CHAPTER IX
SUMMARY, CONCLUSIONS AND IMPLICATIONS

Competitiveness is one of the most powerful concepts in modern economic thinking. As new regions and international trade agreements spring up, nations are torn between the allurement of better access to foreign markets and the fear of new competition in existing markets. Competitiveness is equivalent to strong performance of economies relative to other countries, where strong performance means economic growth, rapid increase in exports and increased well-being. The definition of competitiveness as used by businessmen and the man in the street is simply the capacity to sell one’s products profitably. To be competitive, a firm must be able to undercut the prices or offer products of better quality at the same price than its competitors. (Ockburn, et.al. 1998)

Competitiveness is a measure of a country's advantage or disadvantage in selling its products in international markets. In international trade, competitiveness may be defined as the ability of a country to improve its sales in international and national markets at the expense of its competitors i.e. its edge over competitors in sales. International competitiveness may also be reflected in the success of a country in import substitution in the domestic market in comparison to overseas supplies (Verghese, 1979). The most intuitive definition of competitiveness is “An increase in country’s share for its products in world market”.

A country’s competitiveness is complicated by distinct notions of productive efficiency i.e. its relative efficiency (or comparative advantage) in producing tradable products; and the absolute level of the production costs relative to other countries. While the concept of relative efficiency helps to explain the pattern of international specialization in production; it provides no indication of the overall competitiveness of countries. And while the comparisons of absolute production costs (converted into a common currency
unit) may help to explain the success (or failure) of countries in world markets for individual products, such comparisons are easily distorted by exchange rate changes and are hard to aggregate economy wide (Haque 1979).

Prior to 1980 trade policy of India was guided by objectives like self-sufficiency and self-reliance. But India could not improve its share in world market and share was below 1 percent. So Government of India (GOI) adopted several policies to improve competitiveness of India’s exports-like import liberalization and export led growth etc.

OBJECTIVES OF THE STUDY

In present study, an attempt has been made to find out changes in competitiveness of manufactured exports at international level, at product group level and sources of competitiveness during the period 1980-2005. Therefore, specific objective of the study were:

1. To measure competitiveness of manufactured exports at global level with special reference to India.
2. To find reasons for constant market share of India’s manufactured exports.
3. To measure competitiveness of India’s manufactured exports at product group level.
4. To find out determinants of competitiveness of manufactured exports of India.
5. To critically examine the trade policy of the Government
6. To suggest policy measures for increasing competitiveness of manufactured exports.
Hypotheses of the Study

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

1. Competitiveness of India at global level is increasing.

2. Competitiveness of India’s manufactured exports at product group level is increasing.

3. Commodity diversification has been taking place in manufactured exports of India.

4. Manufactured exports of India have been diverting toward technological intensive products.

5. Manufactured exports of India are diversified to large numbers of markets.

6. India’s manufactured exports are increasing due to favorable world trade effect, commodity composition effect, market distribution effect and competitiveness effect.

Plan of the Study

To meet the objectives, the study has been organized into nine chapters. The first chapter deals with introduction, outlines objectives and plan of the study. The second chapter examines theoretical issues and critically examines the different aspects of competitiveness of exports. The third chapter reviews the literature related to competitiveness of exports. The fourth chapter describes data sources and research methodology. The fifth chapter examines the trends in international competitiveness for 85 countries during the period 1985-2005. The sixth chapter provides an empirical analysis of competitiveness of India’s manufactured exports at product group level. The seventh chapter examines the determinants of its competitiveness of
manufactured exports of India during the time period 1980-81 to 2005-06. The eighth chapter evaluates trade policy of India. The ninth chapter summarizes the study and derives policy implications from the analyses.

**Data Base and Methodology**

The study is based on secondary data covering the period 1980-81 to 2005-06 which were obtained from the following sources:


2. *Economic Survey*, Govt. of India, New Delhi, Different Issues.


5. *UN Comtrade Data*, UN.

6. *Foreign Trade Statistics of Asia and the Pacific*, UN, Various Issues

7. *World Development Indicators*, World Bank, Various Issues

8. *Unctad Handbook of Statistics*, UN, Various Issues


10. *Annual Survey of Industry (ASI)*, CSO, Different Issues

11. *Research and Development Statistics*, Department of Science and Technology (DST), Various Issues


Competitiveness of manufactured exports at global level has been measured for 85 countries at three points of time 1985, 1995 and 2005. To
To measure the competitiveness at global level, various indicators like Export-GDP Ratio, Trade-GDP Ratio, Trade Balance-GDP Ratio, Export-Import Ratio, Trade Balance-Total Trade Ratio, Grubel-Lloyd Index (Intra-industry index), Hirschman Index of Concentration and Herfindhal-Hirschman Index of Diversification have been used. To examine the contribution of the above variables in export competitiveness of the different countries, Factor Analysis technique has been used and on the basis of it composite index has been constructed to find relative positions of countries.

Competitiveness of India’s manufactured exports and its sections has been measured be applying Constant Market Share (CMS) techniques. Constant Market Share (CMS) approach takes into decomposition of total exports into (1) World trade effect, (2) Commodity composition effect, (3) The Market distribution effect and (4) Competitiveness effect. To measure competitiveness of India’s manufactured exports, indicators like Balassa’s Trade Index, Balaasa’s Revealed comparative Advantage Indices, Income, Net barter and Gross barter Terms of Trade, and percentage shares have been used. Hirschman Index of Commodity Concentration has been used to find the commodity diversification and Geographic Index of Concentration has been used to find geographic diversification of manufactured exports. Growth rates of manufactured exports of India at disaggregate level have also been calculated.

To examine the determinants of international competitiveness of India simple and multiple (step-up) regression analysis for total manufactured exports and its sections have been carried out. Competitiveness has been defined in terms of share of export to output, while 7 factors have been considered as (1) Export Profitability Index, (2) Relative Export Prices, (3)
Exchange Rate, (4) Real Effective Exchange Rate, (5) Unit Labour Cost, (6) Share of R&D Expenditure to Output and (7) Share of R&D Expenditure to Total Expenditure.

