

National Manufacturing Competitiveness Council

Deriving Manufacturing Competitiveness Indices of Key Sectors



Final Report



ICRA Management Consulting Services Limited

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1. Executive Summary

1. National Manufacturing Competitiveness Council (NMCC) mandated ICRA Management Consulting Services Limited (IMaCS) to develop manufacturing competitiveness indices for four industries, namely :
 - Food Processing
 - Leather and Leather Products
 - Textiles and Garments
 - Electronics and IT Hardware
2. The backdrop to the study is the robust economic growth experienced over the past few years, driven mainly by a broad base of resident manufacturing industries specifically Food Processing, Leather and Leather Products, Textiles and Garments and Electronics and IT Hardware. Cumulatively, the four industries contribute nearly 12 per cent of India's GDP and 26 per cent of manufacturing employment¹. In this context, the NMCC has rightly identified that developing manufacturing competitiveness of these industries is critical for policy and operational interventions
3. The Scope of work in this study entails – Construction and Validation of Manufacturing Competitiveness Indices for four industries identified by NMCC across time and across four regions: North, East, West and South.
4. A hybrid approach has been used in constructing the manufacturing competitiveness indices. The process involves primarily two parts - quantitative analysis, which encompasses macro-econometric assessment and analysis of data and variables and qualitative analysis which involves analysis of

¹ As on 2006-07, shares calculated from Economic Survey as per CSO, Economic Census, Ministry of Food Processing, Ministry of Textiles, Council for Leather Exports, Department of Information Technology figures, NMCC and Department of Commerce.

stakeholder inputs through primary surveys. We carry out the above approach through five steps which are

- Designing a framework for above stated purpose,
- Selecting Variables for the same,
- Selecting the Base Year,
- Construction and Calibration of Competitiveness Indices,
- Index Interpretation and Validation.

4.1. In the design of framework, the Manufacturing Competitiveness Index (MCI) for each industry is stratified into constituent seven sub-indices namely;

- a. Export and Macro Competitiveness Index (EMCI)
- b. Demand Competitiveness Index (DCI)
- c. Price Competitiveness Index (PCI)
- d. Firm Level Productivity Index (FLPI)
- e. Cost Competitiveness Index (CCI)
- f. Financial Competitiveness Index (FCI)
- g. Sector Perception

The focus and coverage of sub-indices are given below

4.1.1. Export and Macro Competitiveness Index (EMCI) covers variables such as Exports of the industry as a percentage of total exports of the country, Foreign Direct Investments as a percentage of total FDI inflow into the industry, Gross domestic capital formation.

4.1.2. Demand Competitiveness Index covers Private final consumption expenditure.

4.1.3. Price Competitiveness Index (PCI) covers Wholesale price index (WPI).

4.1.4. Firm Productivity Index (FPI) covers the variables such as Factory Level productivity (Output/Factories), Per unit wage productivity (Input/Wages), Labour productivity

(Output/Workers), Capital Output Ratio (Output/ Invested Capital) and Total productivity (Input/output).

4.1.5. Financial Competitiveness Index (FCI) covers the variables such as Return on capital employed (ROCE), Profit before interest, depreciation and tax, Net Profitability Margin.

4.1.6. Cost Competitiveness Index (CCI) covers the variables Raw materials cost as percentage of sales, Power and Fuel cost as percentage of sales, Employee cost as percentage of sales, Manufacturing cost as percentage of sales and Selling and Administrative cost as percentage of sales.

4.1.7. Finally, the sector perception index captures the perception of key industry players of Large, Small and Medium units of four regions namely North, South, East and West. The sector perception is an analysis of results from the questionnaire surveys conducted across a 100 firms for each of the four Industries examined in the study. The sector perception also offers the opportunity to understand industry sentiment ²going forward. It examines factors affecting growth of firm, business and economic outlook.

4.2. To compare the relative performance of industry over the years, the 2004 – 05 chosen as a base year. In 2004-05, the manufacturing growth was stable and the BOP position continued to remain strong from the previous year. Current account deficit and fiscal deficit was recorded at 0.8 per cent of GDP and 4.1 per cent of GDP respectively. External debt was 17.3 per cent of GDP and the capital account surplus was of the order of 19.4 billion US dollars.

4.3. The next stage in the approach is the index construction and validation which involves identification and structuring of variables into designed framework and weighing of these variables to arrive at sub-indices. In turn, weights are assigned to sub-indices to arrive at manufacturing competitiveness Index or “Scaled MCP”. These weights are taken relative to the overall firm productivity. The Overall Scaled Index gives an idea of both, the direction of movement of the index and the quantum of change in the measure of competitiveness. If there is an increase in the Index from 100 to 101, then we conclude that competitiveness has gone up by

² *Qualitative analysis of rational expectations better explains sentiment – a factor which could influence industry decisions. Since we study competitiveness over a 10 year period, the expectations of workers, consumers, and firms about future economic conditions are an essential part of the study.*

1 per cent. All the sub-indices are also interpreted in the same way. The only exception is in the case of the cost competitiveness index where the competitiveness of the sector goes up when cost index moves down. This is because cost variables and all other variables share an inverse relationship. Similarly, the percentage change in the competitiveness measure can be interpreted from the absolute change in the Index. For example if an index increases by 1 point over a period of one year, then we can say that competitiveness has increased over the previous year by 1 percentage point.

4.4. As part of Index construction, we have used various statistical tools such as –

- Time Series and Panel Data Methods
- Limited dependent models
- Multivariate Statistics
- Data Reduction methods
- In-time validation through causal functional forms (for example comparing actual trade data with construed indices)
- Construction of diffusion indices
- Normalisation of component series
- Cross-correlation analysis
- Cyclical adjustment

5. Based on the above approach and methodology, we have constructed Manufacturing Competitiveness Index for food processing, leather and leather products, textiles and garments and electronics and IT hardware. The key findings for the same are outlined below:

5.1. The Manufacturing Competitiveness Index for the Food Processing Industry has marginally moved up from 100, in the base year of 2004 to 102.8 in 2007 an increase of 2.8 per cent. This has been primarily due to an increase in the demand competitiveness of the Food Industry. This translates into the fact that the consumption expenditure of food products has increased substantially in the country. The corresponding effect being an increase in Industry profitability and reduction in per unit costs.

5.1.1. Though, there is an increase in demand competitiveness, the food processing industry is unable to benefit due to lack of economics of scale as nearly 75 per cent of this industry is

unorganised. Also there is lack of investment in technology in cold storage, transportation and supply chain systems. This has curtailed productivity, reflecting on the slow growth in competitiveness.

5.1.2. In terms of regional competitiveness the Western region is competitively placed in terms of the production of primary processed products from fruits, vegetables, oilseeds, grains and meat. This is due to the easy access of raw materials. The Northern region is competitive in terms of the production of processed dairy products. All four regions are equally placed in terms of beverage production. This is due to the fact that government policies have more bearing on these industries compared to other factors.

5.1.3. While the sector perception survey of the food processing industry reveals some of the key factors impacting the growth of the industry are Access to Bank Credit (Rank 1), Capital Cost (Rank 2) and Shortage of Skilled Labour (Rank 3). Around 65 per cent of those surveyed indicated a positive outlook on present and future (6 months) business confidence. 78 per cent of respondents believe that increase in production levels will not be due to export growth, rather because of increase in domestic demand.

5.2. The Manufacturing Competitiveness Index for the Leather and Leather Products Industry has moved up from 100, in the base year of 2004 to 127 in 2007. This has been due to primarily an increase in the economic and macro competitiveness of the Leather Industry. The leather industry revenues are made up to 70 per cent by exports. There has been an entry of foreign players looking to diversify their portfolio of manufacturing locations by expanding outside China. This translates into the fact that the foreign investment into the country in Leather products has increased substantially. The corresponding effect being an increase in exports led profit growth.

5.2.1. In India, the Western region has a clear advantage in the Tanning and Dressing of Leather, Manufacture of Luggage handbags, Garments, Saddlery and Harness which represents all forms of leather products other than footwear. This is because of the superiority of design and innovative technology in the Western region which were the proponents of fashion and value added accessories in the country. We also observe that the Southern region is the leader in the production of footwear. It is the clear winner in terms overall productivity measure. This is due to the fact that the industry in the southern region had positioned itself since the beginning as an export oriented market. It has developed its capabilities in such

that it specialises in the mass production of footwear. There is easy access to raw material and abundance of skilled labour.

5.2.2. While the sector perception survey reveals that of the 10 factors ranked against limiting growth of the firm in the Leather and Leather products industry, Access to Bank Credit (Rank 1), Capital Cost (Rank 2) and Shortage of Skilled Labour (Rank 3) are cause for most concern. Around 75 per cent of those surveyed indicate a positive outlook on present and future (6 months) business confidence. 88 per cent of respondents believe that increase in production levels will not be due to export growth, rather because of increase in domestic demand.

5.3. The Manufacturing Competitiveness Index for the Textiles and Garments Industry has moved up substantially from 100, in the base year of 2004 to 190 in 2007. The demand growth in the domestic market is positive. The growing middle class is spending increasingly on value added textiles like garments. This is partly due the success of the brands and retailing in the apparels sector. This was complimented by a sharp increase in savings in the sector measured by the gross fixed capital formation due to the increased investments³ provided by the government to combat adverse effects on exports due to the strengthening rupee. The industry costs came down sharply due to a combination of government policies and increased capital productivity. There had been an increase in industry profitability on accounts of the knitwear and the apparel sector. This was complemented by an increase in domestic sales. On the whole, the competitiveness of the industry improved considerably despite the poor performance on the export front. Textiles and garments exports represented 16 per cent of commodity exports from India in 2005. This declined to 13.4 per cent of commodity exports in 2007. This was partly due to the inability to capitalise on the quota system abolishment in 2005 due to market imperfections like labour market rigidities and lack of scale economies. The other factor that affected exports significantly was the fall in export competitiveness due to comparative rise in prices of Indian textiles on account of the strengthening rupee.

5.3.1. The Western region presents a clear advantage in textiles. The western region enjoys historical advantages and it is the nerve centre of the domestic market in India. The East is competitive in terms of textiles made of natural fabric like jute. It is competitive for the

³ Plan outlay for investments in Textile Industry in 2005-06 was 65 per cent higher than in 2004-05.

production of carpets, rugs, bags, tarpaulin, canvas, ropes and cordages. The South holds the competitive position in terms of being the most competitive in the production of knitwear. It has built up export capabilities over a period of time. The garments and apparel sector presents a mixed picture with the south, north and east being equally competitive in terms of production of these items.

5.3.2. The sector perception survey reveals that of the 10 factors ranked against limiting growth of the firm in the Textiles and Garments industry, Access to Bank Credit (Rank 1), Capital Cost (Rank 2) and Shortage of Skilled Labour (Rank 3) are cause for most concern. Around 80 per cent of those surveyed indicate a positive outlook on present and future (6 months) business confidence. 88 per cent of respondents believe that there will be an increase in production levels in the next six months due to increase in domestic demand.

5.4. The Manufacturing Competitiveness Index for the Electronics and IT Hardware Industry has moved up marginally from 100, in the base year of 2004 to 106 in 2007. This has been primarily due to an increase in the demand competitiveness. The growing middle class population is spending increasingly on electronics items such as mobile phones and personal computers. The significance attached to this development is the permeation of technology to a direct increase in the standards of living. There has also been a steady and growing inflow of foreign investments in this sector. There has been steady increase in exports. The upward movement of the index was countered by the corresponding sharp rise in costs. There has not been much change in the productivity of the sector due to the fact that with increasing levels of automation, component of low cost labour in manufacturing is steadily being replaced by expensive machinery.

5.4.1. The Northern region presents a clear advantage in terms of the consumer, industrial and components category. This is due to the concerted efforts of the government by creating investor friendly policies and clusters of IT and Electronics units in and around the national capital region. The west enjoys historical advantages in terms of IT hardware manufacture. The South is competitive in terms of production of communications equipment and comparably competitive in term of IT hardware. There are a number of foreign companies making investments in setting up plants in India as we transition from high volume low value production to higher end products by becoming a hub of sorts for contract manufacturing. There is also significant development in terms of very sophisticated products like semiconductor, as the first such plant is being set up in Andhra Pradesh.

Investor friendly government policies and infrastructural support is inevitable for these industries due to their capital dependence.

5.4.2. The sector perception survey reveals that of the 10 factors ranked against limiting growth of the firm in the Electronics and IT Hardware industry, Access to Bank Credit (Rank 1), Capital Cost (Rank 2) and Shortage of Skilled Labour (Rank 3) are cause for most concern. Around 80 per cent of those surveyed indicate a positive outlook on present and future (6 months) business confidence. 88 per cent of respondents believe that there will be an increase in production levels in the next six months due to increase in domestic demand. The sector perceptions for all the sectors present a positive picture for business confidence in terms of expected increase in production and sales. Majority of the surveyed firms believe that business outlook affirms with the general perception that consumption growth was not likely to see a slowdown in the future.

2. Background

2.1. India's economic growth

India has seen a year on year real economic growth in excess of 7.7 per cent in the last 3 years. 'The economy has moved, decisively, to a higher growth phase⁴'. In the same time period, exports were up by 20 per cent and imports by 33. per cent. Consumerism and purchasing power has been rising on account of the growing prosperity enjoyed by both individuals and firms. For instance, in 2007-08, private final consumption expenditure was 64 per cent of GDP. Also, there has been an increase in savings rate and investments. This is reflected by an average annual gross domestic investment of 28 per cent and a gross fixed capital formation at 23 per cent of GDP. Government revenues have also seen a buoyant growth which has enabled sustained fiscal consolidation as mandated under the Fiscal Responsibility and Budget Management Act.

All public policy ultimately aims at achieving or facilitating means to increase social welfare. One of the accepted ways to achieve this objective is through economic growth. At a broad level, an increase in a society's per capita income can be a measure of an increase in that society's welfare to its residents. Hence ensuring a good rate of economic growth will ensure an increase in the standard of living in that country or region. However, an economy's growth is inherently dependent on the health and performance of its constituent sectors.

As we have witnessed in the past decade, manufacturing sector has been a consistent contributor to growth of the economy. The importance attached to the agricultural sector as an economic driver continues to diminish as the services sector grows by leaps and bounds. The Primary sector contributes around 18 per cent to the GDP as against 58 per cent attributed to the tertiary sector.⁵ Employment in these sectors, however, presents a different picture as the primary sector provides livelihood to 58 per cent of employed population. The challenge faced by the country today is to relocate the excess population engaged in the primary sector to secondary and tertiary sectors. This translates into, first

⁴ *Economic Survey 2007-08*

⁵ 2005-06, *Central Statistical Organisation*

creating the gainful employment in manufacturing and services sectors and enabling sustainable transfer of human resources to jobs created by such high growth sectors.

When an economy transitions to a higher growth plane, there is a natural accession of human resources into venues other than agriculture. The sector's income and employment contribution diminish as the other sectors flourish. A structural change takes place by adaptation of activities with higher productivity levels. This is possible as exports of industrial products and services enable import of agricultural produce. Though larger countries are typically self sufficient in all three sectors even in the event of a world devoid of trade, their agricultural contribution to National income becomes negligible as their per capita incomes grow. Hence, faced with a transitioning economy, there exists the new challenge of making the permanent shift, by providing the manufacturing sector with the right impetus to absorb this excess human resource as it expands rapidly.

2.2. Manufacturing Performance

An overview of the manufacturing sector shows that it has enjoyed a compounded annual growth rate of 10 per cent for the last five years⁶. The average Index of Industrial Production growth rate has been of the order of 7.8 per cent over the same time period.

Since 1991, the economy is being progressively liberalised and its integration to the global economy is deepening. On one hand, these developments have provided opportunity for growth and expansion of industry; on the other hand, not only is domestic manufacturing facing stiff competition from free imports but has to re-double its efforts to grow its export capabilities. Globally, as we move towards a free trade regime, products are being sourced from regions or countries enjoying competitive advantages. This could be due to inherent resource endowments such as cheap/easy supply of raw material, large pool of skilled labour, knowledge, innovation or new technologies.

Growth in the manufacturing sector has the potential to elevate much of the Indian population above the poverty line by shifting the part of the workforce out of low-wage agriculture. This would initiate a virtuous circle of higher production, incomes, savings and investment, and a more stable and prosperous India will in turn attract more business and higher growth opportunities.

⁶ National Manufacturing Competitiveness Council

The resurgence of India's manufacturing sector has been encouraging. During 2005-06, of the total 140 manufacturing sectors in the country reporting production, 27 recorded a growth rate of more than 20 per cent. Forty three sectors recorded a growth rate of 10-20 per cent and 50 sectors registered growth of up to 10 per cent. Indian manufactured products are now gaining acceptance in world markets. India already exports about Rs 1860 billion a year in manufactured goods and this is increasing at the rate of 20 per cent a year⁷.

The four sectors identified as the focus sectors by the Government of India have shown tremendous growth in the past and offer immense growth potential in the future. They have all been growing at a rate higher than the average industrial growth rate in 2006-07 (in earlier paragraph, please check the period 2005-06).

- Food Processing (13.7 per cent)
- Electronics and IT Hardware (19 per cent)
- Textiles and Garments (16 per cent)
- Leather and Leather Products (15 per cent)

These sectors offer immediate opportunities to garner major shares in the global market due to inherent advantages they enjoy. In order to assess development of these sectors across regions and time we need to assess their competitiveness.

2.3. Competitiveness

An Economy is defined as being 'competitive' if its population can enjoy high and rising standards of living and high employment on a sustainable basis. More precisely, the level of economic activity should not cause an unsustainable external balance of the economy nor should it compromise the welfare of future generations⁸. The competitiveness of an economy has very broad and important implications for its citizens.

⁷ NMCC Project Vikas

⁸ World Competitiveness report, Global Economic Forum

A region's competitiveness is defined by the aggregation of firm competitiveness in that region.⁹ Regional capabilities can be seen as the combination of the human and physical resources available, the structures established in the region through time, and the regions specific institutional endowment. Over time, regional capabilities change, as resources are exhausted. Sustainable regional competitiveness implies that the process of asset erosion must be compensated by the formation of new capabilities, for instance an increase in productivity through technological infusion¹⁰. Again, a region's competitiveness has implications on its citizens.

Competitiveness in the context of a particular industry deals primarily with basic infrastructure and accessibility, human capital, other factors such as R&D and innovation and demography. Basically, industries are a collective of their constituent firms. The implication of the competitiveness of an industry is that it has a cascading impact on the competitiveness of a region and even the country.

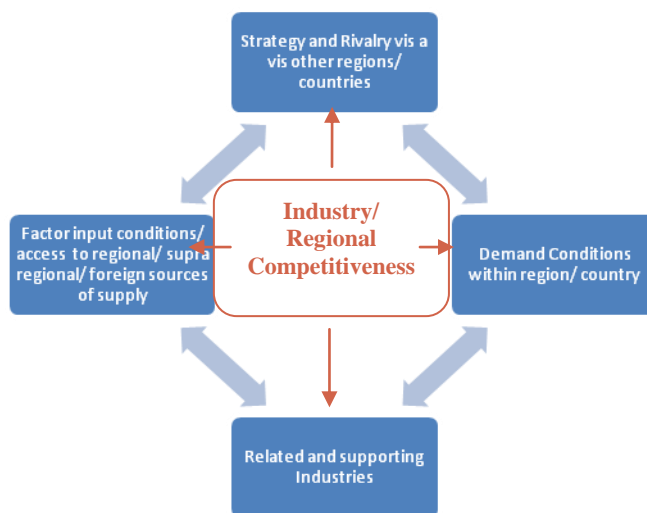
⁹ *European Commission on Regional Competitiveness*

¹⁰ *'Localised Learning and Industrial Competitiveness', 1995–Maskell and Malmberg, BRIE*

2.3.1. Drivers of Competitiveness

One of the most influential representatives of the theory of competitiveness is the Diamond theory of Michael Porter.

Figure 1 : Porter’s Competitiveness Diamond



Source: Theory of competitive advantages: Michael Porter, 1990

According to Porter, to be competitive, firms must continually improve operational effectiveness in their activities while simultaneously pursuing distinctive rather than imitative strategic positions. His argument is that the existence of geographical clusters encourages both of these requirements for firm competitiveness, by encouraging the formation of regionally-based relational assets external to individuals firms but of major benefit to their competitive performance as an industry.

Some key benefits of a cluster based approach for developing firm competitiveness:

- a) Networking among enterprises
- b) Economies of scale
- c) Improved bargaining power
- d) Technology and skill up gradation

- e) Global visibility and being part of the value chain
- f) Easier access to finance
- g) Greater institutional support.

Competitiveness, according to Porter, is influenced by conditions given by four elements of the diamond: factor conditions, demand conditions, related and supporting industries, and the context for firm strategy and rivalry.

The concept of competitiveness is used interchangeably across industries, regions or even countries. But one has to understand that, "Competitiveness means the ability to compete with firms at the barrier of best practice. It must be recognised that it is firms that compete, not nations, due to their strategies, support institutions and factor input criterion. However, due to the intrinsic failure of markets in critical areas, government support for firms has in some contexts proved to be an important component of the process of attaining competitiveness¹¹." Therefore if an industry is competitive it could be due to various reasons.

2.3.2. Measures of Competitiveness

There are several ways of measuring competitiveness. The most common measure would be of productivity. Another measure would be to link price competitiveness, a microeconomic concept with external balance, a macroeconomic concept. Widely used price competitiveness measures are Real Effective Exchange Rate (REER) and Unit Labour Cost (ULC)¹². Prices are partly determined by costs and strategies of individual businesses, savings and investment decisions and the speed of adaptation and quantity of technological innovations. Measures of national competitiveness can combine a number of elements such as those mentioned above. For instance there can be a combination of measures of factors of production, firms' business strategies (reflected by profit margins), an Investment climate of country etc. The "Davos Index"¹³ of international competitiveness generated by the World Economic Forum (WEF) is a popular example of such a broad measure. The Davos index combines eight factors: openness,

¹¹ Asian Development Bank Outlook study, 2003

¹² Hooper and Larin, 1989

¹³ Global Competitiveness Index, World Economic Forum

government, finance, infrastructure, management, labour and institutions. Each factor is an index created from sub-indices composed of both quantitative and survey data.

The Davos index is a simple ranking with no economic meaning by itself either in terms of level or changes in competitiveness in a country's competitiveness. However, using the information from the total set of 53 countries along with rankings of selected sub indices yields robust relationships between the rankings and issues of immediate policy relevance. For example, higher ranking in the index is correlated with faster growth in GDP per capita and with an increase in the real income of the poor.¹⁴

The WEF produces two indices, the growth competitiveness index (GCI), and the current competitiveness index (CCI). The Growth Competitiveness Index is made up of three factors, namely technological capacity, quality of public institutions, and quality of macroeconomic environment.

The Current Competitiveness Index (CCI)¹⁵, on the other hand, examines the microeconomic bases of a nation's GDP per capita and provides insights into the level of GDP per capita that is sustainable in the long term. The CCI is made up of two sub-indices, the quality of the national business environment and the degree of company sophistication. The data used come primarily from a survey of senior business leaders and government officials. To compute an overall measure of the CCI, all the individual dimensions are combined using common factor analysis.

The CCI is based on Michael Porter's framework, known as the "competitiveness diamond,"¹⁶ where the idea of competitive advantages—as opposed to comparative advantage—is introduced. These arise from firm-level efforts to develop new products, make improvements, and develop better brands or delivery methods, to innovate in a broad sense of the term. Innovation, in turn, is influenced by conditions given by four elements of the diamond: factor conditions, demand conditions, related and supporting industries, and the context for firm strategy and rivalry.

The Industrial Development Report of the United Nations Industrial Development Organization (UNIDO) introduces an index in two parts: an index of a country's ability to produce and export manufactures, the

¹⁴ Warner, 1998, 30-37 : *Asian Development Outlook, 2003*

¹⁵ Porter, 2002, *Enhancing the microeconomic foundations of prosperity*

¹⁶ See Figure 1 : *Competitiveness Diamond*

competitive industrial performance index (CPI), and benchmarks of the structural drivers on industrial performance - an index which measures the ability of countries to produce and export manufactures competitively.

The CPI is constructed from four indicators: manufacturing value added per capita, manufactured exports per capita, share of medium and high-technology products in manufacturing value added, and share of medium- and high-technology products in manufactured exports. The first two indicators provide information about industrial capacity, while the other two reflect technological complexity and industrial upgrading of a country. The index is constructed as the average of the four indicators, and is calculated for a total of 87 economies.

Industrial performance index, on the other hand, is the outcome of many social, political, and economic factors interacting in complex and dynamic ways. The purpose is to benchmark economies on their key structural variables, called drivers. UNIDO focuses on five proxy variables: skills, technological effort, inward FDI, royalty and technical payments abroad, and modern infrastructure.

2.4. Manufacturing Competitiveness Index

Several Manufacturing Indices are constructed and used by various industry bodies, policy makers around the world. Most of these indices are either inter country, specific to the industry or inter state. Examples would be the IT industry competitiveness index across different countries¹⁷ and the MAC Index for manufacturing across US states¹⁸. A manufacturing Index would follow a similar ideology of construction and evaluation, as the examples mentioned above. To give a clear picture of the direction and magnitude of competitiveness within an industry, the measure, in this case the manufacturing index should serve a dual purpose – of being comparable among regions and across time.

Although industrial production and output are clearly a critical element in understanding any industry, it is not the sole metric by which one should assess the competitive strengths, weaknesses and long-term viability of a given sector. Therefore, it is essential to use factors reflecting the macroeconomic, export,

17 Prepared by the Economist Intelligence Unit

18 MAC Index – Manufacturers Association of Connecticut and Centre for Economic Analysis

demand, price, productivity, financial and perception to in an analysis to form a holistic picture of manufacturing competitiveness.

2.5. Need for Competitiveness Index

A number of benchmarking studies/ indices exist that reflect the competitiveness of countries or industries in the international scenario. However, even within the context of a particular industry, one needs to understand its evolution or rather the changes effected in its constituent factors over time and across regions to enable appreciation of the overall picture of say, industry competitiveness vis-a-vis another country or competitiveness between regions in an economy.

The Manufacturing Competitiveness Indices for the four sectors identified as thrust areas by the Government of India, namely; Food Processing, Leather and Leather Products, Textiles and Garments, Electronics and IT Hardware, aims to fulfil the above objective, of presenting a picture of the evolution of competitiveness within a given timeframe across four broad regions¹⁹, as defined by the determining factors taken into account.

2.6. Manufacturing Competitiveness Indices – Key Expectations

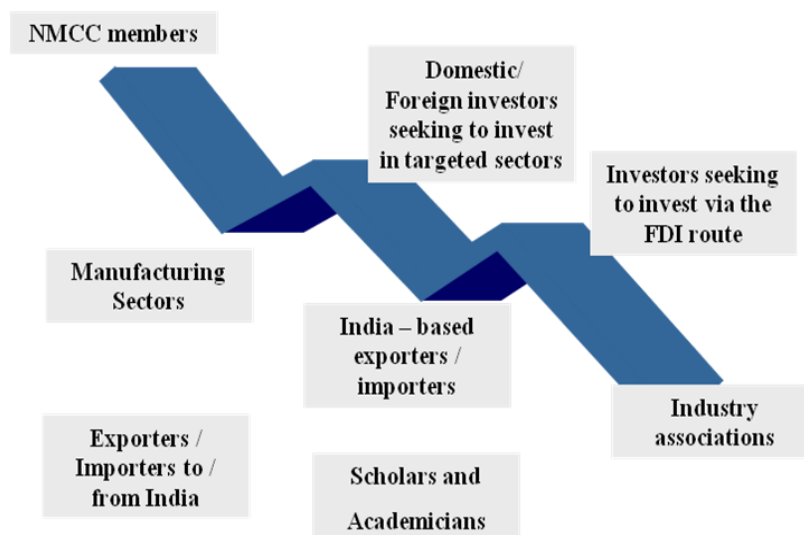
The manufacturing competitiveness indexes strive to meet the expectation of diverse stakeholders by:

- Articulating industry and firm level manufacturing competitiveness
- Reflecting consumer patterns and prospects
- Assessing price movements and consumer spending
- Gauging characteristics of domestic business and industrial environment
- Sensitive to political stability, regulatory and legislative changes
- Reflects factors which are perceived qualitative externalities (e.g. investment climate issues)
- Easy to interpret for a wide variety of stakeholders*

19 Indian states grouped into four categories – North, East, West and South based on geographical location within country

- Lends itself to monitoring and updating
- Useful for long term planning and implementation

***Figure 2: Potential Beneficiaries of the Manufacturing Competitiveness Index**



2.7. Index Concept and Design Philosophy

An Index is a statistic which assigns a single number to several individual statistics in order to quantify trends

The index is designed:

- 1) To allow analysis and monitoring of manufacturing and economic patterns with respect to the final composite indices
- 2) For ease in terms of introducing changes/ refinement to the model
- 3) To enable meaningful interpretation by target stakeholders
- 4) To allow systematic updating of index sub-components

Hence our design philosophy is given as under:

“ The Manufacturing Competitiveness Indices envisaged as composite number are expected to capture trends and variations across time and across components”

3. Approach & Methodology

3.1. Objective of the Study

The objective of this study is to:

1. To design and construct sector specific competitiveness Indices for four sectors
 - Food Processing and Manufacturing
 - Leather and Leather Products
 - Textiles and Garments
 - Electronics and IT Hardware

2. Validation of the Indices

3.2. Scope of Work

The Scope of work for this engagement is

1. Construction and Validation of Manufacturing Competitiveness Indices for four sectors identified by NMCC across time and across four regions: North, East, West and South²⁰;
 - Food Processing and Manufacturing
 - Leather and Leather Products
 - Textiles and Garments
 - Electronics and IT Hardware

20 North implies a collective of the states of Haryana, Himachal Pradesh, Jammu and Kashmir, Punjab, Uttaranchal, Uttar Pradesh and union territories of Chandigarh and Delhi

East implies a collective of the states of Assam, Bihar, Orissa, West Bengal, Manipur, Meghalaya, Nagaland, Jharkhand, Tripura and Chattisgarh

West implies a collective of the states of Maharashtra, Gujarat, Rajasthan, Madhya Pradesh and the union territories of Goa, Dadra and Nagra Haveli and Daman and Diu

South implies a collective of the states of Andhra Pradesh, Karnataka, Tamil Nadu, Kerala and the union territory of Pondicherry

2. The study precludes cross country relative performances and does not make inter state comparisons.

3.3. Terms of Reference

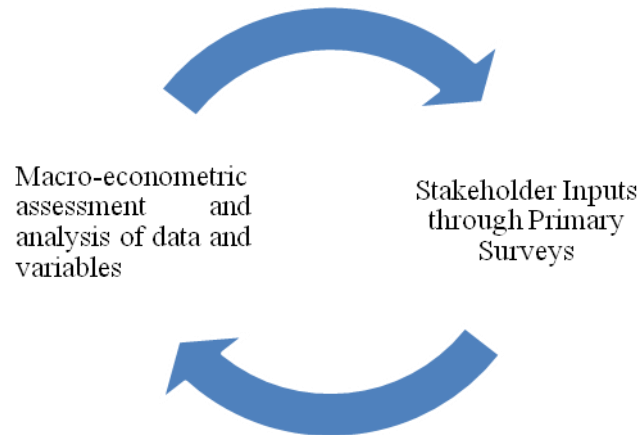
The terms of reference for the study are as follows:

1. Identify key drivers of competitiveness.
2. Develop a framework for assessing competitiveness.
3. Application of framework and comment on the results obtained.
4. Development of a Manufacturing Competitiveness Index for four sectors, namely,
 - Food Processing and Manufacturing
 - Leather and Leather Products
 - Textiles and Garments
 - Electronics and IT Hardware
5. To develop an index for assessing competitiveness of various Manufacturing locations.
6. Identify the key drivers that affect the competitiveness of industry.
7. To analyse and understand the cost structure and key success factors of various industries.
8. To develop the cost of manufacturing in various locations for each industry.

