing labor productivities, while firm size was not found to play any significant role in determining productivity. The study suggested that overall industrial development including efficient utilization of resources could be achieved with a well-defined industrial policy in consonance with indigenous factor endowment and technological potential.
Sidhu and Bhatia (1993) identified factors which explained the inter-firm differences in profitability in Indian textile industry for the year 1983. The study was based on the cross-sectional data, relating to 50 textile firms, taken from the balance sheets and profit and loss accounts of textile firms, published by Bombay Stock Exchange Directory. The results of the regression analysis revealed that profitability defined as pre-tax and post-tax profits on equity were positively and significantly related with three variables i.e. growth, financial leverage and post-tax profitability and it had no relation with size of the firm and capital intensity.

Kathuria (1995) examined the competitiveness of Indian industries by looking at both input and output measures including indicators of export performance such as export propensity and export market shares, price-based measures such as nominal protection coefficients, effective rates of protection, domestic resource costs and total factor productivity. The study also examined the effect of government policies, firm-level factors and economy-wide characteristics on competitiveness of the industrial sector in India. It was found that the share of developing countries in world exports of manufactured goods increased, while India’s share in these exports declined. The study further observed that while a large variety of manufactured products of India were price competitive, but these were not translated into significant share of the world market due to non-price factors. High government interference was found to be responsible for low competitiveness of Indian industries. Import substitution, non-existent import competition, barriers to exit, rules and regulations, high cost of inputs, bureaucratic controls etc. acted in the same direction. The study stressed on the need to have an appropriate set of institutions to promote the efficient absorption of imported technology and its diffusion by fostering effective inter-firm linkages, to create and stimulate the development of human capital and to develop a set of national standards.

Baghel and Pendse (1997) made an attempt to analyze productivity trends and statistical estimation of production function and technical change in the aggregate manufacturing sector of India by taking data for the period 1973-94 from ASI. Solow and Kendrick indices of TFP growth were estimated along with partial productivity indices of labour, capital and raw material and econometric estimation of Cobb-Douglas, CES and VES production functions. The study revealed that Indian
manufacturing sector had not experienced technological change which was evident from the growth rates of TFP growth indices as well as parameters of time variable in the production functions. The excessive doses of capital did not result in technological progress in Indian manufacturing sector as the capital intensity was found to be increasing all the time. The study suggested that there was a need to promote R & D efforts in the manufacturing sector of India so that it might survive in the newly emerging era of globalization and liberalization.

Prasad (1997) examined India's competitiveness vis-à-vis its competitors particularly China and Hong Kong and suggested strategies for India in the MFA phase-out period and post-MFA phase-out period. The author studied India's competitiveness in the different markets for the different textile and garment items at the sub-sector level by taking into account the market shares and unit value of exports of India and its competitors in different garment categories in the different markets. Based on the commodity trade matrix, the revealed comparative advantage indices (RCA) of items of two garment categories falling under SITC codes 843 and 844 were calculated. The study found that India's RCA in U.K., U.S. and German markets for both these categories had been three to four times higher than India's aggregate RCA for these two categories in all the markets taken together. India had a higher RCA in quota markets as compared to non-quota markets. It was concluded that strategic alliances with the developed countries (DCs), wherein the joint ventures helped India to meet the market needs of DCs, could possibly help India.

Jain (1998) carried out a broader competitive analysis of the Indian garment export firms to verify the influence of price as well as non-price factors. The study used the primary data collected through a field survey of export firms and necessary attitudinal data gathered through a structured non-disguised questionnaire. Two sets of statement were generated. Five-point Likert Scale ranging from ‘1’ to ‘5’ was employed to measure the respondents’ level of agreement or disagreement with the given statements. T-test was applied to ascertain whether the computed mean scores differed significantly from ‘3’ representing a position of ‘indifference’ on the five-point Likert Scale. Factor analysis was used to identify the major non-price dimensions underlying the export-competitiveness of the Indian firms. Indian firms on a comparative basis were by and large found to be deficient in respect of all the
four non-price competitiveness factors, be it product quality, delivery schedules, production technology and machinery or export promotion efforts. The study suggested initiating urgently the steps to improve the competitiveness to be able to withstand the emerging market competition and expand the garment exports.

**Yang and Zhong** (1998) examined the prospects for China's textile and clothing exports after phasing out of MFA in January, 2005 and its implications for other textile and clothing exporters. The data utilized in this study covered the time period 1970-1994. The study considered both supply side factors (i.e. continued economic reforms and shift in comparative advantage in the world textile and clothing sector) and demand side factors (i.e. phasing out of MFA). China's textile and clothing exports were placed in global perspective and changing international comparative advantage had been analyzed. The study also examined the demand factors associated with the Uruguay Round reform and China's WTO membership negotiated and analyzed the economic and demographic factors which determined China's supply potential in textile and clothing. Simulations were carried out to project the future path of the textile and clothing sector for China and major textile and clothing exporting economies. The Global Trade Analysis Project (GTAP) was used to project the growth path of the world economy, with particular attention to the textile and clothing sector. The study found that MFA did not stop China from utilizing its comparative advantage. China's diversification and upgrading would give South Asia and low-cost ASEAN economies greater opportunities for export promotion.

**Yazdani** (1998) investigated the impact of the US MFA restrictions on Pakistan's exports of textile and clothing to the US. The author quantified the costs and benefits of trade restrictions on Pakistan's textile and clothing industry and its export performance during the period 1975 to 1994, the entire life-span of MFA. The results of the empirical model showed strong support for the hypothesis that the MFA restraints were binding on Pakistan's textiles and clothing exports i.e. the lesser the quantity constraints and smaller the scope of the quota restrictions, the higher would be Pakistan's share of the US import market for textile and clothing. Cost competitiveness remained an important determinant of market share with respect to non-restricted and/or MFA-free trade.
Khanna (2000) examined the impact of MFA phase-out on Indian garment export sector. The study analyzed the impact of first two phases of quota removal on world in general, and India in particular, likely impact of next two phases of quota removal and policy implications of standstill/roll back of the MFA phase-out on India and quota rents. The study also dealt with cross competitor analysis of India under major export categories by quantity, value and unit value along with comparative quota utilizations for major markets. The study found that India was the 8th largest supplier of textile & clothing to USA in 1998. Indian quotas in USA were fully utilized. A category-by-category analysis showed that India had strength in cotton and viscose and it competed mainly with Asian competitors and is a low-to-medium priced competitor. There was a downward pressure on prices over a wide range of imports, particularly apparel. As a result, Indian prices for a number of products declined between 1994 and 1998.