Findings of the Study

Trends in International Competitiveness

The analysis of international competitiveness in terms of the share of merchandised exports in world revealed that out of 85 countries considered, 12 countries namely Austria, Canada, China, Hong Kong China, India, Ireland, Korea Rep, Malaysia, Mexico, Singapore, Spain and Sri Lanka, had experienced an increase in share in the world exports which indicated an increase in their competitiveness in the world market in 2005 as compared to 1985. United States, Japan & Germany had remained at top 3 positions during period 1985-2005. The position of India in the world had improved from 34 in 1985 to 22 in 2005 out of 85 countries considered.

The analysis of international competitiveness in terms of export-GDP ratio revealed that out of 85 countries considered, 52 countries experienced an increase in export-GDP ratio, indicating improvement in competitiveness of countries in 2005 as compared to 1985. Singapore had remained at highest position during period. Countries experiencing highest increase in export-GDP ratio included Hong Kong China followed by Zimbabwe, Malaysia and Thailand. Position of India in the world had improved from 84 in 1985 to 77 in 2005 out of 85 countries considered.

International competitiveness in terms of trade-GDP ratio revealed that out of 85 countries considered, 55 countries had experienced increase in share of trade to GDP indicating more trade liberalization in 2005. Singapore remained at highest position during period 1985-2005. Countries which experienced rapid increase in share included Zimbabwe, Malaysia, Thailand and United Arab Emirates. Position of India had improved slightly from 85 in 1985 to 81 in 2005 out of 85 countries considered.
The study of competitiveness in terms of **trade balance as a percentage of GDP** showed that India could not improve its competitiveness during the period 1985-2005. Trade balance as percentage of GDP of India was found to be in deficit during the period (i.e. -3.20 in 1985, -1.16 in 1995 and -4.93 in 2005). As compared to 1985, of 85 countries considered, 27 countries experienced improvement in the share of trade balance to GDP indicating increase in competitiveness of countries. Singapore experienced highest increase in trade balance (surplus) to GDP followed by Ireland, Algeria and Papua New Guinea.

The examination of competitiveness in terms of **export/import ratio** revealed that of 85 countries considered, 22 countries had experienced increase in ratio of exports to imports in 2005 indicating improvement in competitiveness of countries. India’s export/import ratio was found to be less than one during the period and deteriorated in 2005 as compared to 1985.

The analysis of competitiveness in terms of **ratio of net trade to total trade** showed that India was having competitive disadvantage/loss during the period (as ratio was found to be -0.27 in 1985, -0.06 in 1995 and -0.17 in 2005). Of 85 countries considered, 21 countries experienced increase in competitiveness, while 6 countries experienced loss in competitiveness in 2005 as compared to 1985.

The examination of competitiveness in terms of **intra industry trade (IIT)** showed that of 85 countries considered most of countries experienced increase in IIT in 2005 as compared to 1985 indicating increase in competitiveness of countries

**Concentration index** as a measure of competitiveness revealed that of 85 countries considered, 19 countries diversified their export markets in 2005. These countries included Bolivia, Canada, Costa Rica, Dominican Republic, El Salvador, Finland, Honduras, Indonesia, Japan, Jordan,
Mexico, Nepal, Netherlands, Nicaragua, Paraguay, Poland, South Africa, Tunisia and United Arab Emirates.

**Diversification index** as a measure of competitiveness revealed that during 1985-2005, countries namely Germany, Korea Rep, Hungry, Mexico, Portugal, Thailand, United Kingdom, United States, Italy, Japan, Belgium, Austria, Netherlands, Poland, France and Spain had the most diversified export base in world. Countries namely India, Indonesia, Nepal, South Africa, Chile and Australia had not very diversified export base to begin with, and position didn’t improve much during the period 1985-2005.

Competitiveness on the basis of share of manufactured exports in total exports of countries revealed that of 85 countries considered, 65 countries experienced increase in share of manufactured exports in their total exports indicating increase in competitiveness in 1985 as compared to 2005. Philippines experienced highest increase in share followed by Dominican Republic. Japan remained at top position in 1985 as well as in 2000. Though India’s manufactured export share in its total exports increased from 58 percent in 1985 to 70 percent in 2005, but India could not improve its position in world (as position dropped from 27 in 1985 to 35 in 2005 in world).

The analysis of the share of chemicals exports in their total export of 85 countries showed that 46 countries experienced increase in share of chemicals exports indicating increase in competitiveness in chemicals exports. Ireland experienced highest increase in share followed by Belgium and Switzerland. Of 85 countries considered, the position of India in terms of share of chemicals exports had improved from 35 in 1985 to 15 in 2005 indicating increase in competitiveness in chemicals.

The analysis of share of machinery & transport equipment exports in their total exports of 85 countries showed that 48 countries experienced increase in share in 2005 indicating increase in competitiveness of these countries. Japan had remained at top position in 1985 as well as in 2000.
2005, position of Philippines improved from 32nd in 1985 to 1st in 2005. India couldn’t improve its position in terms of share of Machinery and Transport Equipment exports as position of India deteriorated from 34 in 1985 to 40 in 2005.

The analysis of the share of other manufactured goods exports in their total export of 85 countries showed that 30 countries experienced increase in share in ‘Other manufactured goods’ indicating increase in competitiveness in 1985 as compared to 2005. Of 85 countries considered, the position of Haiti dropped from 2nd position in 1985 to 46th position in 1995, but again attained top position in 2005. Position of India had slightly improved from 11th position in 1985 to 9th position in 2005.

Competitiveness of manufactured exports on the basis of revealed comparative advantage (RCA) for 85 countries depicted that 18 countries experienced increase in revealed comparative advantage in manufactured exports in 2005 as compared to 1985. India attained revealed comparative advantage in manufactured exports in 2005 (as RCA increased from 0.98 in 1985 to 1.04 in 2005).

Rank correlation coefficient showed that in terms of all the above variables only smaller changes have been observed in position of all the considered countries (85 countries) and position of countries did not undergo major changes.