3.4. Approach to Study

A hybrid approach has been used in constructing the manufacturing competitiveness indices. The process involves primarily two parts:-

- 1) Quantitative Analysis: This involves macro-econometric assessment and analysis of data and variables used in the model
- 2) Qualitative Analysis: This involves analysis of stakeholder inputs through primary surveys

Figure 3: Hybrid Approach

The Study involves the following broad steps:

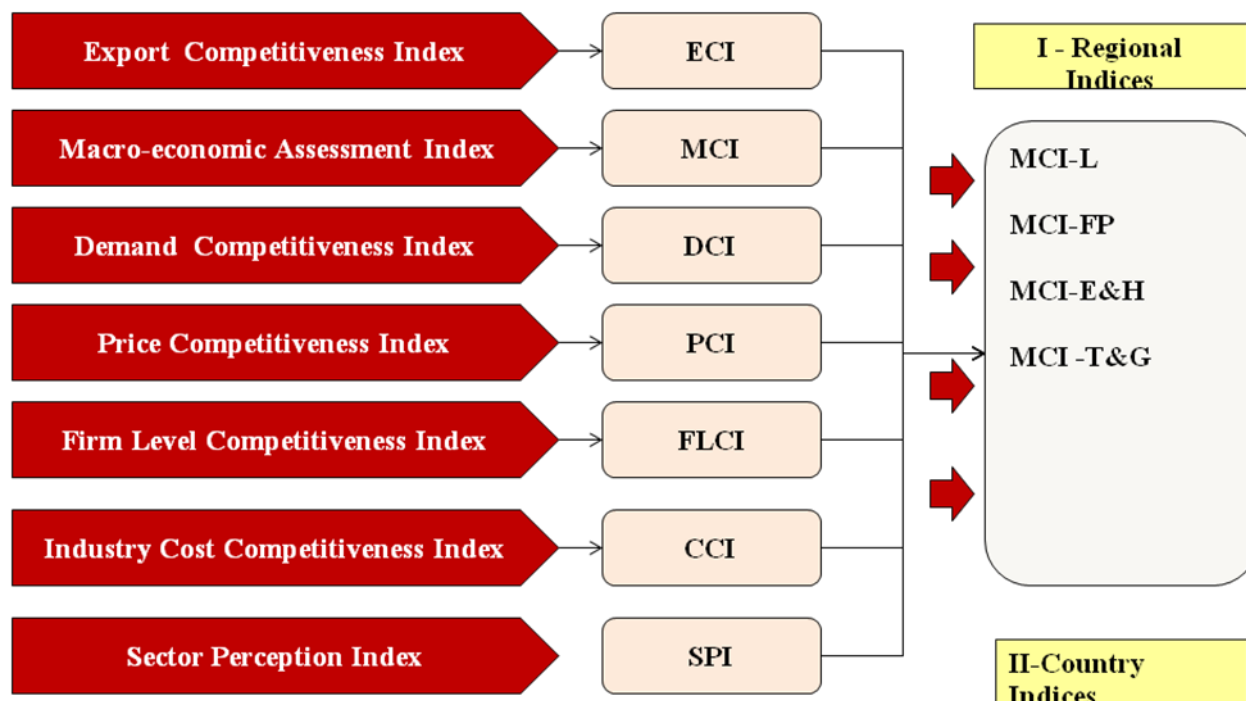
1. Design framework
2. Variables Selection
3. Base Year Selection
4. Construction and validation of Competitiveness Index
5. Index Interpretation

3.4.1. Overview of Design Framework

In the framework depicted in *figure 4*, each Index can be stratified into the constituent seven sub-indices namely;

- i. Export Competitiveness Index (ECI)
- ii. Macro Competitiveness Index (MCI)
- iii. Demand Competitiveness Index (DCI)
- iv. Price Competitiveness Index (PCI)
- v. Firm Level Competiveness Index (FLCI)
- vi. Industry Cost Competitiveness Index (CCI)
- vii. Sector Perception Index (SPI)

Figure 4: Sub Indices Leading to Manufacturing Competitiveness Indices (MCI)



These seven sub-indices made up in turn by its constituent variables, combine to give the Manufacturing Competitiveness Index (MCI) for each industry. The study covers four such MCI's, one each for Food Processing, Leather and Leather Products, Textiles & Garments and Electronics & IT Hardware.

3.4.2. Variables Selected

The variables used for index construction are for the time period (1995-2007) except in the case of firm productivity data and gross domestic capital formation²¹ are as follows:

- i. Export and Macro Competitiveness Index (EMCI)
 - Exports of the industry as a percentage of total exports of the country
 - Foreign Direct Investments(FDI) as a percentage of total FDI inflow into the industry
 - Gross domestic capital formation
- ii. Demand Competitiveness Index (DCI)

²¹ Annual Survey of Industry data – available latest till 2004-05

- Private final consumption expenditure (PFCF)
- iii. Price Competitiveness Index (PCI)
 - Wholesale price index (WPI)
- iv. Firm Level Productivity Index (FLPI)
 - Factory Level productivity (Output/Factories)
 - Per unit wage productivity (Input/Wages)
 - Labour productivity (Output/Workers)
 - Capital Output Ratio (Output/ Invested Capital)
 - Total productivity (Input/output)
- v. Financial Competitiveness Index (FCI)
 - Return on capital employed (ROCE)
 - Profit before interest, depreciation and tax
 - Net Profitability Margin
- vi. Industry Cost Competitiveness Index (CCI)
 - Raw materials cost as percentage of sales
 - Power and Fuel cost as percentage of sales
 - Employee cost as percentage of sales
 - Manufacturing cost as percentage of sales
 - Selling and Administrative cost as percentage of sales

3.4.3. Base Year

A base year is the year against which the performance of all the other years in the index is measured. When a base year is chosen, it need not necessarily be the best year for the economy but it should definitely be a normal year. By normal we mean a year with stable manufacturing, macroeconomic performance and fiscal environment. The year chosen should not exhibit extraordinary deviations from the long term growth of the economy. There should be no occurrence or minimum incidence of extreme events, eventualities and political events.

The year 2003-04 had the healthiest figures in terms of overall GDP growth, balance of payments position, with overall exports growing by 20 per cent year on year, we had strong foreign exchange reserves and a stable rupee against the declining dollar. The current account deficit was recorded at only 0.3 per cent of GDP. Fiscal deficit was recorded at 4.5 per cent of GDP. The external debt was recorded at

15.8 per cent of current receipts. The capital account surplus was of the order of 20 billion US dollars. This year was a vast improvement over 2002-03.

Despite this, 2004-05 has been chosen as the base year as it is a normal year when compared to 2003-04. The manufacturing growth has been stable and the balance of payment position continued to remain strong. Current account deficit and fiscal deficit was recorded at 0.8 per cent of GDP and 4.1 per cent of GDP respectively. External debt was 17.3 per cent of GDP and the capital account surplus was of the order of US\$ 19.4 billion. Thus we conclude that 2004-05 is the most balanced of the choice of available base years.

3.4.4. Index Construction

3.4.4.1. Manufacturing Index construction

The process involves identification and structuring of variables into designed framework and weighing of these variables to arrive at sub-indices. In turn, weights are assigned to sub-indices to arrive at manufacturing competitiveness Index or “Scaled MCI”. These weights are taken relative to the overall firm productivity.

The sub-indices and their construction are explained with specific reference to food processing categories namely, production, preservation of fruits, vegetables, meat, fish and oil and fats; Dairy Products; Grain products; other foods; beverages.

Table 1: The Overall Competitiveness Index – Food Processing Industry

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
YEAR	ECI	MC	DSC	PSC	FLC-PPP	FLC-DP	FLC-GP	FLC-OF	FLC-B	INDUST COST COMP	IC-PPP	IC-DP	IC-GP	IC-OF	IC-B	OVER ALL MCI	SCALED MCI
1995	104	232	81	67	75.89	110.42	108.83	98.17	81.71	106	124	111	116	141	186	271	86
1996	103	252	88	73	74.59	113.81	98.58	95.27	80.01	106	124	111	116	141	186	254	81
1997	102	228	87	78	80.09	118.09	95.42	96.26	84.42	106	124	111	116	141	186	255	81
1998	104	304	94	87	96.91	100.10	99.18	96.81	86.08	106	124	111	116	141	186	294	93
1999	104	394	94	89	97.54	100.11	99.14	98.60	88.63	101	117	120	118	122	167	299	95
2000	105	84	91	90	98.45	97.52	99.45	100.52	94.79	104	70	125	115	112	145	307	98
2001	105	84	97	91	97.85	97.92	100.32	98.65	92.46	103	83	103	83	91	123	308	98
2002	107	86	95	91	100.16	96.94	100.00	101.14	94.37	98	65	120	90	86	140	315	100
2003	102	255	99	94	99.79	99.04	100.27	102.85	90.35	98	100	123	108	84	128	314	100
2004	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	314	100
2005	99	125	107	101	100	100	100	100	100	99	127	109	115	119	100	316	101
2006	99	104	143	104	100	100	100	100	100	93	162	90	187	122	101	323	103
2007	99	104	143	103	100	100	100	100	100	85	170	98	227	105	322	323	103

@ Variation in FDI movement (as % of total) has caused fluctuation in MC movement from Year 1999 to Year 2000

3.4.4.2. Economic Competitiveness Index (ECI) & Macro Competitiveness Index (MCI)

The Export Competitiveness Index measures the competitiveness of exports by weighing²² the individual sub-components of the food processing industry²³ to the categories respective shares in the output of food products in a given year, say 2004-05.²⁴ While the Macro Competitiveness Index factors is the Gross Fixed Capital Formation (GFCF), a measure of the net new investment by enterprises in the domestic economy in fixed capital assets during an accounting period which function as economic indicators of the level of business activity. GFCF is called "gross" because the measure does not make any adjustments for

22 See chapter on Construction of Scaled Weights – Annexure 1

23 As per NIC 2004 3 digit classification

24 Latest year with information available on industry output from ASI

the depreciation of assets. GFCF time series data is often used to analyse the trends in investment activity over time, deflating the series using a price index. It is also used to obtain alternative measures of the fixed capital stock. The GFCF, in addition to the Foreign Direct Investment inflows as a share of total FDI inflows in a particular year are similarly weighed to corresponding sub-component's share in output for 2004-05.

Table 2: Macro and Export Competitiveness Indices

YEAR	Food Export as a % of total	Exports					FDI inflows as a % of total	GFCF					EXPORT COMP INDEX	MACRO COMP INDEX
		Production, processing and preservation	Manufacture of dairy product	Manufacture of grain mill	Manufacture of other food	Manufacture of beverages		Production, processing and preservation	Manufacture of dairy product	Manufacture of grain mill	Manufacture of other food	Manufacture of beverages		
1995	183	92	103	106	128	66	414	39	78	38	77	16	104	232
1996	196	93	109	106	122	67	482	28	53	-52	71	39	103	252
1997	186	98	105	102	116	67	443	22	-54	-36	81	25	102	228
1998	164	99	94	108	122	67	591	29	83	-80	71	21	104	304
1999	149	109	98	121	88	83	691	66	168	99	100	106	104	394
2000	139	102	109	132	84	87	104	24	78	74	83	124	105	84
2001	132	98	108	125	98	83	90	56	110	81	91	62	105	84
2002	117	95	107	137	100	82	97	54	104	70	86	93	107	86
2003	115	96	109	107	101	94	436	41	96	80	82	114	102	255
2004	100	100	100	100	100	100	100	100	100	100	100	100	100	100
2005	100	98	103	91	104	101	94	242	104	124	122	88	99	125
2006	94	94	102	87	114	98	53	242	104	124	122	88	99	104
2007	94	94	102	87	114	98	53	242	104	124	122	88	99	104

3.4.4.3. Demand Competitiveness Index (DCI)

Demand Competitiveness is determined by the consumption expenditure on food products. We use Private Final Consumption Expenditure figures²⁵, on the various sub components of food products. A market should maximise the supply efficiency of all that people need and want. Private Final Consumption Expenditure (PFCE) is one indicator of what people want. The PFCE pattern of a country indicates significantly, the level of development in a country. For instance, a developed country would spend more on value added foods and in general, spend less on food versus other non –durable/ durable

²⁵ Figures in national household surveys, as published by the National Social Surveys Organisation (NSSO)

commodities. A developing country’s share of food would be relatively higher than spending on any other segment.

Table 3: Demand Competitiveness Index

YEAR	Production, processing and preservation of meat, fish, fruits, vegetables, oils and fats			Manufacture of dairy product	Manufacture of grain mill products, starches and starch products, and prepared animal feeds			Manufacture of other food products				Manufacture of beverages	TOTAL	DEMAND COMP
	C1	C2	C3		C4	C5	C6	C7	C8	C9	C10			
1995	90	69	70	75	96	98	80	51	43	99	18	80	81	
1996	90	80	75	80	104	113	134	56	59	119	29	88	88	
1997	101	63	75	85	94	103	58	61	35	108	8	83	87	
1998	103	88	80	88	100	116	118	67	73	123	39	93	94	
1999	98	80	83	98	101	100	82	73	54	126	32	92	94	
2000	105	76	84	88	91	83	89	78	69	132	36	89	91	
2001	99	75	90	92	109	102	92	83	73	128	47	96	97	
2002	100	64	95	93	103	87	90	88	73	108	66	94	95	
2003	99	89	98	95	106	110	88	94	73	101	82	98	99	
2004	100	100	100	100	100	100	100	100	100	100	100	100	100	
2005	112	91	104	107	105	102	105	106	116	129	122	108	107	
2006	118	80	107	109	108	107	104	106	116	160	122	108	115	
2007	118	80	107	109	108	107	104	106	116	160	122	108	143	

3.4.4.4. Price Competitiveness Index (PCI)

An important measure of competitiveness is the measure of the prices of a commodity. Prices cannot be taken in absolute because, not only of the sheer variety but the range of prices across geographical positions of sale of these commodities. Thus we use the wholesale price index (WPI), weighed²⁶ to overall measure of WPI. This index captures change in prices by representing a basket of goods besides serving as a central measure of inflation. WPI captures price inflation at every stage of production. Prices, when lower generally indicate a more efficient market, except in the case of commodities having differential demand patterns due to non economic reasons. However, in the case of improved economic performance in an economy, there could be an exchange rate appreciation, and this leads to higher relative prices.²⁷ For instance, if enterprises in a country become more efficient in the non-price dimensions of performance – by being innovative or flexible or producing high-quality goods and so on, then the real

26 See chapter on Construction of Scaled Weights, Annexure 1

27 Bank for International Settlements (BIS), Journals, 93

exchange rate would be expected to strengthen. Price competitiveness would thus appear to "worsen". But such "deterioration" would of course be a symptom of success, not of failure. Hence, as in the case illustrated above none of these indices can be interpreted in isolation from other factors concerning competitiveness.

Table 4: Price Competitiveness Index

YEAR	Production, processing and preservation of meat, fish, Fruits and Eggs, Vegetable Meat and				Manufacture of dairy product		Manufacture of grain mill products,		Manufacture of other food products			Manufacture of Beverages	Price Side Competitiveness
	Food Grains	s	Fish	Edible Oils	Milk	Dairy Products	Grain Mill Products	Starch	Sugar, Khandsari and Gur	Condiments and Spices	Tea and Coffee		
1995	69	60	65	75	62	67	64	74	69	82	62	59	67
1996	78	73	75	74	65	70	83	79	73	94	63	62	73
1997	78	70	83	73	68	76	80	90	82	94	86	70	78
1998	86	91	87	89	74	82	86	91	94	117	88	77	87
1999	99	76	90	78	80	90	90	93	96	120	100	81	89
2000	98	78	96	66	89	88	86	96	94	108	102	83	90
2001	97	93	98	72	91	91	85	91	89	100	95	90	91
2002	98	93	100	88	94	88	91	83	82	103	77	94	91
2003	99	96	96	101	96	95	99	84	85	109	95	95	94
2004	100	100	100	100	100	100	100	100	100	100	100	100	100

3.4.4.5. Firm Level Competitiveness Sub Sector Indices (FLCI)

The Firm Competitiveness Index, shown in *table 6*, is a means to capture the productivity performance of the industry by sector and by nature of factor i.e., wages, number of factories, number of workers and the amount of invested capital. There are five measures of productivity used specifically in the above index. They are the output to number of factories ratio, output to capital ratio, output to workers ratio, input to wages ratio and input to output ratio. In effect, these are an accumulation of the regional ²⁸ firm productivities. This Index is perhaps the most relevant to the study on competitiveness. We are concerned, primarily about productivities as they offer comprehensive insight to a sector or regions competitiveness. Productivity as a measure of competitiveness can be interpreted directly in their absolute form, being easy to understand. They also enable convenient comparisons. Thus we augment the explanation of Firm

28 Categorisation of states into North, East, West and South based on geographical positions. Refer comment 18 on classification of states into regions

Competitiveness Index with sections on regional productivity comparisons to understand the factors that drive productivities across sectors and regions. In table 6, only two sub industries are represented.

Table 5: Firm Level Competitiveness Indices

Product Category	YEAR	Productivity	Capital	Labour	Per unit	Overall
		Factory Level	Output ratio	Productivity	Wage	
		Output/ Factories	Output/Invested Capital	Output/ Workers	Input/ Wages	Input:/Output
Production, processing and preservation of meat, fish, fruits, vegetables, oils and fats.	1994	27.84	77.63	37.23	60.57	96.12
	1995	38.60	92.33	50.25	54.20	75.89
	1996	46.43	100.88	57.73	56.76	74.59
	1997	52.28	108.24	64.99	65.47	80.09
	1998	53.02	100.31	65.99	73.42	96.91
	1999	54.58	91.34	65.05	71.75	97.54
	2000	52.90	86.27	70.85	73.54	98.45
	2001	59.30	86.63	77.00	70.61	97.85
	2002	97.26	99.67	112.85	103.01	100.16
	2003	79.60	101.07	84.12	77.36	99.79
	2004	100.00	100.00	100.00	100.00	100.00
Manufacture of dairy product	1994	48.21	78.39	34.26	64.79	101.21
	1995	55.70	85.55	41.53	81.80	110.42
	1996	60.03	83.15	45.00	85.54	113.81
	1997	58.14	81.41	46.80	88.03	118.09
	1998	74.52	103.22	62.94	89.96	100.10
	1999	85.97	76.23	73.34	87.73	100.11
	2000	97.63	96.24	84.48	91.09	97.52
	2001	85.83	101.24	80.48	85.32	97.92
	2002	97.97	95.99	87.73	87.63	96.94
	2003	91.69	107.11	89.95	90.04	99.04
	2004	100.00	100.00	100.00	100.00	100.00

3.4.4.6. Industry Cost Competitiveness Index (CCI) & Industry Profitability Sub Sector Indices (IPI)

In the Industry Profitability Index we weigh out the Industry averages²⁹ of Return on Capital Employed (ROCE), Profit before Interest Depreciation and Tax-Manufacturing (PBIDTM) and Net Profitability Margin (CPM).

²⁹ Industry averages provided by CAPITALINE Industry Financials database

For the Cost Competitiveness Index, we use five important input costs’ measure, weighed together. As a percentage of sales, we considered raw material costs, power and fuel costs, employee costs, manufacturing costs and selling & administration costs. These costs combined, account for up to 90 per cent of the costs incurred by the firms in any Industry. In the table 7 only two sub industries are represented.

Table 6: Industry Profitability and Cost Competitiveness Indices

Sub Industry	YEAR										PROFIT ABILITY INDEX	COST COMPETITIVENESS
		ROCE	PBIDTM	CPM	Debt-Equity Ratio(Lat Raw Materials est)	Power n Fuel/Sale s	Empl o yee/Sale s	Manufac turing Expenses	Selling and Administr ation expenses			
Production, processing and preservation of meat, fish, fruits, vegetables, oils and fats.	1998	103	61	231	323	100	121	153	98	146	124	124
	1999	88	51	241	102	97	102	147	91	136	117	115
	2000	78	62	64	172	93	117	140	105	143	70	120
	2001	76	54	129	104	93	125	153	111	137	83	124
	2002	72	67	48	43	93	106	135	105	130	65	114
	2003	81	110	127	89	98	95	102	93	106	100	99
	2004	100	100	100	100	100	100	100	100	100	100	100
	2005	98	120	192	109	87	108	100	95	106	127	99
	2006	105	168	270	148	83	119	111	90	109	162	103
	2007	109	198	262	46	80	94	99	101	114	170	98
Manufacture of dairy product	1998	75	158	136	86	104	98	96	121	67	111	97
	1999	87	164	141	117	109	97	84	92	63	120	89
	2000	134	134	96	182	104	99	89	99	74	125	93
	2001	99	132	83	77	105	89	104	121	85	103	101
	2002	105	131	137	75	101	91	79	69	69	120	82
	2003	115	134	129	70	100	100	92	93	108	123	99
	2004	100	100	100	100	100	100	100	100	100	100	100
	2005	110	117	98	93	92	105	86	102	93	109	96
2006	102	94	60	68	104	104	56	171	72	90	101	
2007	100	88	104	67	107	86	52	66	89	98	80	

3.4.4.7. Scaled Manufacturing Competitiveness Index

Thus having reasonably covered all facets of a dynamic system that could influence competitiveness either directly or indirectly, we combine them to construct the Overall MCI for an industry. The final weights for the index are determined by partial correlation analysis of these indices with respect to productivity.

Table 7: Manufacturing Competitiveness Index - FP

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
YEAR	ECI	MC	DSC	PSC	FLC-PPP	FLC-DP	FLC-GP	FLC-OF	FLC-B	INDUST COST COMP	IC-PPP	IC-DP	IC-GP	IC-OF	IC-B	OVER ALL MCI	SCALED MCI
1995	104	232	81	67	75.89	110.42	108.83	98.17	81.71	106	124	111	116	141	186	271	86
1996	103	252	88	73	74.59	113.81	98.58	95.27	80.01	106	124	111	116	141	186	254	81
1997	102	228	87	78	80.09	118.09	95.42	96.26	84.42	106	124	111	116	141	186	255	81
1998	104	304	94	87	96.91	100.10	99.18	96.81	86.08	106	124	111	116	141	186	294	93
1999	104	394	94	89	97.54	100.11	99.14	98.60	88.63	101	117	120	118	122	167	299	95
2000	105	84	91	90	98.45	97.52	99.45	100.52	94.79	104	70	125	115	112	145	307	98
2001	105	84	97	91	97.85	97.92	100.32	98.65	92.46	103	83	103	83	91	123	308	98
2002	107	86	95	91	100.16	96.94	100.00	101.14	94.37	98	65	120	90	86	140	315	100
2003	102	255	99	94	99.79	99.04	100.27	102.85	90.35	98	100	123	108	84	128	314	100
2004	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	314	100
2005	99	125	107	101	100	100	100	100	100	99	127	109	115	119	100	316	101
2006	99	104	143	104	100	100	100	100	100	93	162	90	187	122	101	323	103
2007	99	104	143	103	100	100	100	100	100	85	170	98	227	105	322	323	103

The scaled MCI is a conversion to base 2004, of the Overall MCI. On the Scaled Index, one can determine the relative degree and direction of an increase or decrease in competitiveness of a particular Industry.

3.4.4.8. Sector Perception

The sector perception is an analysis of results from the questionnaire surveys conducted across a 100 firms for each of the four Industries examined in the study. This section augments our quantitative analysis and presents a means to understand current trends in the industry which in the case of hard data may take a longer period to reflect. The sector perception also offers the opportunity to understand industry sentiment ³⁰going forward. It examines factors affecting growth of firm, business and economic outlook.

30 Qualitative analysis of rational expectations better explains sentiment – a factor which could influence industry decisions. Since we study competitiveness over a 10 year period, the expectations of workers, consumers, and firms about future economic conditions are an essential part of the study.

3.4.5. Interpretation of Index

The Overall Scaled Index gives an idea of both, the direction of movement of the index and the quantum of change in the measure of competitiveness. If there is an increase in the Index from 100 to 101, then we conclude that competitiveness has gone up by 1 per cent. All the sub-indices are also interpreted in the same way. The only exception is in the case of the cost competitiveness index where the competitiveness of the sector goes up when cost index moves down. This is because cost variables and all other variables share an inverse relationship.

However, the index, as a composite number cannot be used to compare across sectors. For example, the index number in 2007 for Electronics and IT Hardware is 106, whereas the Food Processing Industry is 103. We cannot conclude from the above that Electronics and IT Hardware is more competitiveness than Food Industry.

The percentage change in the competitiveness measure can be interpreted from the absolute change in the Index. For example if an index increases by 1 point over a period of one year, then we can say that competitiveness has increased over the previous year by 1 percentage point.

3.5. Methodology for Study

Combinations of techniques were used to analyse the data as illustrated below:

- Time Series and Panel Data Methods
- Limited dependent models
- Multivariate Statistics
- Data Reduction methods
- In-time validation through causal functional forms (for example comparing actual trade data with construed indices)

In addition, we have used following techniques to integrate the qualitative inputs:

- Construction of diffusion indices and normalisation of component series
- Cross-correlation analysis
- Cyclical adjustment
- Weighing
- Peak-trough analysis

4. Manufacturing Competitiveness of Food Processing Industry

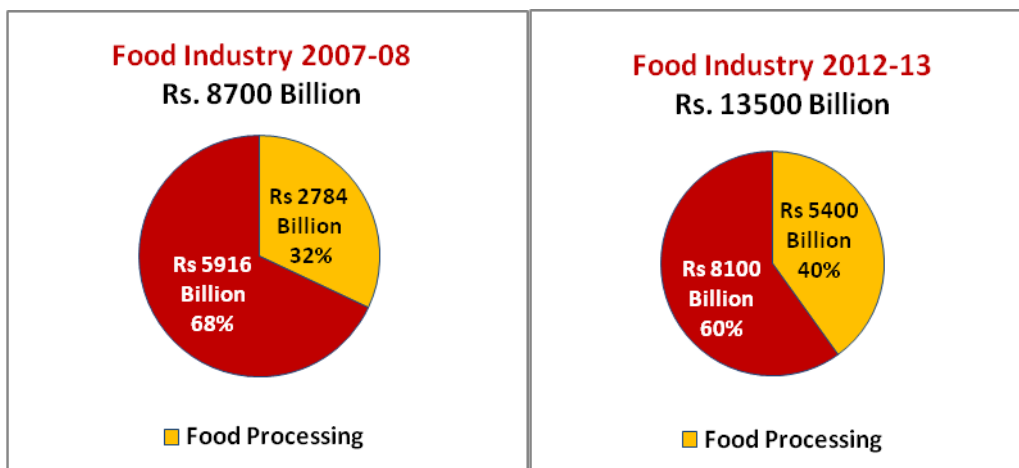
4.1. Introduction

India’s food-processing sector, still at a nascent stage, has a share of around 6 per cent of GDP. Its sales turnover is around Rs. 2.8 trillion, and it employs around 13 million people. Availability of raw materials, changing lifestyles and favourable policies has given a considerable push to the sector’s growth.

The Indian food processing sector holds considerable significance because of the linkages and synergies that it promotes between the two key sectors of the economy, i.e., primary sector (agriculture) and secondary sector (manufacturing). Strengthening this link is of critical importance to improve the value of agricultural produce; ensure remunerative prices to farmers and at the same time create favourable demand for Indian agricultural products in the world market. Thus a thrust to the food processing sector implies significant development of the agriculture sector and ensures value addition to it.

The growth of food processing sector has nearly doubled to 13.7 per cent during the last four years, and the Ministry of Food Processing has set a growth target of 20 per cent by 2015. A dominant segment of the food industry, food processing is estimated to be worth Rs. 2784 billion with a 32 per cent share³¹.

Figure 5: Food Industry 2007-08 vis-a-vis 2012-13



Source: Ministry of Food Processing

³¹ Minister of State for Food Processing Industries, Ministry of Food Processing

Estimates by the Food Processing ministry indicate that, by 2012-13, the size of the industry will be Rs. 5400 billion, around 40 per cent of the food industry.

According to the 'India Food Report 2008', investments to the tune of Rs. 940 billion are in the pipeline to be made in the food processing industry over the next three years. The opportunity for growth is huge given the fact that a mere 1.3 per cent of food is processed in India, while 80 per cent of food is processed in the developed world. With India's food production likely to double in the next decade, there is an opportunity for large investments in allied sectors like skills and equipment, food and food processing technologies in refrigeration and thermo processing and canning and packaging.

4.2. Food Processing Clusters in India

The clusters found in peninsular India i.e., Orissa, Andhra Pradesh, Tamil Nadu and Karnataka engage in rice processing. Spice processing and marine foods processing is carried out in the Kerala clusters. The clusters in Western India including Gujarat, Maharashtra and Rajasthan also Karnataka are mainly oilseeds, vegetables, spirits and other food clusters. The clusters in Himachal, Delhi and Uttar Pradesh have large fruit processing units. Karnataka also has coffee processing and spice processing clusters. West Bengal has tea processing clusters.

Table 8: Food Processing Cluster Location by States

STATE	CLUSTER LOCATION	STATE	CLUSTER LOCATION
Orissa	Balangir, Balasore, Cuttack, Ganjam, Koraput,Puri, Sambhalpur	Karnataka	Bijapur, Gulbarga, Bijapur Mysore, Mangalore, Shimoga
Maharashtra	Pune, Thane Aloka, Bhandra Chandrapur, Dhule Gadchiroli, Jalgaon, Nagpur, Nanded, Ratnagiri,Sudhudurg, Wardha,	Punjab	Amritsar, Gurdaspur, Sangrur Kapurthala, Moga

STATE	CLUSTER LOCATION	STATE	CLUSTER LOCATION
	Yavatmal		
Kerala	Kochi	Delhi	Delhi
Andhra Pradesh	East Godavari, West Godavari, Srikakulam, Vizag	Rajasthan	Alwar, Madhopur, Bharatpur Gangapur, Jaipur
Uttar Pradesh	Mazzafarnagar, Saharanpur	Tamil Nadu	Madurai, Thanjavur
Madhya Pradesh	Indore	West Bengal	Kolkata
Haryana	Karnal, Kurukshetra, Panipat, Kaithal	Himachal Pradesh	Kullu, Sirmaur
Bihar	Muzzafarpur	Gujarat	Rajkot, Ahmedabad

Source : www.nisiet-cluster.org

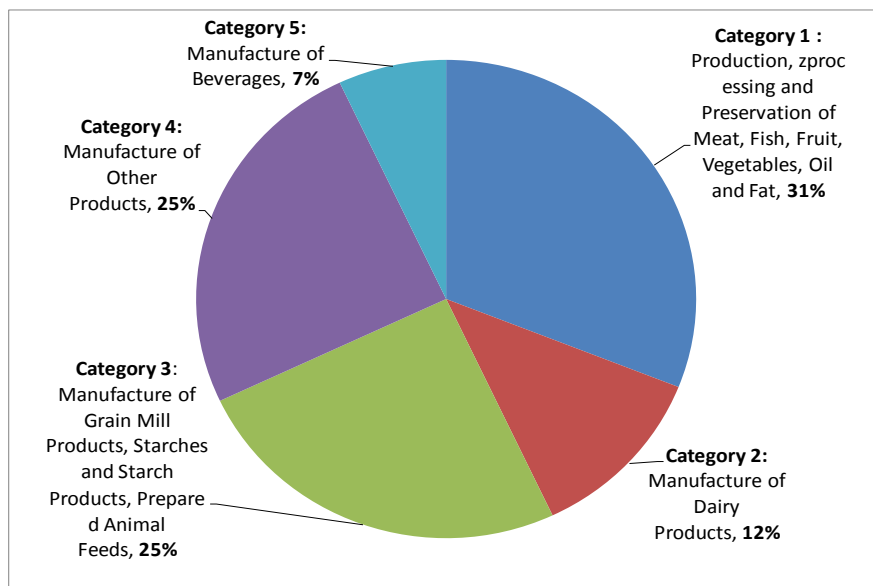
The food industry can further be divided into a number of sub-industries. For the purpose of index construction we follow the Annual Survey of Industry (ASI) classification.³²

4.3. Classification of Food Processing Industry

The production, processing and preservation of meat, fruit, fish, oils and fats makes up 31 per cent of the food processing market. The manufacture of grain mill products and other foods each makes up 25 per cent of the pie. The rest is constituted by the manufacture of dairy products and beverages.

³² NIC 2004 codes as given by ASI, Ministry of Statistics and Programme implementation

Figure 6: Classification of Food Processing Industry (2004-05)



Data Source : ASI

The constituents of the Sub-Industries in the Food Processing Sector are listed in *Table 10*.

Table 9: Food Processing Sub-Industries

Sub-industries	Constituents
Production Processing and Preservation of Meat, Fish, Fruit, Vegetables, Oils and Fats	Poultry , meat and fish products; fruit and vegetable jams, jellies, pickles, canned; edible oil and vegetable fat
Manufacture of Dairy Products	Processed milk, butter, cheese and other milk based sweets and drinks
Manufacture of Grain Mill Products, Starches and Starch Products, Prepared Animal Feeds	Milled cereals and pulses, corn, rice, ragi, wheat ; powders and mixes made with these

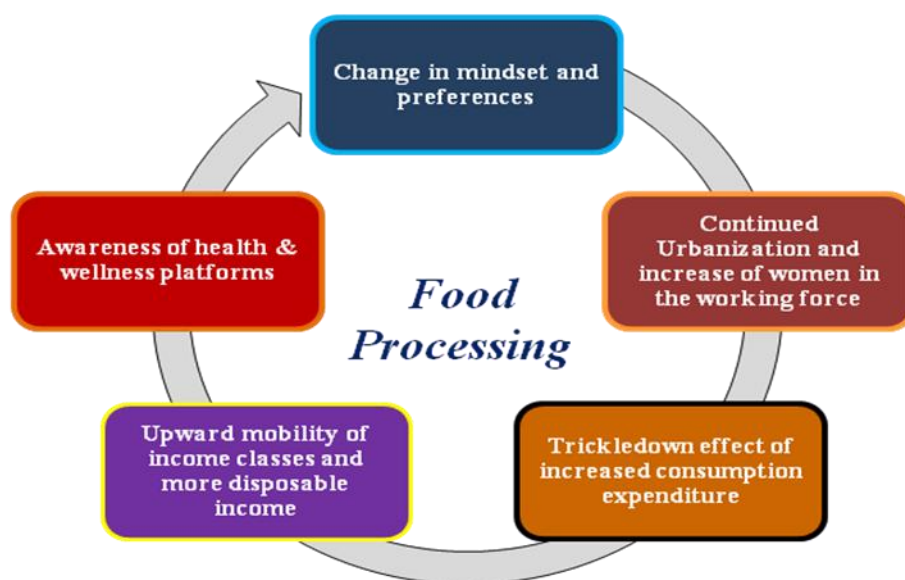
Sub-industries	Constituents
Manufacture of Other Food Products	Pasta, breads, cakes, pastries, corn flakes, ready to eat and ready to cook products, cocoa products, biscuits and segment of consumer foods
Manufacture of Beverages	Tea, coffee, soft drinks, beer, alcohol beverages, mineral and packaged water

Source: Annual Survey of Industry, National Industrial Classification

4.4. Key Drivers of Food Processing Industry

The drivers of the Food Processing Industry are represented below in *Figure 7*

Figure 7: Drivers of Food Processing Industry



- **Change in mindset and preferences:** There is an increased acceptance of packaged/ preserved food against conventional preference for fresh foods in the emerging consumerist economy.

- **Continued Urbanization and increase of women in the work force:** Home made food is found to be increasingly substituted with ready made easy to cook foods.
- **Trickledown effect of increased consumption expenditure:** In 2007, Consumption Expenditure on food items was around Rs. 6000 billion. This has shown a growth of 3.5 per cent CAGR during 2002-2007
- **Upward mobility of income classes and more disposable income:** India has a 350 million strong urban middle-class. The average Indian household spends 50 per cent of its disposable income on food.
- **Awareness of health & wellness platforms:** This trend has lead to the emergence of strong market for GM foods, organic foods and artificial drinks.

The above growth drivers of the Food Processing industry have given rise to a number of trends.