Lanchovitchina, Martin and Fukase (2000) conducted a comparative analysis of the impact of China’s accession to the WTO on the country’s economy using a traditional global trade analysis model (GTAP) and the new modeling framework (GTAP-DE). For this purpose, a baseline scenario was implanted in which China did not enter the WTO and a second one, in which both China and Taiwan entered the WTO, first with the GTAP model and then with the new model. The analysis showed that China’s share of world exports rose dramatically and its composition was shifted strongly away from primary commodities towards manufactured products.

Diao and Somwaru (2001) focused on the possible impact of the MFA phase-out on the world textile and apparel (T & A) trade using an intertemporal, global general equilibrium model using trade data from GTAP database for 91 countries over 37 years. The analysis indicated a strong positive relationship between trade in textile and apparel and the standard of living. Starting from analyzing trends in world textile and apparel trade, the study found that the developing countries were a growing factor in world T & A trade in recent decades. The study also reported that the MFA phase-out would enlarge world trade of T & A and developing countries would further gain market share in the world total exports. Using GDP and population data, a time-series and cross-sectional estimation was conducted to analyse the relationship between T & A trade and income growth. The regression results indicated a strong
positive linkage between trade in T & A and income per person, which contrasted with the negative linkage between agricultural trade and income estimated by the study.

**Kathuria, Martin and Bhardwaj** (2001) provided a simple introduction of the MFA and used available empirical evidence to examine its impact on exports of garments and textile, focusing on India. They also examined the domestic policy distortions affecting the textile industry in India. They reviewed some of the evidence on the likely impact of MFA abolition on South Asia and on the implications of domestic reforms in India before and after the abolition of the multi-fibre arrangement. It was brought out that while exporting countries could gain from quota rents much of this gain was likely to be offset by losses in exports to unrestricted markets. The results suggested that South Asia as a whole would gain from quota abolition, although different countries might experience different results. India had the potential to benefit from quota elimination in terms of increased market access, employment, output growth and productivity gains. The study suggested a number of domestic reforms including eliminating taxes and concessions that favored decentralized production arrangements, ending the bias against man-made fibres, restricting certain products to handloom production and eliminating delays in shipping and customs clearance.

**Nanda and Raikhy** (2001) examined export performance, commodity composition and direction of commodity composition of textile exports during the period 1991-92 to 1998-99. Textiles have been broadly divided into two categories, i.e. textiles (excluding readymade garments) and readymade garments (RMG). Export performance of different categories of textiles has been examined in terms of compound annual growth for the study period. Hirschman index of geographic concentration was also worked out. An analysis of performance of textile exports showed that exports of textiles (excluding RMG) increased at the rate of 19.07 percent per annum during the study period. Of ten categories considered in textiles (excluding RMG), exports of five categories namely coir and coir manufactures, cotton yarn fabrics made-ups etc., floor coverings of jute, manmade yarn fabrics made-ups etc. increased at faster rate than the group as a whole. Exports of RMG witnessed growth rate of 18.12 percent during post-liberalization period. Trend analysis of different categories of textile exports showed that USA and France were
gaining importance in country’s exports, while UK and Germany were losing importance as country’s trading partners in RMG, carpets handmade and carpets mill made. The study suggested the adoption of an approach based on BATNEEC (Best Available Technology Not Entailing Excessive Cost).

Singh (2001) computed total factor productivity (TFP) for a sample set of ten industries in the manufacturing sector in India for the period 1973-74 to 1993-94. The study combined the data for both registered and unregistered segments of each industry and then computed TFP for the aggregate level of each industry by using Solow’s unexplained residual method. The results showed that the TFP recorded improvements in all the sample industries, except for the basic metal industries in which the TFP witnessed a declining trend during 1973-94. The highest growth in TFP was observed in case of food products industry, followed by the transport equipment, non-metallic products, electrical machinery, non-electrical machinery, the wool and silk textiles, chemicals and jute textiles. Trend growth rate of TFP in wool, silk and textile products industry was found to be about 1.01 percent during the overall period 1973-94.

Terra (2001) discussed the possible effects of the elimination of quantitative restrictions and tariffs on trade of textiles in the Latin American countries by using Feenstra’s 2000 database of world trade and by employing General Equilibrium Multi-Country Trade Model, the GTAP. The simulations showed that the mere removal of MFA quotas would lead to a rise in the production and exports of the leading exporters, which would displace other suppliers in the big markets of the developed countries. Similarly, there would be a fall in Latin American imports as MFA quotas generated a diversion of the exports of the leading exporters towards Latin America, increasing its imports.

Baisya, Yadav and Baiaram (2002) attempted to determine the comparative advantage in apparel in China, Hong Kong, Italy, Turkey, South Korea, Mexico, Indonesia, Thailand, Bangladesh and India by using the Revealed Comparative Advantage (RCA) method and the Relative Export Competitiveness (REC) method for the period 1995-98. The selected countries were compared for relative competitiveness at the country level and industry level. The study found that on the basis of RCA, only China and Turkey had a comparative advantage in all categories of garments and as per
the REC value, again China and Turkey had very strong and exceptional relative export competitiveness in almost all categories. It also concluded that Indian apparel industry would have to develop competitive advantage based on core competencies and mere reliance on resource advantages would not suffice in future.

Esterhuizen, Rooyen and Hease (2002) identified and analyzed technological, socio-political and economic factors affecting the competitiveness of South African agro-food and fiber complex by using a framework of analysis proposed by Michael Porter (1990). Primary data were obtained through a postal survey at firm level by developing a questionnaire using Porter’s determinants of competitive advantage. The study suggested appropriate measures to increase competitiveness like improved supply chain management, cost reduction, contractual pricing and the establishment of a clear ‘agribusiness development policy’.