In order to find out the important variables leading to competitiveness of selected 85 countries, the technique of Factor Analysis has been used. Three factors were derived from the selected 12 variables. Factor 1 included variables like ratio of trade balance to GDP (TB/GDP), ratio of exports to imports (X/M), ratio of trade balance to total trade (TB/TT) and share of manufactured exports in merchandised exports (Mx/X). This factor is the mix of self-sufficiency and structure of trade related variables.
Factor 2 included variables like intra industry trade (IIT), revealed comparative advantage (RCA), share of chemicals in total exports \((C_x/X)\), share of machinery & transport equipments in total exports \((MT_x/X)\), share of other manufactured goods in total exports \((OM_x/X)\) and share in world merchandise exports \((X/WX)\). This factor included those variables which reflected competitiveness of countries in terms of efficiency and structure of trade.

Factor 3 associated with the variables like ratio of exports to GDP \((X/GDP)\) and ratio of trade to GDP \((T/GDP)\). This factor included openness and globalization related variables.

In 1985, the most competitive country was found to be Japan followed by Hong Kong, China, Switzerland, Germany, Korea, Rep., Italy, Sweden, Belgium, France and Hungary. In 2005, Singapore was found to be the most competitive country followed by Germany, Ireland, Kuwait, Hong Kong, China, Malaysia, China, Japan, Saudi Arabia and Belgium.

Position of India in world could not improve and its rank deteriorated from 33rd in 1985 to 41st in 2005.

By comparing the ranks for the year 2005 with ranks for 1985, it was found that there was improvement in ranks of 35 countries, deterioration in the ranks of 47 countries and ranks of 3 countries (Peru, Tunisia, United Arab Emirates) remained the same.

Thus, it has been found that Singapore is the most competitive country of 85 countries considered in 2005. Germany is at 2nd position followed by Ireland (3rd), Kuwait (4th), Hong Kong, China (5th), Malaysia (6th), China (7th), Japan (8th), Saudi Arabia (9th) and Belgium (10th). Least competitive country has been found to be Burkina Faso in 2005. India is at middle position (41st) of the considered countries.
Competitiveness of India’s Manufactured Exports

To find out contribution of world trade effect, commodity composition effect, market distribution effect and competitiveness effect, constant market share analysis has been. The results of decomposition analysis (constant market share analysis) showed that world trade effect on India’s export growth had been favorable during the all the sub-periods. The commodity composition effect was slightly favorable only during the sub-period 1990-2000, but it was unfavorable during the sub-period 1980-90 and 1990-2005. Market distribution effect, though was unfavorable during the first sub-period, it turned out to be highly favorable during second sub-period and thus also for the third sub period. Contrary to this, competitiveness effect was favorable only during the first sub-period, turned out to be highly unfavorable during second and third sub-period.

Thus in terms of CMS model, market distribution effect and world trade effect have largely contributed to growth of India’s total exports.

In respect of total manufactured exports, the picture turned out to be largely different, especially during the second and third sub-period. The three components i.e. world trade effect, commodity composition effect and competitiveness effect were favorable during first sub-period, but market distribution effect was somewhat unfavorable. During second and third sub-period, world trade effect and competitiveness effect contributed favorably to growth of exports, while market distribution effect remained unfavorable during second sub-period and also the third sub-period. The commodity composition effect was marginally favorably in second sub-period, but turned unfavorable for third sub period.

This revealed that manufactured exports of India remained competitive and non-manufactured exports might have been uncompetitive, rendering the competitiveness effect unfavorable during the second and third sub-period for total exports.
During all the periods, world trade effect was found to be favorable for all the sections considered indicating that India had maintained its export share in the foreign market, vis-à-vis world. During the period 1980-90 and 1990-2000, commodity composition effect was found to be favorable for all the sections except Basic Manufactured exports indicating that India had concentrated on export commodities whose markets were growing relatively fast. Market distribution effect was found to be favorable for Machinery & Transport Equipment for all periods indicating that export of these product groups were concentrated on relatively fast growing markets. The competitiveness effect was found to be favorable for Basic Manufactured exports and Miscellaneous Manufactured Goods at all the three periods of time indicating improved position of exports in terms of competitiveness. The competitiveness effect was found to be unfavorable for Machinery and Transport Equipment during the period 1980-90 and 1990-2000 and for Chemicals during the period 1990-2000 and 1990-2005. This indicated the need for improving competitiveness in Machinery & Transport Equipments and Chemicals.

Analysis of competitiveness in terms of growth rates of manufactured exports and its various sections revealed that all the considered manufacturing sections-Chemicals, Basic Manufactured Exports, Machinery & Transport Equipment and Miscellaneous Manufactured Goods experienced increase in growth rates during 1992-2005 indicating improvement in competitiveness. However, section ‘Chemicals’ experienced significant increase in competitiveness followed by ‘Miscellaneous Manufactured Goods’, ‘Basic Manufactured Exports’ and ‘Machinery & Transport Equipment’ indicating these to be competitive.

Product group-wise analysis revealed that exports of Chemical section increased at the rate of 9.03 percent per annum during 1980-2005. Within this section, of the 24 product groups considered, 14 product groups experienced increase in growth rate of export during 1992-2005 period.
indicating improvement in competitiveness. However, significant increase in competitiveness was experienced by ‘Starch, Insulin, Gluten, etc’ (SITC 592) followed by ‘Other Organic Chemicals’ (SITC 516) during 1992-2005 as compared to the period 1980-90.

In case of Basic Manufactured Exports section, export increased at the rate of 1.91 percent per annum during 1980-2005 only due to negative growth rate during pre-reform period. Within this section, growth rates of ‘Copper excluding Cement Copper’ (SITC 682), ‘Paper, etc, Precut, Arts Of’ (SITC 642), ‘Base Materials Household Equipments’ (SITC 697), ‘Materials of Rubber’ (SITC 621), ‘Rubber Articles n.e.s’ (SITC 628), ‘Wood Manufactures n.e.s’ (SITC 635) and ‘Glass’ (664) increased rapidly during 1992-2005 as compared to the period 1980-90.

In case of Machinery & Transport Equipment, exports increased at the rate of 4.24 percent per annum during 1980-2005. Within this section, of 45 product groups, growth rates increased significantly in case of ‘Ships and Boats’ (SITC 793), ‘Nonelectric Machine parts, Acc n.e.s’ (SITC 749), ‘Steam Engines, Turbines’ (SITC 712), ‘Tractors Non-Road’ (SITC 722), ‘Civil Engineering Equipment etc’ (SITC 723) and ‘Metal Working Machinery n.e.s’ (SITC 737), indicating improvement in competitiveness during post-reform period as compared to pre-reform period.