- There is a willingness amongst the consumers to try new products even as the consumption of value added products is rising.
- A tendency for the consumers is to shift away from unbranded to branded products.
- There is also a movement in the structure of the market as the unorganised sector gives way to organised retail chains. This entails also, an increase in the amount spent on supply chain activities. There is an increased investment in the food retail sector as marketing and distribution of processed food is made into an organised activity.

4.5. Food Processing –Policy Initiatives

The salient policy initiatives of the government with respect to the food processing sector are given below.

Fiscal Incentives

- Full repatriation of profits and capital is allowed
- Automatic approvals are allowed for foreign investment up to 100 per cent
- Income tax rebate is allowed (100 per cent of profits for 5 years and 25 per cent of profits for the next 5 years) for new industries in fruits and vegetables besides institutional and credit support

- Setting up of subsidized food parks is cluster based and public private partnership based

Export-Import Initiatives

- Custom duties on packaging machines have been reduced. Central excise duty on meat, poultry and fish have been reduced to 8 per cent
- Zero duty imports of capital goods and raw materials for 100 per cent export-oriented units has been established, sales of up to 50 per cent in domestic tariff area is allowed for 100 per cent export-oriented units
- There is a full duty exemption on all imports for units in export processing zones

Other Initiatives

- A boost has been given to R&D in the food sector with set up of the National Institute for Food Technology and Management in collaboration with Cornell University, USA
- The Agricultural & Processed Food Products Export Development Authority (APEDA) has been established to provide assistance with development of physical infrastructure, grading and packaging standards, modernization of packinghouses and financial assistance for infrastructure development.

4.6. SWOT Analysis of Food Processing Industry

An analysis of the strengths and weaknesses, opportunities and threats of the Food Processing Industry are given, in table 10.

Table 10: SWOT Analysis of Food Processing Industry in India

Strengths	<ul style="list-style-type: none"> • India is the worlds largest producer of milk, spices and second largest producer of fruits, vegetables and oilseeds • Largest livestock population • India’s relatively inexpensive but skilled labour force
Weaknesses	<ul style="list-style-type: none"> • Lack of processing and storage of perishables, semi perishables wastage of 35 per cent of total produce worth Rs 70 Billion/ Year

	<ul style="list-style-type: none"> • Supply chain infrastructure is weak • Food Safety and Quality Standards not stringent
Opportunities	<ul style="list-style-type: none"> • Processing levels are a mere 2 per cent in fruits and vegetables, 4 per cent in fish and 2 per cent in meat and poultry and 15 per cent in milk • 350 million strong urban middle class and changing food habits • India's share in the global processed food trade is only 1.6 percent at present
Threats	<ul style="list-style-type: none"> • Vulnerability to food borne diseases and contamination due to lack of attention to quality control in unorganized sector– reducing export competitiveness • Competition from other low cost production bases in Asia like Thailand and Indonesia

4.7. Cost Structure

We have drawn comparisons between Industry costs as a percentage of sales for raw materials, power and Fuel, Labour, Manufacturing and Selling and Administration between 2002 and 2007 for the five sub-sectors indicated in *table 11*.

Table 11: Cost Indicators of Food Processing Industry

Category	Year	Raw Materials	Power n Fuel/ Sales	Employee/ Sales	Selling and Administration Expenses	Other Manufacturing Expenses
Production, processing and preservation of meat, fish, fruits, vegetables, oils and fats.	2002	77%	3%	2%	7%	7%
	2003	81%	3%	2%	5%	6%
	2004	82%	3%	2%	5%	7%
	2005	71%	3%	2%	5%	6%
	2006	68%	4%	2%	6%	6%
	2007	65%	3%	2%	6%	7%
Manufacture of dairy product	2002	69%	2%	6%	7%	5%
	2003	68%	3%	7%	10%	7%
	2004	68%	3%	7%	10%	7%
	2005	63%	3%	6%	9%	7%
	2006	71%	3%	4%	7%	12%
	2007	73%	2%	4%	9%	5%
Manufacture of grain mill products,	2002	79%	4%	4%	7%	4%
	2003	80%	4%	4%	6%	5%

Category	Year	Raw Materials	Power n Fuel/ Sales	Employee/ Sales	Selling and Administration Expenses	Other Manufacturing Expenses
starches and starch products and prepared animal feeds	2004	79%	4%	3%	6%	4%
	2005	78%	4%	3%	6%	5%
	2006	84%	3%	2%	5%	3%
	2007	71%	2%	2%	5%	3%
Manufacture of other food products	2002	44%	3%	10%	10%	16%
	2003	45%	3%	9%	11%	16%
	2004	40%	5%	12%	11%	16%
	2005	45%	4%	9%	12%	16%
	2006	50%	3%	8%	10%	11%
	2007	52%	4%	8%	12%	11%
Manufacture of beverages	2002	28%	4%	7%	30%	23%
	2003	32%	4%	6%	30%	20%
	2004	29%	5%	7%	32%	20%
	2005	32%	4%	7%	32%	20%
	2006	27%	4%	6%	32%	19%
	2007	28%	4%	6%	32%	18%

Source: Data source-Capitaline

Cost of raw materials is the most important cost component in the foods industry. There has been a decrease in costs in the production of meat, fish, fruits vegetables, oils and fats and also in the production of grain mill products, starches and animal feeds and no change in production of beverages. There has been an increase in costs in the production of dairy products and the production of other foods. The falling costs in manufacture of meat, fish etc and grain mill products is attributable to fall in the prices of input materials, as the economy moves towards free trade regime which has rationalised duty structures³³. This can also be attributable to the firms moving up the learning curve as they put in place improved supply chain systems. However, when one looks at the other categories there has been a 3-4 per cent increase in costs and this can be attributed to the increase in the prices of input materials. The inputs in these categories are typically higher value added materials. For instance, in the dairy products category,

33 Zero import duty on capital goods and raw material for 100 per cent export-oriented units

the prices of milk solids continue to rise faster than other commodities³⁴. It exhibits lower supply elasticity compared to other markets. As purchasing power of the consumer increases, milk is one of the commodities demanded in greater measure. The same principle applies to the other foods category. Baked items and confectionaries are the largest components of other foods category. Many of the products in both of these components are highly dependant on milk solids. Power and Fuel costs range across the board from 2-4 per cent for all the food categories. There has been a 2 per cent point decrease in the labour costs across production of dairy products; grain mill, starches and animal feeds; and production of other foods sectors, owing to the increase in capital productivity. The selling and administration costs have increased for categories dairy products, production of other foods and production of beverages by 2 per cent. The costs excluding raw material costs for the production of other foods and the production of beverages are higher than the other sectors the need for marketing and allied activities like advertising and promotion and hence administration is more owing to the heterogeneous products and the efforts to differentiate products from competitors as the chunk of the production is in the organised sector. Cost of packaging ranges anywhere from 10 to 64 per cent of production costs. This contributes to the other manufacturing costs in the production of other foods and production of beverages sector.

The effect of positive and negative externalities, either through government or private initiative implicitly affects cost measures. For example, the effect of taxation may be difficult to capture as externalities are not amenable to measurement and quantification in a definite way. The resultant effects though can be studied via its effects on costs. However there may be some cancelling out of said externalities as say, an exemption or a subsidy from the government could counter some other negative effect on a firm weighing down its profitability.

4.8. Manufacturing Competitiveness Index - Food Processing

The Manufacturing Competitiveness Index for the Food Processing Industry has marginally moved up from 100, in the base year of 2004 to 103 in 2007. An index can be used to qualitatively measure change. Since the index has moved up, we say that there has been an increase in competitiveness. We could also

34 The consumer expenditure on dairy products has increased by a CAGR of 3 per cent from 2002-2007 but the price of dairy products has increased by a CAGR of 4 per cent in the same period. It is interesting to note however that the price of skimmed milk powder (milk solid form used as input in other foods industry) has increased at 10 per cent CAGR.

infer by how much. There has been approximately a 2.8 per cent increase in our measure of competitiveness in the Food Processing Industry. This has been due to primarily an increase in the demand competitiveness of the Food Industry. This translates into the fact that the consumption expenditure of food products has increased substantially in the country. The resulting effect is an increase in Industry profitability and reduction in per unit costs. The weight accorded to said factor in the index however is lower than productivity related changes and hence the very small change in the Index statistic.

Table 12: Manufacturing Competitiveness Index - Food Processing

YEAR	ECI	MC	DSC	PSC	FLC-PPP	FLC-DP	FLC-GP	FLC-OF	FLC-B	INDU ST COST COMP	IC-PPP	IC-DP	IC-GP	IC-OF	IC-B	OVERA LL MCI	Scale d MCI
1995	104	232	81	67	76	110	109	98	82	106	124	111	116	141	186	271	86
1996	103	252	88	73	75	114	99	95	80	106	124	111	116	141	186	254	81
1997	102	228	87	78	80	118	95	96	84	106	124	111	116	141	186	255	81
1998	104	304	94	87	97	100	99	97	86	106	124	111	116	141	186	294	93
1999	104	394	94	89	98	100	99	99	89	101	117	120	118	122	167	299	95
2000	105	84	91	90	98	98	99	101	95	104	70	125	115	112	145	307	98
2001	105	84	97	91	98	98	100	99	92	103	83	103	83	91	123	308	98
2002	107	86	95	91	100	97	100	101	94	98	65	120	90	86	140	315	100
2003	102	255	99	94	100	99	100	103	90	98	100	123	108	84	128	314	100
2004	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	314	100
2005	99	125	107	101	100	100	100	100	100	99	127	109	115	119	100	316	101
2006	99	104	143	104	100	100	100	100	100	93	162	90	187	122	101	323	103
2007	99	104	143	103	100	100	100	100	100	85	170	98	227	105	322	323	103

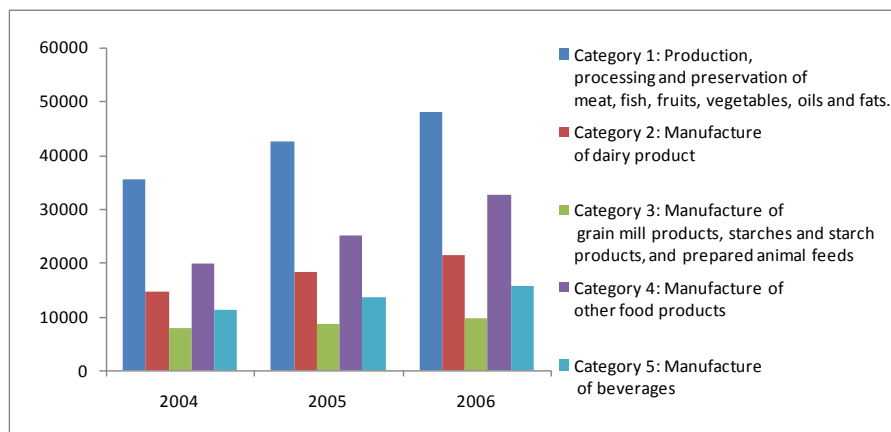
@ Variation in FDI (as % of total) movement has caused fluctuation in MC movement from Year 1999 to Year 2000

We examine below the factors that change the value of the MCI.

4.8.1. Key drivers of index movement

4.8.1.1. Macro and Exports

Figure 8: Food Processing Exports in USD Millions

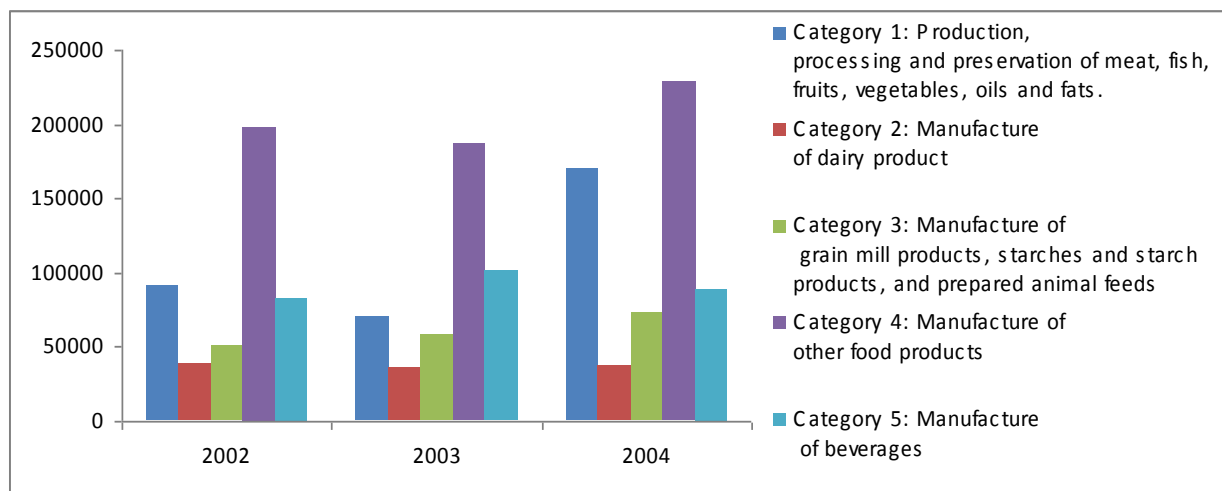


Data Source: RBI

The exports of category 1, 2 and 4 are steadily increasing. Products that have growing demand, especially in the Middle Eastern countries include pickles, chutneys, fruit pulps, canned fruits, and vegetables, concentrated pulps and juices, dehydrated vegetables and frozen fruits and vegetables. India is exporting egg powder, frozen egg yolk and albumin powder to Europe, Japan and other countries. Poultry exports are mostly to Maldives and Oman. Indian poultry meat products have good markets in Japan, Malaysia, Indonesia and Singapore. Casein and lactose, used as additives in baby food and confectionary as well as indian milk products such as ghee as well as condensed milk has a steady demand from other Asian and African countries. The exports of category 3 and 5 are more or less unchanged even as the production of these food categories caters primarily to the domestic market. However, export competitiveness has gone down to 99 in 2005 from 2004 as the percentage share of the food processing products has been decreasing in the share of total goods exports from India. The share of food processing exports has come down from 6 per cent in 2002 to 3 per cent in 2007³⁵.

35 Export figures according to RBI Handbook of Statistics on Indian Economy.

Figure 9: Food Processing GFCF in Rs. Crores

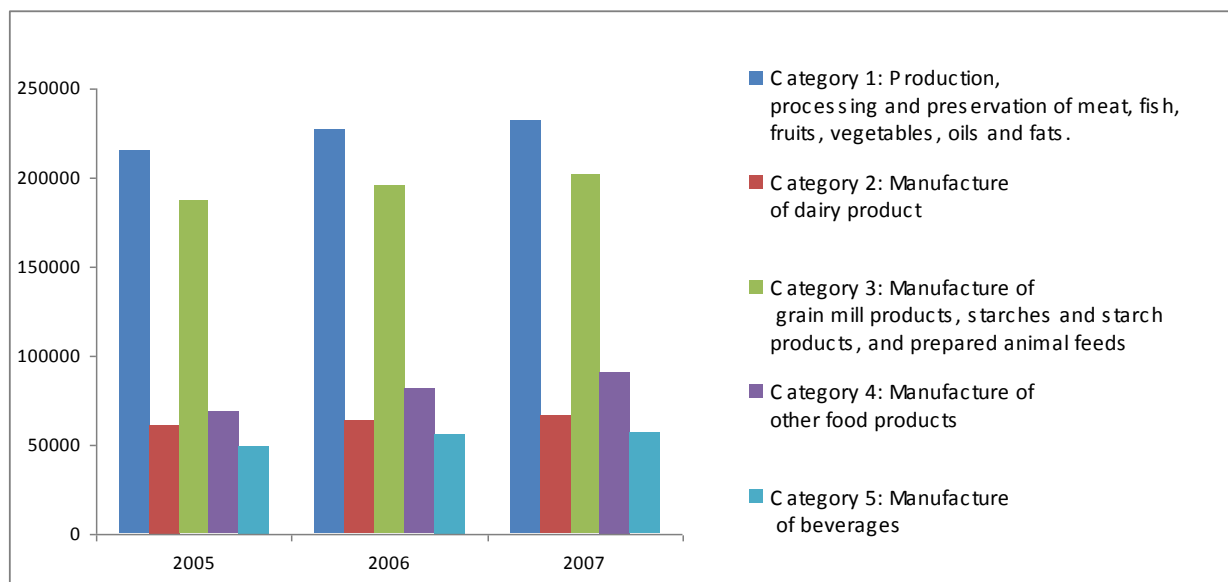


Data Source : ASI

The gross fixed capital formation for category 2 and 3 show a steady rising trend. There has been an increased investment in category 2 after it was liberalised from government control after abolishment of the Milk and Milk products order in 2001, which allowed abolishment of licensing and emphasis on quality and food safety which gave way to private player entry into the market and strengthening of backward linkages through contract farming .With consumption patterns moving towards preference for processed food, the category 3 is building up potential to service the baking industry. Category 1 and 4 show sharp spurts of growth. Investments in category 1 are growing on the backs of domestic as well as exports led growth for processed primary foods The macro competitiveness index shows an increase to 125 in 2005 and then falls back to 104 in 2006. This is due to the drop in share of FDI flowing into the Food Processing sector relative to other sectors which at Rs. 4500 crores in 2004 was only 2.5 per cent of total FDI flowing into India.

4.8.1.2. Demand Competitiveness

Figure 10: Consumer Expenditure of Food Products



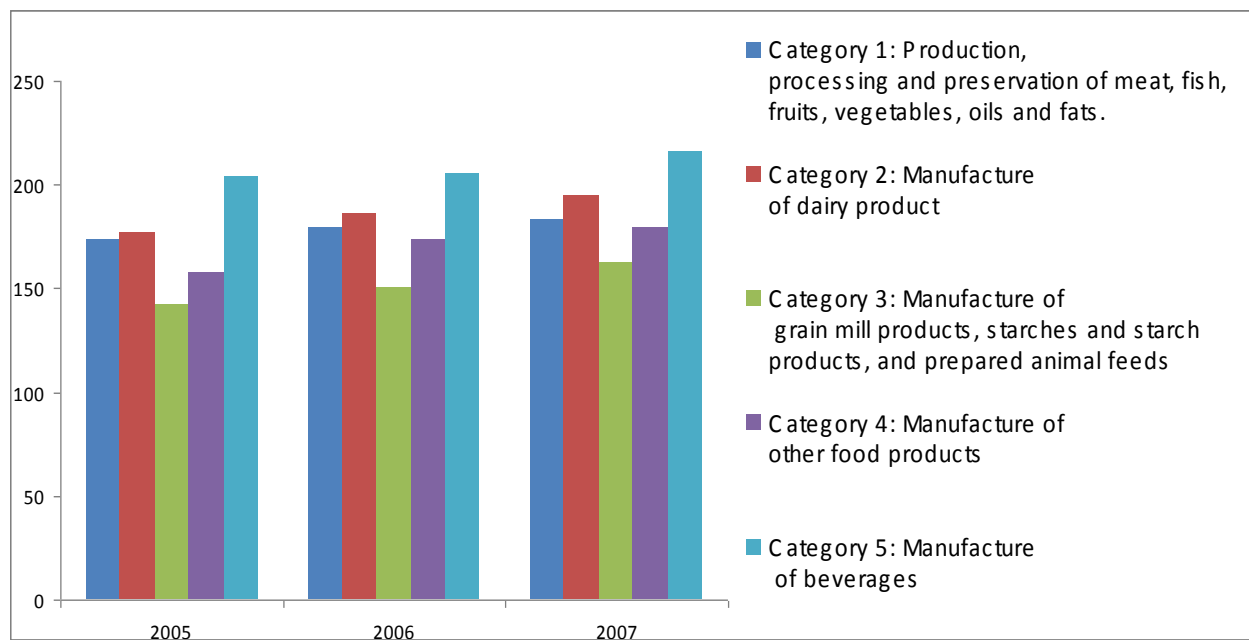
Data Source: NSSO

There is slight growth in categories 1, 2 and 3. All these sub – sectors have a 3 year CAGR of 3-4 per cent. In contrast category 4 has a 14 per cent CAGR for the same period³⁶. Thus there is strong growth in the other foods category. The market penetration for these goods is rapidly increasing. This is true also for category 5 but to a lesser extent which has been growing at a CAGR of 7 per cent over the last 3 years. The market for beverages is expected to grow rapidly in the next decade as higher percentage of population moves into the middle income category.

³⁶ Computed from NSSO Consumption Expenditure figures 2004-2007

4.8.1.3. Price Competitiveness

Figure 11: Food Products - Wholesale Price Index

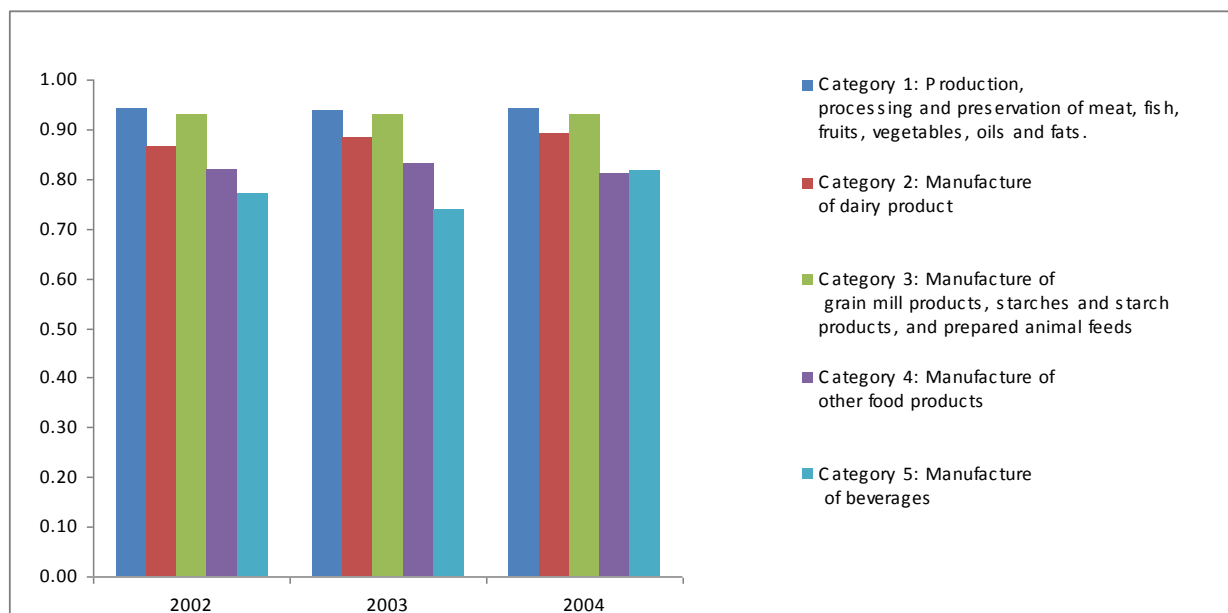


Data Source : *eaindustry.nic.in*

The Price Competitiveness Index increases from 100 in 2004 to 103 in 2007. All categories have shown an increase in prices. The reason is primarily escalated transportation price due to high petroleum costs. The prices of petrol and diesel have on average gone up by 10 per cent and 20 per cent in the period 2003-2007.

4.8.1.4. Firm Level Competitiveness

Figure 12: Overall Productivity – Input/ Output Ratio

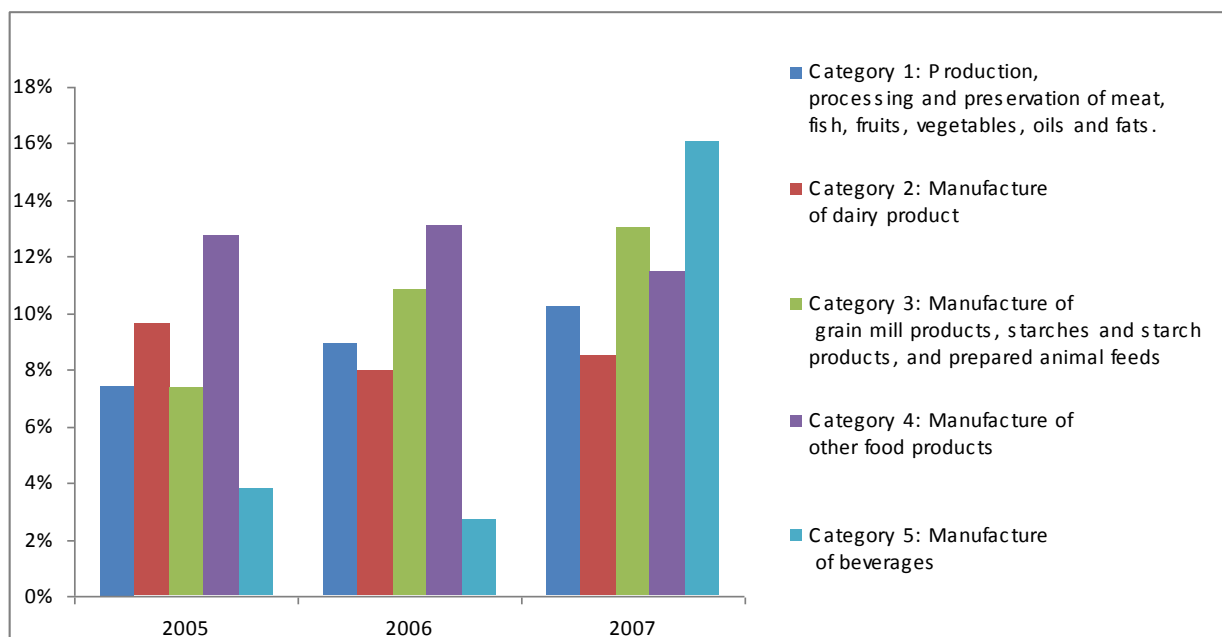


Data Source: Annual Survey of Industry

The overall productivity of the Food Processing Index sees no major changes in trend except the slight increase in the category 2 because of the greater infusion of technology in the dairy products sector. This is due to the entry of foreign players and increased investment after the dairy sector was liberalised in 2001.

4.8.1.5. Financial Competitiveness

Figure 13: Food Processing Industry Profitability - ROCE



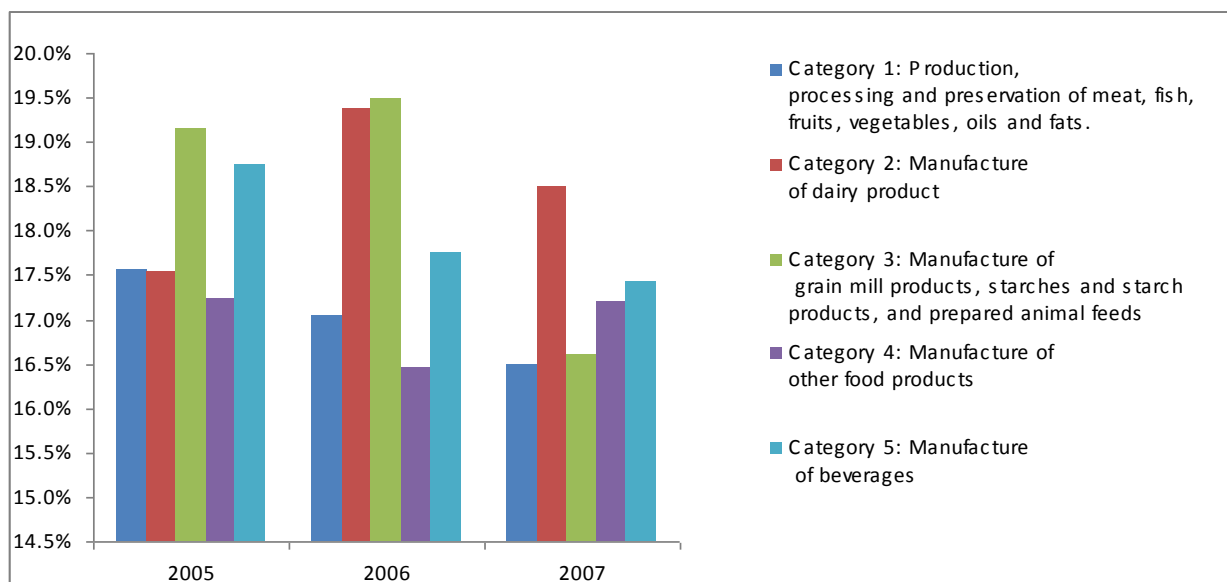
Data Source : CAPITALINE

The profitability of category 1 and 3 have been increasing sharply due to the proliferation of retail selling of these products. The profitability in categories 2 and 4 have fallen considerably. Despite topline growth remaining strong in category 4 as a result of price increases and volume growth, profitability came under pressure because of the phenomenon of the consumers shifting to low price point products in the wake of higher prices. The category 5, beverages trend shows a sharp upturn in 2007, ending up higher than all other foods categories. Apart from providing strong growth, India also provides attractive profit margins due to the consolidated nature of the industry for instance the top two beer market players in India account for 75 per cent of market share³⁷. Hence prices do not fall due to the entry of new products.

³⁷ Times of India - citing Industry sources.

4.8.1.6. Cost Competitiveness

Figure 14: Food Processing Cost Indicators



Data Source : CAPITALINE

The Cost competitiveness index has fallen from 100 in 2004 to 88 in 2007. This shows an increase in competitiveness as the cost index and the overall MCI are negatively correlated. The general trend in the above chart shows a fall in costs mainly due to the increased capital efficiency as shown by the increased capital productivity in this industry as a result of increased investments notably in category 2 and 3. However the costs in manufacture of category 4 have been going up due to increase in prices of input materials like wheat and milk powder.

4.8.2. Regional Competitiveness

In the case of production of meat, fish, fruits, vegetables, oil and fats, the per unit wage productivity of the Western region is the highest at 186.58 compared to the Indian average of 150. This means that for every unit of wage, the corresponding share of input is 186.58 times. The labour productivity again, is highest in the West at 70. This measures the Output to Wage ratio. Output for the western region is 70 times the per unit wage paid. The indian average is only 67 per cent of the Western region. The Southern region has the lowest labour productivity at 41 per cent of Western level. Capital productivity ratio is also

the highest in the Western region while the Eastern region has the lowest capital productivity at 59 per cent of West. Hence the west has a clear advantage in the production and processing of meat, fish, eggs, fruits, vegetables, oils and fats. This is because the centres of production of fruit, vegetables and oilseeds and even farming activity is highly concentrated in the west in states such as Maharashtra and Gujarat.

When comparing the production of dairy products across regions, we see that the Northern region has the best per unit wage productivity ratio, the highest labour productivity ratio and the best factory to output ratio at 200 per cent of the Indian average. But the Southern region has the best capital output ratio and the Eastern region has the highest overall productivity ratio of 0.92 compared to the Indian average of 0.91. Hence this the production of dairy products presents a mixed picture but the north has an advantage in terms of labour considerations. The Northern region has the most advantageous source of raw material – milk. The livestock population in India is highly concentrated in the North.

In the production of grain mill products, starches and animal feeds, the Western region scores the highest productivity ratio on all counts with atleast a 25 per cent higher productivity compared to other regions. Hence The West is adept at producing grain milled products. This is because the Western region notably states like Gujarat and Maharashtra have most of the 516 large scale modern mills as compared to other regions³⁸.

The West exhibits the best labour productivity ratio and factory to output ratio at 200 per cent of Eastern India in production of other foods. However the Eastern region has the best capital productivity and overall productivity at 0.85. This is probably due to historical advantages of the modern processed food categories like biscuits and confectionaries in the Eastern region .

The production of beverages presents quite a mixed picture with each region being dominant in a particular sphere, the West in terms of labour productivity, the South in terms of factory to output, the North in terms of capital productivity and the East in terms of overall productivity. Hence we see that no one area has an absolute advantage in its production, rather the advantage rests with the state government policies.

38 Food Processing Ministry report 2006

4.8.3. Sector Perception

Out of the 100 firms surveyed 37 per cent had revenues over Rs 10 crores and 12 per cent had revenues over Rs 500 crores.

Table 13: Food Processing Sector Perception

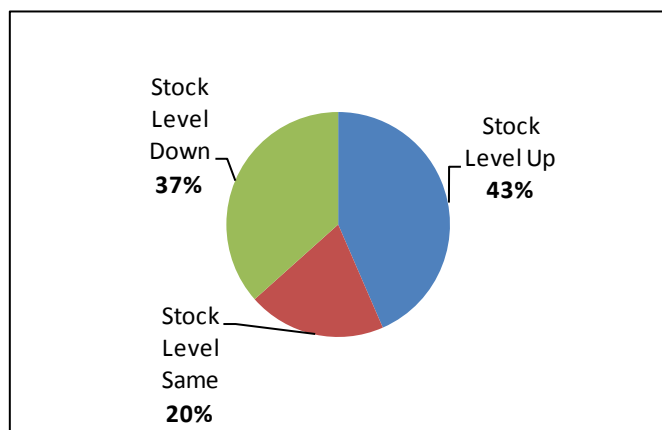
Factors Limiting Growth of Firm	Rank	Percentage of Respondents
Access to bank credit	1	62%
Capital cost	2	45%
Shortage of skilled labour	3	43%
Insufficient demand for products	4	44%
Taxes and Regulations	5	46%
Exchange rate	6	54%
Operating costs	7	48%
Competition from Imports	8	44%
Access to market	9	44%
Employee costs	10	62%

Source: IMaCS Sector Perception Survey

Of the 10 factors ranked against limiting growth of the firm, Access to Bank Credit (Rank 1); Capital Cost (Rank 2) and Shortage of Skilled Labour (Rank 3) topped the list of concerns.

On questions of Business situation compared to the past 3 months, 65-80 per cent of respondents ranked no change in financial situation, new orders and an increase in number of people employed. 77 per cent of respondents said there was an increase in the selling price. However, 37 per cent of respondents reported a drop in current stock levels against levels prevailing 3 months previously. 55 per cent of respondents reported improved profit margin in the current quarter versus the previous quarter. 22 per cent reported decline in profits against previous quarter and 23 per cent reported a “no change”.