Kumar (2002) examined the changes in the growth patterns, levels of efficiency and technical changes which textile industry experienced over time. The study found the rising capital-output ratio, indicating deterioration in capital efficiency over time. It was further observed that textile industry continued to bear the pains encountered during the macro-adjustment process which called for restricting of product mix as well as organization in the face of changing demand and supply factors in the domestic market in particular and international market in general.

Thoburn, Ha and Hoa (2002) traced how the Vietnamese textile industry was restructuring under trade liberalization and under Vietnam’s programme of state enterprise reform during the period 1980 to 1999. The study was based on interviews with domestic enterprises in Vietnam, foreign investors both in textiles and in garments, international buyers located in Vietnam, the UK, Hong Kong and China, and with textile and garment firms in Hong Kong and China. The ultimate interest of the study was to estimate the impact on employment and wages of enterprise restructuring to meet export and import competition, and thereby the impact on poverty. Useful tool of international value chain was used for analyzing the impact of globalization on producers in developing countries. An attempt was made to study how vulnerable Vietnam would be to competition in overseas markets once the MFA was phased out in 2005. It was observed that the negative impact of trade liberalization in textiles was on employment and not on wages. The study concluded
that it was very urgent for Vietnamese textile and garment exporters to upgrade their processes, products and functions if they were to remain attractive to international buyers.

**Verma** (2002) evaluated the export competitiveness of Indian textile and clothing sector. The author examined India’s competitive performance in the US and EU markets for MFA (ATC) product categories that were important in Indian export basket, and found that Indian exports to the EU and the US were, on the whole, export-competitive. To evaluate the ‘demand-side’ of Indian textile and clothing exports, the study analyzed the competitive performance of Indian exports of the ‘identified’ products in the US and EU markets. To assess the supply-side factors of export competitiveness, a preliminary interview was conducted with a few exporters. The supply-side framework was based more on opinions than on data or numbers. The study delineated the changing landscape in the international trading environment which was likely to have significant impact on global textile and clothing trade. To enhance the competitiveness of the industry, the study brought out the areas requiring government policy intervention. The study concluded that Indian textile industry, especially garment sector, had immense potential, but still several policy reforms were needed urgently in order to unlock this latent capability.

**Das** (2003) sought to explore the nature and magnitude of TFP change under different trade regimes by applying standard growth accounting methodology to data compiled from ASI for selected 3-digit use-based manufacturing sectors over the period 1980-2000. The analysis focused on the overall period and four sub-periods (1980-85, 1986-90, 1991-95 and 1996-2000) to reflect the shifts in trade policy regimes. The study concluded that there was no significant change in TFP growth following liberalization of the regime initiated in the early 1990s. As in the 1980s, factor accumulation rather than productivity growth accounted for most of the output growth during this period. The study found negative TFP growth, based on invested capital, in many industries over certain periods. It was difficult to conceive of negative technical change and therefore, negative TFP change must represent underlying structural and cyclical factors that needed to be investigated and understood.
**Nadvi and Thoburn** (2003) assessed the effect of globalization on the Vietnamese textile and garment industry by using a Global Value Chain framework. It documented how Vietnamese firms inserted themselves into the global buyers and local producers and how Vietnamese firms were responding to the new challenges. It also reviewed the leading global challenges facing the garment and textiles industry. The study assessed winners and losers amongst firms and workers. Vietnam appeared somewhat better positioned than countries like Bangladesh regarding the loss of quota markets under the MFA. The authors focused on the differentiated story-distinguishing between winners and losers at the level of sectors-garments and textiles, firms-state owned enterprises and private enterprises, and workers-by gender, education and location. The study suggested that Vietnam needed to comply with codes of conduct addressing labor and environmental standards, confront competition from neighboring China and to prepare for emergent changes in the global trade regimes that govern international trade in garments and textiles. It was concluded that while women workers as a whole were benefited, but those with residency status and educational qualifications were likely to fare better in the new competition.

**Appelbaum** (2004) made an effort to understand the dynamics of global sourcing in the textile and apparel industries. The study was based primarily on a review of existing research both macro-level research that simulated world trade patterns, and case studies of individual countries. The impact of MFA phase-out was discussed with special emphasis on several Sub-Sahara African countries, for which information was available concerning the role of foreign suppliers. The study showed that large retailers played an increasingly important role in determining the nature of apparel production, including a preference for "lean retailing" that favored Hong Kong, Taiwanese, Korean and Chinese suppliers. It was concluded that FDI would continue to play a key role in textile and apparel industries of developing countries. Enhancement of working productivity through skill training and technological upgrading would diversify production into higher value-added garments such as the more fashion-sensitive women’s wear categories.

**Elbehri** (2004) examined the global trade implications of MFA quota removal on cotton and textile industry by developing new adaptations to the GTAP framework. The analysis was based on a new set of MFA-trade restrictiveness estimates based on 2002 product-
level quota trade and price data using a multi-regional general equilibrium. The analysis provided comparative static assessment of changes in global trade patterns in post-MFA world. It also took into account the MFA-induced implicit tax on cotton and allowed for inter-fiber substitution. The GTAP database was modified to include the estimates of export tax equivalents (ETE) facing exports to the United States. The study found that the United States showed significant increases in apparel imports substituting for domestic products, raising overall consumption and producing substantial welfare gains. The implications for fiber markets on the U.S. showed lower demand for cotton for domestic use, but expanding U.S. cotton exports due to higher world demand, particularly when both quotas and tariffs were removed. Global welfare gains resulting from MFA quota removal were about US$10.2 billion. All MFA-importing economies showed welfare gains and U.S. showed the largest welfare gains, given the sizeable share of its initial textile and apparel trade under MFA quotas.