In Miscellaneous Manufactured Goods, exports increased at the rate of 3.49 percent per annum during 1980-2005. Within this section, of 28 product groups considered, growth rates increased significantly in case of ‘Meters and Controlling Instruments’ (SITC 873), ‘Furniture, Parts Thereof’ (SITC 821), ‘Optical Goods n.e.s’ (SITC 884), ‘Works of Art etc’ (SITC 896), ‘Medical Instruments n.e.s’ (SITC 872) and ‘Other Manufactured Goods’ (SITC 899) indicating improvement in competitiveness.

Section-wise analysis of competitiveness in terms of market share revealed that all the considered sections experienced increase in market shares in 2005 as compared to 1980 indicating increase in competitiveness.
However, competitiveness increased significantly in case of ‘Basic Manufactured Exports’ followed by ‘Chemicals’, ‘Miscellaneous Manufactured Goods’. Though market share of ‘Machinery & Transport Equipment’ increased from 0.12 percent in 1980 to 0.30 percent in 2005, but it is still negligible.

Analysis of competitiveness in terms of market share of chemicals in world showed that competitiveness of chemicals had been increasing since 1985 with continuous increase in market share. The study also revealed that India had always remained competitive in the product ‘Synthetic Organic Dyestuffs, etc. Natural Indigo & Colour Lakes’ (SITC 531). India experienced increase in competitiveness in 20 chemical products out of 24 such products considered in 2005 as compared to in 1980. However, significant increase in competitiveness had been witnessed in 5 products in 2005 as compared to 1980. These products included ‘Other Organic Chemicals’ (SITC 516), ‘Synthetic Organic Dyestuffs, etc. Natural Indigo & Colour Lakes’ (SITC 531), ‘Pesticides, Disinfectants’ (SITC 591), ‘Polymerization and Copolymerization Products’ (SITC 583) and ‘Hydrocarbons n.e.s & their Halogen & etc. Derivatives’ (SITC 511). Rank correlation coefficient between the shares of different chemical products increased from 0.296 during 1980-1995 to 0.310 during 1990-2005 indicating marginal improvement in structure of competitiveness.

In case of Basic Manufactured Exports market share had been increasing since 1980 indicating increase in competitiveness. Of 50 products considered, India experienced increase in market share in 35 products (i.e. 71 percent) indicating increase in competitiveness in 2005 as compared to 1980. India experienced rapid increase in competitiveness in 7 products. Rank correlation coefficient increased during 1990-2005 (i.e. 0.788) as compared to 1980-1995 (i.e. 0.622) indicating improvement in structure of competitiveness.
In case of Machinery & Transport Equipment marginal improvement in competitiveness had been observed. Within this section, all products experienced less than 1 percent market share till 2000 (except ‘Cycles, etc Motorized or Not’). India experienced marginal increase in market share in 41 products out of 45 such products indicating little increase in competitiveness till 2000. However, India experienced significant increase in competitiveness in 4 products only namely ‘Nonelectric, Machine parts, Acc n.e.s’ (SITC 749), ‘Tractor Non-Road’ (SITC 722), ‘Ships and Boats’ (SITC 793) and ‘Steam Boilers & Aux Plant’ (SITC 711). Rank coefficient correlation revealed that no improvement in structure of competitiveness had been observed as rank correlation coefficient decreased during 1990-2005 (i.e. 0.427) as compared to 1980-2005 (i.e. 0.636) and 1980-95 (0.467).

In case of Miscellaneous Manufactured Goods, competitiveness had been increasing since 1980 with persistent increase in market share. Within this section, India experienced increase in market share in 24 products out of 28 such products indicating increase in competitiveness in 2005 as compared to 1980. India had always remained competitive in commodity ‘Under Garments not Knit’ (SITC 844) during period 1980-2005. Rank correlation coefficient revealed that competitiveness between the shares of different Misc. Manufactured Goods product groups had improved marginally (i.e. 0.796) during period 1990-2005 as compared to 1980-1995 (i.e. 0.745).

The analysis of competitiveness in terms of share of manufactured exports in total exports revealed that the export shares of ‘Chemicals’, ‘Machinery & Transport Equipment’, and ‘Miscellaneous Manufactured Goods’ increased during the period 1980-2005 indicating increase in competitiveness in these sections. India has always remained competitive in section ‘Basic Manufactured Exports’ followed by ‘Miscellaneous Manufactured Goods’ during the period 1980 to 2005.

The analysis of competitiveness in terms of share of different section in total manufactured exports showed that share of ‘Chemicals’ increased
rapidly from 6.98 percent in 1980 to 16.15 percent in 2005 indicating increase in competitiveness, while share of ‘Basic Manufactured Exports’ decreased rapidly indicating loss in competitiveness. Some competitiveness gain occurred in case of ‘Machinery & Transport Equipments’ and ‘Miscellaneous Manufactured Goods’.

Competitiveness measured in terms of technological intensity of exports revealed that, in manufactured exports, exports constituted major share at the low end of the technology spectrum. As ‘Natural Resource Intensive’ and ‘Unskilled Labour Intensive’ were the two dominant categories in India’s manufactured export basket constituting 40 percent share in 1980 and 34 percent in 2005. ‘Physical Capital Intensive’ products experienced competitive gain (as share increased from 6 percent in 1980 to 16 percent in 2005). There had been some increase in the total share of ‘Technology Intensive’ products (i.e. share increased from 3.4 percent in 1980 to 8.3 percent in 2005) indicating increase in competitiveness.