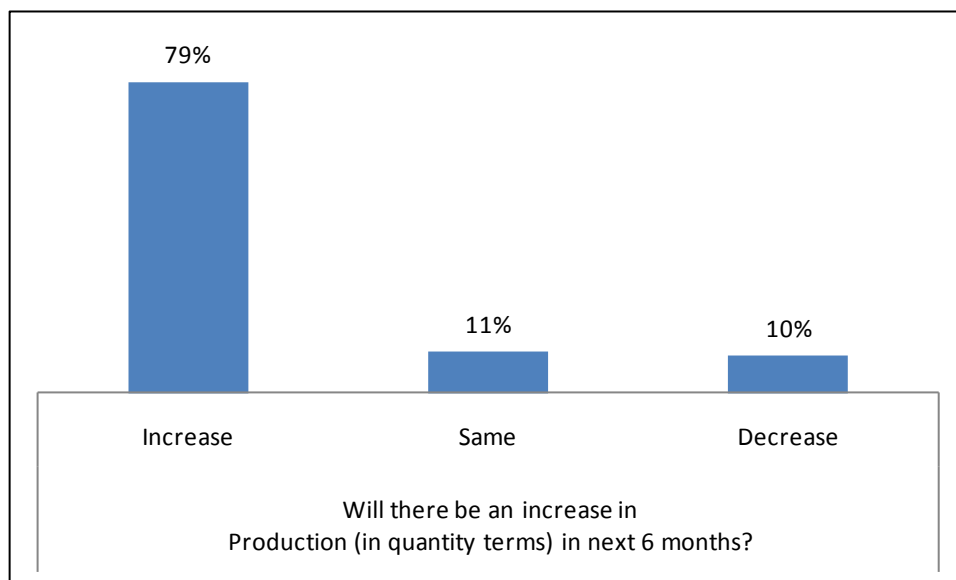
Figure 15: Current Firm Stock Levels



Source: IMaCS Sector Perception Survey

The section on Business Confidence for the next 6 months reveals that, 55-88 per cent of respondents maintain positions on ranking positively financial situation, selling price, new orders. Only 42 per cent think there will be an increase in number of people employed. 18 per cent respondents think that new orders will decrease and 11 per cent think that selling price will go down. Also, 23 per cent of respondents report an expected drop in future stock levels against levels prevailing currently.

Figure 16: Expected Production Levels after 6 months



Source: IMAcS Sector Perception Survey

79 per cent of respondents think that there will be an increase in production in quantity terms of electronics products in the next 6 months. 60 per cent of respondents believe that capital finance requirements and 77 per cent believe that cost of raw materials would go up. 43 per cent of respondents report a decrease in the capacity utilisation of the current year versus the previous.

78 per cent of respondents believe that there is no scope for an increase in demand for exports and also, they are not certain if their products are facing competition from imports.

4.9. Recommendations

Challenges

- The food processing sector in India is heterogeneous, dispersed, and mostly unorganized. It includes diverse types of production units ranging from traditional household industries to high-tech industries. Yet, it is often considered to be limited to SSIs and rural livelihoods. Due to the unorganized nature of the sector, entrepreneurs and workers face difficulties in accessing

government schemes. Consequently, the workers engaged in the MSE³⁹ sector have very little bargaining power. Unable to take up aggressive marketing like big industries, they cannot find markets despite good quality and competent prices.

- The dispersed, unorganized nature of the industry raises concerns with respect to quality, bulk production, and inability of meeting big orders. Often individual units lack packaging facilities. As a result, markets, especially for traditional MSEs, are shrinking though the demand for organized retailing of food is growing. Many non-traditional MSEs serve as ‘captive units’ for big industries. Thus money is held up, further impoverishing the workers.
- Though food processing units have schemes for credit availability, there is an acute non-availability of working capital. The fall in the percentage share of credit to MSEs under priority sector can, in part, be attributed to the expanding scope of the priority sector lending to accommodate fast-growing areas such as housing, exports, etc. Though the Nayak Committee (set up by RBI in 1991–92) had recommended working capital to the SSEs at 20% of their annual turnover, SSI units together received only 13.3% of their production value from scheduled commercial banks (SCBs) in 2005–06. Lending to micro enterprises, which is stipulated at 60% of the total credit to MSE sector, has fallen from 51.2% in 2002–03 to 45.1% at the end of 2005–06. Moreover, difficulty in arranging collaterals or third-party guarantees continues to be a problem. The high cost of credit to MSEs also impacts the competitiveness of their products.⁴⁰
- Most food processing units do not have money to invest in market research and are unable to carry out design and technical improvements to keep up with market demands. Unlike big businesses, they cannot invest in advertising and packaging. This limits their ability to tap markets and attract consumers. There is a need for the establishment of cold chain, low cost pre-cooling facilities near farms, cold stores and grading, sorting, packing facilities to reduce wastage, improve quality and shelf life of products.

Strategies

In order to address the above challenges the following significant interventions are proposed:

³⁹ Medium and Small Enterprises

⁴⁰ Planning Commission, 11th FYP

- The Eleventh Plan considers the MSE sector as an important segment of industry which is unorganized and hence provides several schemes to food processing industry with special enabling provisions. Support for women's empowerment and minority development has been stressed upon. The effort on the part of the government should be to organize this sector by creating clusters and SHGs to improve their bargaining power and to enable them to pool resources. These groups should be given control over cluster decisions and be provided support in the form of credit, inputs, expertise, and marketing links. Area-specific Agro Food Park clusters should be developed, dedicated to processing of the predominant produce of the area e.g., apple in J&K, pineapple in North East, Lichi in Bihar, Mango in Maharashtra & Andhra Pradesh etc.
- Banks should be encouraged to ensure that all loans upto Rs 5 lakh to MSEs (excluding credit from MFIs) are given free of collateral at the interest rate of 8%. As international experience indicates cluster based financing is the most effective way of providing credit to MSEs, MSE clusters based on the PPP model should be adopted on a pilot basis.⁴¹
- Marketing campaign for food clusters using the media and icons should be launched. Food processing industries can be linked to tourism. Giving an 'industry' status to household industries will entitle them to tax benefits and export promotion schemes, makes them eligible for banking and credit support, helping them lobby for protection of intellectual property. Mapping of the food processing sector should be carried out and registration of products under the GI Act should be encouraged and supported. .
- There should be strengthening of extension services to the farmers and co-operatives in the areas of post harvest management of agro-produce to encourage creation of pre-processing facilities near the farms like washing, fumigation, packaging etc. There should be efforts to encourage setting up of agro-processing facilities as close to the area of production as possible to avoid wastage and reduce transportation cost. Roads, transport, water, and other infrastructure problems, or their total absence, push up operating costs of MSEs as against goods produced in more favourable conditions in other countries and it is, therefore, imperative for the government to develop adequate infrastructure.
- Food processing units at a cluster level should be able to access production supply units around the world through the Internet. Information dissemination about availability of recent technologies, literature on modern machinery, contact details of suppliers, etc., is essential. A Technology Bank

⁴¹ Planning Commission, 11th FYP

could be set up for this purpose. This would enable development of new technologies in food processing. This could be facilitated by a mechanism helping quick transfer of technologies to field through a net work of R&D Institutions having a Central Institute at the national level with satellite institutions located strategically in various regions to cover up the whole Country and to make available the required testing facilities. This could be done by establishing a new institution or strengthening an existing one.

- The government should consider developing a Futures Market or an equalisation fund for food grains, pulses, fruits, vegetable, milk, meat and poultry in the interest of the farmers and the processors ensuring minimum price stability to the farmer and a sustained supply of raw material to the processor or compensation for shortages.⁴²

4.10. Summary

The Manufacturing Competitiveness Index for the Food Processing Industry has marginally moved up from 100, in the base year of 2004 to 103 in 2007. An index can be used to qualitatively measure change. Since the index has moved up, we say that there has been an increase in competitiveness. We could also infer by how much. There has been approximately a 2.8 per cent increase in our measure of competitiveness in the Food Processing Industry. This has been due to primarily an increase in the demand competitiveness of the Food Industry. This translates into the fact that the consumption expenditure of food products has increased substantially in the country. The corresponding effect was an increase in Industry profitability and reduction in per unit costs. The weight accorded to said factor in the index however is lower than productivity related changes and hence the very small change in the Index statistic.

Majority of exports from India in the Food Processing sector are in the primary processed foods category. Nearly 75% of this industry is unorganised. Hence the sector is not able to reap the benefits of economies of scale. Also there is lack of investment in technology in cold storage, transportation and supply chain systems. This has curtailed productivity, reflecting on the slow growth in competitiveness even though the food industry is firmly propelled by rapidly increasing consumption expenditure.

⁴² Ministry of Food Processing

The Regional Competitiveness analysis for the Food Processing Industry presents the fact that the Western region is competitively placed in terms of the production of primary processed products from fruits, vegetables, oilseeds, grains and meat. This is due to the easy access of raw materials. The Northern region is competitive in terms of the production of processed dairy products. All four regions are equally placed in terms of beverage production. This is due to the fact that government policies have more bearing on these industries compared to other factors.

The Sector Perception survey reveals that of the 10 factors ranked against limiting growth of the firm in the Food processing industry, Access to Bank Credit (Rank 1), Capital Cost (Rank 2) and Shortage of Skilled Labour (Rank 3) are cause for most concern. Around 65 per cent of those surveyed indicate a positive outlook on present and future (6 months) business confidence. 78 per cent of respondents believe that increase in production levels will not be due to export growth, rather because of increase in domestic demand.

5. Manufacturing Competitiveness of Leather and Leather Products Industry

5.1. Introduction

The post liberalization era has opened up a plethora of opportunities for the Indian leather industry. With global players looking for new sourcing options, India stands to gain a bigger share of the global market. India has a 2.32 per cent share⁴³ in the global leather trade and ranks eighth in the world in terms of the country's foreign exchange earnings from the industry. The composition of exports has also been changing, with more and more value added products being exported. India has distinct advantages in the leather industry in terms of availability of raw materials. India has the largest livestock population in the world. This has enabled India to become a significant player in the world leather market, with exports growing at 8 per cent CAGR.

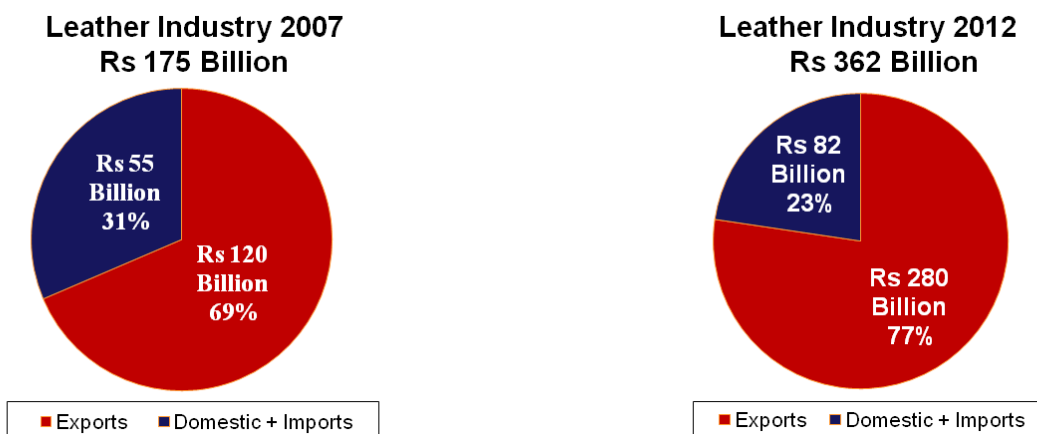
India's leather industry is worth around Rs 175 billion. Exports of leather and leather products accounts for nearly 70 per cent of the total industry. It is projected to be around Rs 362 billion industry by 2012-13 and its share is estimated to go up to 77 per cent. Around 56 per cent of the market is constituted by the Footwear industry and the remaining 44 per cent is attributed to production of other leather products⁴⁴. Around 70-75 per cent of the industry capacity is accounted by the small scale and tiny industry segment. The organized Leather and Leather products industry employs around 0.22 million people. The Leather Industry as a whole employs around 2.5 million persons.

The major leather products and exports from India are hides and skins such as cow and bull calf, sheep nappa, goat skin, kid leather, wet blue etc. Footwear and footwear components like shoes, shoe uppers, soles etc., leather garments, leather gloves, leather saddlery goods, leather travel bags and totes, leather purses, wallets, briefcases etc..

43 Center for Leather Exports

44 Other leather products include tanning and dressing of leather, manufacture of luggage handbags, saddlery & harness, garments and accessories.

Figure 17: Leather Production in India



5.2. Leather Clusters in India

Leather and leather products production is centred in southern, northern and eastern India. Key production units are located in Tamil Nadu, West Bengal, Uttar Pradesh, Punjab, Karnataka, Andhra Pradesh, Haryana and Delhi

Figure 18: Leather Clusters in India

Regions	Cities
Northern	Jalandhar (Punjab), Delhi, Kanpur and Agra (Uttar Pradesh)
Eastern	Kolkata (West Bengal)
Western	Mumbai (Maharashtra)
Southern	Chennai, Ambur and Ranipet (Tamil Nadu); Hyderabad (Andhra Pradesh); Bangalore (Karnataka)

Source: Centre for Leather Exports

Tamil Nadu is the biggest leather exporter in the country and the south accounted for 43 per cent of the country's share in 2007.⁴⁵

5.3. Classification of Leather Industry

The Leather Industry can be classified into two categories as given in *Table 15*.

Table 14: Classification of Leather Industry

Sub Categories	Constituents
Leather Products	Tanning and dressing of leather, manufacture of luggage handbags, saddlery & harness, garments and miscellaneous leather goods
Footwear	Leather shoes, leather sandals and chappals, leather-cum-rubber/plastic cloth sandals and chappals

⁴⁵ India Brand Equity Foundation

5.4. Key Drivers

The Key Drivers of the Leather industry are as follows:

Figure 19: Drivers of Leather Industry



- **Rising Disposable Incomes:** India has a large and growing middle income class constituting 350 million persons. The penetration level for footwear is only around 60 per cent⁴⁶.
- **Abundance of Leather:** India has the largest livestock population in the world. It has 22 per cent of the world's large animals (cows, buffaloes, camels) and 10 per cent of the small animals (goat, sheep, calves).
- **Improved Design Capabilities:** India has a historical advantage in the field of leather manufacturing and design. Coupled with this there is a rapid influx of foreign technology through foreign collaborations with indigenous firms.

⁴⁶ Indian Brand Equity Foundation

- **India's emergence as a low cost manufacturing base:** There is an abundance of skilled labour in our country available at competitive rates. Raw materials are easily available.
- **Government policy:** The government policies in the leather sector are conducive to the easy set up and operation of leather producing units. The leather clusters in the country enjoy numerous set-up and export incentives.

5.5. Policy Initiatives

Salient policy initiatives of the government with respect to the Leather and Leather Products sector are given below.

Trade Incentives

- 1) Inter-State Trade Council has been set up to facilitate an enabling coordination between the Central and State Governments in trade policy matters
- 2) Through the Export Promotion Capital Goods scheme designated for the SSI sector - export obligation has been brought down from 8 times of duty saved to 6 times
- 3) All categories of exporters having past export performance can now avail the Advance License for annual requirement
- 4) Target Plus scheme has been announced in Foreign Trade Policy 2004 to reward incremental exports
- 5) Special facility introduced to the Status Holders in the erstwhile EXIM Policy 2003-04 has also now been made operational.
- 6) At present, the government of India recognizes Premier Trading Houses based on an export turnover of Rs.10,000 crores.
- 7) For Advance Licenses issued prior to 1.4.2002, the requirement of MODVAT/CENVAT certificate dispensed with in cases where the Customs Notification itself prescribed for payment of CVD. This will help in closure of a number of pending advance licences.

- 8) Supply of an Intermediate product by the domestic supplier directly from their factory to the Port against Advance Intermediate Authorisation, for export by ultimate exporter, has been allowed.
- 9) In case of Advance Authorisation for Annual Requirement where Standard Input-Output Norms are not fixed, the provisions in Customs Notification have been amended in line with Foreign Trade Policy.
- 10) At present, DEPB/Duty Credit Scrip can be used for payment of duty only on items which are under free category. The utilization is now extended for payment of duty for import of restricted items also.

Investment Incentives

- 11) Foreign equity upto 100 per cent is allowed, subject to certain conditions.
- 12) Foreign equity upto 51 per cent is accorded automatic approval in several key areas
- 13) Free repatriation of profits and capital investment is permitted
- 14) Foreign investors need not have a local partner

5.6. SWOT Analysis of Leather Industry

Given below in *Table 16* is an analysis of the Leather Industry using the SWOT analysis

Table 15: SWOT Analysis of Leather Industry

Strengths	<ul style="list-style-type: none"> • High Growth <ul style="list-style-type: none"> ○ 4th largest manufacturer of leather garments in the world (16 million pieces) ○ 4th largest exporter of leather goods in the world (63 million leather goods and 52 million gloves) • Ready availability of highly skilled and cheap manpower
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	<ul style="list-style-type: none"> • Large raw material base – livestock and goats • Policy initiatives taken by the Government • Capability to assimilate new technologies and handle large projects • Continuous emphasis on product development and design up gradation
Weaknesses	<ul style="list-style-type: none"> • Lack of warehousing support from the government • International price fluctuation • Skills shortages resulting in high labour charges • Lack of strong presence in the global fashion market • Lack of awareness of international standards by many players
Opportunities	<ul style="list-style-type: none"> • Rising potential in the domestic market • Growing fashion consciousness globally • Use of information technology and decision support software to help eliminate the length of the production cycle for different products • Use of e-commerce in direct marketing • Growing demand for fine leather like suede
Threats	<ul style="list-style-type: none"> • Majority of the industry is unorganized – 60 per cent • Limited scope for mobilizing funds through private placements and public issues (many businesses are family-owned) • Difficulty in obtaining bank loans resulting in high cost of private borrowing • Stricter international standards

	<ul style="list-style-type: none"> • High competition from East European countries and other Asian countries • Lack of communication facilities and skills
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5.7. Cost Structure

We have drawn comparisons between Industry costs as a percentage of sales for raw materials, power and Fuel, Labour, Manufacturing and Selling and Administration between 2002 and 2007 for the two sub sectors in the Leather and Leather Products industry as given in *table 16*.

Table 16: Cost Indicators

Category	Year	Raw Materials	Power and Fuel/ Sales	Employee/ Sales	Selling and Administration Expenses	Other Manufacturing Expenses
Tanning and Dressing of Leather, Manufacture of Luggage Handbags, Garments, Saddlery and Harness	2002	60%	2%	7%	9%	14%
	2003	61%	2%	7%	10%	15%
	2004	57%	2%	7%	10%	16%
	2005	63%	2%	6%	10%	16%
	2006	58%	3%	6%	10%	17%
	2007	62%	2%	6%	9%	17%
Manufacture of Footwear	2002	64%	3%	14%	12%	5%
	2003	63%	3%	14%	12%	7%
	2004	59%	3%	12%	14%	6%
	2005	74%	2%	11%	13%	6%
	2006	62%	3%	11%	13%	5%
	2007	65%	3%	7%	14%	5%

Source: Data source – Capitaline

Raw materials cost account for roughly 60 per cent of total costs in the Leather Industry. Raw materials costs in the have gone up in both categories as the domestic supply of hides falls short of the demand for them due to increase in demand for finished products exports from India. Hence we have to depend on increased import of raw hides and skins. The power and fuel costs have remained constant. The role of labour is losing significance as technology permeates the manufacturing process especially in the

footwear segment. Other costs see a rise because of compliance with environmental protection policies of the government. Selling and administration costs see a rise because of expanding firms and activities associated with marketing and selling these products as demand rises in the domestic market in tandem with the foreign markets.

The effect of positive and negative externalities, either through government or private initiative implicitly affects cost measures. For example, the effect of taxation may be difficult to capture as externalities are not amenable to measurement and quantification in a definite way. The resultant effects though can be studied via its effects on costs. However there may be some cancelling out of said externalities as say, an exemption or a subsidy from the government could counter some other negative effect on a firm weighing down its profitability.

5.8. Manufacturing Competitiveness Index – Leather Industry

The Manufacturing Competitiveness Index for the Leather and Leather Products Industry has moved up from 100, in the base year of 2004 to 127 in 2007. There has been approximately a 27 per cent increase in our measure of competitiveness in the Leather Industry. This has been due to primarily an increase in the economic and macro competitiveness of the Leather Industry. This translates into the fact that the foreign investment into the country in Leather products has increased substantially in the country. The corresponding effect is an increase in exports and thus an increase in profits. The leather industry revenues are made up to 70 per cent by exports. Thus this industry is highly dependent on international leather market.

Table 17: The Leather and Leather Products Index

YEAR	ECI	MC	DSC	PSC	FLC-TDL	FLC-MF	INDUST COST COMP	IC-TDL	IC-MF	Scaled MCI
1995	98	560	64	107	142	138	100	94	54	170
1996	99	479	68	111	138	129	100	94	54	165
1997	96	450	71	106	113	127	100	94	54	161
1998	99	544	72	102	84	89	100	94	54	134
1999	101	681	83	101	93	95	100	123	60	105
2000	97	134	94	108	101	98	93	91	70	122
2001	98	100	100	110	99	98	94	83	75	130
2002	97	110	95	105	101	97	92	103	91	90
2003	98	176	92	100	102	96	99	103	94	95
2004	100	100	100	100	100	100	100	100	100	100
2005	101	142	96	100	100	100	115	98	81	139
2006	103	106	96	97	100	100	112	92	83	143
2007	103	106	96	93	100	100	108	104	79	127

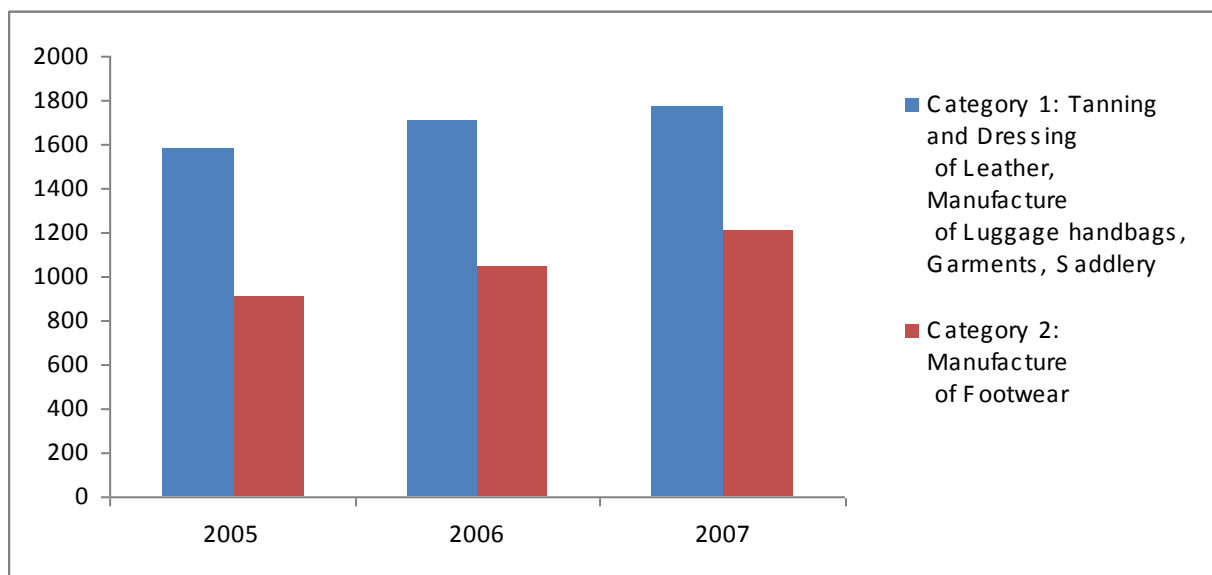
@ Variation in FDI (as % of total) movement has caused fluctuation in MC movement from Year 1999 to Year 2000

The Scaled Leather Products Index saw a sharp increase from 100 in 2004 to 139 in 2005 and subsequently saw a fall to 127 in 2007. We analyse below the factors that influence the index movement.

5.8.1. Key drivers of index movement

5.8.1.1. Macro and Exports

Figure 20: Leather Exports in USD Millions

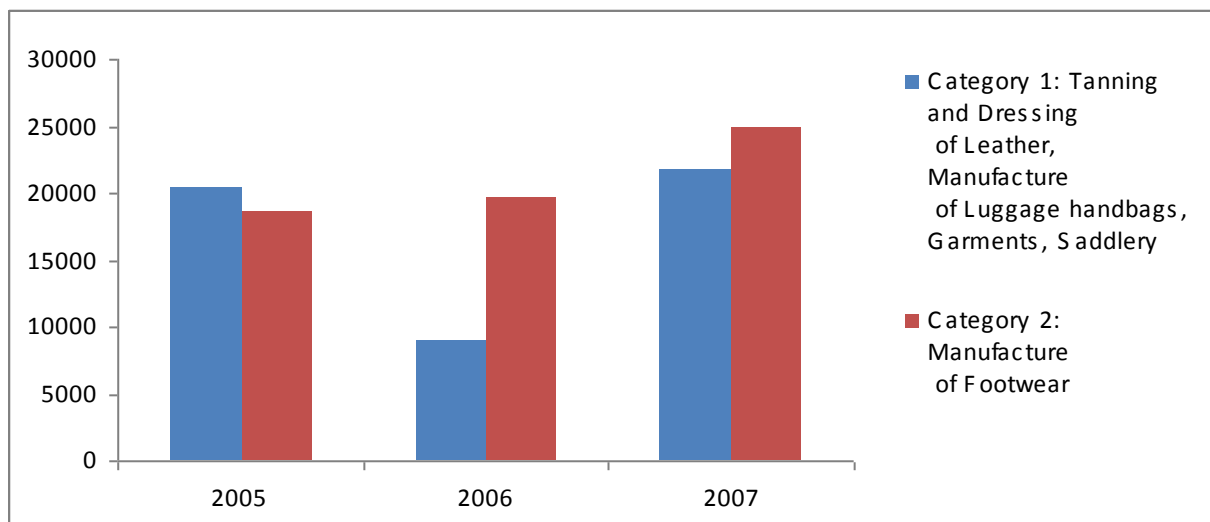


Source: RBI

We can see from the above graph that the exports of category 1, tanning and dressing, seem to have moderated in 2007 versus the steadily increasing exports of footwear in 2007. This is because of the fall in the rise in the exchange rate of India against the US dollar. UK followed by Germany and USA are the largest destination for India's leather exports, accounting for 74 per cent of India's total exports in this category.⁴⁷ Export competitiveness index has only increased marginally from 101 to 103.

⁴⁷ DGCI&S

Figure 21: Leather Industry GFCF in Rs Crore

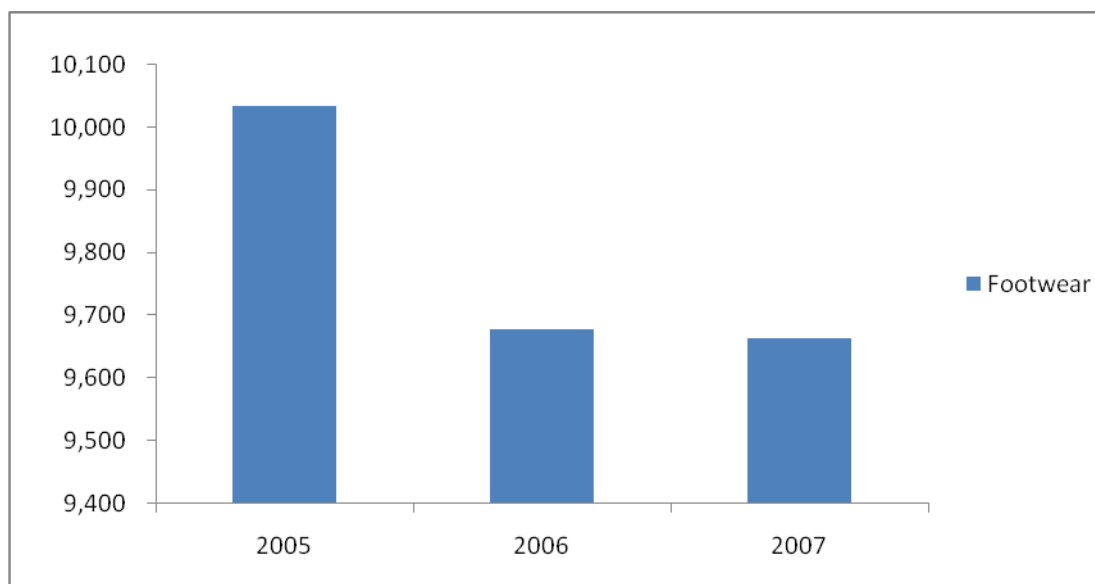


Source: ASI

The Gross fixed capital formation saw a dip in 2006 before rebounding in 2007 in category 1. In the case of category 2 there is a steady rise in investments. This is due to the entry of foreign players into the retail space. The net effect results in the macrocompetitiveness going up momentarily to 142 in 2005 before falling to 106 in 2006.

5.8.1.2. Demand Competitiveness

Figure 22: Consumer Expenditure on Leather in Rs Crore



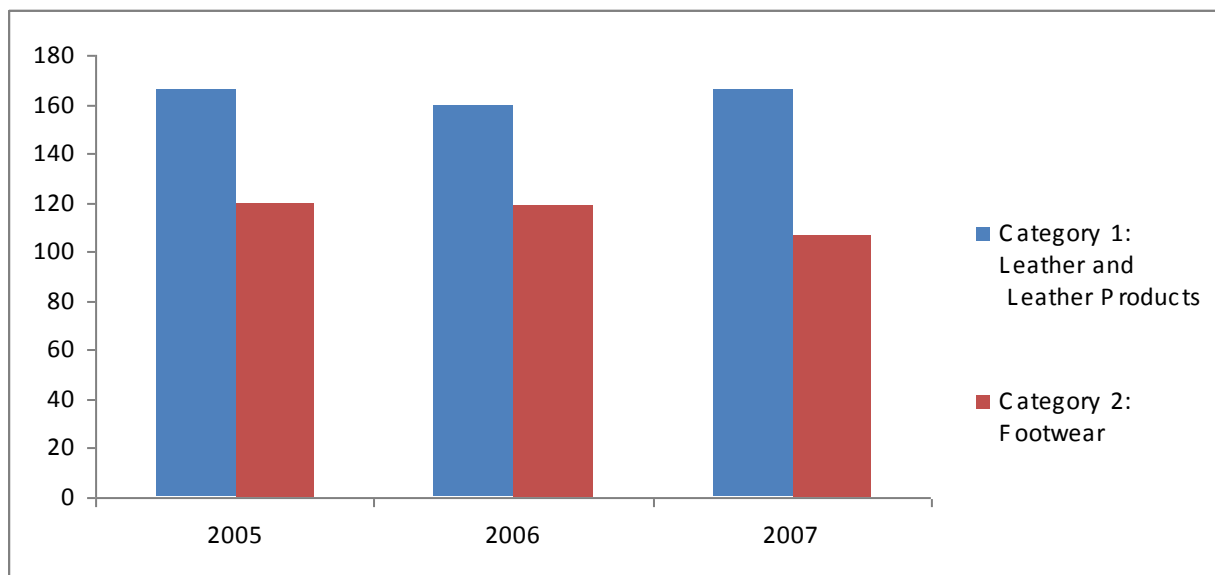
Source: NSSO

The consumer expenditure on footwear has gone down drastically. This is due to the falling footwear prices. This has resulted from the entry of large number of players in the organised market⁴⁸ making it competitive. This is reflected in the Demand Competitiveness Index which went down from 100 in 2004 to 96 in 2005 and stayed at the same level.

⁴⁸ 26 per cent of footwear sector at Rs. 3000 crores – Centre for Leather Exports

5.8.1.3. Price Competitiveness

Figure 23: Wholesale Price Index of Leather and Leather Products

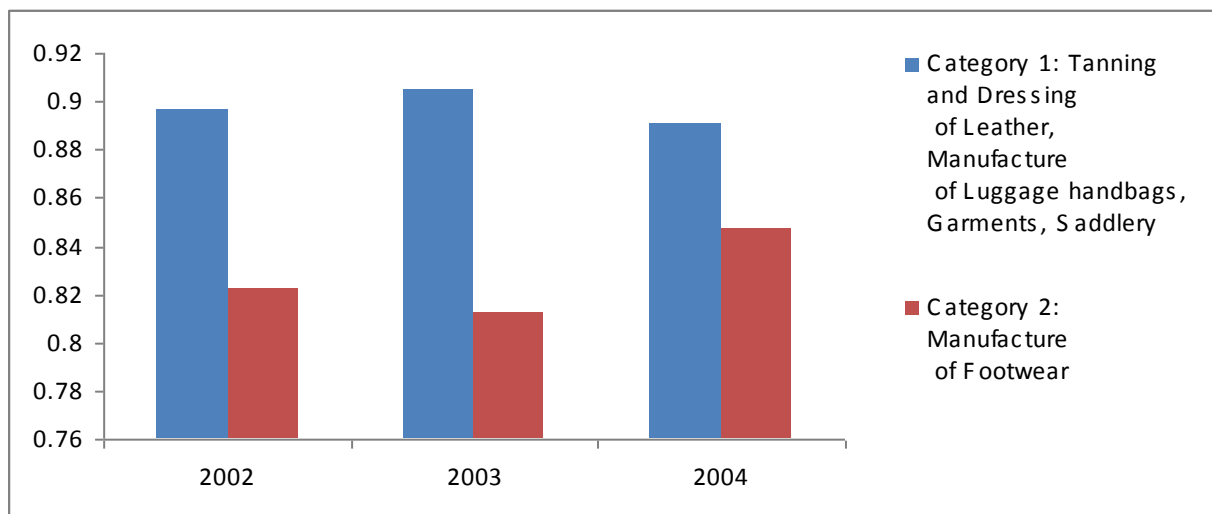


Data Source : eaindustry.nic.in

The price competitiveness of leather and leather products has more or less stayed constant. The footwear segment saw a fall in prices due to increase in scale of production. The price competitiveness decreased from 100 in 2004 to 93 in 2007.