Hashim (2004) examined the role of factor prices and the productivity which affected unit cost for the three main textile industries — cotton yarn, man-made textiles and readymade garments. The study attempted to decompose the changes in unit cost growth into various specific sources of productivity and factor prices for ascertaining the role of each individual factor. To assess the performance of selected industries — cotton yarn, man-made textiles and readymade garments — a panel data consisting of 16 states in cotton yarn and 13 each in man-made and garments were utilized for a period of 1989-90 to 1997-98. The important 3-digit level industries were chosen from respective 2-digit level classification of the Annual Survey of Industries. In order to measure productivity, total factor productivity and partial factor productivity measures were used. Some important production features, with bearing on productivity were also analyzed with the help of translog variable cost functions. The study found an inverse relationship between the unit cost and productivity. Industry and states which witnessed higher productivity (growth) experienced lower unit cost (growth) and vice-versa. Better capacity utilization, reduction in nominal rate of protection and increased availability of electricity were found to be favorably affecting the productivity in all the three industries. Non-tariff barriers, average firm size (output per firm) and credit disbursements had positive relationships with productivity in man-made and garment sectors.
Kumar (2004) attempted to assess the impact of liberalization process of Indian economy on the technical efficiency of textile industry by using ASI data for the period 1973-74 to 1997-98. The non-parametric frontier approach was used to measure the extent of technical inefficiency of textile industry in India. The technical inefficiency was decomposed into scale inefficiency and pure technical inefficiency. The study found that Indian textile industry did not produce the maximum attainable output, given the inputs of capital and labor and the available existing technology. The Tobit regression analysis confirmed that the process of capital deepening had a positive effect on the overall technical efficiency of Indian textile industry. It was also found that industry had some inherent advantages of economies of scale and had potentials to improve efficiency by increasing scale of operation.

Mlachila and Yang (2004) examined the impact of the phase-out of textile and clothing quotas on Bangladeshi economy, with a particular focus on the medium-term effects on the balance of payments (especially the trade account), GDP and employment for the time period 1985-2003. The study provided a general background on the RMG sector in Bangladesh and then examined Bangladesh's competitiveness vis-à-vis its main competitors. It identified major supply constraints in Bangladesh export sector. A quantitative assessment of the potential impact of the quota phase-out on the Bangladesh economy was carried out by using a comparative static GTAP global general equilibrium model. Three factors viz. low wages, initial FDI inflows and generous quotas in the restricted markets relative to its main competitors seemed to have contributed to Bangladesh's impressive export performance in textile and clothing sector in 1990s. Based on assessments of quota restrictiveness and export similarity, and on analysis of its supply constraints, the study concluded that Bangladesh could face sizable pressure on its balance of payments, output and employment after elimination of quotas.

MacDonald, Pan, Somwaru and Tuan (2004) studied alternatives of the impact of Agreement on Textile and Clothing (ATC) implementation in an analysis of China's textile industry, and its impact in turn on China's cotton sector. A dynamic computable general equilibrium (CGE) model was used to analyze how the global restructuring of textile and apparel production and consumption would be expected to change production by China's textile industry. An econometric partial equilibrium model of China's agricultural sector was then used to examine the impact of changing
demand by the textile industry on China's cotton consumption, regional cotton production and cotton trade. The study concluded that textile and apparel imports by United States, which was by far the world's largest importer, grew significantly in recent years reflecting, among other things, China's accession to the WTO, initial phases of ATC liberalization and a period of unusually strong U.S. exchange rates. It was found that by the end of 2003, China nearly doubled its share of world textile and apparel exports in less than a decade, to about 21 percent.

Nordas (2004) tried to access the likely impact of liberalization, taking into account recent technological and managerial developments in the sector, and focusing on recent developments in supply management in the clothing and textile sector for the period 1995-2002. The study examined the ATC countries' trade patterns in the sector since 1995, followed by an assessment of the likely changes in the sector during post-ATC period. Two different techniques were used for assessing the post-ATC trade patterns. First, a general equilibrium model of the world economy, the GTAP model, was run with the pre-ATC quotas in place as an initial scenario. Analysis of the impact of phasing-out of ATC brought out that China and India would come to dominate world trade in textile and clothing, with post-ATC market shares for China alone estimated at 50 percent or more. United States and Canada would gain market shares to a significant extent, but the expected surge in market share might be less than anticipated, as proximity to major markets assumed increasing economic significance and tariffs were increasingly restraining trade due to the fact that products crossed borders several times.

Tewari (2004) drew an evidence from Tamil Nadu’s textile and garment industry (India’s key textile hub) to explore the emerging geographies of production in labor intensive sectors like textile and apparel in response to economic openness in the Indian context. The study covered the time period from 1990-91 to 1999-2000. The study looked at two ends of the textile value chain in Tamil Nadu — the relatively capital intensive textile and spinning sector, and the opposite end of garment production (a sector reserved for small scale firms). The author examined specific strategies of adjustment in the region’s new growth sector, garments and apparel that mirrored the themes emerging from successful adjustment in the spinning sector. The policy regimes at the national level like export orientation etc. and at international
level like MFA that shaped local productive capabilities and institutions of the textile and apparel industry in particular countries and regions were also discussed. It was found that the current poor performance of the spinning sector was due to policy change domestically (de-licensing) that affected supply, and broader shifts in the world market including currency devaluation in competitor economies that affected demand. The downturn in the spinning sector in Tamil Nadu also revealed structural changes in this sector.

Yeung and Mok (2004) investigated the extent to which China’s accession to WTO would change the competitive landscape of foreign-financed and locally-funded Chinese textile and clothing firms by conducting informal interviews with government officials and semi-structured interviews with the owners and managers of 15 textile and clothing firms located at Guangdong, Zhejiang and Beijing in 2000 and 2001. The study found that reduction of import tariffs and elimination of export quotas would deprive foreign-financed firms with investments in Southern China of the ability to use Hong Kong quotas as their competitive advantage and it would subject import-oriented (locally-funded) firms to more intense competition locally and internationally. The study suggested that Chinese firms should comply with international standards on quality management, environmental management and social accountability, in particular ISO9000, ISO14000 and SA8000 etc., to increase their export competitiveness.

Banerjee and Chakraborty (2005) analyzed the structure and growth of industries in the manufacturing sector in West Bengal during the period 1977 to 1998 and also for sub-periods 1977-1992 and 1992-98. To know the concentration of industries, Hirschman Herfindal Index was calculated for value added, fixed capital and employment. Employment and output elasticities were calculated to study the behavior of employment and output over time. The results showed that the industrial situation in the state during the period 1977-1992 was dismal but after this period, situation improved to some extent. Growth rate of most of the industries accelerated during reform period. The study further observed that the intermediate goods were concentrating more on the consumer goods industry during 1992-98. The results of elasticities indicated labor intensiveness in jute, beverages, furniture, wool and silk industries and complementarities between labor and capital in food, cotton textiles,
wool, silk and leather industries.