The analysis of the competitiveness in terms of share of different products groups in exports of ‘Chemicals’ section revealed that the structure of exports of this section had undergone significant changes during 1980 to 2005 indicating change in competitiveness. Of 24 product groups considered 11 products (46 percent) had experienced increase in export share indicating increase in competitiveness. The share of ‘Medical and Pharmaceutical products’ (SITC 541) had remained at competitive position during period though share decreased rapidly (from 34.72 percent in 1980 to 24.09 percent in 2005). Product group ‘Other Organic Chemicals’ (SITC 516) had experienced significant increase in competitiveness with rapid increase in share. Rank Correlation Coefficient improved from 0.331 percent during 1980-1995 to 0.561 during 1990-2005 indicating improvement in competitiveness.
In case of section ‘Basic manufactured Exports’ export shares of four commodities namely ‘Textile Yarn’ (SITC 651), ‘Pearl, precious -semi-precious stone’ (SITC 667), ‘Iron, steel, univ. Plate, sheet’ (SITC 674), ‘Copper except cement copper’ (SITC 682) increased rapidly in 2005 as compared to 1980 indicating massive improvement in competitiveness. India had always remained competitive in commodity ‘Pearl, precious -semi-precious stone’ (SITC 667). However as compared to 1980 India lost its competitiveness in ‘Cotton Fabrics, Woven’ (SITC 652), ‘Other Woven, Textile Fabrics’ (SITC 654) and ‘Leather’ (SITC 611) in 2005. Rank correlation coefficient though high increased from 0.676 during 1980-1995 to 0.813 during 1990-2005 indicating improvement in competitiveness.

Within section ‘Machinery & Transport Equipment’ export shares of ‘passenger Motor Vehicles excluding Buses’ (SITC 781), ‘Ships and Boats’ (SITC 793), ‘Other Machinery for Specialized Industries’ (SITC 728), ‘Office, Automatic Data Processing Parts, Accessories’ (SITC 759) and ‘Non electric Machine parts, Accessories. n.e.s’ (SITC 749), increased indicating improvement in competitiveness in 2005 as compared to 1980. India had always remained competitive in the commodity ‘Motor Vehicles parts, Accessory’s n.e.s’ (SITC 784). ‘Non electric Machine parts Accessories. n.e.s’ (SITC 749) experienced significant increase in competitiveness. ‘Machine Tools and Metal’ (SITC 736) experienced rapid decrease in competitiveness. Rank Correlation Coefficient though high improved marginally from 0.563 percent during 1980-1995 to 0.612 percent during 1990-2005 indicating marginal increase in competitiveness.

Within section ‘Miscellaneous Manufactured Goods’, India achieved significant increase in competitiveness in ‘Gold, Silverware, Jewellery’ (SITC 897). India had remained competitive in ‘Women-outerwear Nonknit’ during the period 1980 to 2005. India suffered from massive competitive loss in ‘work of Art Etc’ (SITC 896) (as share decreased from 15.13 percent in 1980 to 0.28 percent in 2005). Rank correlation coefficient though high
significantly increased from 0.671 during 1980-1995 to 0.883 during 1990-2005 indicating improvement in competitiveness.

Competitiveness measured in terms of revealed comparative advantage of manufactured exports showed that there was a positive shift in RCA in section ‘Chemicals’. India also experienced increase in competitiveness in case of ‘Basic Manufactured Exports’. India could not attain competitiveness in Machinery & Transport Equipment’.

Within chemical section, there was a positive shift in competitive advantage in case of 11 product categories. However, significant increase in competitive advantage has occurred in three product groups namely ‘Other Organic Chemicals’ (SITC 516), ‘Pesticides, Disinfectants’ (SITC 591) and ‘Synth. Organic Dyestuffs, etc. Natural Indigo & Colour Lakes’ (SITC 531). While a negative shift has occurred in 3 product groups namely ‘Perfumery, Cosmetic and Toilet Preparations’ (SITC 553), ‘Soap, Cleansing and Polishing Preparations’ (SITC 554), ‘Medicinal and Pharmaceutical Products’ (SITC 541) in 2005 as compared to 1980 indicating competitive disadvantage.

Within the section Basic Manufactured Exports, India exhibited a positive shift in competitive advantage in 14 (24 percent) products during 1980-2005. However, significant increase in competitive advantage has occurred in six products namely ‘Iron, Steel Castings Unworked’ (SITC 679), ‘Pearls, Precious, Semi-p Stone’ (SITC 667), ‘Lime, Cement, Building products’ (SITC 661), ‘Textiles Yarn’ (SITC 651), ‘Iron, Steel Primary forms’ (SITC 672) and ‘Floor Coverings, etc’ (SITC 659) with the rapid increase in value of RCA. Product groups experienced rapid decrease in competitive advantage included ‘Leather’ (SITC 611), ‘Leather etc. Manufactures’ (SITC 612), ‘Cotton Fabrics, Woven’ (SITC 652), ‘Other Woven Textile Fabric’ (SITC 654) and ‘Textile Articles n.e.s’ (SITC 658) in 2005 as compared to 1980.
In case of Machinery and Transport Equipment section, India showed a marginal positive shift in competitive advantage in four products only namely ‘Nonelectric Machine parts, Acc n.e.s’ (SITC 749), ‘Tractors Non-Road’ (SITC 722), ‘Ships and Boats’ (SITC 793), and ‘Lorries, Special Motor Vehicles n.e.s’ (SITC 782) indicating marginal increase in competitive advantage, while a negative shift occurred in case of 4 products namely ‘Food Machinery Non-Domestic’ (SITC 727), ‘Road Motor Vehicles n.e.s’ (SITC 783) and ‘Railway Vehicles’ (SITC 791) indicating competitive disadvantage in 2005 as compared to 1980.

Within section Miscellaneous Manufactured Goods, India had a positive shift in competitive advantage in 8 products. However, significant increase in competitive advantage has occurred in ‘Gold, Silverware, Jewellery’ (SITC 897) and ‘Undergarments Knitted’ (SITC 846), while, products ‘Womens Outerwear Nonknit’ (SITC 843), ‘Under Garments Not Knit’ (SITC 844), ‘Textile Clothing Acces n.e.s’ (SITC 847) and ‘Developed Cinema Film’ (SITC 883) experienced rapid decline in competitive advantage. A negative shift has occurred in products namely ‘Works of Art etc’ (SITC 896) and ‘Optical Good n.e.s’ (SITC 884 in 2005 as compared to 1980.