5.8.1.4. Firm Level Competitiveness

Figure 24: Overall Productivity – Input/ Output in Leather Industry

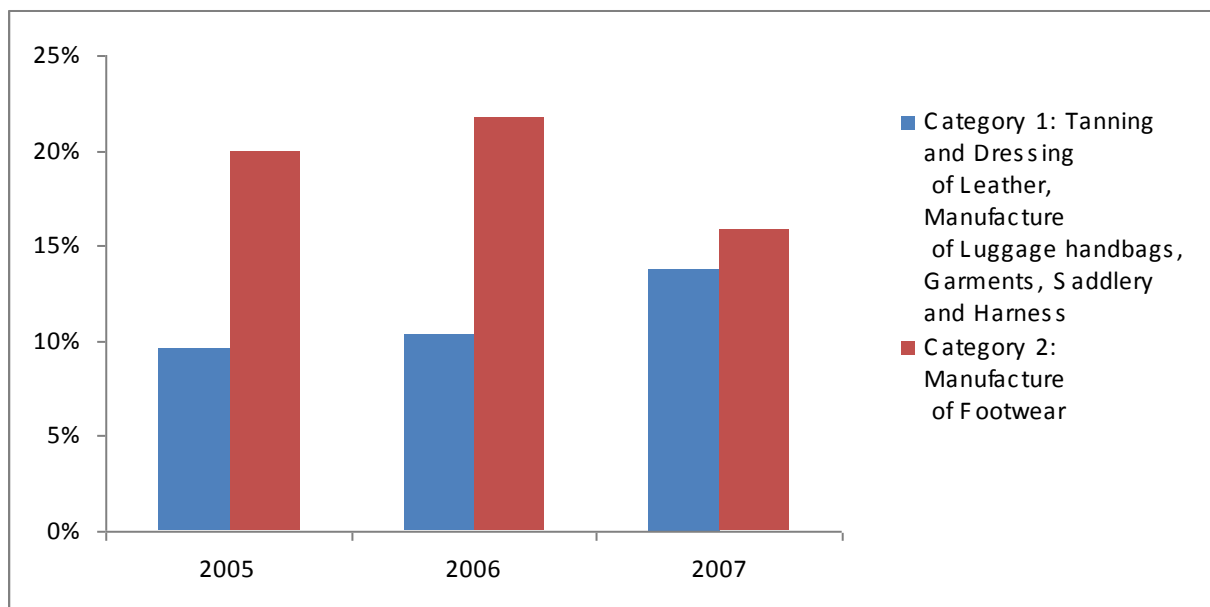


Source: ASI

The overall productivity of tanning, dressing and manufacture of leather, at the all India level has fallen while the productivity of the footwear sector has increased. This is due to the increase in scale of operations of the footwear sector.

5.8.1.5. Financial Competitiveness

Figure 25: Industry Profitability – Leather Industry

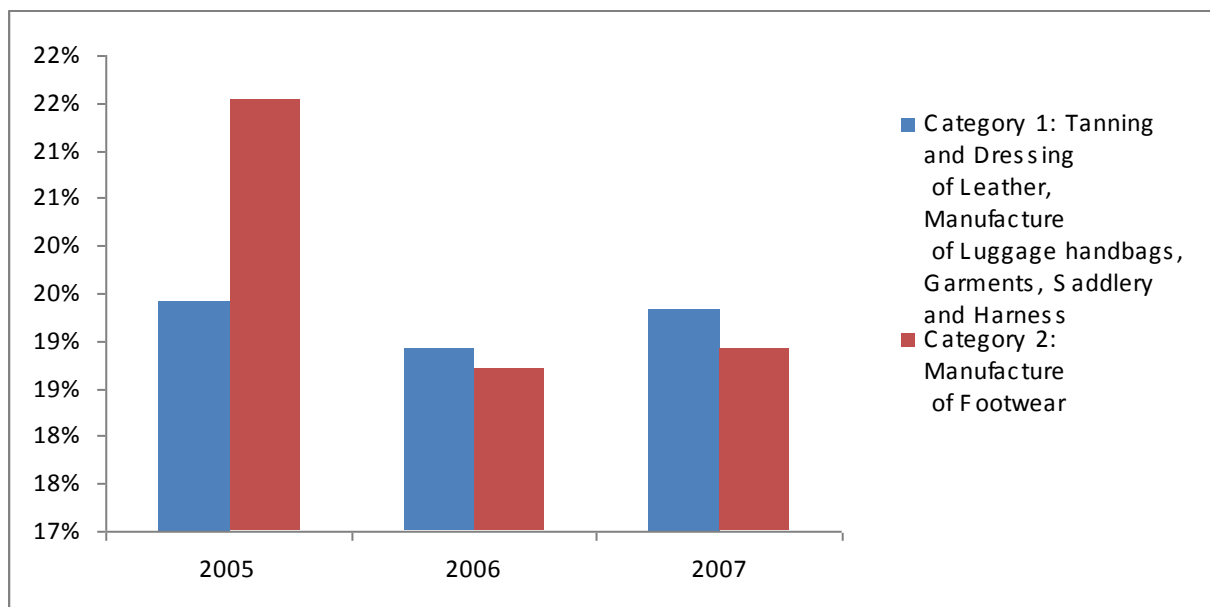


Source: CAPITALINE

The Industry profitability has come down in the footwear sector as it goes up for the tanning and dressing sector. This is because of falling footwear prices as the market is becoming more competitive. Hence the profitability index for footwear came down from 100 in 2004 to 79 in 2007 whereas the profitability index for tanning went up from 100 in 2004 to 104 in 2007.

5.8.1.6. Cost Competitiveness

Figure 26: Cost Indicators in the Leather Industry



Source: CAPITALINE

The Cost competitiveness has decreased and then increased marginally in case of both categories. High costs attributed to sourcing raw materials is because of inefficiencies resulting from lack of supplier competition⁴⁹.

The cost competitiveness index is negatively correlated to the overall index and hence an increase in the cost index would mean fall in overall profitability but an increase in the cost index would mean a fall in the overall competitiveness of that sector.

5.8.2. Regional Competitiveness

In the case of the production of leather products excluding footwear, the per unit wage productivity of the Northern region is the highest at 40.12 compared to the Indian average of 33. The labour productivity is highest in the Western region at 30. This measures the Output to Wage ratio i.e., the output is 30 times of

49 CLRI – Central Leather Research Institute

wage paid. The Indian average is only 67 per cent of the West. The Southern region has the lowest labour productivity at 41 per cent of Western level. Again capital productivity ratio is the highest in the Western region. The Eastern region has the lowest capital productivity at 50 per cent of Western region. The Western region also has the highest capital to output ratio and the highest factory to output ratio.

Hence the Western region has a clear advantage in the Tanning and Dressing of Leather, Manufacture of Luggage handbags, Garments, Saddlery and Harness which represents all forms of leather products other than footwear. This is because of the superiority of design and establishments in the Western region which were the proponents of fashion and value added accessories in the country.

When comparing the production of footwear, we see that the Southern region is the leader. It is the clear winner in terms of every productivity measure and by a large margin in each category. This is due to the fact that the industry in the south had positioned itself since the beginning as an export oriented market. It has developed its capabilities in such a manner that it specialises in the mass production of footwear. There is easy access to raw material and abundance of skilled labour. This makes the Southern region the most advantageous region for the manufacture of footwear.

5.8.3. Sector Perception

Out of the 100 firms surveyed 38 per cent had revenues over Rs 10 crores and 4 per cent had revenues over Rs 500 crores.

Table 18: Sector Perception – Leather Industry

Factors Limiting Growth of Firm	Rank	Percentage of Respondents
Access to bank credit	1	65%
Capital cost	2	57%
Shortage of skilled labour	3	55%
Insufficient demand for products	4	47%
Taxes and Regulations	5	52%
Exchange rate	6	31%
Operating costs	7	52%
Competition from Imports	8	46%
Access to market	9	53%
Employee costs	10	65%

Source: IMAcS Sector Perception Survey

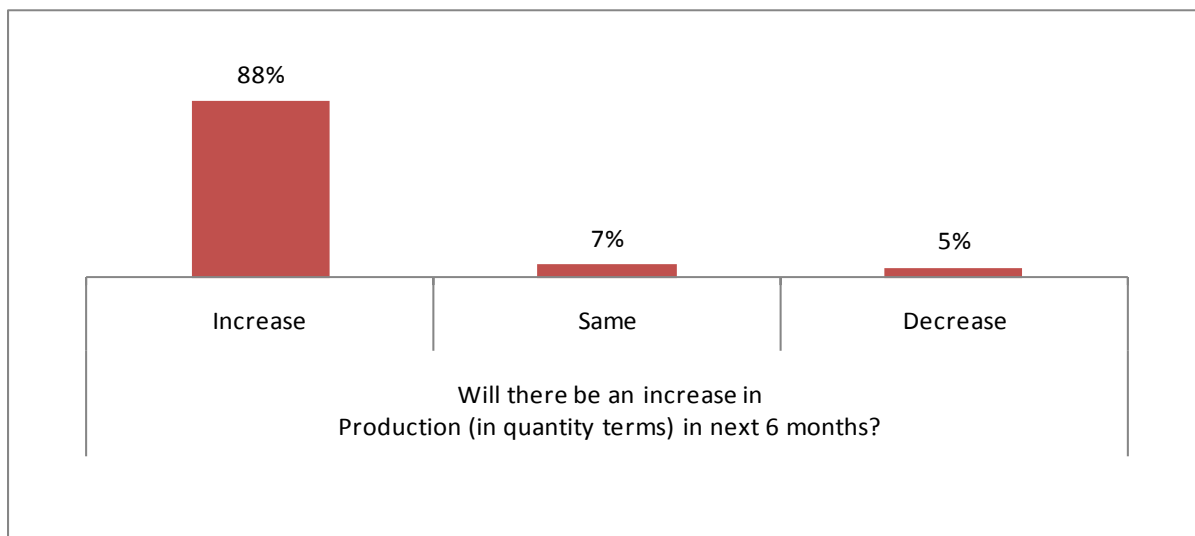
Of the 10 factors ranked against limiting growth of the firm, Access to Bank Credit (Rank 1); Capital Cost (Rank 2) and Shortage of Skilled Labour (Rank 3) topped the list of concerns.

On questions of Business situation compared to the past 3 months, 70-90 per cent of respondents ranked ‘no change’ in financial situation, new orders and an number of people employed. 81 per cent report an increase in selling price.

However, 39 per cent of respondents reported a drop in current stock levels against levels prevailing 3 months previously. 64 per cent of respondents reported improved profit margin in the current quarter versus the previous quarter. 23 per cent reported decline in profits against previous quarter and 15 per cent reported a “no change”.

The section on Business Confidence for the next 6 months reveals that, 60-90 per cent of respondents rank positively, financial situation, selling price, new orders and an increase in number of people employed. None report an expected decrease in any of the above parameters. However, 13 per cent of respondents report an expected drop in future stock levels against levels prevailing currently

Figure 27: Levels of Production expected after 6 months in the Leather Industry



Source: IMaCS Sector Perception Survey

88 per cent of respondents think that there will be an increase in production in quantity terms of electronics products in the next 6 months. 66 per cent of respondents believe that capital finance requirements and 87 per cent believe that cost of raw materials would go up.

77 per cent of respondents believe that there is no scope for an increase in demand for exports and also, they are not certain if their products are facing competition from imports.

5.9. Recommendations

Challenges

- The indigenous raw material base of the industry is deficient. As of 2007 about 90% (1.8 billion sq ft) of leather was produced in the country from indigenous hides and skins. To achieve exports of US\$ 7 billion, 4 billion sq ft will be needed in 2012.⁵⁰
- The tanneries in the country have low capacities and outdated technologies with a majority of tanneries still using manual systems. During the Tenth Five Year Plan, the scheme for Integrated Development of Leather Sector (IDLS) under Indian Leather Development Programme (ILDIP) was launched for technology upgradation and modernization, but the funds could be utilized only to a small extent because of delay in the finalization of the scheme.
- The existing tanning units (in Tamil Nadu) have been seeing the imposition of rigorous environmental requirement (Zero Liquid Discharge) by the State Pollution Control Board. While the large units have been able to make additional investment needed to comply with the requirement, the small-scale units do not have the financial strength to do so without the government assistance.
- There is acute shortage of skilled and semi-skilled workforce and it is estimated that if the full potential of the industry is to be realized till 2012, around 0.5 million workers would need to be trained.⁵¹
- A large majority of the manufacturers produce small quantities and are unable to meet the large volume orders from the US, which accounts for a large share of world imports. Also much of the footwear production in India is of dress shoes for men, while there is increasing requirement for comfort shoes. Ladies shoes are also not being manufactured for exports. What is needed is to scale up the production and diversify the product mix.⁵²
- The competitiveness of Indian exporters of leather products suffers on account of bad roads, delays in Inland Container Depots.

⁵⁰ Council for Leather Exports (CLE)

⁵¹ CLE

⁵² Planning Commission – 11th FYP

Strategies

In order to address the above challenges the following significant interventions are proposed.

- For augmenting the raw material base, rearing of male buffalo calves would be encouraged as also scheme for modernization of slaughter facilities. For the better utilization of the skins of fallen animals, a scheme is being launched in the Department of Animal Husbandry for establishing 50 carcass centres, 20 bone-crushing plants, and 5000 hide-flaying units.⁵³
- In order to stimulate fresh investment in new tanning units as well as in leather products, it is proposed that at least 10 leather parks/complexes would be established on the pattern of the Scheme for Integrated Textile Parks (SITP) scheme of the Ministry of Textiles.
- The Tenth Five Year Plan schemes, notably the ILDS and efforts such as the Leather Tanning Complex at Nellore, Andhra Pradesh and the Footwear Complex at Ambur, Tamil Nadu need to be carried forward into the Eleventh Five Year Plan.
- The small and medium tanning units in Tamil Nadu and elsewhere would be assisted for making investment to enable them to comply with rigorous environment norms imposed by the Pollution Control Boards. It is proposed by the Government of India under the 11th FYP that it will provide 60% assistance, the remaining amount coming from the State Government and the units themselves.
- A Human Resource Development Mission is needed for onsite training of workers and artisans in the unorganized sector and also for entrepreneurship development. The Mission should cover the development of skilled manpower by the existing institutions, which offer courses at the degree level.
- The Footwear Design and Development Institute (FDDI), needs to be provided with additional machinery, equipment, workshops, and laboratory facilities for running courses on design and technology with increased intake. Consideration should be given to setting up more branches of FDDI in other parts of the country with concentrations of leather manufacturing units. A new branch of the FDDI is proposed to be set up at Fursatganj.
- In the Eleventh Plan an allocation of Rs 1300 crore has been made for the ILDP. Under the ILDP, the clause stating that the trainees taken up for training to avail fund assistance under short term courses need to have assured placement should be removed as skill requirements fluctuate according to market conditions and this puts an impediment in the way of training unskilled workers. Specific short term

⁵³ Planning Commission, 11th FYP

training courses in operation in a few clusters such as the Chennai cluster are needed to be replicated country wide to address gaps at the operator, supervisor and production management levels.

5.10. Summary

The Manufacturing Competitiveness Index for the Leather and Leather Products Industry has moved up from 100, in the base year of 2004 to 127 in 2007. There has been approximately a 27 per cent increase in our measure of competitiveness in the Leather Industry. This has been due to primarily an increase in the economic and macro competitiveness of the Leather Industry. The leather industry revenues are made up to 70 per cent by exports. There has been an entry of foreign players looking to diversify their portfolio of manufacturing locations by expanding outside China. This translates into the fact that the foreign investment into the country in Leather products has increased substantially. The corresponding effect being an increase in exports led profit growth.

In India, the Western region has a clear advantage in the Tanning and Dressing of Leather, Manufacture of Luggage handbags, Garments, Saddlery and Harness which represents all forms of leather products other than footwear. This is because of the superiority of design and innovative technology in the Western region which were the proponents of fashion and value added accessories in the country. We also observe that the Southern region is the leader in the production of footwear. It is the clear winner in terms overall productivity measure. This is due to the fact that the industry in the southern region had positioned itself since the beginning as an export oriented market. It has developed its capabilities in such that it specialises in the mass production of footwear. There is easy access to raw material and abundance of skilled labour.

The sector perception survey reveals that of the 10 factors ranked against limiting growth of the firm in the Leather and Leather products industry, Access to Bank Credit (Rank 1), Capital Cost (Rank 2) and Shortage of Skilled Labour (Rank 3) are cause for most concern. Around 75 per cent of those surveyed indicate a positive outlook on present and future (6 months) business confidence. 88 per cent of respondents believe that increase in production levels will not be due to export growth, rather because of increase in domestic demand.

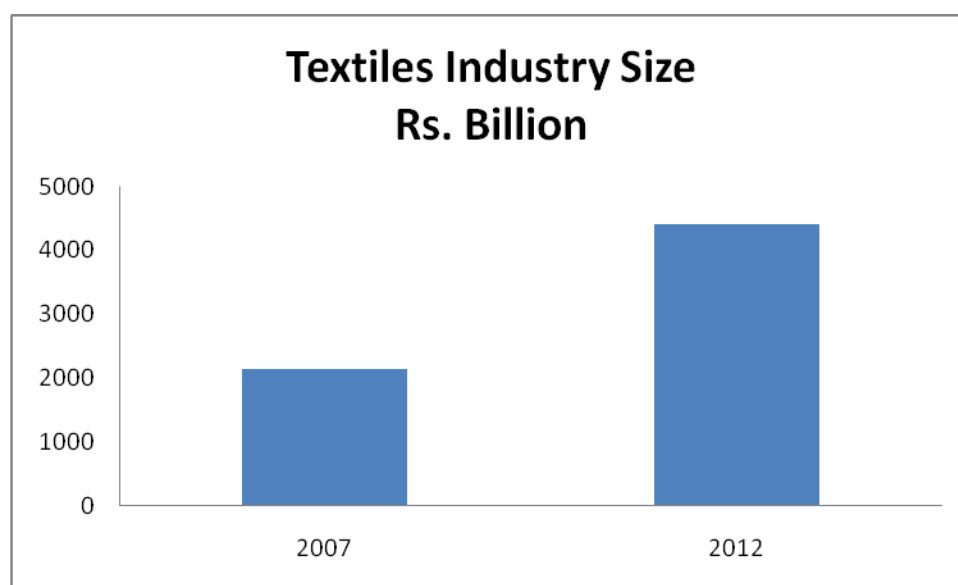
6. Manufacturing Competitiveness of Textiles and Garments Industry

6.1. Introduction

After more than 4 decades of quota restrictions, the international textile trade moved into a quota free regime from January, 2005. This has provided an opportunity to the domestic textile industry to expand and strengthen itself in the international markets.

The Textile industry has a size of Rs 2132 billion as on 2007. The industry size is estimated to go up to Rs 4400 billion by 2012-13.

Figure 28: Textile Industry Production



Source: Ministry of Textiles, NMCC

India is emerging as one of the major outsourcing hubs in the post quota period as it has comparative advantage over its competitors on availability of relatively inexpensive and skilled workforce, design expertise, a large production base of basic raw materials, yarn and fabric and availability of a wide range

of textiles. Higher investments, higher production and higher exports are illustrative of the resurgent mood of the Indian textile industry.

The Indian textile industry is fragmented with only a few large and numerous small and medium companies. Statistics released by the Ministry of Textiles shows a high degree of fragmentation, except in the spinning sub-segment. The organised sector contributes over 95 per cent of spinning, but hardly 5 per cent of weaving fabric. Small Scale Industries (SSIs) perform the bulk of the weaving and processing operations.

India's ability to manufacture a wide range of products in the backward supply chain has endowed it with a very strong and diverse raw material base for manufacturing natural and artificial fibres. India also has capacity-based advantage in textile and spinning. However, the high power and interest costs impair the advantage to a great extent. In the new scenario of a quota-free world, the readymade garments sector will play a crucial role in the economy, in terms of contributing to exports as well as employment generation, considering its inherent labour-intensive nature. In the cloth production segment, the hosiery and mill sectors are likely to be the gainers.

6.2. Textiles Clusters in India

The textile industry in India operates largely in the form of clusters. Roughly 70 textile clusters produce 80 per cent of the country's total textiles. Some noteworthy textile clusters⁵⁴ include:

- Panipat, accounting for 75 per cent of the total blankets produced in the country
- Tirupur, responsible for 80 per cent of the country's hosiery exports
- Ludhiana, which accounts for 95 per cent of the country's woolen knitwear produced.

The clusters in Gujarat and Maharashtra are mainly specialized in power looms. Silk clusters are found in Karnataka and Orissa. Madhya Pradesh, Rajasthan and Kerala are famous for hand printed and hand processed cloth. Garments clusters can be found in Delhi, MP, AP, Tamil Nadu, UP, Maharashtra and Gujarat.

54 UNIDO study on SME Clusters in India

Table 19: Location of Textile Clusters

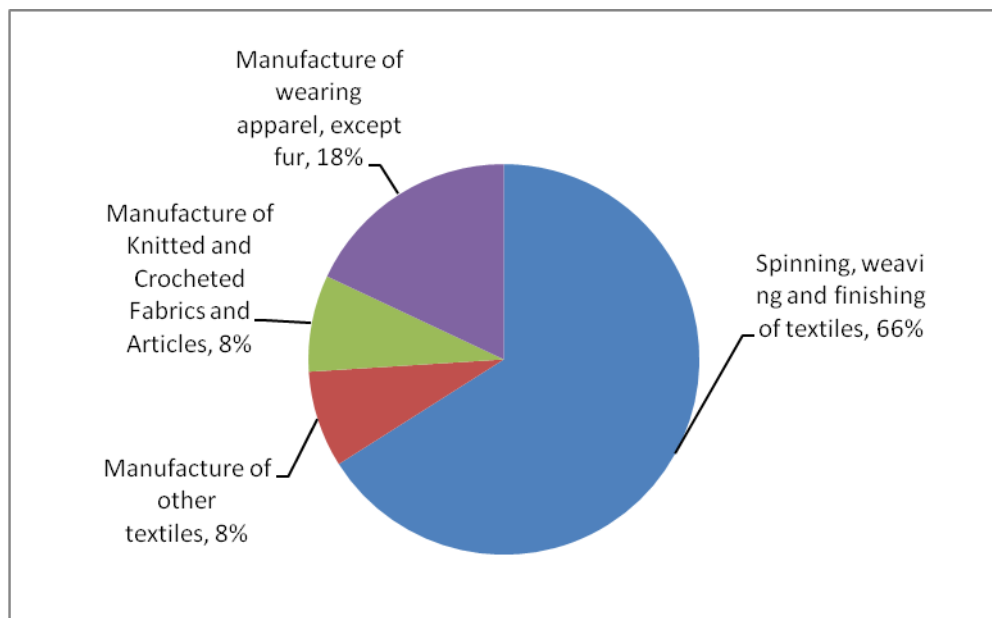
State	Location	State	Location
Andhra Pradesh	Guntur, Nagari, Narsapur, Pochampally, Anantapur, Sirsilla, Warangal	Gujarat	Ahmedabad, Rajkot, Gandhinagar, Surat, Vijapur
West Bengal	Kolkata, Ranaghat	Tripura	Agartala
Haryana	Bhiwani, Gurgaon, Panipat	Punjab	Amritsar, Ludhiana
Karnataka	Bangalore, Belgaum, Bellary, Gadag, Mysore	Kerala	Ernakulam, Faizlure, Kannur, Mallapuram, Palakkad
Madhya Pradesh	Burhanpur, Chanderi, Indore, Jabalpur, Maheshwar, Ujjain,	Uttar Pradesh	Banda, Gorakhpur, Jhansi, Kanpur, Lucknow, Mau, Noida, Varanasi
Maharashtra	Bhiwandi, Ichalkaranji, Madhavnagar, Malegaon, Mumbai, Nagpur, Pune, Solapur	Tamil Nadu	Bhavani, Chennimalai, Karur, Madurai, Rajapalayam, Salem, Surampatti, Tirupur
Orissa	Balasore, Dhenkanal, Ganjam, Nuapatna	Rajasthan	Jaipur, Jodhpur, Kishangarh, Sanganer, Bangru

Source: CITI

6.3. Composition of Textiles Industry

The Textiles Industry is composed of the following sectors as represented in *figure 29*.

Figure 29: Composition of Textiles and Garment Industry



Source: ASI

The sub industries represented in figure 29 can be further classified into the following sub categories.

Table 20: Textiles Sub-Industries

Spinning, weaving and finishing of textiles	Preparation, spinning and finishing (bleaching, dyeing, calendaring, napping, shrinking or printing) of textile fiber, cotton fiber, silk fiber, wool, animal hair, manmade fiber, cotton and synthetic blends, silk and synthetic blends, jute, mesta and other natural fibres
Manufacture of other textiles	Manufacture of made-up textile articles, except apparel, curtains, bed-covers and furnishings, crocheted made up textile goods, except apparel, bedding, quilts, pillows, cushions and sleeping bags , mosquito nets, tarpaulin, carpet and rugs, cordage, rope, twine and netting, Embroidery work and making of laces and fringes, canvas goods

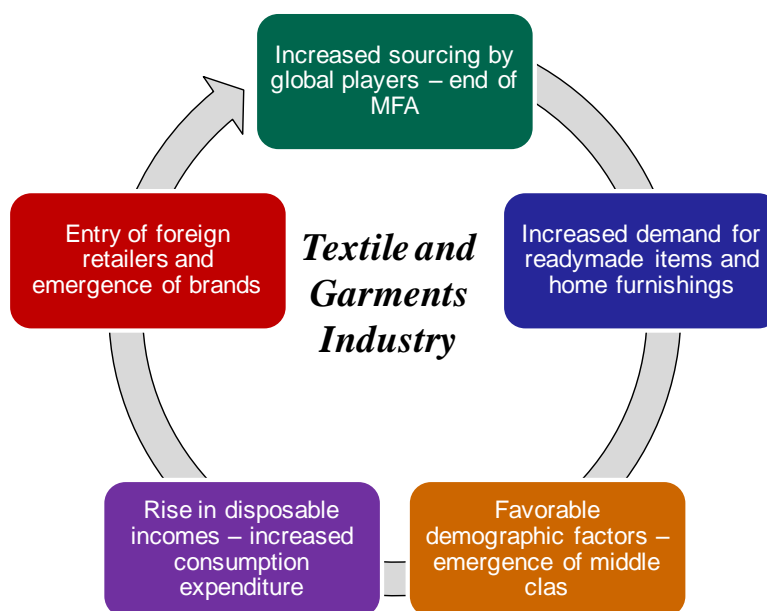
	such as tents and sails
Manufacture of knitted and crocheted fabrics and articles	Manufacture of knitted and crocheted fabrics and articles including cotton, woolen, synthetic, silk
Manufacture of wearing apparel, except fur apparel	All types of textile apparel and clothing accessories, rain coats of waterproof textile fabrics or plastic sheetings, hats and caps from waterproof textiles

Source: ASI, NIC 2004

6.4. Key Drivers

The key drivers of the textiles industry are as given in figure 30.

Figure 30: Growth Drivers of Textiles Industry



Increased sourcing by global players: After the abolishment of the Multi-fibre agreement which required the presence of import quotas in countries to protect their domestic markets, have turned to India for supply of cheap garments and textiles.

Increased demand for readymade items and home furnishings: The increasing urbanisation and growing disposable income is responsible for increase in demand for home textiles like beddings, curtains and other home furnishings.

Favourable demographic factors: The Indian middle class at 350 million and growing is increasingly demanding more garments, home furnishings and other textiles. This is causing a spurt in demand led production.

Rise in disposable incomes: Around 90 million households in India constitute the middle income category and these households demand higher value added textile products like readymade garments and furnishings.

Entry of foreign retailers and emergence of brands: Due to the demand in the domestic market for branded apparel and thus organised retail, we see the trend of rapid entry of foreign retailers to utilise the opportunity as the Indian branded market is a new phenomenon and as yet not well defined.

6.5. Policy Initiatives

The notable policy initiatives provided by the government with respect to the textiles and garments industry are given below.

Fiscal Incentives

1. Except for mandatory excise duty on man-made filament yarns and man-made staple fibres, the whole value addition chain given an option of excise exemption
2. The import of a number of textile machinery items of spinning, weaving, processing and readymade garment sectors has been allowed at concessional customs duty
3. Accelerated reimbursement of dues to exporters, reduction in the interest rate on pre-shipment and post-shipment credit and revision in drawback rates and Duty Entitlement Pass Book (DEPB) rates.

Other Initiatives

4. Technology Up gradation Fund Scheme (TUFS)
5. To reframe some of the financial and operational parameters of the Scheme
6. To infuse capital investment into the textiles sector
7. Focuses on additional capacity building, better adoption of technology, provides for a higher level of assistance to segments having a larger potential for growth, like garmenting, technical textiles, and processing
8. Scheme For Integrated Textiles Parks (SITP)
9. To create new textiles parks of international standards at potential growth centres
10. To facilitate setting up of textiles units with desired infrastructure facilities.

6.6. SWOT Analysis of Textiles Industry

Given below in *Table 21* is an analysis of the Textiles and Garments Industry using the SWOT analysis.

Table 21: SWOT of Textiles Industry

Strengths	<ol style="list-style-type: none"> 1. India is the second biggest textiles manufacturer worldwide, next only to China – historical advantages 2. An abundant supply of cotton and human-made fiber 3. Mature and well-established production base 4. Cheap and skilled labour 5. Good design capabilities 6. The Apparel Industry is one of largest foreign revenue contributor and holds 12 per cent of the country’s total export.
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Weaknesses	<p>7. Indian Textile Industry is highly Fragmented Industry</p> <p>8. Industry is highly dependent on Cotton</p> <p>9. Lower Productivity in various segments</p> <p>10. Infrastructural Bottlenecks and Efficiency such as, Transaction Time at Ports and transportation Time</p>
Opportunities	<p>11. Large, Potential Domestic and International Market</p> <p>12. The post-MFA quota-free regime - Scope for an alternative to China to reduce risks</p> <p>13. Improvements in infrastructure</p> <p>14. India with traditional designs and craftsmanship can command a greater market share for niche products in made-ups and garments</p>
Threats	<p>15. Competition from other developing countries, especially China - Industry lacks adequate economies of scale</p> <p>16. Threat for Traditional Market from Power loom</p> <p>17. International labor and Environmental Laws</p> <p>18. Labour force in India has much lower productivity rates than competing countries (China, Sri Lanka)</p>

6.7. Analysis of Cost Indicators

We have drawn comparisons between Industry costs as a percentage of sales for raw materials, power and Fuel, Labour, Manufacturing and Selling and Administration between 2002 and 2007 for the four sub sectors in the Textiles and Garments industry as given in *table 22*.

Table 22: Cost Indicators in the Textiles and Garments Industry

Category	Year	Raw Materials	Power and Fuel/ Sales	Employee/ Sales	Selling and Administration Expenses	Other Manufacturing Expenses
Spinning, Weaving and Finishing	2002	61%	8%	6%	6%	8%
	2003	60%	9%	6%	6%	8%
	2004	61%	9%	6%	6%	8%
	2005	60%	7%	6%	6%	8%
	2006	59%	7%	6%	6%	8%
	2007	60%	8%	6%	6%	7%
Manufacture of other textiles	2002	48%	9%	6%	6%	8%
	2003	54%	9%	6%	7%	9%
	2004	58%	9%	5%	7%	8%
	2005	63%	8%	6%	7%	8%
	2006	58%	9%	6%	5%	8%
	2007	61%	8%	6%	7%	8%
Manufacture of knitted and crocheted fabrics	2002	68%	6%	8%	9%	11%
	2003	52%	5%	6%	10%	12%
	2004	53%	5%	6%	10%	12%
	2005	58%	4%	6%	10%	11%
	2006	55%	4%	4%	7%	10%
	2007	54%	5%	4%	7%	10%
Wearing Apparel	2002	59%	2%	7%	10%	15%
	2003	55%	2%	7%	11%	16%
	2004	50%	2%	10%	11%	21%
	2005	52%	2%	11%	12%	19%
	2006	54%	2%	8%	9%	18%
	2007	57%	1%	8%	11%	18%

Source: Data source – Capitaline

Around 30 per cent of textiles cost and 14 per cent of garments costs are attributed to cotton. Prices of cotton saw a fall in 2005 due to increase in cotton production. The raw material costs of other textiles category however went up due to the fact that the dependence of this category on artificial fibres is high. Labour costs have gone down for the Knitwear and Crocheted Fabric manufacturing sector and this is due to the fact that manufacturing systems have become more technology intensive.

The effect of positive and negative externalities, either through government or private initiative implicitly affects cost measures. For example, the effect of taxation may be difficult to capture as externalities are not amenable to measurement and quantification in a definite way. The resultant effects though can be studied via its effects on costs. However there may be some cancelling out of said externalities as say, an exemption or a subsidy from the government could counter some other negative effect on a firm weighing down its profitability.

6.8. Manufacturing Competitiveness Index – Textiles and Garments

The Manufacturing Competitiveness Index for the Textiles and Garments Industry has moved up substantially from 100, in the base year of 2004 to 190 in 2007. There has been approximately 0.9 times increase in our measure of competitiveness in the Textiles Industry. This has been due to an increase in the demand competitiveness. The growing middle class population is spending increasingly on value added textiles like garments. There was also a sharp increase in savings in the sector measured by the gross fixed capital formation. The industry costs came down sharply due to a combination of government policies and increased capital productivity. There had been an increase in industry profitability on accounts of the knitwear and the apparel sector. The resulting effect is an increase in domestic consumption.