**Ernst, Ferror and Zult** (2005) illustrated the evolution and performance of trade and employment in textile and clothing till 2005 and tried to forecast its evolution, focusing on exporting developing countries. The study brought out the already leading and strengthening position of China, including Hong Kong, SAR and Macao, SAR, in particular in clothing, Pakistan’s dominant position in textiles and the generally good trade performance of South and South East Asia. It also tried to forecast trade and employment changes due to change in trade regime from the 1st January, 05 in the world of textile and clothing by using a gravity model approach. The analysis of the trade competitiveness situation, as well as the forecast of the gravity model showed that the phasing out implied significant changes in the worldwide trade structure, leading to strong output and employment shifts in and between countries. China and Pakistan would be the biggest winners according to the forecast. It was observed from the gravity model approach that both China & Pakistan might benefit considerably from the MFA phase-out, that there was a group of countries that would probably benefit but not excessively and yet another large group of textile and clothing exporting countries that would lose part of their share in exports towards the quota imposing countries.

**Goldar** (2005) examined how Indian industry was impacted by India’s commitments on tariff and quantitative restrictions under WTO. Assessment of the impact was made on the basis of increases in imports of industrial products that took place as a result of import liberalization that India had to do because of her commitments under WTO. It dealt with the impact of removal of quantitative restrictions on 1429 items at 6-digit HS (mostly consumer goods) in 2000 and 2001. The study concluded that tariff reforms did have a significant effect on Indian industry but these effects could not be attributed to India’s commitments. The liberalization of textile imports seemed to have led to a sharp increase in imports of textiles in the period 2000 to 2003. The study concluded that the defensive measures had the intended effect of containing imports of the products freed from quantitative restrictions. But in that process, the gains expected from a liberalized trade regime in terms of higher efficiency and structural adjustment to market driven pattern of comparative advantage were not realized.
Hate, Khanal, Larsen, Smart, Soria and Zanni (2005) analyzed the consequences of elimination of MFA for the South Asian countries including Nepal, India, Pakistan, Bangladesh and Sri Lanka as well as U.S. retailers by using quota model. It was brought out that India and Pakistan would likely be the winners with the expiration of MFA. Nepal is expected to suffer losses in the garment and textile industry without the protection of quotas. The effects of the MFA expiration on the Bangladeshi and Sri Lankan garment and textile industry were ambiguous. US producers of garment & textiles would suffer losses whereas US consumers would benefit.

Kamau (2005) assessed the impact of MFA phase-out on small garment producing economy such as Kenya. The Global Value Chain (GVC) analysis was used to examine how integration of garment trade into the WTO would affect production system in Kenya. The methodology of this study was based on primary and secondary data sets obtained first in 2003 and 2004. The firm-level data was drawn from a survey conducted in 2003 among 45 garment producing firms of diverse features in terms of size, age, ownership and type of garment made in five different towns in Kenya. The study found that gains from elimination of quotas in garment trade would accrue mainly to large Asian producers that were better positioned in the value chain. Kenyan garment firms operated at lower end of the value chain as they mainly undertook ‘assembly’ work. The study suggested that they should upgrade production from basic products at the lower level of GVC to higher level products such as original brand name manufacturing (OBM) and original equipment manufacturing (OEM) by increasing productivity and establishing stronger links with giant international buyers.

Magder (2005) presented an overview of the way in which global supply chains operated and showed how they drove industry upgrading in developing countries. The study examined a number of factors for the period 1995-2003 that helped to determine Egyptian companies' attractiveness as suppliers in global apparel chains, relative to a set of competitor countries, and presented some empirical evidence of the industry's performance and how international investors have reacted to it. A supply chain model for inventory management was applied to quantify the potential benefits that Egypt might gain from leveraging its geography to cut lead times to end markets. The study insisted that Egyptian firms did not master the ability to turn their high
quality cotton into similarly high quality textiles, although their ability to manufacture ready-made garments was relatively stronger. Therefore, Egypt needs to focus on improving production capabilities, continuing the path of privatization, shortening the lead times, leveraging the potential benefits of its geographical proximity to Europe and undertaking the process of industrial upgrading throughout the economy as a whole.

Nanda & Raikhy (2005) studied global competitiveness of India with respect to 14 competitors in respect of price factors during 1984 to 1997 and also examined the impact of global competitiveness on India’s exports from 1984 to 2001-02. To measure global competitiveness of India, six measures were considered i.e. relative consumer price index, relative export unit value index, relative export unit value index of manufactured goods, relative wholesale price index, relative unit labor cost in manufacturing and three measures of profitability index viz. export profitability index, manufactured export profitability index and import substitution index. For the purpose of comparability data were expressed in relative terms, in index form and in common currency (dollar) except profitability index, which was in Rs. terms. Fourteen competitors viz. Belgium, China, Hong, Kong, Canada, France, Germany, Italy, Japan, Korea Rep., Mexico, Netherlands, Singapore, U.K. and U.S.A. have been considered on the basis of share in world exports and in world’s manufactured exports. The study showed that global competitiveness of India improved only in case of two measures i.e. relative export unit value Index of manufacturers and in terms of unit labor cost in manufacturing. Profitability index of India, after showing signs of improvement till 1993-94, declined afterwards. Regarding the impact analysis of global competitiveness of India on India’s exports, the study showed that India could not achieve even 1 percent share in world’s exports. India’s exports in dollar terms could increase at double digit rate only in eight years. The study further reported that indicators of global competitiveness were not related with quantum index of manufactured exports of India indicating that loss in global competitiveness could also lead to increase in exports. Thus, to increase exports non-price factors should also be given importance.

Narayanan (2005) examined the effects of currency appreciation and productivity on Indian textile and apparel exports since these were crucial in this sector in the light of
the phasing out of MFA quota by 2005. The time period covered was 1960-2000 and all the variables were deflated at 1968 prices. Based on a co-integration and causality analysis of data from 1960 to 2000, the existence of co-integration between exchange rate, export prices, exports, productivity and imports of machinery, were tested. These were found to be not co-integrated by Johansen’s FIML test. However, co-integration was found to exist between textile exports and exchange rate and also between textile exports and their prices, implying a long run equilibrium relationship between textile exports and exchange rate and also between textile exports and their prices. It was concluded that exchange rate played a clearly vital role in textile exports, while the role of productivity was not as clear, though it seemed to have an impact on future exports.