Section-wise analysis of competitiveness in terms of **Balassa trade index** revealed that India was found to be competitive only in ‘Miscellaneous Manufactured Goods’ and ‘Basic Manufactured Exports’ in most of the years. India experienced increase in competitiveness only in ‘Basic Manufactured Exports’ (as index increased from 0.03 in 1980 to 0.23 in 2005). Though competitive advantage was found to be highest in ‘Miscellaneous Manufactured Goods’, but India experienced decrease in competitiveness in this section during the period (as index decreased from 0.61 in 1980 to 0.51 in 2005). India could not obtain competitiveness in ‘Machinery & Transport Equipment’ during the period. In case of total
manufactured exports, competitive advantage was found to be only in 1995 and 2000.

Competitiveness measured in terms of Balassa trade index showed that within chemicals section product groups namely ‘Synthetic Organic Dyestuffs, etc. Natural Indigo & Colour Lakes’ (SITC 531), ‘Essential Oils, Perfume and Flavor Materials’ (SITC 551) and ‘Perfumery, Cosmetics and Toilet Preparations’ (SITC 553) had always remained competitive. Competitive advantage increased rapidly for ‘Medical and Pharmaceutical products’ (SITC 541), ‘Essential Oils, Perfume and Flavor Materials’ (SITC 551), ‘Pesticides, Disinfectants’ (SITC 591) and ‘Starch, Insulin, Gluten, etc’ (SITC 592).

Within Basic Manufactured Exports section, of 50 product groups considered, India experienced competitive advantage in 15 product groups. However, 3 product groups experienced significant competitive advantage namely ‘Lime, Cement, Bldg Prods’(SITC 661), ‘Cotton Fabrics, Woven’ (SITC 652), and ‘Iron Steel Casting Unworked’ (SITC 679).

In case of section Machinery and Transport Equipment, of 45 product groups considered, India experienced increase in competitive advantage in 6 (13 percent) product groups. However, India experienced significant competitive advantage in ‘Tractors Non-Road’ (SITC 722), ‘Pass Motor Vehicles Excluding Buses’ (SITC 781) and ‘Lorries, Special Motor Vehicles n.e.s’ (SITC 782).

Within section Miscellaneous Manufactured Goods, of 27 product groups considered, India was found to be competitive in 13 product groups. India experienced rapid decrease in competitive advantage in ‘Furniture, Parts Thereof’ (SITC 821), ‘Toys Sporting Goods etc’ (SITC 894). India lost competitiveness in ‘Plumbs Heating, Lighting Equipments’ (SITC 812) as index decreased rapidly from 0.973 in 1980 to -0.12 in 2005.
Competitiveness measured in terms of gains from trade showed that Net barter TOT improved at significant rate during pre-reform period and for whole the period, but deteriorated at non-significant rate during post-reform period indicating loss in competitiveness during post-reform period due to small increase in prices of exports, but larger increase in prices of imports. Gross barter TOT improved at non significant rate during pre-reform period and post-reform period, but deteriorated at non-significant rate during whole period indicating that India has to export more to get same bundle of imports. Income TOT improved at significant rate during pre-reform, post-reform and for the whole period. During 1980-2005, competitiveness improved significantly in terms of income TOT as compared to net barter and gross barter TOT indicating increase in purchasing capacity of imports. Section-wise analysis revealed that competitiveness improved in case of ‘Chemicals’ and ‘Basic Manufactures’ in terms of income TOT as compared to net barter and gross barter TOT.

Competitiveness measured in terms of Hirschman index of commodity concentration depicted that in 2005 as compared to 1980, sections namely ‘Chemicals, Related products’, ‘Machinery & Transport Equipment’ and ‘Miscellaneous Manufactured Goods’ experienced diversification in the structure of exports indicating increase in competitiveness of exports. While, value of index for ‘Basic Manufactured Exports’ increased during 1980-2005, indicating exports starts concentrating only in few product groups.

Competitiveness measured in terms of geographic concentration of manufactured exports revealed that as compared to 1980, all the considered 4 sections namely exports of Chemicals, Basic Manufactured Exports, Machinery & Transport Equipment and Miscellaneous Manufactured Goods experienced increase in the value of the geographic concentration index in 2005 indicating exports of these sections are concentrated to few markets.
Determinants of Manufactured Export Competitiveness of India

To study effect of different variables on export competitiveness, we have defined export competitiveness as share of exports to output. Various variables which affected the export competitiveness included Export Profitability Index (EPI), Relative Export Prices (REP), Exchange Rate (ER), Real Effective Exchange Rate (REER), Unit Labour Cost (ULC), Share of R&D Expenditure to Output (R&D/O) and Share of R&D Expenditure to Total Expenditure (R&D/T). Of these variables, certain variables namely Exchange rate and REER were common for all total exports as well as manufactured exports and its sub-sections (Chemicals, Textiles, Machinery & Transport Equipment, Non-Metallic Minerals and Other Manufactured Goods).

The results of simple regression analysis revealed that variable Exchange Rate positively and significantly affected the Total Exports, Total Manufactured Exports and exports of Textiles, while for all other categories of exports, it turned out to be non-significant. REER negatively and significantly affected the exports of Textiles, Non-Metallic Minerals, whereas for all other categories it non-significantly affected the export competitiveness. Export Profitability turned out to be positive and significant in case of Textiles and Non-Metallic minerals, while it was found to be non-significant in case of all other categories. Relative Export Prices negatively and significantly affected the export competitiveness only in case of total exports, while it turned out to be non-significant in case of all other categories. Unit Labour Cost was found non significant in case of all categories. Share of R&D Expenditure to Output negatively and significantly affected Total Manufactured Exports, while positively and significantly affected Other Manufactured Goods. Whereas, it non-significantly affected export competitiveness of all other categories. R&D/T negatively and significantly affected the export of Chemicals, while it turned out to be non-significant in case of all other variables.
The results of multiple (step-up) regression showed that the most important combination for total exports were found to be Exchange Rate, Unit Labour Cost and Share of R&D/O. Exchange rate was found to be the most important variable affecting export competitiveness of manufactured goods as it significantly and positively affected export competitiveness. The combination of Exchange Rate, Share of R&D Expenditure to Output, REER, Unit Labour Cost and Relative Export Prices were found to be most important affecting export competitiveness of chemicals. The combination of Exchange Rate, REER and Relative Export Prices were found to be the most important affecting export competitiveness of Textiles. The most important combination affecting export competitiveness of Other Manufactured Goods were found to be Share of R&D Expenditure Total Expenditure, Export Profitability and REER. The combination of Relative Export Prices, REER, Exchange Rate, Export Profitability and Unit Labour Cost were found to be most important variables affecting export competitiveness of Non-Metallic Minerals.