Table 23: Manufacturing Competitiveness Index –Textiles &Garments

YEAR	ECI	MC	DSC	PSC	FLC-SWF	FLC-OT	FLC-KCF	FLC-WA	INDUST COST COMP	IC-SWF	IC-OT	IC-KCF	IC-WA	Scaled MCI
1995	127	429	71	90	95	91	100	87	88	129	83	110	98	130
1996	126	275	75	89	97	103	10	89	88	129	83	110	98	130
1997	127	310	82	83	89	117	9	92	88	129	83	110	98	130
1998	112	157	72	83	97	95	100	96	88	129	83	110	98	130
1999	107	184	82	84	98	98	101	96	95	87	70	119	117	86
2000	107	42	97	87	99	95	99	99	93	118	70	144	159	124
2001	106	33	93	89	101	94	100	98	95	91	69	93	140	93
2002	103	58	98	90	98	98	101	100	96	99	70	118	118	97
2003	100	59	96	93	99	100	99	99	98	85	98	124	140	89
2004	100	100	100	100	100	100	100	100	100	100	100	100	100	100
2005	97	121	114	101	100	100	100	100	96	124	94	96	128	160
2006	96	12	119	103	100	100	100	100	88	140	95	135	198	186
2007	96	12	124	103	100	100	100	100	89	147	84	145	187	190

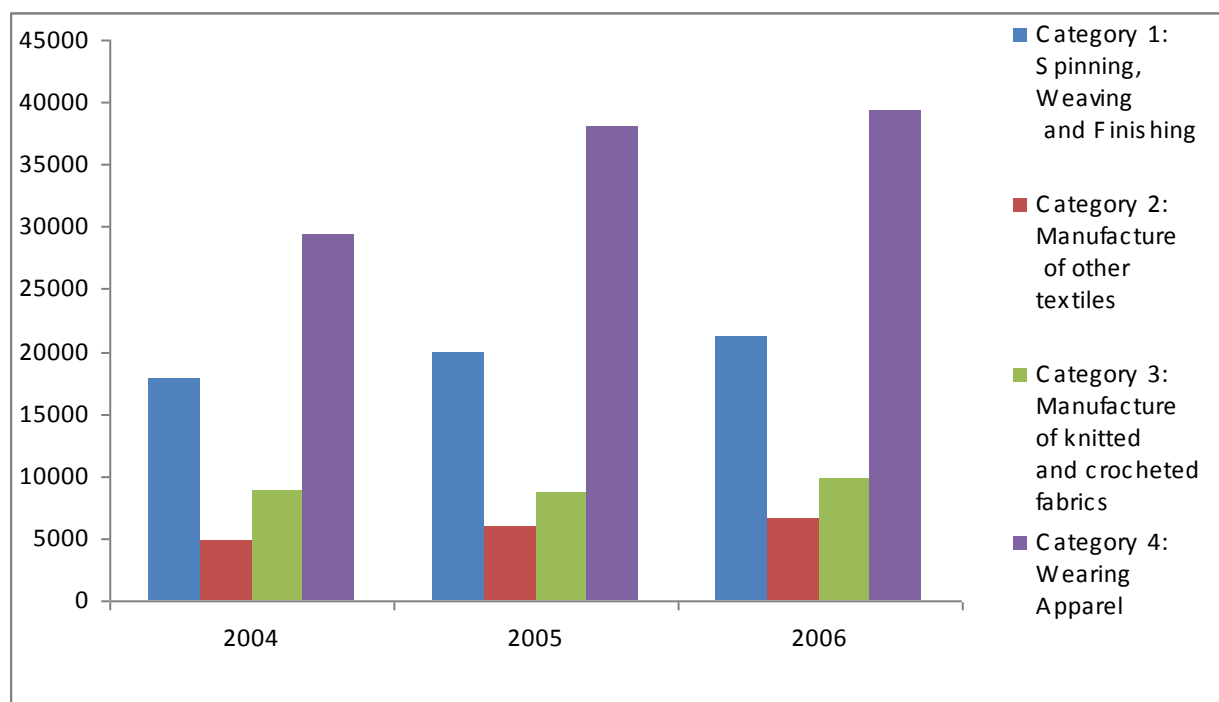
@ Variation in FDI movement (as % of total) has caused fluctuation in MC movement from Y 1999 to Y 2000 and Y 2004 to Y 2005

The section below examines the factors that cause this increase in the Scaled MCI.

6.8.1. Key drivers of index movement

6.8.1.1. Macro and Exports

Figure 31: Exports of Textiles in USD Million

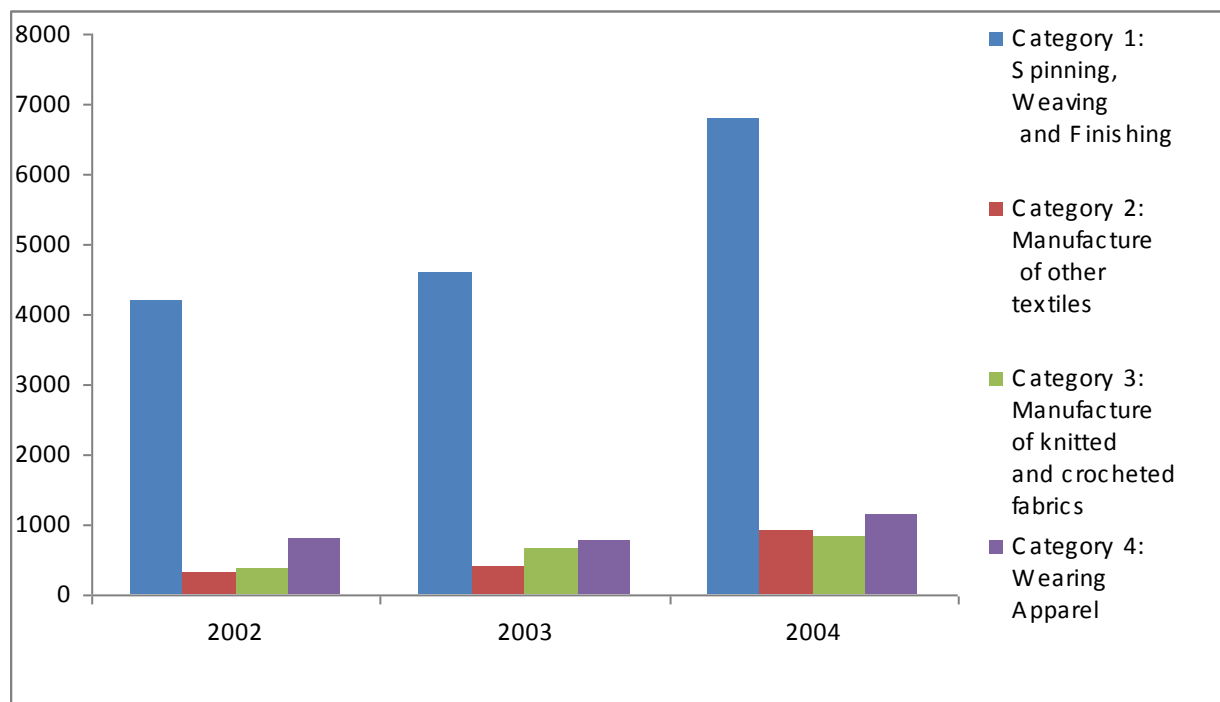


Source: RBI

The exports of wearing apparel is the major chunk of exports at more than half of the exports of the textiles Industry. They have been growing steadily since the abolishment of the Multi Fibre Agreement.. However after the abolishment of the quota system in 2005, the garments export growth moderated in 2006 growing at 7 per cent compared to the 26 per cent growth in 2005. However, opportunities unleashed could not be materialised due to factors like reservation of certain items for small-scale sector, absence of labour market flexibility and an effective exit policy preventing development of scale-economies, longer lead time, and infrastructural and administrative bottlenecks including delays at

customs and competition from Chinese products⁵⁵. This is reflected in the declining Exports Competitiveness Index.

Figure 32: Gross Fixed Capital Formation in Rs. Crores



Source: ASI

Substantial gross domestic capital formation has been taking place as capacities are being built up in the spinning, weaving and textiles finishing sector, Investment in the textiles sector increased from Rs. 11,628.00 crores in 2004-05 to Rs. 31,000.00 in 2006-07⁵⁶. However chunk of this investment is by the central government as plan outlay, to improve infrastructural facilities in existing locations of production of textiles and in the starting of new textile and apparel parks. The foreign direct investment (FDI) made in the textiles and garments industry however was only around 1.31 per cent of total FDI made in the

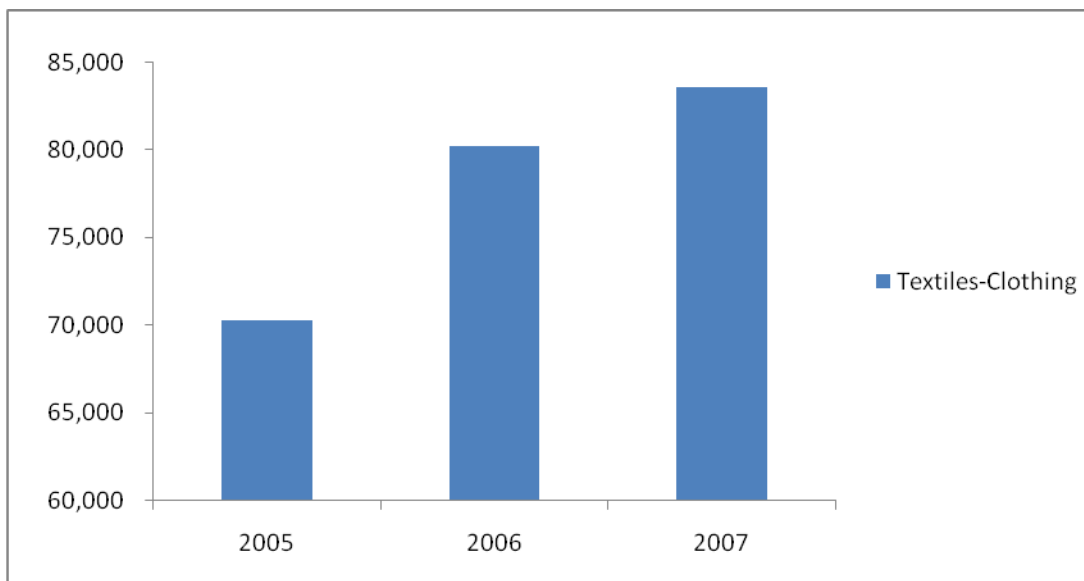
⁵⁵ Economic Survey 2006-07

⁵⁶ Department of Commerce, Government of India

country in 2006 which was a decline from 2.7 per cent in 2004⁵⁷. Hence, the Macro Competitiveness Index has reduced from 100 in 2004 to 12 in 2007.

6.8.1.2. Demand Competitiveness

Figure 33: Consumer Expenditure on Clothing



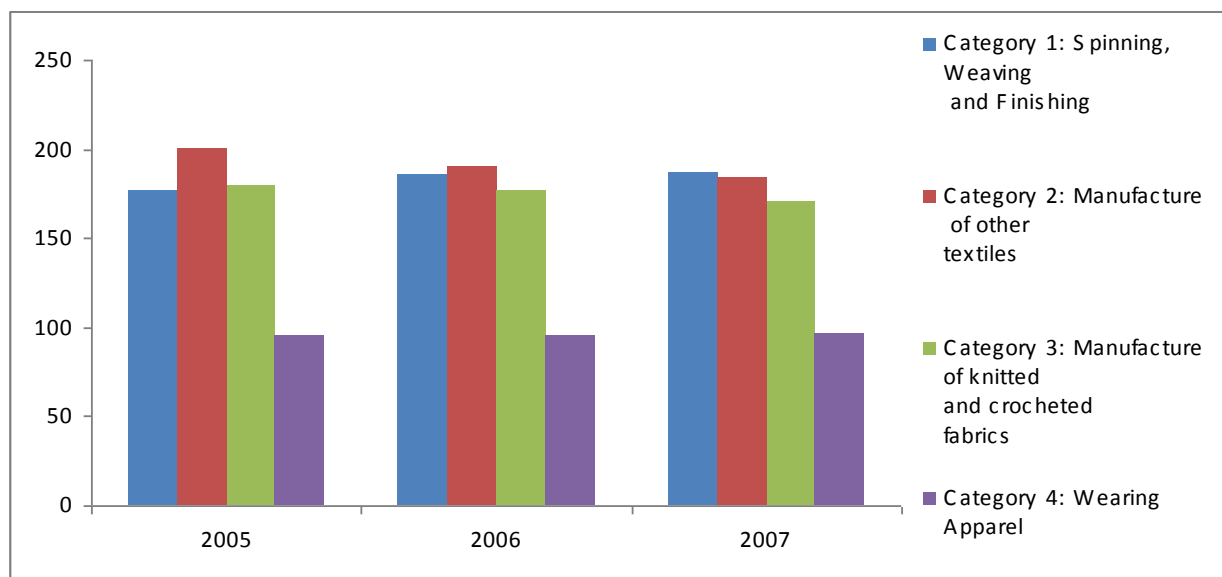
Source: NSSO

The spending on textiles and garments have gone up. The pattern of spending on clothing, especially readymade apparel and garments have gone up with the increasing consumerism. The consumer expenditure on clothing as seen in *figure 33* has gone up 18 per cent between 2005 to 2007. The index has increased from 100 in 2004 to 124 in 2007.

⁵⁷ Department of Industrial Policy and Promotion

6.8.1.3. Price Competitiveness

Figure 34: Wholesale Price Index of Textiles and Garments



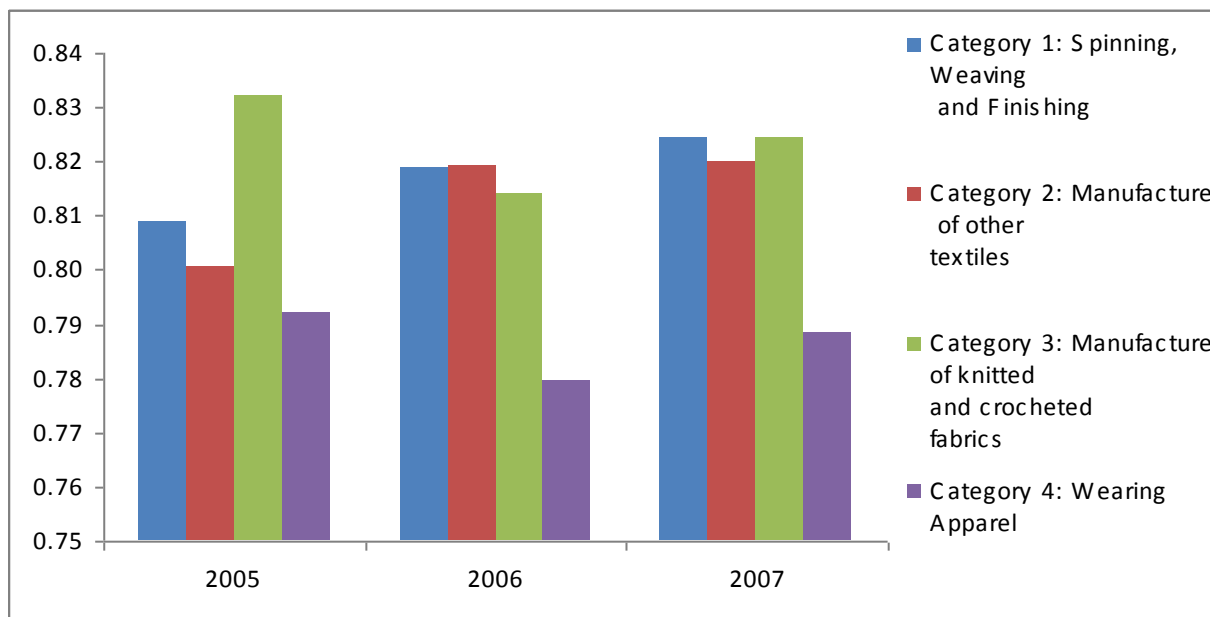
Data Source : *eaindustry.nic.in*

The price competitiveness index has gone up marginally from 100 in 2004 to 103 in 2007 owing to near constant trends in prices of textiles and garments. India’s prices of textiles and clothing which witnessed a declining trend in the quota period, hardened in the post-quota period due to increased investments by the government to improve infrastructure, helping in the expansion of production⁵⁸. Rising cotton prices were offset by policy incentives provided by the government.

⁵⁸ FICCI study on Indian Textile Industry

6.8.1.4. Firm Level Competitiveness

Figure 35: Overall Productivity of Textiles and Garments

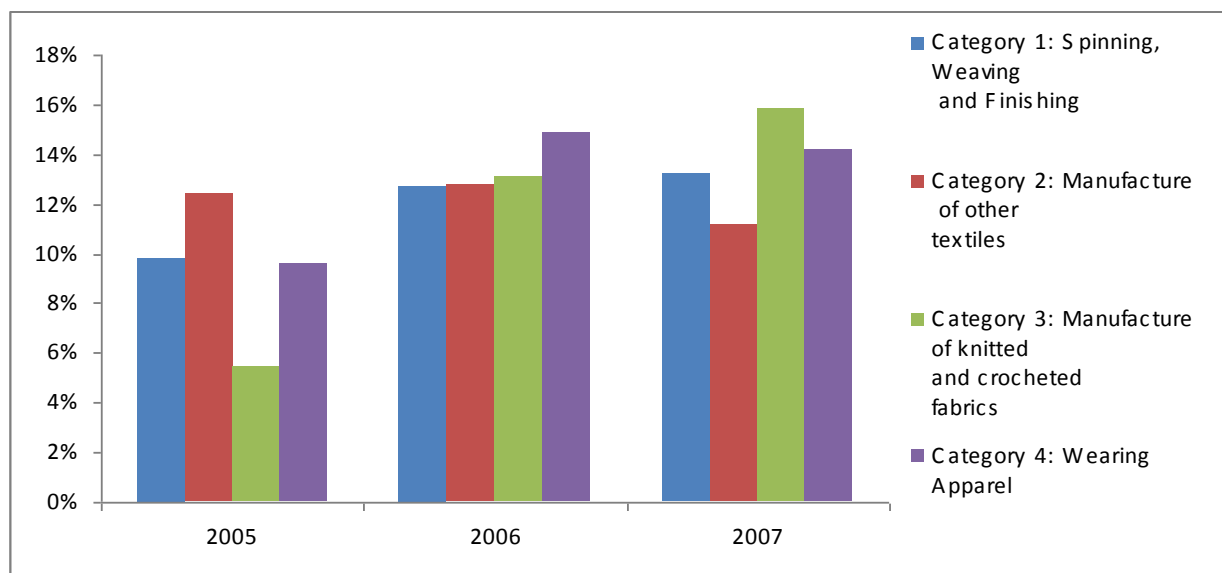


Data Source: ASI

The overall productivity for category 1 and 2 is rising suggesting an infusion of technology driven gains in productivity but and the productivities of category 3 and 4 , seen to be falling in 2006 to recover again in 2007. This is due to a fall in export led demand in 2006 after the abolishment of the quota system. The temporary slump in production and exports recovered in 2007. This pattern manifests itself in overall productivity of firms.

6.8.1.5. Financial Competitiveness

Figure 36: Industry Profitability - ROCE



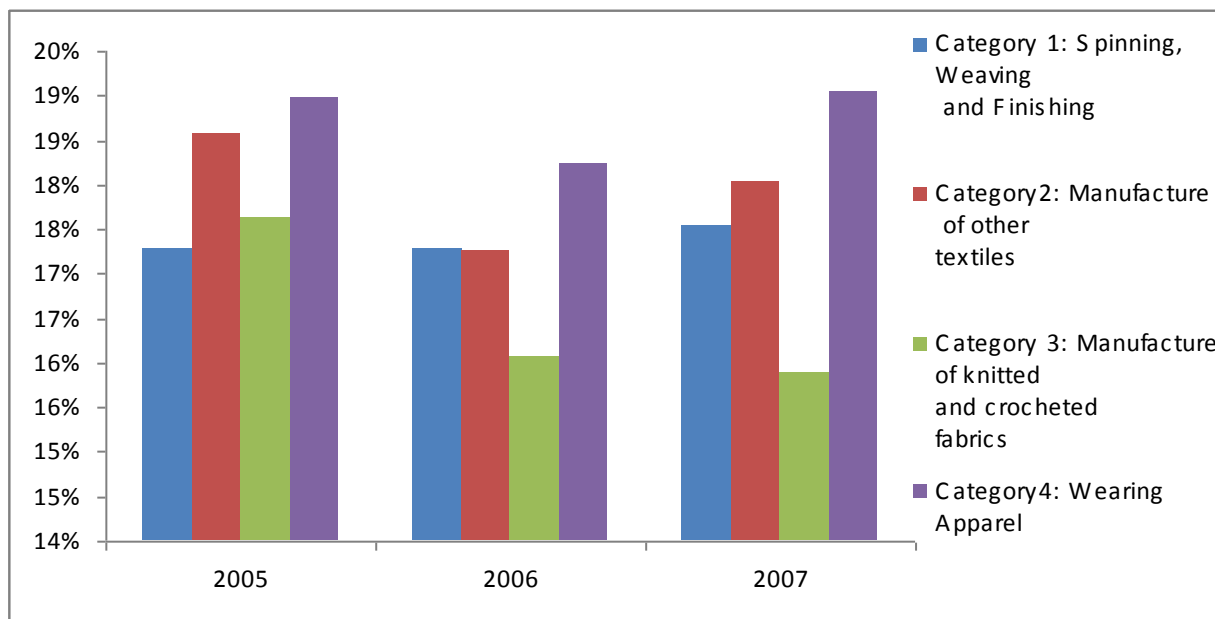
Source: CAPITALINE

The industry profitability is rising for all the categories except for the category 2. The production of category 2 is steadily falling and hence, the fall in profitability because of contraction in market share due to imports. India's textile imports from China in 2000-01 were 13.17 per cent of total global textile imports. This tripled to 36.53 per cent in 2006-07 and is growing⁵⁹. More than 60 per cent of the import is constituted of synthetic and man made fibre. On the whole profitability of the industry has been rising on account of the Government making investments in this sector so as to reap profits through high unit value realisations and cost optimisations.

⁵⁹ ASSOCHAM study on Indian Textiles Imports

6.8.1.6. Cost Competitiveness

Figure 37: Cost Indicators of Textiles and Garments Industry



Source: CAPITALINE

The Cost ratios of all categories have decreased or remained at constant levels. Rising input costs have been offset by increased government investments and government incentives. Thus there has been a net negative effect and the cost competitiveness index has declined from 100 in 2004 to 89 in 2007. Thus there has been a significant increase in cost competitiveness of the Industry.

6.8.2. Regional Competitiveness

In the spinning, weaving and finishing of textiles sector, the per unit wage productivity of the Northern region is the highest at 29 is nearly four times that of the Indian average of 8. The labour productivity, is highest in the Western region at 17. This measures the Output to Wage ratio, i.e., for every unit increase in wage, there is a increase in output of around 17 times. The Eastern regions labour productivity is only 20 per cent of the Western region. The Eastern region however has the highest capital productivity at 1.17 times the Western level. Again factory productivity ratio is the highest in the Eastern region. The Northern region has the highest overall productivity. The spinning activity which is capital intensive is

highly concentrated in the Western region whereas the weaving and finishing activities which are labour intensive, are found to be highly diffused across regions. This is due to historical reasons. The spinning process is largely dependant on uninterupted sources of power. The Western region is also the nerve centre of the domestic market in India.

In the manufacture of other textiles, the Eastern region scores in terms of all the productivity ratios. This is due to the fact that made-up textile articles, bags, mosquito nets, tarpaulin, carpet and rugs, cordage, rope, twine and netting, canvas goods all use coarse to hard fiber. Natural coarse fiber like jute suits the purpose of manufacture of these items. The Eastern regions have built up capabilities in this area as raw material supply is abundant.

When comparing regions in the production of knit and crocheted textiles we see that the Southern region has the best per unit wage productivity ratio, the highest overall productivity at 0.83. But the Western region has the highest labour productivity and the highest factory to output ratio. Hence this category of knitted and crocheted fabrics has mostly developed around the southern and western regions. These areas have developed as export centres and hence there is a certain level of permeation of technological and innovational infusions. The Southern and Western regions are production centres for export. These centres have come up mainly due to input availability and conducive government policies.

In the Wearing Apparel category, the Southern, Eastern and Northern regions exhibit fair even competitiveness in terms of productivity. The Western region has the highest labour productivity whereas the eastern region has the highest capital productivity. The Northern, Southern and Eastern regions are evenly matched in terms of overall productivity at 0.80. Apparel and garments industry are highly structured, organised and export oriented. They have come up in mostly in and around areas having infrastructural facilities, access to inputs and most importantly, around centres of planned economic development by the government.

6.8.3. Sector Perception

Out of the 100 firms surveyed 39 per cent had revenues over Rs 10 crores and 4.5 per cent had revenues over Rs 500 crores.

Table 24: Sector Perception : Factors Affecting Growth

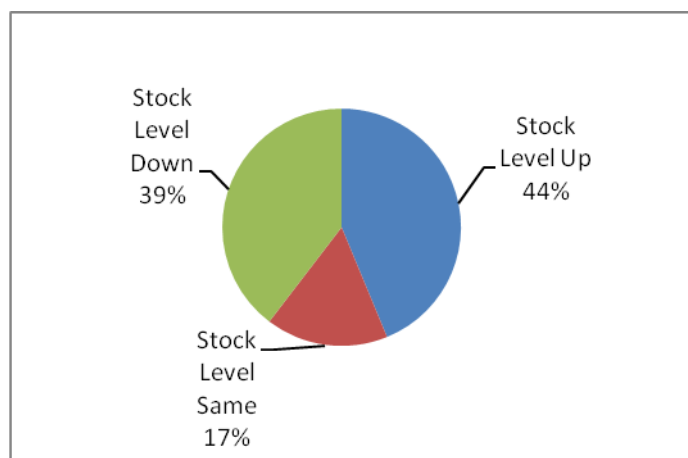
Factors Limiting Growth of Firm	Rank	Percentage of Respondents
Access to bank credit	1	66%
Capital cost	2	33%
Operating costs	3	17%
Shortage of skilled labour	4	40%
Insufficient demand for products	5	48%
Taxes and Regulations	6	44%
Exchange rate	7	49%
Competition from Imports	8	41%
Access to market	9	42%
Employee costs	10	61%

Source: IMaCS Sector Perception Survey

Of the 10 factors ranked against limiting growth of the firm, Access to Bank Credit (Rank 1), Capital Cost (Rank 2) and Shortage of Skilled Labour (Rank 3) topped the list of concerns.

On questions of Business situation compared to the past 3 months, 70-90 per cent of respondents indicated a ‘no change’ in the financial situation, new orders and number of people employed. However, 83 per cent respondents reported a increase in selling price against levels prevailing 3 months previously. 43 per cent reported increased stock levels.

Figure 38: Current Level of Stocks

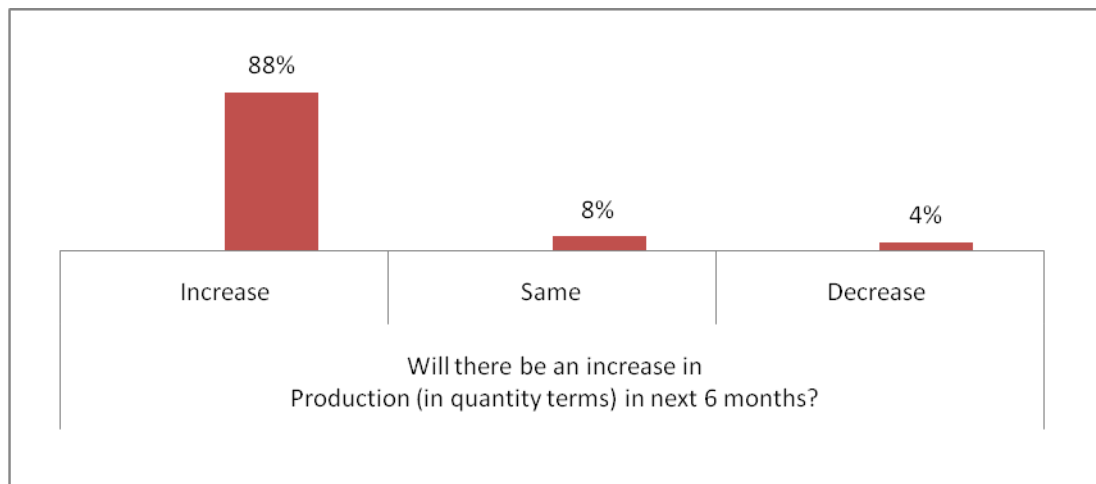


Source: IMaCS Sector Perception Survey

64 per cent of respondents reported improved profit margin in the current quarter versus the previous quarter. 24 per cent reported decline in profits against previous quarter and 14 per cent reported a “no change”.

The section on Business Confidence for the next 6 months reveals that, 70-90 per cent of respondents change positions on ranking to be more positive about financial situation, selling price, new orders and an increase in number of people employed. However, 12 per cent of respondents report an expected drop in future stock levels against levels prevailing currently.

Figure 39: Expected Change in Production Levels



Source: IMAcS Sector Perception Survey

88 per cent of respondents think that there will be an increase in production in quantity terms of textiles products in the next 6 months. 65 per cent of respondents believe that capital finance requirements and 88 per cent believe that cost of raw materials would go up. 42 per cent report a decrease in capacity utilisation.

76 per cent of respondents believe that there is no scope for an increase in demand for exports and also, they are not certain if their products are facing competition from imports.

6.9. Recommendations

Challenges

Indian Textiles and Garments industry has a significant employment potential and export potential in case the envisioned growth target is achieved. The industry is facing issues at two broad levels:

- Decline in demand from global markets
- Liquidity crisis
- Significant dependence on Cotton products
- Lack of skilled labour

The major impediments to the growth of the industry are:

- Delay in disbursement of TUFS and other assistance
- High working capital interest
- High dependence on cotton products
- Lack of availability of skilled labour
- High dependence of textiles trade on EU27 and US markets

Strategic interventions are required by both the Government and the industry to ensure the growth of the industry.

Strategies

In order to address the above challenges the following significant interventions are proposed:

- Government should take steps to reduce the cost disadvantage of textiles and garments manufacturers which is created on account of unfavorable government policies. Power cost in India is on an average around 40% higher than that in the analysed competing countries. Moreover, the Indian T&C industry suffers from shortage of power for instance Tamil Nadu which accounts for around 40% of India's spinning activity and over 25% of total industry activities have a declared power cut of 40%. Long term steps are being taken by the government to reduce the power shortage however, the industry needs a support during this crisis period. Liquid Fuels such as furnace oil and diesel used for captive power generation attract 10% basic customs duty and 14% excise duty; this coupled with high fuel prices makes the captive power costly. Government should support captive power generation in the regions of acute power shortage by allowing exemption of customs and excise duty paid for the liquid fuels that are used for captive power generation.⁶⁰
- To make the industry competitive in terms of labour, the government should consider routing the National Rural Employment Guarantee Programme (NREGA) through the Textiles and Garments industry; in this regard, the industry can commit employment guarantee on the lines of the NREGA,

⁶⁰ Confederation of Indian Textiles Industry

which ensures 100 working days a year and minimum wages of Rs 60 a day and relaxing the norms of Industrial Disputes Act, 1947 with regards the number of workers in a concern.

- Taxes and duties charged by the State Governments and local bodies are not refunded to manufacturers. Moreover, the duty drawback rates fixed by the Ministry of Finance are not sufficient to neutralize the incidence of all the duties paid by the exporters. In addition, there is delay in disbursement of duty drawback claims to the level of 40 – 60 days which affects the cash flow of the companies. Government should take the following steps to overcome this anomaly:
 - Refund State level taxes and duties
 - Revise duty drawback rates and expedite the drawback claim disbursement
- Delay in disbursement of TUFSS assistance results in significant additional cost. Government should take immediate steps to allocate sufficient funds in order to clear the back log of TUFSS till date. Moreover, for future loans under TUFSS the mills should be permitted to pay interest net of subsidy to the banks; Government should arrange to remit interest subsidy amounts directly to banks concerned.
- Textiles and garments manufacturers pay working capital interest at the rate of 11 – 13%. Working capital requirement of the Cotton textile industry has increased on account of hike in cotton prices. Government should make provision to provide working capital loan for cotton on terms applicable for agriculture by reducing interest rate for working capital loans.
- The Textiles industry is cotton dominated with Cotton fibre accounting for 62% of total fibre consumption (2007) and Cotton Textiles accounting for 54% of total Textile exports of India. Measures should be taken by the Government to promote the domestic consumption of manmade fibres.
- Non-availability of trained labour is one of the primary business constraints mentioned by the industry. The initial cost of training is high which acts as a deterrent to in-house training initiatives by the industry because of high chances of losing the trained man power. Associations should establish Skill Development centres to ensure availability of skilled labour to the industry. The Skill Development centres should run certified training courses focusing on the specific skills required by the industry. Registration of skilled workers should be done at the Skill Development centres to maintain a databank of skilled labour.

6.10. Summary

The Manufacturing Competitiveness Index for the Textiles and Garments Industry has moved up substantially from 100, in the base year of 2004 to 190 in 2007. Textiles and garments exports represented 16 per cent of commodity exports from India in 2005. This declined to 13.4 per cent of commodity exports in 2007. This has been partly due to the inability to capitalise on the quota system abolishment in 2005 due to market imperfections like labour market rigidities and lack of scale economies. The other factor that affected exports significantly was the fall in export competitiveness due to comparative rise in prices of Indian textiles on account of the strengthening rupee. However the demand growth in the domestic market is positive. The growing middle class is spending increasingly on value added textiles like garments. This is partly due the success of the brands and retailing in the apparels sector.

There was also a sharp increase in savings in the sector measured by the gross fixed capital formation due to the increased investments⁶¹ provided by the government to combat adverse effects on exports due to the strengthening rupee. The industry costs came down sharply due to a combination of government policies and increased capital productivity. There had been an increase in industry profitability on accounts of the knitwear and the apparel sector. This was complemented by an increase in domestic sales.

The Western region presents a clear advantage in terms of the spinning, weaving and processing category. The western region enjoys historical advantages and it is the nerve centre of the domestic market in India. The East is competitive in terms of textiles made of natural fabric like jute. It is competitive for the production of carpets, rugs, bags, tarpaulin, canvas, ropes and cordages. The South holds the competitive position in terms of being the most competitive in the production of knitwear. It has built up export capabilities over a period of time. The garments and apparel sector presents a mixed picture with the south, north and east being equally competitive in terms of production of these items.