Narayanan (2005) analyzed the role of various factors that influenced employment in Indian textile industry from 1973-74 to 1997-98, using 3-digit classification and taking data from Annual Survey of Industries. Thirty two sub-sectors were chosen for the textile industry classifying them into six groups, namely, cotton, wool, silk, jute, synthetics and others; of these, 8 sub-sectors were in the cotton group, 4 were in wool group, 3 were in the silk group, 3 were in man-made fibers group, 6 in the jute group and 8 in the others. The dependent variable was the logarithm of employment in terms of total persons engaged in the sub-sector. The independent variables were invested capital stock, change in output as a proxy for demand shock, wages per person engaged in production per year. The study observed rigidity in employment in textile sector determined by labor demand, while output demand shock had a positive effect on employment, indicating the counter cyclical nature of the markup in Indian textile industry. There was positive effect of domestic environmental regulations and negative effect of external ban on azo dyes, negative effect of wages and positive effect of 1991 reforms on employment. The study suggested that employment should not be a concern in implementing environmental standards and regulations in the textile sector. Further, policies that enhanced trade liberalization and labor flexibility were required to promote employment in the textile industry in India.

Tan (2005) examined the effect that China would have on the Southeast Asian countries, as part of a bigger picture of economic competition and cooperation within Asia. The importance of industrial structure of China and ASEAN in the textile and
clothing industry was also analyzed. In the GTAP simulations, the Armington model of constant elasticity of substitution (CES) was applied by taking annual data for US, the EU and Japan obtained from an OECD online database for 1991 to 2003 (1995-2003 for the EU). It was concluded that the absolute price level or absolute advantage was a key determinant of competitiveness and trade. It was observed that ASEAN countries’ comparative advantage in clothing production was increasing at a faster rate than that of China because they were one or two cycles behind China. This would help these countries to tide over the adverse effect of MFA quota abolition.

Tewari (2005) examined India's recent integration into the global apparel market to understand alternative forms on global insertion that were occurring, especially in light of the elimination of quotas. Arguing that changes in domestic policy and in the structure of domestic demand throughout the 1980s and 1990s played an important role in triggering new growth in India's textile and apparel exports, and reshaping the capabilities of local firms. The study examined three features of India's recent integration into global clothing markets, i.e., the striking emergence of design as a source of comparative advantage in Indian apparel, the growing importance of outward-bound investment by Indian clothing firms in recent years, and the powerful new role that retail was playing in organizing the Indian domestic market, driven in part by surging consumer demand from entirely new mid-market youth segments associated with the country's IT-BPO boom. The study found that India's path to global integration in textile and apparel differed from the path of its proximate competitors, in that it occurred without significant FDI, or entry into regional Free Trade Agreements (such as NAFTA) or deep insertion into dominant global clothing supply chains. The study argued that the same legacies that resulted in India's slow integration into the global textile and apparel market, had also produced legacies that could move the Indian apparel industry toward a higher value-added, design intensive path of upgrading and adjustment in addition to scaling up. The study aimed at estimating the likely impacts of the MFA phase-out at the country/industry level on worker and also discussed the relationship between industry competitiveness and worker welfare. An effort was made to estimate the job losses due to MFA phase-out in various countries like Bangladesh, Indonesia and Sri Lanka. It brought out that the workers feared increased competition for orders which would lead factory managers to reduce wages, default on proper compensation for overtime etc. in a bid to cut costs and remain
competitive. The study concluded that China would be the winner and to a lesser extent India. Philippines, Mauritius, Nepal and other countries supplying the mass (cheap end) garment goods would be the losers. Bangladesh, Pakistan, Indonesia and Vietnam-all had the potential to be competitive supply bases but also had serious difficulties (e.g. corruption, security). A lot depended on how the industry and government responded to the challenges. Eastern European and Central American Countries would remain part of the mix if they could take advantage of their proximity to EU and US markets, respectively, to deliver fast turn-around. It was suggested that suppliers could use the end of MFA as an opportunity to upgrade their production, investing more in technology, training and management and improving working conditions. All key players need to be coordinated and working together. It was suggested that international labor organization must urgently convene a meeting of all the key players to consider and adopt measures to safeguard the livelihood of workers in the sector, their families and communities.

**Amponsah and Boadu** (2006) examined the factors explaining the pattern of textiles and apparel imports into the US from key trading partners using gravity model and derived implications from such textile and apparel trade. Textile and apparel trade values, classified as SIC code 22 and 23 respectively, were used for years 1989-1996. The new NAIC code, which commenced in 1997, was used for the years 1997-2003. The results reflected significant import substitution of textiles and apparel during periods of rising prices for textiles and apparel in the U.S. It was concluded that so long as textile and apparel products from abroad were perceived as cheap, US importers would continue to purchase from abroad and global producers would find it profitable to sell their products in the US market.

**Beena** (2006) analyzed the sustainability of export performance of textile and clothing in five major South Asian Countries, namely, India, Pakistan, Bangladesh, Sri Lanka and Nepal, particularly in the context of universal trade liberalization. The author also tried to explore the various factors determining a particular pattern of export growth registered by the countries of South Asia-demand factors such as the emergence of powerful new competitors and shrinkage in growth of demand on the world, scale and supply factors such as the nature of the industrial structure in each of these countries. The study also explored how the removal of quota restrictions would
have differential impact on each of the countries in South Asia. The study analyzed the market potential for the textile and apparel sector of South Asian countries in two major destinations i.e. the EU and the US and their relative strengths and weakness in various product categories (at HS 6-digit level) during 1990. The revealed comparative advantage for a country in a particular product was measured by the product’s share in world trade. In the study, textile & clothing sector included Textile Fiber and Waste (Code-26), Textile Yarns, Fabrics etc (Code-65), Clothing and Accessories (Code-84), as per SITC Rev. 3. The analysis focused on those items, which registered more than 10 percent export share either in the EU or the US markets in any of the years between 1993 and 1997. It was found that majority of the products fell below 20 percent of the export shares in these two markets. This might point to the untapped potential of South Asian T & C exports to these markets. More than one-third of the products which had more than 10 percent export share showed a decreasing pattern in their exports to the EU and US markets.