Thus, the results revealed that Exchange Rate, REER and Relative Export Prices (prices related variables) were significant variables in explaining export competitiveness of most of sections of manufactured exports.

On the basis of the analysis carried out in the study, following hypotheses are accepted.

1. India is less competitive at global level and its position deteriorated from 33rd in 1985 to 41st in 2005.

2. Commodity diversification has been taking place in manufactured exports of India.

3. Manufactured Exports are not diversified to large numbers of markets.

4. India’s manufactured exports are increasing only due to world trade effect and competitiveness effect (out of 4 components), but its
market distribution effect is unfavorable. However, competitiveness effect of Chemicals and Machinery & Transport Equipment is unfavorable.

The hypothesis i.e. competitiveness of India’s manufactured exports at disaggregated level is increasing cannot be conclusively accepted or rejected. As India has gained competitiveness in number of product groups, but India has also lost competitiveness in some product groups.

The hypothesis i.e. manufactured exports of India have been diverting toward technological intensive products can not be conclusively rejected. Though manufactured exports, constituting major share were at the low end of the technology spectrum as ‘Natural Resource Intensive’ and ‘Unskilled Labour Intensive’ are two major categories, but there has been some increase in the total share of ‘Technology Intensive’ products.

**Future Prospects**

The present study has been conducted to examine the competitiveness of manufactured exports. There is further scope for future competitiveness gain in the exports of sections Chemicals, Machinery & Transport Equipment’, Miscellaneous Manufactured Goods and Basic Manufactured Exports.

On the basis of revealed comparative advantage indices it has been found that at disaggregate level, there is scope for future competitiveness gain in the export product group namely ‘Hydrocarbons n.e.s., & their Halogen & etc. Derivatives’ (SITC 511), ‘Alcohols, Phenols, Phenol-Alcohols, & their Derivatives’ (SITC 512), ‘Other Organic Chemicals’ (SITC 516), ‘Synth. Organic Dyestuffs, etc. Natural Indigo & Colour Lakes’ (SITC 531), ‘Dyeing & Tanning Extracts; Synth. Tanning Materials’ (SITC 532), ‘Polymerization and Copolymerization products’ (SITC 583), and ‘Pesticides, Disinfectants’ (SITC 591). Within Basic Manufactured exports, there is scope for future gain in product groups like ‘Textiles Yarn’ (SITC
Within Machinery & Transport Equipment section, there is scope for future gain in product groups namely ‘Tractors Non-Road’ (SITC 722) ‘Nonelectric Machine parts, Acc n.e.s’ (SITC 749) ‘Lorries, Special Motor Vehicles n.e.s’ (SITC 782), ‘Ships and Boats’ (SITC 793). Within Miscellaneous Manufactured Goods, there is scope for future gain in product groups namely ‘Travel Goods, Handbags’ (SITC 831), ‘Men’s Outerwear not Knit’ (SITC 842), ‘Outerwear Knit Nonelastic’ (SITC 845), ‘Undergarments Knitted’ (SITC 846), ‘Non Textile Clothing, Acces, Hats’ (SITC 848) and ‘Gold, Silver Ware, Jewellery’ (SITC 897).

**Conclusions and Implications**

India’s share of total exports in world is very low. Though India’s share in world exports increased from 0.47 percent in 1985 to 1.10 percent in 2006 and India’s position in terms of share in world exports improved from 34th in 1985 to 22nd in 2005 out of 85 countries considered. But still India has been found to be less competitive in manufactured exports as compared to the other advanced countries (i.e. Austria, Finland, France, Germany, United Kingdom, and United States). To attain competitiveness at global level is an urgent need of each nation. Technology upgradation, quality exports, dynamic business skill, total commitment to client needs, are prerequisites to increase in the share of India’s exports to a respectable level in world.

At disaggregate level, the study concluded that share of technology based products in manufactured exports of India was found to be least as compared to the share of ‘Unskilled Labor Intensive’, ‘Natural Resources Intensive’, ‘Human Capital Intensive’, ‘physical Capital Intensive’. Share of technology intensive trade in world trade has been steeply increasing in recent years, generally dominated by developed countries. India’s share of
technology intensive products in manufactured exports is only 12 percent in 2005. This could largely be attributable to lesser export orientation coupled with low technology exports of Indian manufacturing sector. Since technology export is crucial for sustainable export growth rate, there is an urgent need to strengthen the existing mechanism and provide innovative support measures and incentives so as to promote technology exports, i.e. export of know-how, turnkey projects, capital goods, etc (Puri, 2007). To be competitive in world market, share of technology based products should be increased. Technology intensive exports may be encouraged through a new policy, motivations and support mechanisms.

Share of ‘Perfumery, Cosmetic and Toilet preparation’ (SITC 553), ‘Soap, Cleansing and Polishing Preparations’ (SITC 554), ‘Leather’ (SITC 611), ‘Cotton Fabrics, Woven’ (SITC 652), ‘Other Woven, Textile Fabrics’ (SITC 654), ‘Internal Combustion PSTN Engine’ (SITC 713), ‘Cycle, etc Motorized or Not’ (SITC 785), and ‘Works of Arts Etc’ (SITC 896) in total exports has decreased. Up gradation of technology and technical know how is required to curtail the downward trends in these product groups.