The sector perception survey reveals that of the 10 factors ranked against limiting growth of the firm in the Textiles and Garments industry, Access to Bank Credit (Rank 1), Capital Cost (Rank 2) and Shortage of Skilled Labour (Rank 3) are cause for most concern. Around 80 per cent of those surveyed indicate a positive outlook on present and future (6 months) business confidence. 88 per cent of respondents believe

⁶¹ Plan outlay for investments in Textile Industry in 2005-06 was 65 per cent higher than in 2004-05.

that there will be an increase in production levels in the next six months due to increase in domestic demand.

7. Manufacturing Competitiveness of Electronics and IT Hardware Industry

7.1. Introduction

India's economy is expanding rapidly (at a rate of over 9 per cent in 2007) as it advances to become the third largest economy globally by 2020. The electronics sector, including telecommunications and consumer electronics, is one of the fastest growing sectors of the Economy with average growth rates of over 20 per cent.

India is becoming a manufacturing base in the areas of consumer electronics and telecom equipment. This follows India's emergence as an attractive destination for Information Technology/ Information Technology Enabled Services. The government is committed to making India a major hub in the electronics manufacturing sector. It has rationalized taxes and duties and taken several initiatives to improve the performance of the hardware industry. As a result, in addition to the natural advantages present, there is likely to be sustained growth in the consumer electronics, component, and IT hardware sectors of the electronics industry. Major international players have already set up manufacturing operations and R&D centres in India. Six out of the top ten Global Electronics Manufacturing Services (EMS) companies are in various stages of an Indian presence. India's EMS market is forecast to grow at an astonishing five times the global average.

Table 25: Changing Composition of Electronics Industry

Rs. Billion	2002	2003	2004	2005	2006	2007	CAGR 5 Year
Consumer Electronics	138	152	168	180	200	225	8 per cent
Computers	43	68	88	108	128	164	25 per cent
Telecom Equipment	48	54	48	70	95	144	20 per cent

Components	66	76	88	88	88	95	6 per cent
Industrial Electronics	56	61	83	88	104	120	14 per cent
Total	351	411	475	534	615	748	13 per cent

Source: Department of Information Technology

In 2007-08, the production of Electronics and IT Hardware was Rs 748 Billion. The Electronics and IT Hardware Industry has been growing for the last five years at a compounded annual growth rate of 13 per cent. The demand for electronic components in the domestic market is estimated at Rs 1075 billion and around Rs 716 billion of this demand is met through imports⁶². Most of the imports are electronic materials, components and finished equipment. Over 95 per cent of the component market in India is made up of foreign players.

On the whole, the electronic sector, has been de-licensed, with the exception of aerospace and defence electronics. Fiscal, investment and trade policies for the electronic sector have also been shaped to provide the greatest incentive to encourage foreigners to bring in the much needed investments. All components, raw materials and capital goods are freely importable without restriction. The government even renders a duty free environment for export of electronic hardware and software under the export oriented schemes. The big electronics manufacturers depend on captive power, since outages can irreparably damage parts in assembly; hence necessary facilities have been made able by the government.

7.2. Electronics and IT Clusters in India

Table 26: Electronics and IT Clusters

Location	State	Location	State
Bangalore	Karnataka	Abdasa	Gujarat
Gurgaon	Haryana	Agartala	Tripura

⁶² Department of Information Technology

Location	State	Location	State
Hyderabad	Andhra Pradesh	Noida	Uttar Pradesh
Mumbai	Maharashtra	Pune	Maharashtra
Ahmedabad	Gujarat	Chennai	Tamil Nadu

Source: UNIDO Cluster Database

Currently, there are more than 3500 electronics manufacturing units of various sizes across the country. The current growth trend indicates the fact that, the share of IT and electronics in India’s output and employment has the potential to improve further, driven by its newfound prominence in the global electronics manufacturing value chain.

The production clusters in India are fairly well spread out. The oldest clusters are the ones in Maharashtra and Gujarat and NCR that have existed primarily due to the cheap availability of inputs to production i.e., land, labour and materials.

The cluster in Karnataka and Andhra Pradesh has come up mainly due to the success of the IT/ ITES industry, to meet the demand for electronics from this sector. The other clusters have come up due to planned interventions/ development of the government granting facilities and benefits to producers/ exporters.

7.3. Classification of Electronics and IT Hardware Industry

The Electronics and IT Hardware Industry can be divided into the following sub categories.

Table 27: Classification of Electronics and IT Industry

Segments	Constituents
Computers	Personal computers, servers, workstations, supercomputers, data processing equipment and peripherals such as monitors, keyboards, disk drives, printers, plotters, SMPS, modems, networking products and add-on cards

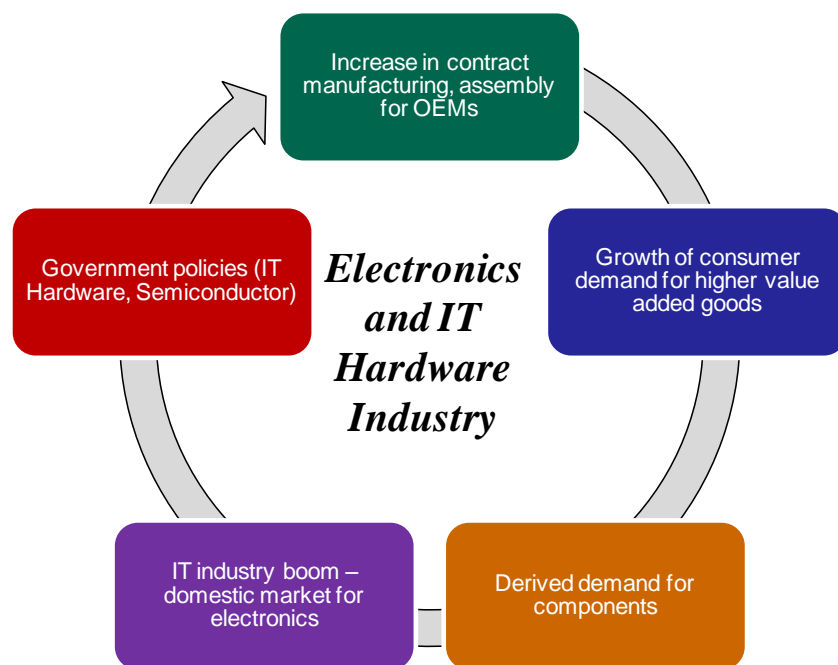
Components	TV picture tubes, monitor tubes, diodes and transistors, power devices, ICs, hybrid microcircuits, resistors, capacitors, connectors, switches, relays, magnetic heads, DC micro motors and tape deck mechanism, PCBs, crystals, loudspeakers and hard and soft ferrites
Consumer	televisions, audio systems, refrigerators, air conditioners and microwave ovens
Industrial	automation technologies, networking systems and other stand-alone instrumentations used in manufacturing industries like Steel, Textiles, Cement, Power, Chemicals and Refineries
Telecommunications	Digital exchanges (EPABX, RAX, TAX and MAX), transmission equipment (HF, VHF, Microwave trans-receivers), satellite communication terminals, optical fibre communication equipment, two-way radio communication equipment

Source: ASI and NIC 2004

7.4. Key Drivers of Electronics and IT Hardware Industry

The Key Drivers of Electronics are as listed in *figure 40* below.

Figure 40: Growth Drivers of Electronics and IT Hardware Industry



Increasing in contract manufacturing: India is emerging as a low cost manufacturing base as foreign players looking to diversify to alternate locations other than China.

Growth of Consumer demand for higher value added goods: Consumer electronics market is growing rapidly due the increasing disposable income of the growing middle class incomes.

Derived demand for components: There is increasing demand for components from the growing industrial, consumer, computers and telecom industries.

IT Industry boom: Due to the booming IT industry there is increased demand for IT Hardware like computer and computer parts.

Government Policies: Numerous policies have been provided by the government for the Electronics and IT Hardware Industry. The salient policy initiatives are as given below.

7.5. Policy Initiatives

Business Start-Up Initiatives

- Economic Zone (SEZ) model and to focus on attracting foreign direct investment in hardware manufacturing
- Necessary infrastructure for uninterrupted power for large scale electronics manufacturers

Fiscal Initiatives

- Electronic Hardware Technology Park (EHTP) scheme to enable the sector to benefit from the zero-duty regime
- Customs duty on a number of components has been reduced to nil since 2000. The present customs duty range for components is 0 per cent-15 per cent
- Reduction in customs tariffs
- De - licensing of all consumer electronic products

Investment Initiatives

- The easing of foreign investment norms
- Allowing of 100 per cent foreign equity

7.6. SWOT Analysis of Electronics and IT Hardware Industry

Given below in *Table 28* is an analysis of the Electronics and IT Hardware Industry using the SWOT analysis.

Table 28: SWOT analysis of Electronics and IT Hardware Industry

Strengths	<ul style="list-style-type: none"> 1) Indian Electronics and IT Hardware sector’s growth is nearly 22 per cent, which is three times the global growth rate of around 7 per cent 2) Increased collaborations with Eastern as well as international players 3) Availability of low cost labour 4) Investment and trade friendly policies
Weaknesses	<ul style="list-style-type: none"> 5) Infrastructural deficiencies (non - availability of dedicated power supply, backward linkages) 6) Transformation from manual assembly to automation may reduce employment in some processes
Opportunities	<ul style="list-style-type: none"> 7) Rising demand for consumer electronics, telecommunications equipment domestically – increased consumption expenditure 8) Growing demand from Industrial, Consumer Electronics, Telecommunications and Computer Hardware manufacturers for components (domestic and international) 9) Opportunities for contract manufacturing and assembly
Threats	<ul style="list-style-type: none"> 10) Other Asian countries have an established presence (first mover advantage) in low cost manufacturing (China, Taiwan, Malaysia, Thailand) 11) Lack of skills to match up high end value added functions such as design (Japan, Singapore, Europe, US, Canada)

7.7. Analysis of Cost Indicators

We have drawn comparisons between Industry costs as a percentage of sales for raw materials, power and Fuel, Labour, Manufacturing and Selling and Administration between 2002 and 2007 for the five sub sectors in the Electronics and IT Hardware Industry as shown in *table 28*.

Table 28: Cost Indicators of Electronics and IT Hardware Industry

Category	Year	Raw Materials	Power and Fuel/Sales	Employee/Sales	Selling and Administration Expenses	Other Manufacturing Expenses
consumer	2002	69%	3%	5%	7%	2%
	2003	72%	4%	5%	8%	2%
	2004	72%	4%	5%	8%	2%
	2005	70%	3%	5%	10%	4%
	2006	70%	4%	6%	10%	4%
	2007	72%	4%	5%	6%	5%
computers	2002	53%	1%	7%	11%	18%
	2003	34%	0%	8%	8%	11%
	2004	40%	0%	4%	9%	6%
	2005	64%	0%	4%	11%	5%
	2006	72%	0%	4%	8%	4%
	2007	87%	0%	3%	4%	2%
components	2002	48%	6%	13%	11%	8%
	2003	54%	6%	16%	12%	9%
	2004	46%	6%	13%	11%	11%
	2005	51%	7%	15%	11%	10%
	2006	50%	6%	13%	12%	12%
	2007	57%	4%	11%	9%	10%
industrial	2002	57%	1%	13%	10%	11%
	2003	62%	1%	11%	9%	10%
	2004	57%	1%	19%	8%	10%
	2005	63%	1%	9%	8%	11%
	2006	59%	0%	8%	7%	15%
	2007	53%	0%	8%	7%	23%
communications	2002	61%	1%	11%	7%	8%

Category	Year	Raw Materials	Power and Fuel/Sales	Employee/Sales	Selling and Administration Expenses	Other Manufacturing Expenses
	2003	57%	2%	13%	9%	8%
	2004	55%	1%	13%	10%	9%
	2005	68%	1%	13%	7%	6%
	2006	69%	1%	11%	7%	4%
	2007	80%	0%	8%	5%	3%

Data Source: Capitaline

Except for the Industrial electronics sector we see that the raw materials cost has gone up for every other sector in the industry. Labour costs have fallen due to the high level of automation being brought into the plants. Selling and administration costs decrease because of as networking between the dealers and suppliers is strengthened. We see a major fall in costs in most categories going forward as the Industry is a new one and will reap the benefits of becoming established in the coming years.

The effect of positive and negative externalities, either through government or private initiative implicitly affects cost measures. For example, the effect of taxation may be difficult to capture as externalities are not amenable to measurement and quantification in a definite way. The resultant effects though can be studied via its effects on costs. However there may be some cancelling out of said externalities as say, an exemption or a subsidy from the government could counter some other negative effect on a firm weighing down its profitability.

The table above illustrates the cost structure of the various segments in the industry when resale component is not removed from total sales. When resale component of total sales is removed the costs as a percentage of sales increase by around 60%. In aggregate, over 50% of the total market for electronics and IT hardware in India is constituted by imports. The Electronics and IT Hardware Industry in India without engaging in resale would face much higher costs. This is because bigger economies of scale and technological expertise have been built up in other countries. Hence taking out the resale component increases costs and reduces overall competitiveness to the extent that it would be unviable to operate businesses. This is very evident in segments such as computers, consumer electronics and communications.

7.8. Manufacturing Competitiveness Index - Electronics and IT Hardware Industry

The Manufacturing Competitiveness Index for the Electronics and IT Hardware Industry has moved up marginally from 100, in the base year of 2004 to 106 in 2007. There has been approximately a 6 per cent increase in our measure of competitiveness in the Textiles Industry. This has been primarily due to an increase in the demand competitiveness. The growing middle class population is spending increasingly on electronics items such as mobile phones and personal computers. The significance attached to this development is the permeation of technology to a direct increase in the standards of living. There has also been a steady and growing inflow of foreign investments in this sector. There has been a burgeoning increase in exports. The upward movement of the index was countered by the corresponding sharp rise in costs.

Table 29: Manufacturing Competitiveness Index – Electronics & IT Hardware

YEAR	ECI	MC	DSC	PSC	FC-CONS	FC-COMP	FC-CMPT	FC-IND	FC-COMM	Industry Cost comp	IC-CONS	IC-COMP	IC-CMPT	IC-IND	IC-COMM	Scaled MCI
1995	89	64	14	77	157	92	51	80	385	111	61	106	32	90	111	58
1996	88	65	17	73	147	93	55	87	90	111	61	106	32	90	111	58
1997	85	84	19	70	110	89	56	86	94	111	61	106	32	90	111	58
1998	87	126	23	67	111	97	58	89	96	111	61	106	32	90	111	58
1999	88	241	27	66	107	101	69	93	97	128	57	106	36	113	128	83
2000	89	55	36	66	104	99	67	95	100	90	58	138	62	113	90	67
2001	86	55	44	68	104	95	66	94	100	99	83	101	83	102	99	69
2002	144	70	60	66	95	99	68	97	102	120	406	93	97	113	120	86
2003	78	99	75	65	93	98	68	97	98	101	99	91	42	140	101	100
2004	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
2005	113	127	131	61	100	100	100	100	100	120	89	97	78	209	120	125
2006	121	73	174	57	100	100	100	100	100	725	115	113	70	209	725	167
2007	121	73	174	58	100	100	100	100	100	174	117	72	133	232	174	106

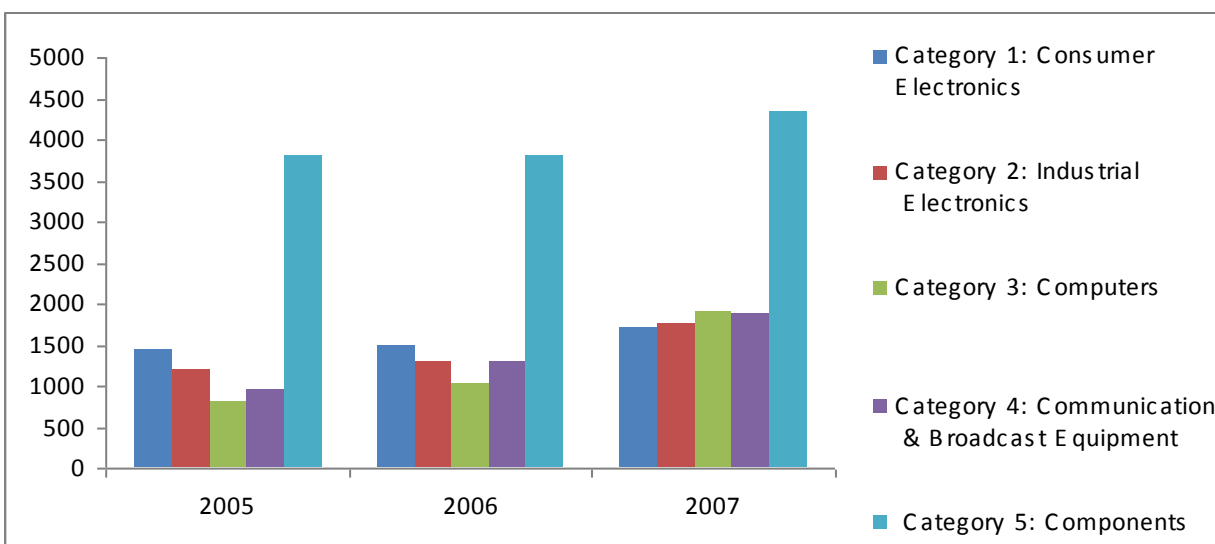
@ Variation in FDI movement (as % of total) has caused fluctuation in MC movement from Y 1999 to Y 2000 and Y 2004 to Y 2005

We examine below the factors influencing index movement.

7.8.1. Key drivers of index movement

7.8.1.1. Macro and Exports

Figure 41: Exports of Electronics and IT Hardware Industry in USD Millions



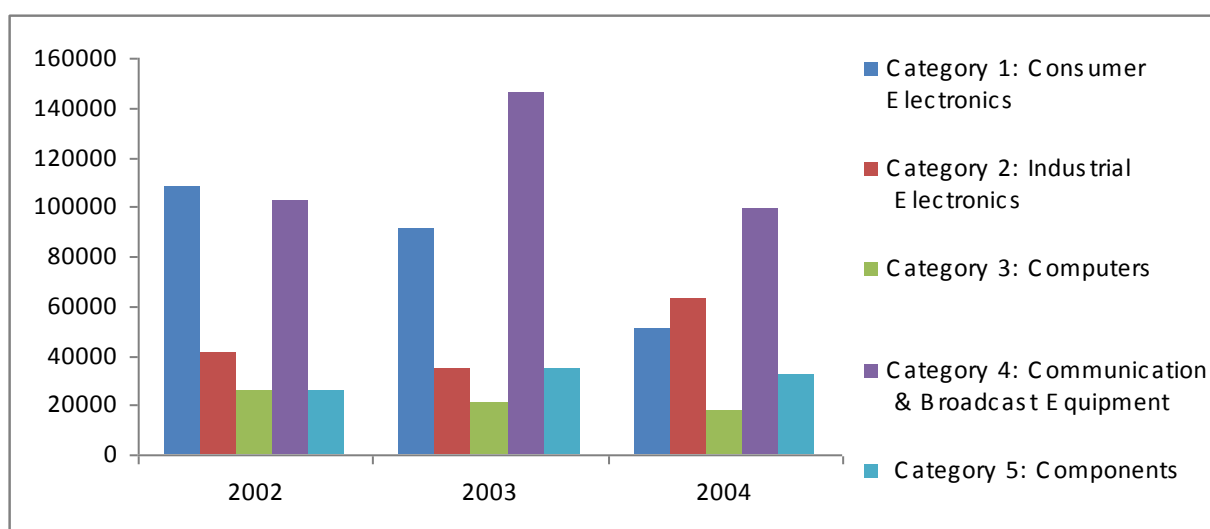
Source: Department of Information Technology

Exports of all categories have been increasing⁶³. Annual average growth in export consumer electronics goods from India during the past five years is estimated to be 16.46 percent (18.74 percent in US\$ terms). The major items of export include colour television sets, watches and clock and DVDs. Production of industrial electronics equipment registered a growth of 24 percent (27 percent in US\$ terms) during the year 2006-07 over the year 2005-06. Export of Computer Hardware registered a growth of 46 percent (50 percent in US\$ terms) during the year 2006-07 over the year 2005-06. The export items were mainly head stacks, switching mode power supplies, scanners, dot matrix printers, LAN cards and parts of printers. The largest markets for hardware exports are Singapore, Hong Kong, Europe and the USA which make up around 92 per cent of total export market for India. Export of Telecom Equipments registered a growth of 30 percent (33 percent in US\$ terms) during 2006-07 over 2005-06. The main items of export

⁶³ Electronics and Software Export Promotion Council

in telecom equipment category were optical fiber cables, connector boxes and mobile handsets. The major destination for exports of telecom equipment besides Singapore were Africa, EU and middle eastern countries. Export of Electronics Components registered a growth of 54 percent (58 percent in US\$ terms) during the year 2006-07 over the year 2005-06. CD recordables, picture tubes and solar cells are the top exports in the components category. EU countries are the major export destination for electronics components from India. The export competitiveness index has increased to 121 in 2007 from 100 in 2004.

Figure 42: Gross Fixed Capital Formation in Rs. Crores

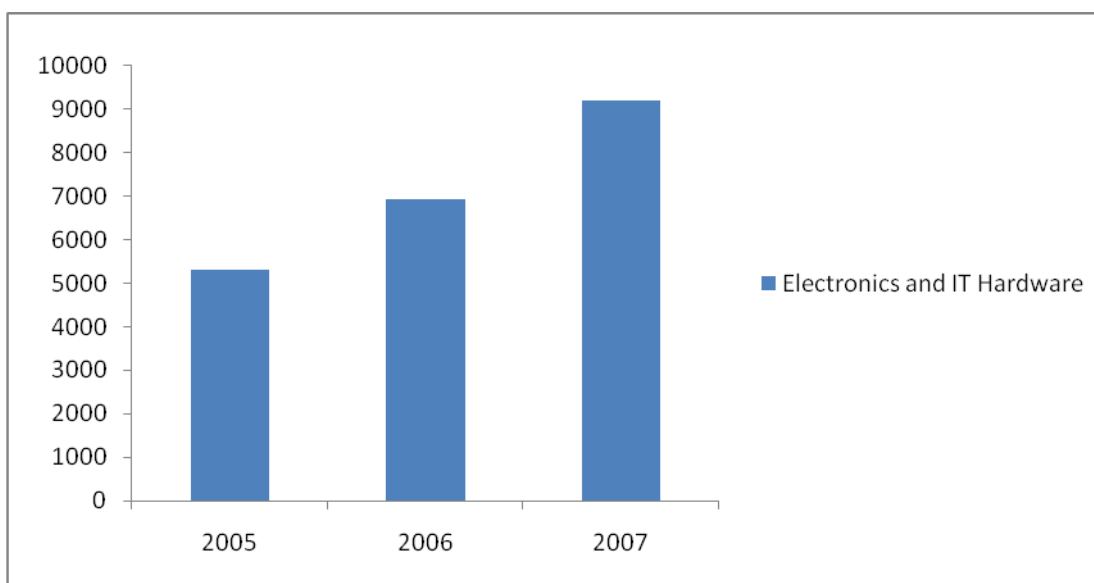


Source: ASI

However, the Gross fixed capital formation in the largest category, consumer electronics, shows a declining trend as the market shrinks due to obsolescence of old technology and products like colour televisions. The market is shifting to new LCD technology and hence we see a scale down in capacities of the obsolescent products. Correspondingly there are new investments being made in the telecom sector as India emerges as the new low cost manufacturing base for handsets. With every major global handset manufacturer setting up units in the country, investment in this sector is growing. The net effect however is a decline in 2004 when compared to 2002 and 2003 due to the erosion of gross domestic capital formation in the largest category, the consumer electronics, which accounts for 30 per cent of total production in the electronics and IT Hardware industry. Hence there is a fall in the macroeconomic index from 100 in 2004 to 73 in 2007.

7.8.1.2. Demand Competitiveness

Figure 43: Consumer Expenditure on Electronics and Hardware Products



Data Source: NSSO

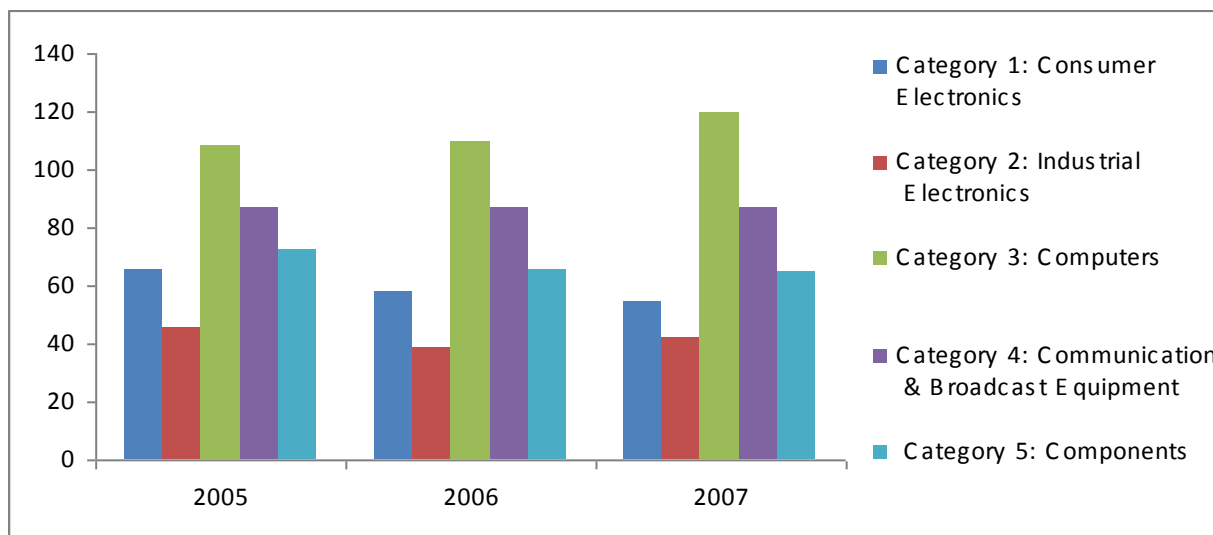
The Demand Competitiveness Index has increased from 100 in 2004 to 174 in 2007. This is due to the increasing demand for electronic and IT Hardware goods, such as computers, modems, fibre optic cables and cell phones. India is the fastest growing market for mobile phones in the world, adding about 6 million mobile phones every month⁶⁴. The personal computer market has been growing at 19 per cent CAGR over the period 2002-2007. The number of internet users in India has increased by 40 per cent at 46 million in September 2007 as compared to 32.2 million in September 2006⁶⁵.

⁶⁴ Telecom Regulatory authority of India

⁶⁵ Internet and Mobile Association of India (IAMAI)

7.8.1.3. Price Competitiveness

Figure 44: Wholesale Price Index for Electronics and Hardware Products



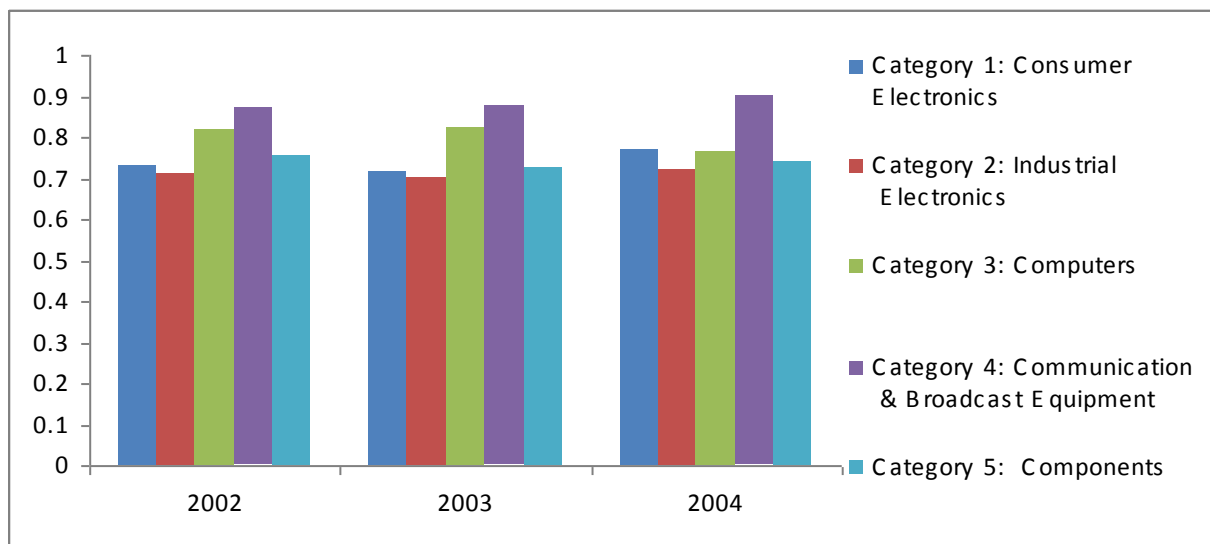
Data Source : *eaindustry.nic.in*

There is either a decline or a stagnation of prices across the sub-components of the Electronics and IT Hardware Industry. This is typical of a highly technologically driven industry. Products have very short life cycles and thus prices fall much quicker than in the case of any other type of commodity. Prices have also fallen due to competition among the major players, aggressive marketing strategies and declining import tariffs⁶⁶. Also, bargaining power of customers is high due to the availability of multiple brands. Hence the price competitiveness index has fallen from 100 in 2004 to 58 in 2007.

⁶⁶ FICCI survey

7.8.1.4. Firm Level Competitiveness

Figure 45: Overall Productivity in the Electronics and IT Hardware Industry

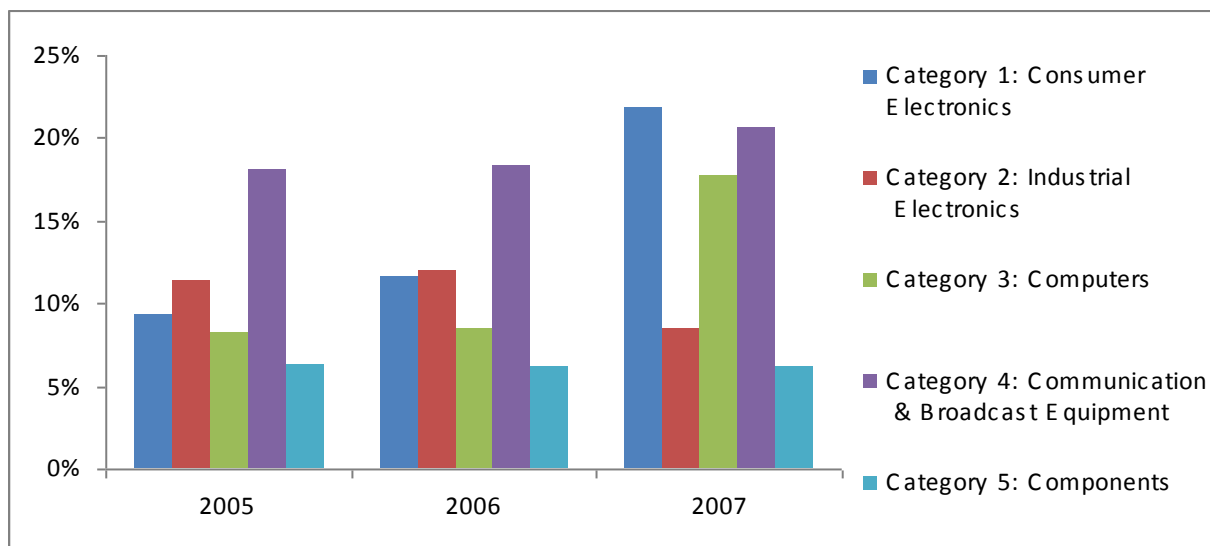


Source: ASI

Across the categories, we see a marginally improving or a constant trend of overall productivity. Price falls have been offset by the growth in technology. However, with increased automation, competitiveness is affected as the component of low cost labour in manufacturing is steadily being replaced by expensive machinery.

7.8.1.5. Financial Competitiveness

Figure 46: Industry Profitability - ROCE



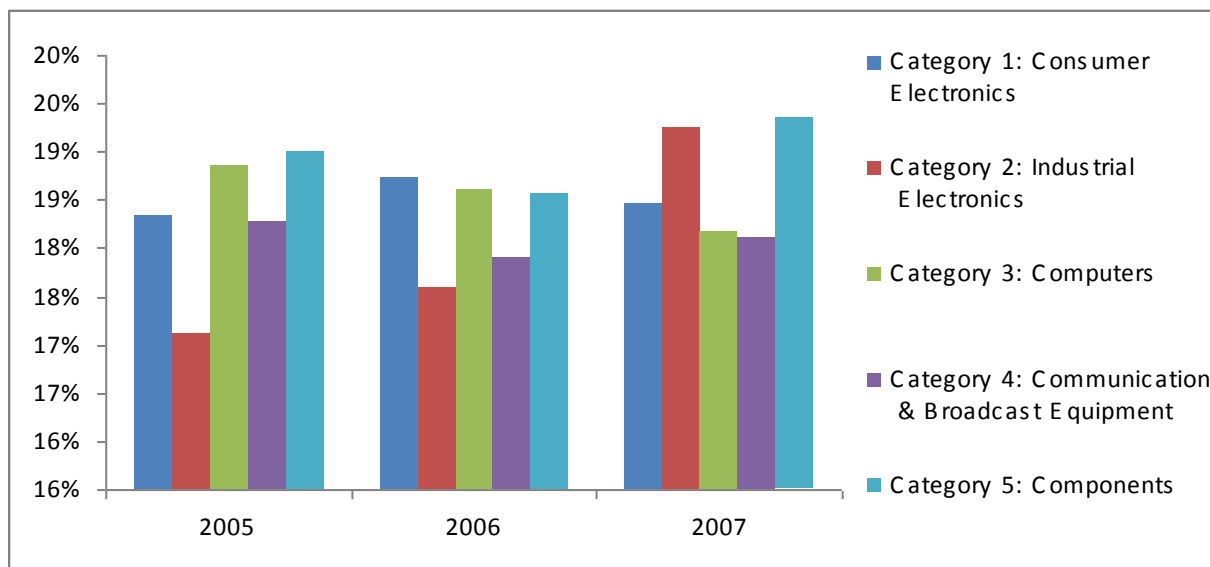
Data Source: CAPITALINE

The Industry profitability measures across category 1, 3 and 4 are consistently increasing. Profitability in the category 2 is observed to be declining whereas profitability of components is flat. Generally, the net profit of newly incorporated companies as in the consumer electronics and computer hardware category are observed to be higher than that of their older counterparts. This is explained in terms of the edge the newer companies have vis-a-vis the older ones in terms of recurrent expenditures. Therefore, even a small increase in the gross profits of a new firm in absolute terms translates into a significant increase in net profits in relative terms⁶⁷.