Heron (2006) assessed of the impact of the ending of the MFA- the protectionist trade regime that shielded developed country from developing country’s textile exports between 1974 and 2004. The study examined more closely the distributional effects of the ending of the MFA by focusing on the distribution of the trade gains. The author argued that while the ending of the MFA might eventually lead to significant welfare gains for the South as a whole, these were likely to be highly skewed in favor of a relatively small number of very competitive textile producers. At the same time, a larger number of (generally smaller) developing countries were likely to find them selves significantly worse-off in the post-quota trade environment.

Harrigan and Barrows (2006) focused on simple and robust theory predictions about the effects of binding quotas and also computed non-parametric estimates of the cost of MFA. The study used a natural experiment in US trade policy to get around these thorny inference problems by taking data from Census Bureau at 10-digit HS level. It was tested whether binding quotas raised prices and led to “quality upgrading” i.e. a shift in the mix of products under a given quota towards more expensive goods. For all U.S. imports of apparel and textiles and for every exporting country and quota group, price, quality and real import indices over time were constructed. It was observed that prices fell 38 percent from China and quality fell 11
percent. The price effects were also substantial for non-Chinese exporters, with little evidence of quality downgrading. It was also found that many other big exporters (especially India, Pakistan, Bangladesh and Indonesia) were able to increase their sales to the US market when their quotas were removed.

**Pigato and Ghoneim** (2006) evaluated the initial impact of the phase-out of the Multi-Fiber Agreement (MFA) on the textile and clothing sectors (T & C) in Egypt, Jordan, Morocco and Tunisia (MENA-4), with a focus on Egypt. The study depended on comparative data analysis for the countries complemented by interviews with exporters and producers of textiles and ready-made garments in Egypt. The study suggested a number of public and private sector strategic policy options to enhance the competitiveness of Egypt’s exports. Based on the assessment, a number of recommendations were offered to maximize the benefits from liberalization of international trade in T & C. In particular, it was found that the phasing-out of MFA had a mixed impact on the T & C sectors of the MENA-4. In order to capture the full benefits from the phase-out, the study stressed the importance of improving export competitiveness and growth through diversifying export markets, reducing the cost of T & C inputs, easing restrictive rules of origin, improving trade logistics, and pursuing deeper integration both regionally and internationally. For Egypt, the study specifically highlighted the need to restructure the T & C industry, improve the export subsidies program, enhance training and education in the T & C industry, encourage the production of other types of cotton and upgrade port facilities.

**Ahmad** (2007) highlighted how origin rules have been instrumental in shifting the demand for textile materials towards preference-granting economies. It gave a brief background to the making and evolution of present-day origin rules relating to textiles and clothing in some major economies, both in the context of normal most-favored-nation (MFN) trade and preferential trading arrangements which now accounted for a large portion of trade in the sector. The study found that restrictive origin rules constituted a source of continuing distortions in textile and clothing trade. It was observed that rules of origin were closely tied to the sustainability of many preference-receiving countries apparel exports to sourcing of textile materials from preference-granting countries with all the added costs that such sourcing entailed by way of the rigidity of production processes and additional administrative costs. The
study highlighted the fact that on the back of origin rules, the preference granting countries gain access for their yarn and fabric producers to captive markets in preference-receiving countries. The study concluded that the rigidity of origin rules constituted a serious bottleneck for the viability of apparel exports of many preference-receiving countries.

Bhandari and Ray (2007) tried to measure technical efficiency of Indian textile firms for the years 1985-86, 1990-91, 1996-97, 1998-99, 1999-00 and 2001-02 using Data Envelopment Analysis by taking data from the entire textile industry. The units related to the production of cotton, woolen, silk, synthetic (e.g. terry cotton) and other natural fibers (like jute, coir and mesta). The study found better performance of firms from West Bengal as compared to firms of other states; significant technological differences across states, private sector firms to be technically superior to firms from public sector, better performance of public limited companies as compared to firms of other organizational types, increase in technical efficiency with increase in size of the firm.

Tiwari (2007) examined the competitiveness of exports from India and USA by applying the constant-market share model during periods (i) 1980-83 to 1984-87 and (ii) 1984-87 to 1991-95. The study covered traditional as well as the non-traditional commodities at one-digit level of SITC classification. Nine import-markets were from the developed and 12 from the developing world considered in the study. Countries selected included - Japan, UK, France, Belgium, Canada, Germany, Switzerland, Netherlands and Italy from the developed world, while Pakistan, Singapore, Hong Kong, Malaysia, Korea Republic, Indonesia, Sri Lanka, Brazil, Thailand, Greece, Turkey and Afghanistan from the developing world. The study found that during the first period, the two traditional products – food & live animals and beverages & tobacco and two non-traditional products - machinery and transport equipment and miscellaneous manufacturing articles showed the favorable effect of competitiveness, whereas in remaining export products, the competitiveness was found to be favorable vis-à-vis the rest-of-the-world (ROW) in the developed countries. In USA, four products from the traditional sector and the product from the non-traditional sector i.e. chemicals portrayed the favorable effect of competitiveness vis-à-vis the ROW. During the 2nd period (1984-87 to 1991-95) in developed import markets, all export
products in India, except miscellaneous manufacturing articles were found to be competitive vis-à-vis ROW. In USA, all export products, baring the miscellaneous manufacturing articles portrayed the unfavorable effect of competitiveness vis-à-vis the ROW. The analysis was extended to examine the contribution of cost, prices and non-price factors. It was suggested that the measures undertaken by India for enhancing her exports under New Economic Policy associated with labor cost advantages were the principal causal factors for the observed export competitiveness in India vis-à-vis the rest of the world.