Competitiveness effect of Chemicals was found to be unfavorable during 1990-2000 and 1990-2005. There is need to increase export of ‘Carboxylic Acids, & Their Anhydrides, Halides, Etc’ (SITC 513), ‘Organo-Inorganic And Heterocyclic Compounds’ (SITC 515), ‘Inorganic Chemicals Elements, Oxides & Halogen Salts’ (SITC 522), ‘Pigments, Paints, Varnishes & Related Materials’ (SITC 533), ‘Perfumery, Cosmetics and Toilet Preparations’ (SITC 553), ‘Soap, Cleansing and Polishing Preparations’ (SITC 554), ‘Fertilizers, Manufactured’ (SITC 562), ‘Explosives And Pyrotechnic Products’ (SITC 572) ‘Polymerization and Copolymerization products’ (SITC 583), ‘Regenerated Cellulose; Cellulose Nitrate, etc’ (SITC 584) and ‘Plastic Material n.e.s’ (SITC 585) to increase competitiveness of chemical section. Export intensive policy should be undertaken from time to time to increase exports of these product groups. According to All India
Manufacturers Organization (AIMO), in Chemical sector, the octroi duty and sales tax paid at intermediate stages make our product costlier and uncompetitive. Therefore, it is required to abolish sales tax and octroi on the raw materials, packing materials, machinery and spares used for export production. Over and above this, the high cost of transportation, especially in the chemical sector and the poor infrastructure facilities available at ports is adding more financial burden on the exporting community. Further, India should stress on the exports of products groups wherein it has competitive advantage like ‘Hydrocarbons n.e.s. & Their Halogen. & Etc. Derivatives’ (SITC 511), ‘Alcohols, Phenols, Phenol-Alcohols, & Their Derivatives’ (SITC 512), Nitrogen-Function Compounds’ (SITC 514), ‘Other Organic Chemicals’ (SITC 516), ‘Other Inorganic Chemicals’ (SITC 523), ‘Synth. Organic Dyestuffs, etc. Natural Indigo & Colour Lakes’ (SITC 531), ‘Dyeing & Tanning Extracts; Synth. Tanning Materials’ (SITC 532), ‘Medicinal and Pharmaceutical Products’ (SITC 541), ‘Condensation, Polycondensation & Polyaddition Products (SITC 582), ‘Polymerization and Copolymerization products’ (SITC 583), and ‘Pesticides, Disinfectants’ (SITC 591).

Competitiveness effect of Machinery & Transport Equipment was found to be unfavorable during 1980-90 and 1990-2000. India’s performance in Machinery & Transport Equipment’s exports is not impressive as compared to other manufactured sections. But, India has potential to increase competitiveness in product groups namely ‘Tractors Non-Road’ (SITC 722), ‘Nonelectric Machines Parts, Acc n.e.s’ (SITC 749), ‘Lorries, Spcl Motor Vehicles n.e.s’(SITC 782) and ‘Ships And Boats’ (SITC 793) in which it has competitive advantage. To increase competitiveness of Chemicals and Machinery & Transport Equipment, there is an urgent need for further diversifying India’s export basket towards high quality goods such as office and telecom equipments and high technology goods, etc., to improve competitiveness of India’s exports.
Though competitiveness effect was found to be favourable in case of Basic Manufactured exports and Miscellaneous Manufactured Goods, but at product groups level there is need to restrain the downward trends in competitiveness of ‘Leather’ (SITC 611), ‘Cotton Fabrics, Woven’ (SITC 652), ‘Other Woven Textile Fabric’ (SITC 654), ‘Textile Articles n.e.s’ (SITC 658), ‘Developed Cinema Film’ (SITC 883) and ‘Works of Art etc’ (SITC 896). Government should adopt export-led growth strategy to contain downward trends in competitiveness of product groups.

Share of R&D expenditure of total expenditure on chemicals and textiles products has been continuously decreasing. R&D expenditure, high quality and technology capability are the key drivers for enhancing competitiveness of exports. In most developing countries, research and development expenditures are done by the governments. Research and development activities by the private sector could be encouraged. It could be done by policy measures such as weighted deductions under income tax provisions. R&D activities are the source of technology generation and technological competitiveness. Government should increase R&D expenditure on manufactured goods to increase competitiveness of exports.

There is need to increase diversification in the structure of exports specifically in the basic manufactured goods exports. To increase commodity diversification manufactured exports, adequacy of infrastructure, quality up gradation of export products, technology exports, efficiency in resource application, systemic efficiency are prerequisites. The problems relating to infrastructural bottlenecks, poor export quality and lower efforts at research and development should be tackled from a holistic perspective. Moreover, India needs to rationalise the tariff and non-tariff barriers in order to sharpen its competitive strength.

In India, producing a unit of manufacturing exports is lowest among the developing countries. Therefore, stress on promotion of exports of labour-intensive products is a well-deserved priority. But we should not
neglect India’s potential of emerging as a global manufacturing hub for technology or skill-intensive products. While India has developed a place in chemicals, pharmaceuticals, auto parts and some segments of automobiles, opportunities have been missed in consumer electronics, toys, and ICT hardware that are labour-intensive.

Further, it has also been found that India’s exports are concentrating mostly on those goods, in which import content is quite high, such as petroleum products and gems and jewellery. On the other side, the share of traditional export items such as leather, textiles, etc., has declined over the years. Though India’s exports have increased, but imports have increased must faster than imports. India’s merchandise trade has been found to be in deficit during the study period. Import liberalization strategy should be used for promotion of exports to reduce trade deficit. Exports should be increased by following export-led growth strategy. An integrated long term national export policy has to be formulated, to co-ordinate production, infrastructure and marketing activities. Depreciation in the rupee can make exports cheaper and imports dearer and it will increase the demand for exported goods, but it has limited scope as it increases the costs of imported inputs and raises the value of foreign debt denominated in local currency. All efforts should be made to make use of imports for exports.

There should be cheaper loan facilities for the export sector to ensure easy supply of funds at reasonable cost so as to give them better competitive ability in the international market. These measures will help Indian exporters to manufacture goods at a lower price and increase their competitiveness in international markets.

The technology import policy should me complimented by liberal FDI policy. Reforms are required in the labour market to promote rapid expansion of firms, which are interested to modernize or enter into more profitable sectors thus leading to demand for skilled labour. Access to information technology can influence the country’s competitive strength.
Telecommunications, including internet, provide the backbone of international commerce. The quality and quantity of access as well as the costs are critical components of global competitiveness. The domestic policy initiatives must be supported by international action by ensuring continued and increased market access in the developed countries for manufactured exports from India (Bhattacharya, 2001).

Finally, there should be widespread awareness and rigorous efforts among the export sectors about the need to achieve continuous increase in competitiveness of India’s manufactured exports.