Bhatt (2008) attempted to measure India’s trade competitiveness in relation to its competitors and also examined the effectiveness of exchange rate policy on the trade competitiveness. A simple regression was carried out to examine the effectiveness of exchange rate on trade competitiveness. The trade competitiveness index was regressed on the nominal effective exchange rate (NEER) and the real effective exchange rate (REER) over the period 1973-2003. Five indices were used to measure price competitiveness — Relative Export Price Index, Relative Wholesale Price Index, Profitability of Exports Index, Relative Profitability of Exports Index and Index of Import Price Competitiveness. The competitors that were considered in this study were Indonesia, South Korea, Malaysia, Pakistan, Philippines, Singapore, Sri Lanka, Thailand and Kenya. The study showed that India’s exports were more competitive till 1992, after which they lost competitiveness. India’s domestic cost of total production was found to be competitive throughout the period under study, except in 1996 & 1997. Indian exports remained relatively less profitable till 1988, after which exports were profitable for India, especially in the post-reform period, except in 1996, 1999 and 2003 and India’s imports were more competitive in 1973, 1982-84, 1987, 1990, 1998, 2001 and 2002. The study further indicated that when the nominal and real exchange rates appreciated, export price competitiveness (REP) improved, but the competitiveness in terms of profitability (RPE) and (PEI) deteriorated.

Narayanan (2008) tried to document the performance of Indian textile sector in recent years, with emphasis on certain issues of concern to development, namely, employment in the organized sector, performance of the unorganized sector, and the consumption of textiles by Indian households. The performance of organized and unorganized textile sector, in terms of three partial productivity measures — capital
intensity, capital productivity and labor productivity was analyzed by taking data from Annual Survey of Industries for the period 1961-62 to 2002-03 for the organized textile industry and from 1984-85 to 2000-01 for unorganized sector. The study observed that the India’s share of textile and apparel exports in its total exports decreased over the years, despite the phasing out of MFA quotas and the subsequent rise in absolute value of textile exports. On examining the organized textile and apparel sector, it was found that employment was stagnant, while capital and output increased in recent years. On the other hand, in the unorganized textile sector, employment increased, despite a fall in capital and output, an issue that was in striking contrast with that in the organized textile sector.

Tewari (2008) tried to explore the emerging possibilities of deepening intraregional trade and investment in South Asia by taking the case of textile and clothing industries. Trade data at the two-digit and six-digit level was analyzed along with the conduct of total of 44 interviews in Sri Lanka, Bangladesh and India in July and August 2007 and drew on an additional 16 interviews conducted with global buyers. The study also examined the issue of backward linkages and rules of origin in the various GSP (Generalized System of Preferences) schemes available to the region. Field work in South Asia explored some potential drivers of integration like growing domestic markets, harnessing the growing professionalism, knowledge networks, geographic indication and intellectual property rights in textile and clothing sector, leveraging strategic regulatory shifts and upcoming ‘demands for structural change’ post-2008 to foster greater regional cooperation. It was concluded that encouragement of the expansion of intra-regional investment, FDI and trade in textiles in South Asia, and the careful promotion of technical upgrading in this sector were critical to boosting the regional competitiveness of South Asia’s textile and clothing sector.

Datta and Kouliavtsev (2009) examined the effect of labor wages, tariffs, real exchange rates and NAFTA (North American Free Trade Agreement) on import shares of countries from different regions, in US textile and apparel trade, at the two-digit and four-digit SIC level for the period 1989 to 2001. The study investigated the changing pattern of US textile trade by employing a modified version of the partial equilibrium gravity model. Dummy variables were used to capture the effects of NAFTA on rest of the world. The study found little evidence of trade diversion in
textiles frequently attributed to NAFTA, while trade creation was clearly present. Furthermore, lower wages in some textile-exporting countries (e.g. countries in Asia) did not appear to significantly increase these countries’ shares of US textile imports at the expense of other trading partners. However, variations in currency exchange rates and tariffs had substantial effects on the composition of US imports.

Erumban (2009) compared output, labor productivity and unit labor cost (ULC) levels of Indian manufacturing over the period 1980-2004 with a set of developed and developing countries by linking India into a set of already existing comparisons from the International Labor Organization’s KILM (Key Indicators of Labor Market) data. The study linked India with other countries via a bilateral comparison with Germany. Unit value ratios (UVRs) were derived using International Comparisons of Output & Productivity (ICOP) methodology for the year 2002. The study provided a view on the relative position of the Indian manufacturing in terms of labor productivity along with South Korea, Mexico, Hungary, Poland, Indonesia and Brazil. The study observed that the labor productivity levels in Indian manufacturing were much lower than those of Germany, the US, South Korea, Hungary and Poland, but higher than those of Indonesia, Brazil and Mexico. It was further observed that unit labor cost in Indian manufacturing was the lowest among the countries studied, indicating strong cost competitiveness of Indian manufacturing vis-à-vis the competitors. However, a comparison with China revealed a fast erosion of Indian manufacturing competitiveness both in terms of productivity and unit labor cost. Therefore, it was of high importance for Indian manufacturing to gain better productivity in order to catch up with the frontier countries.

Kannan and Raveendran (2009) analysed the growth trends in India’s organized manufacturing sector at aggregated and disaggregated levels by taking data from Annual Survey of Industries (ASI) for the period 1981-82 to 2004-05 at 3-digit level of industrial classification. The study also examined the employment implications of growth performance in terms of growth in employment as well as the resultant employment elasticities. Job loss was found in two major industry-groups, viz. Food Products and Beverages and Textiles. The study concluded that the higher growth in organized manufacturing during the study period was due to an increase in labor productivity. The share of wages to all employees and workers fell in all the industry-
groups except Wearing Apparel, Dressing and Dyeing of fur which could be due to dismantling of the Multi-Fiber Arrangement governing the export of apparels. There was acceleration in capital intensification at the expense of creating employment. It was observed that a good part of the resultant increase in labor productivity was retained by the employers as the product wage did not increase in proportion to output growth.

A review of available empirical literature on the topic revealed that in post-WTO period, India’s textile exports could not increase much despite the fact that there has been removal of quantitative restrictions in this period. Most of the studies analyzed India’s export performance at HS two-digit level. The present study is unique in the sense that it has also examined the performance of India’s textile exports at HS four-digit level, involving a total of 149 products and suggested measures to improve India’s export competitiveness in textiles in post-MFA era.