⁶⁷ Study published by Indira Gandhi Institute of Developmental Research

7.8.1.6. Cost Competitiveness

Figure 47: Cost Indicators in Electronics and IT Hardware Industry



Data Source: CAPITALINE

The costs are clearly rising in category 2, 4 and 5. We see a fall in costs in category 3. In category 1 the costs are unchanged. As production process' become increasingly automated, the electronics and IT Hardware manufacturing sector is losing the cheap labour advantage. The net effect is an overall increase in cost competitiveness index to 174 in 2007 from 100 in 2004. Thus cost competitiveness is clearly falling.

7.8.2. Regional Competitiveness

In the case of consumer electronics sector, the per unit wage productivity is highest in the western region. The labour productivity is highest in the Southern region at 61.9 and per unit wage productivity is highest in the Western region at 80.35, nearly 3.5 times that of the Eastern region. The labour productivity measures the Output to Wage ratio. This means for every unit of wage paid, the corresponding output of the sector is 61 times for the Southern region. Again, capital productivity ratio is the highest in the Southern region. The Northern region has the highest factory productivity. The Western region has the highest overall productivity ratio of 0.86. This is because of the incentives that the government had

initially come up with, with export oriented SEZ's manufacturing consumer electronics in the industrialised western states of Maharashtra and Gujarat. Whereas similarly because of conducive government policies, manufacturing units sprung up quickly in the NCR region.

The Western region exhibits the best labour productivity ratio whereas the Northern region presents the highest factory to output ratio at 1.5 times that of Western region and Northern region in the production of Computer hardware. The Northern region also has the best capital productivity at 3.99 and overall productivity at 0.79. This is probably due to historical advantages of these production centres in this technological and capital intensive industry starting out before other regions, in the North specifically in the NCR region.

When comparing the production of components, we see that the Northern region has the best per unit wage productivity ratio, the highest labour productivity ratio and the best factory to output ratio. But the Western region has the best capital output ratio and the Southern region has the highest overall productivity ratio of 0.81 compared to the Indian average of 0.77. Hence this category of components presents a picture where specific pockets in the north, south and west all have advantages in inputs or because of policy considerations. These are global and well as local players who are rapidly making Indian manufacturing hubs. India is emerging as a contract hub as also there is an emergence of high value activities such as the manufacture of semiconductors. These industries however are power and water supply sensitive. Hence they need a fair share of dedicated infrastructural and policy support from the government to flourish.

In the the production of components, the Northern region scores the highest productivity ratio on all counts which is around four times higher than other regions in all categories. This is because the industrial electronics manufacturing supplies its products to technologically intensive industries for example, to an high-end electrical equipment manufacturer. In India, such manufacture's of high end products are found in the North.

The production of communications presents a clear leader, the South, in terms of all productivity ratios. With major handset makers establishing production centres in Tamil Nadu and Karnataka, the South is the frontrunner in the manufacture of communications equipment.

7.8.3. Sector Perception

Out of the 100 firms surveyed 75 per cent had revenues over Rs 10 crores and 46 per cent had revenues over Rs 500 crores.

Table 31: Sector Perception : Factors Limiting Growth of Firms

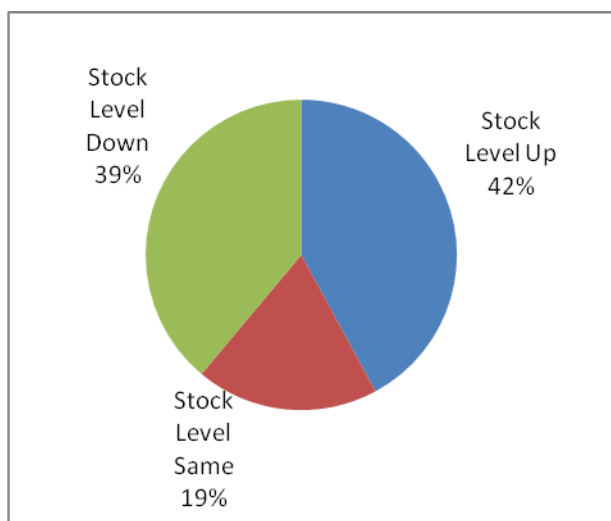
Factors Limiting Growth of Firm	Rank	Percentage of Respondents
Access to bank credit	1	63%
Capital cost	2	50%
Shortage of skilled labour	3	41%
Insufficient demand for products	4	41%
Taxes and Regulations	5	41%
Exchange rate	6	48%
Operating costs	7	50%
Competition from Imports	8	42%
Access to market	9	48%
Employee costs	10	63%

Source: IMACS Sector Perception Survey

Of the 10 factors ranked against limiting growth of the firm, Access to Bank Credit (Rank 1), Capital Cost (Rank 2) and Shortage of Skilled Labour (Rank 3) topped the list of concerns.

On questions of Business situation compared to the past 3 months, 70-90 per cent of respondents ranked positive developments indicating a betterment in financial situation, selling price, new orders and an increase in number of people employed. None reported a decrease in any of the above parameters. However, 39 per cent of respondents reported a drop in current stock levels against levels prevailing 3 months previously. 64 per cent of respondents reported improved profit margin in the current quarter versus the previous quarter. 23 per cent reported decline in profits against previous quarter and 15 per cent reported a “no change”.

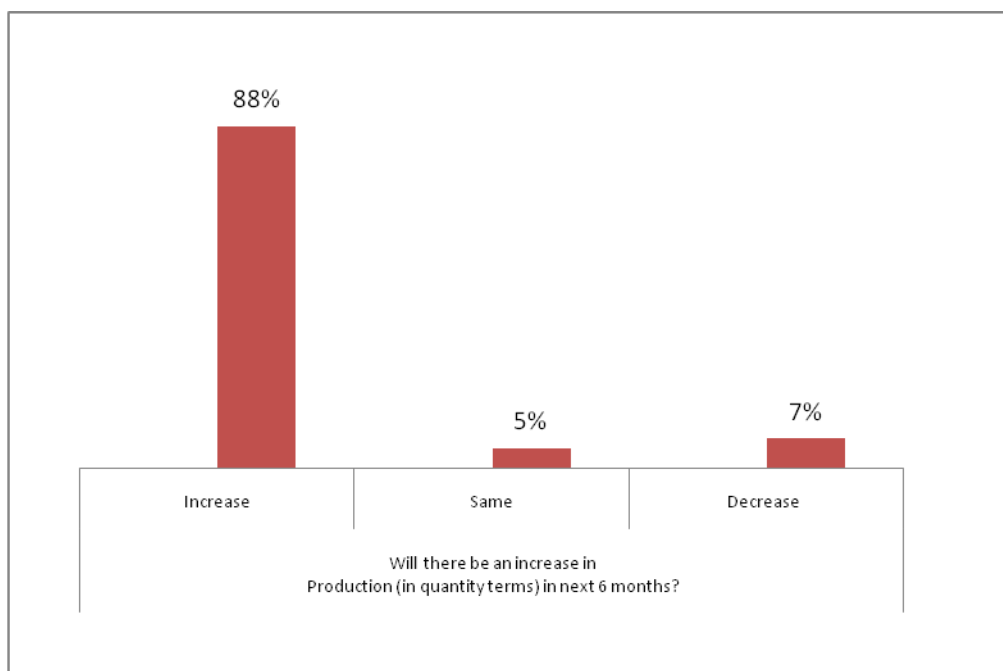
Figure 48: Current Stock Levels



Source: IMAcS Sector Perception Survey

The section on Business Confidence for the next 6 months reveals that, 70-90 per cent of respondents still maintain positions on ranking positively financial situation, selling price, new orders and an increase in number of people employed. None report an expected decrease in any of the above parameters. However, 12 per cent of respondents report an expected drop in future stock levels against levels prevailing currently.

Figure 49: Future Production Levels



Source: IMaCS Sector Perception Survey

88 per cent of respondents think that there will be an increase in production in quantity terms of electronics products in the next 6 months. 67 per cent of respondents believe that capital finance requirements and 86 per cent believe that cost of raw materials would go up.

77 per cent of respondents believe that there is no scope for an increase in demand for exports and also, they are not certain if their products are facing competition from imports.

7.9. Recommendations

While domestic demand and cost savings has been the primary driver of production in the electronic and IT hardware industry, the primary motivation for the domestic market, in its early years of evolution have evolved from motivations of cost savings to access to specialist skills and freeing parent company resources in native countries to focus on the core business and technology development. Scalability and

process efficiency are expected to result in some degree of cost savings in the domestic market as well. Notwithstanding its relatively smaller contribution to the industry revenues, this segment is witnessing a noticeable increase in interest and activity.

There is a severe shortage of trained manpower in the industry across levels. Though the shortage seems more acute in the manufacturing and sales function, it is equally critical for the research and development initiatives where there is virtual non-existence of researchers. India's education infrastructure produces one of the highest numbers of engineering graduates in the world. However, the industry has to expend significant efforts on improving the skills of the people at various levels.

To achieve effective implementation of skill development initiatives, co-ordinated efforts are required from all stakeholders for improving the effectiveness of existing education infrastructure and creation of new infrastructure. The various initiatives to be taken require close co-ordination between various stakeholders such as Government, Education Institutes and Industry that should be targeted at the following levels:⁶⁸

- Introducing short term courses and opening training institutes in after-sales service support
- Introducing short term courses to train people for sales function
- Inculcating simple assembly/related skills and shop floor ethics at grass root level
- Improving skills for contract manufacturing and assembly operations
- Creating appropriate infrastructure to train people at operator level
- Opening Engineering Finishing Schools for technical graduates
- Capacity creation and curriculum updation in Technical Education
- National/Regional Centres of Excellence for Design and Development skills
- Imparting specialised training for emerging high technology manufacturing

The growth of IT industry requires building and strengthening of basic, business, and social infrastructure. The incremental infrastructure required to support the projected growth is unlikely to be absorbed into the existing city centres (Tier I/II), which are already witnessing signs of strain. With

⁶⁸ Manufacturers Association for Information Technology

Tier III/IV cities lacking important elements of business and social infrastructure, decentralized growth of the IT and ITES sector will require a coordinated, large scale (distributed) urban planning exercise.

A favourable business policy and a regulatory environment are critical for the success of any sector. The example set by the Electronic Hardware Technology Parks (EHTP) scheme stands testament to this fact.⁶⁹ In order to strengthen India's proposition for accelerated development in the Electronics and IT Hardware space, it is essential to actively support the SME sector. Hence, it is essential for India to proactively formulate a robust policy framework to address this challenge. This calls for:

- Continuation of the benefits provided by the EHTP scheme
- Providing support for SME segment growth to ensure that SMEs can continue to leverage the benefits offered under the STP/SEZ scheme without constraints on where they may be located
- Ensuring adequate access to venture capital and angel funding for start-ups

In order to structurally strengthen India's proposition and ensure its long-term leadership, it is essential to nurture a sustainable ecosystem for innovation and R&D in the country. This will require a multifaceted approach comprising

- Developing core capabilities at the academic level in identified focus areas
- Encouraging industry-academia participation in R&D
- Facilitating the incubation/ commercialization of innovations

IPR awareness should be increased in institutes and industries. With a view to encourage and reward innovation, there is a need to ensure availability and access to adequate funding for technology entrepreneurs and commercialization of innovation. Research and training should go hand in hand. This is the practice worldwide. The CSIR laboratories should pair with universities and targeted R&D should be undertaken.

⁶⁹ Planning Commission, 11th FYP

7.10. Summary

The Manufacturing Competitiveness Index for the Electronics and IT Hardware Industry has moved up marginally from 100, in the base year of 2004 to 106 in 2007. There has been approximately a six per cent increase in our measure of competitiveness in the Electronics and IT Hardware Industry in the last three years. This has been primarily due to an increase in the demand competitiveness. The growing middle class population is spending increasingly on electronics items such as mobile phones and personal computers. The significance attached to this development is the permeation of technology to a direct increase in the standards of living. There has also been a steady and growing inflow of foreign investments in this sector. There has been steady increase in exports. The upward movement of the index was countered by the corresponding sharp rise in costs. There has not been much change in the productivity of the sector due to the fact that with increasing levels of automation, component of low cost labour in manufacturing is steadily being replaced by expensive machinery.

The Northern region presents a clear advantage in terms of the consumer, industrial and components category. This is due to the concerted efforts of the government by creating investor friendly policies and clusters of IT and Electronics units in and around the national capital region. The west enjoys historical advantages in terms of IT hardware manufacture. The South is competitive in terms of production of communications equipment and comparably competitive in term of IT hardware. There are a number of foreign companies making investments in setting up plants in India as we transition from high volume low value production to higher end products by becoming a hub of sorts for contract manufacturing. There is also significant development in terms of very sophisticated products like semiconductor, as the first such plant is being set up in Andhra Pradesh. Investor friendly government policies and infrastructural support is inevitable for these industries due to their capital dependence.

The sector perception survey reveals that of the 10 factors ranked against limiting growth of the firm in the Electronics and IT Hardware industry, Access to Bank Credit (Rank 1), Capital Cost (Rank 2) and Shortage of Skilled Labour (Rank 3) are cause for most concern. Around 80 per cent of those surveyed indicate a positive outlook on present and future (6 months) business confidence. 88 per cent of respondents believe that there will be an increase in production levels in the next six months due to increase in domestic demand.

8. Implementation of Manufacturing Competitiveness Indices

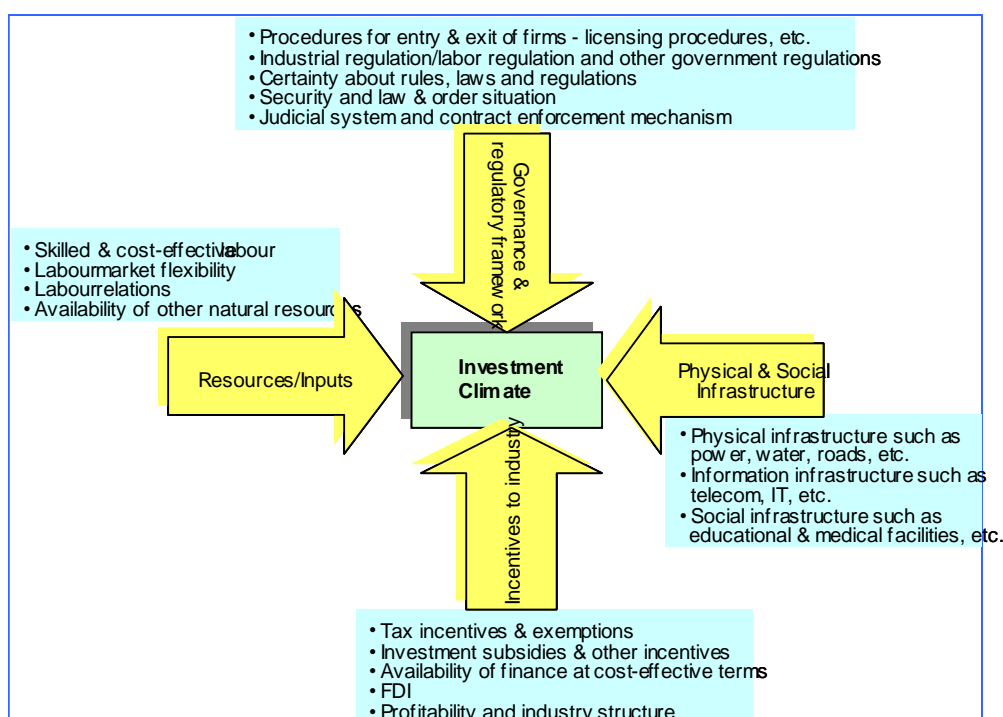
8.1. Manufacturing Competitiveness Index – A tool to measure the Investment Climate

The post-liberalisation era has ushered in significant changes in the economic and investment environment at the state level with competition escalating not only from other Indian states but also countries around the world. States today face numerous challenges in the areas of investment attraction and industrial development; challenges across the dimensions of policy, institutional mechanisms, infrastructure development, legal frameworks, to cite a few.

During the licensing era, the flow of investments was directed by policy makers at the central level with a view to ensure industrial dispersal across the country. However, in the current scenario the restrictions on investment destinations have largely been removed and a number of paradigm shifts have taken place. The significant ones amongst these are:

- Market forces and not Government have started dictating investment flows across industrial sectors, geographic locations and scale of investment
- States are now aggressively wooing investors as opposed to lobbying with the Centre for the grant of industrial licenses
- States are competing aggressively to enhance their offer to potential investors – in terms of information dissemination, infrastructure facilities, incentives, set-up facilitation and investment promotion
- Investors too now have greater choice in terms of project location, leading to increased objectivity in the location decision process
- There is increased clusterisation of investments around locations that offer the greatest economic benefits
- States are formulating focussed strategies for investment attraction, based upon natural locational advantages, resource endowments and industrial linkages
- Shift in investment attraction strategy from tax based incentives to provision of infrastructure

The above changes highlight the importance of assessing an “investment attraction strategy”. Investment, along with consumption and savings, plays a central role in a region’s economic performance. The quantity and quality of investment flowing into a region depends upon the returns that investors expect and the uncertainties around those returns. Openness to foreign trade and investment through sound macro and trade policies is a necessary but not sufficient condition for sustained economic growth. These policies need to be complemented by a host of institutional factors and policies that affect the overall transaction costs of doing business in a particular location.



While the specific challenges would vary across regions/states, in general the critical components of investment climate would include the following:

- Availability and ease of use of natural endowments and factor inputs such as land, labour, etc.
- Availability of adequate physical & social infrastructure, such as power, telecom, urban infrastructure, water supply, hospitals, educational institutions, etc.
- Governance & regulatory framework in terms of rules & regulations governing entry, operation, and exit of firms, stability in rules, laws & regulations, integrity of public services, law & order, etc.

- Provision of incentives to industry including tax and non-tax incentives and subsidies, availability of adequate finance, etc.

Several of the factors affecting investment climate directly impact/constrain firm sales & investment growth, and productivity. The impact may differ based on the characteristics of the firm – such as size, years in business, ownership, type of business, whether caters to exports, etc. For example, broadly speaking, small and medium enterprises (SMEs) may be more constrained by say taxes & tax administration and financing, and less by infrastructure. Similarly, larger firms may be more constrained by availability of infrastructure. Any assessment of the impact of investment climate must therefore take this into account.

For most elements of investment climate, it is possible to identify indicators that may be objectively measured and that would allow comparisons with other regions. In fact, studies have attempted to analyse the correlation between some investment climate measures and overall economic growth.

These studies find that removing some of the bottlenecks that deter private investment and productivity growth would lead to faster economic growth and ultimately a huge difference in living standards and the extent of poverty in the region. These studies also highlight the specific microeconomic and institutional conditions inhibiting productive investment, and identify conditions whose improvement would yield the greatest or easiest gains, thus helping set reform priorities.

Given this background, we have derived Manufacturing Competitiveness Indices of key sectors to assess to present a picture of the evolution of competitiveness within a given timeframe across four broad regions⁷⁰ and its likely impact on the investment climate, as defined by the determining factors taken into account.

70 Indian states grouped into four categories – North, East, West and South based on geographical location within country

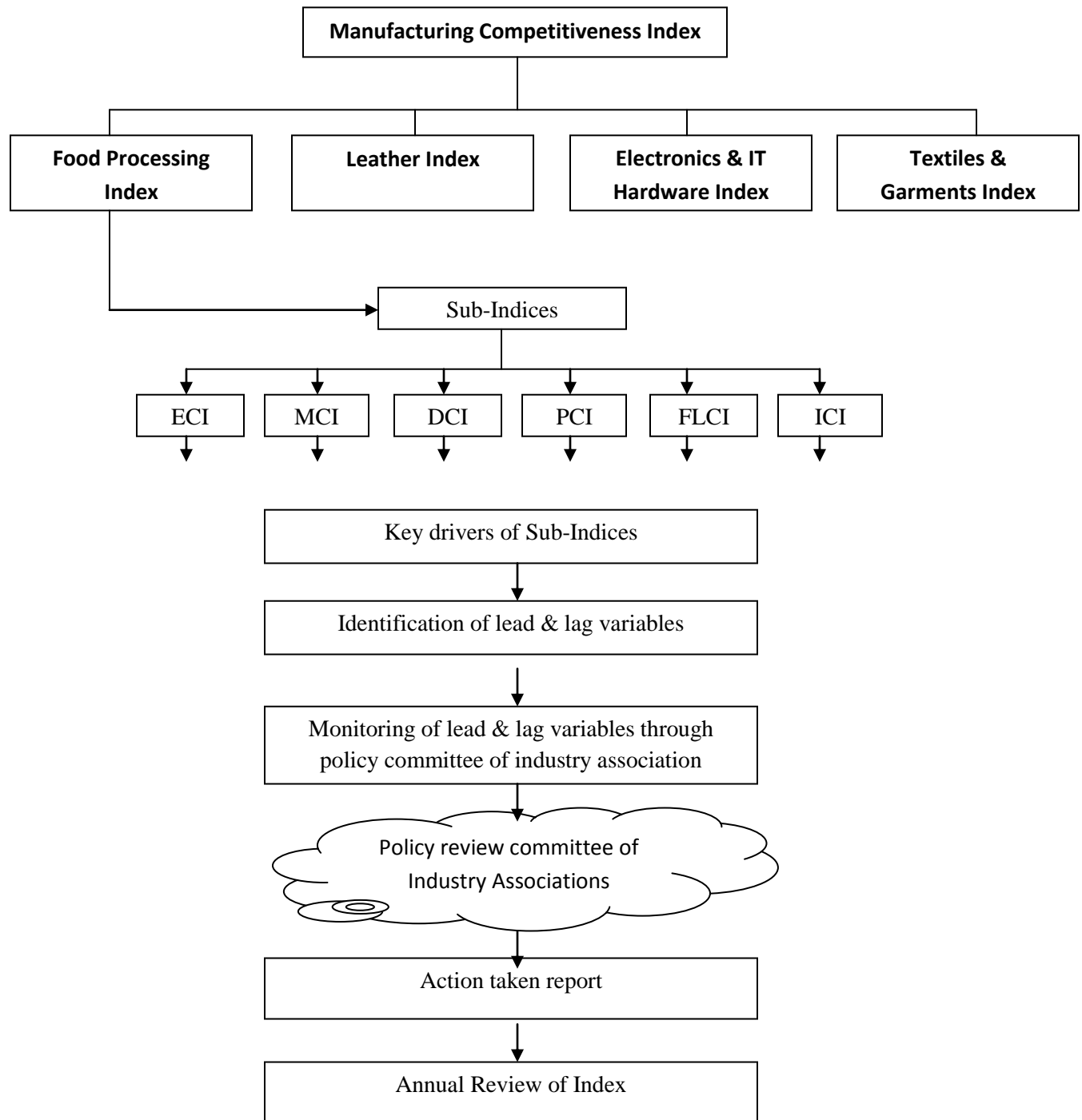
8.2. Key Steps to Implement the Manufacturing Competitiveness Index

Key steps involved in implementing the manufacturing competitiveness indices are as follows:

1. Identify key drivers of sub-indices
2. Identify key variables driving the sub-indices (Lag variables)
3. Identify key lead variables impacting the lag variables
4. Conduct industry level sector perception survey measuring the outlook on lead variables
5. Monitor the movement of lead variables
6. Identify key actions (policy level, sector level and sub-sector level) to correct the movement of lead variables
7. Review the impact of lead variables on the lag variables at regular intervals
8. Review the impact of lag variables on sub-indices and correspondingly on the manufacturing competitiveness index
9. Review the impact of actions on the overall index movement

To ensure the sustainability of index review, we propose set of actions to institutionalise the review process connecting industry association and policy makers:

1. Setting-up of policy committee as part of industry association to review the index movement
2. Align policy committee agenda to index movement
3. Identification of sector wise lead and lag variables for sub-indices
4. Link industry level business confidence survey with sub-indices
5. Quarterly review of lead & lag variables with members of industry association
6. Annual review of action taken vis-a-vis with Index performance
7. Feedback to Govt on the effectiveness of action taken
8. Identify key steps to improve the overall competitiveness of sectors



Annexure 1

Calculation of Weights - Illustration

Variables	Model	Unstandardized Coefficients	Scaled Weights
	(Constant)	-0.404667161	
Fruits & Vegetables	VAR00001	-0.00032858	0.0%
Oilseeds	VAR00002	0.04292314	3.9%
Meat, Fish, Eggs	VAR00003	0.929285034	85.4%
Milk and Milk Products	VAR00004	0.203370019	18.7%
Cereals	VAR00005	-0.044352146	-4.1%
Pulses	VAR00006	0.142646918	13.1%
Coffee, Tea and Cocoa	VAR00007	-0.044473456	-4.1%
Spices	VAR00008	-0.364335157	-33.5%
Other Food	VAR00009	0.062894287	5.8%
Sugar & Gur	VAR00010	0.1512188	13.9%
Beverages	VAR00011	0.009023499	0.8%
	Dependent Variable:		
Grand Total	VAR00013		
	Total	1.087872357	100.0%

The above is an illustration for calculation of weights. This example details the construction of scaled weights for the sub-components of the Demand Competitiveness Index of the Food Processing Industry. In the case of the presence of multiple components (private final consumption expenditure on each of these categories) as in the example above, there is the need to determine the relative importance that each of these sub-components should be accorded, when they are used as inputs to determine the final Demand Competitiveness Index. Hence, we calculate weights for the consumer expenditure on each of the food categories. In the case of a single year, the percentage contribution of the sub component to total expenditure could be used as a weight. In the case of the index above however, we must determine an equivalent for twelve years data from 1995-2007. Hence we use the method of ‘partial correlations’ to determine the relationship each of these components has with the overall expenditure on food. We do not use simple correlations however because, in this case, as, correlations factor in the effect of all the other variables in the relationship. So if we wanted to measure the relationship between spending on food and

vegetables and overall food expenditure, using simple correlations, the resultant would be a measure of the way spending on food and vegetables affected overall food expenditure given spending on oilseeds, meat fish eggs, diary products and all other categories. Hence we remove the effect of these other sub components and determine only the one on one relationship between the expenditure on fruits and vegetables and the total expenditure on food. Thus partial correlations eliminate the effects of the other variables.

The absolute private final consumption expenditure figures are first converted to satisfy the assumptions of normality by taking natural logarithms. We then run a simple regression with the dependant variable as the grand total of expenditure (see figure: Calculation of weights) and the expenditure on all other categories of food as the independent variables. The coefficients from the resultant regression give the measure of the partial correlations. For example for fruits and vegetables this equals -0.00032. This tells us two things. Firstly, that the expenditure on fruits and vegetables has a negative relationship with the total expenditure on all foods i.e., a 0.03 per cent reduction in purchase of foods and vegetables would correspond to a 1 per cent increase in the money spent on the purchase of all other foods. Secondly, that the effect at 0.03 per cent is negligible. Hence we conclude that the two variables in consideration are almost independent of each other.

To assign scaled weights to each of these variables, we add up the correlation coefficient values across all categories. Then we determine the share of the individual correlations in the sum of correlation coefficients across all categories in percentage terms. This gives us a measure of relative importance of each category, the scaled weights. Now we can use this as a multiplicand against the absolute scaled index of the expenditure on foods scaled to 100 at 2004. This gives us the final demand competitiveness index.

Annexure 2

Index Tables

The Sub Indices which are part of the Manufacturing Indices are shown below for each of the Industries.

Food Processing Industry

1) Macro and Economic Competitiveness Index

YEAR	Food exports as a % of total	EXPORTS					FDI inflows as a % of total	GFCF					EXPORT COMPETITIVENESS INDEX	MACRO COMPETITIVENESS INDEX
		Meat, fish, fruits, vegetables, oils and fats	Dairy products	Grain mill products, starches and starch products, and prepared	Other food products	Beverages		Meat, fish, fruits, vegetables, oils and fats	Dairy products	Grain mill products starches prepared	Other food products	Beverages		
1995	183	92	103	106	128	66	414	39	78	38	77	16	104	232
1996	196	93	109	106	122	67	482	28	53	-52	71	39	103	252
1997	186	98	105	102	116	67	443	22	-54	-36	81	25	102	228
1998	164	99	94	108	122	67	591	29	83	-80	71	21	104	304
1999	149	109	98	121	88	83	691	66	168	99	100	106	104	394
2000	139	102	109	132	84	87	104	24	78	74	83	124	105	84
2001	132	98	108	125	98	83	90	56	110	81	91	62	105	84
2002	117	95	107	137	100	82	97	54	104	70	86	93	107	86
2003	115	96	109	107	101	94	436	41	96	80	82	114	102	255
2004	100	100	100	100	100	100	100	100	100	100	100	100	100	100
2005	100	98	103	91	104	101	94	242	104	124	122	88	99	125
2006	94	94	102	87	114	98	53	242	104	124	122	88	99	104
2007	94	94	102	87	114	98	53	242	104	124	122	88	99	104

2) Demand Competitiveness Index

YEAR	Production, processing and preservation of meat, fish, fruits, vegetables, oils and fats			Manufacture of dairy product	Manufacture of grain mill products, starches and starch products, and prepared animal feeds		Manufacture of other food products				Manufacture of beverages	TOTAL	DEMAND COMP
	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11		
1995	90	69	70	75	96	98	80	51	43	99	18	80	81
1996	90	80	75	80	104	113	134	56	59	119	29	88	88
1997	101	63	75	85	94	103	58	61	35	108	8	83	87
1998	103	88	80	88	100	116	118	67	73	123	39	93	94
1999	98	80	83	98	101	100	82	73	54	126	32	92	94
2000	105	76	84	88	91	83	89	78	69	132	36	89	91
2001	99	75	90	92	109	102	92	83	73	128	47	96	97
2002	100	64	95	93	103	87	90	88	73	108	66	94	95
2003	99	89	98	95	106	110	88	94	73	101	82	98	99
2004	100	100	100	100	100	100	100	100	100	100	100	100	100
2005	112	91	104	107	105	102	105	106	116	129	122	108	107
2006	118	80	107	109	108	107	104	106	116	160	122	108	115
2007	118	80	107	109	108	107	104	106	116	160	122	108	143

3) Price Competitiveness Index

YEAR	Production, processing and preservation of meat, fish, Fruits and Eggs, Vegetable Meat and				Manufacture of dairy product		Manufacture of grain mill products,		Manufacture of other food products			Manufacture of	Price Side Competitiveness
	Food Grains	s	Fish	Edible Oils	Milk	Dairy Products	Grain Mill Products	Starch	Sugar, Khandsari and Gur	Condiments and Spices	Tea and Coffee	Beverages	
1995	69	60	65	75	62	67	64	74	69	82	62	59	67
1996	78	73	75	74	65	70	83	79	73	94	63	62	73
1997	78	70	83	73	68	76	80	90	82	94	86	70	78
1998	86	91	87	89	74	82	86	91	94	117	88	77	87
1999	99	76	90	78	80	90	90	93	96	120	100	81	89
2000	98	78	96	66	89	88	86	96	94	108	102	83	90
2001	97	93	98	72	91	91	85	91	89	100	95	90	91
2002	98	93	100	88	94	88	91	83	82	103	77	94	91
2003	99	96	96	101	96	95	99	84	85	109	95	95	94
2004	100	100	100	100	100	100	100	100	100	100	100	100	100

4) Firm Productivity Index

Product Category	YEAR	Productivity	Capital	Labour	Per unit	Overall
		Factory Level	Output ratio	Productivity	Wage	
		Output/ Factories	Output/Invested Capital	Output/ Workers	Input/ Wages	Input/Output
Production, processing and preservation of meat, fish, fruits, vegetables, oils and fats.	1994	27.84	77.63	37.23	60.57	96.12
	1995	38.60	92.33	50.25	54.20	75.89
	1996	46.43	100.88	57.73	56.76	74.59
	1997	52.28	108.24	64.99	65.47	80.09
	1998	53.02	100.31	65.99	73.42	96.91
	1999	54.58	91.34	65.05	71.75	97.54
	2000	52.90	86.27	70.85	73.54	98.45
	2001	59.30	86.63	77.00	70.61	97.85
	2002	97.26	99.67	112.85	103.01	100.16
	2003	79.60	101.07	84.12	77.36	99.79
	2004	100.00	100.00	100.00	100.00	100.00
Manufacture of dairy product	1994	48.21	78.39	34.26	64.79	101.21
	1995	55.70	85.55	41.53	81.80	110.42
	1996	60.03	83.15	45.00	85.54	113.81
	1997	58.14	81.41	46.80	88.03	118.09
	1998	74.52	103.22	62.94	89.96	100.10
	1999	85.97	76.23	73.34	87.73	100.11
	2000	97.63	96.24	84.48	91.09	97.52
	2001	85.83	101.24	80.48	85.32	97.92
	2002	97.97	95.99	87.73	87.63	96.94
	2003	91.69	107.11	89.95	90.04	99.04
	2004	100.00	100.00	100.00	100.00	100.00

5) Industry Profitability and Cost Competitiveness

Sub Industry	YEAR	ROCE	PBIDTM	CPM	Debt-Equity Ratio		Power Fuel/Sale	Empl yee/Sale	Manufac turing Expenses	Selling and Administr ation expenses	PROFIT ABILITY INDEX	COST COMPETI TIVENESS
					(Lat est)	Raw Materials						
Production, processing and preservation of meat, fish, fruits, vegetables, oils and fats.	1998	103	61	231	323	100	121	153	98	146	124	124
	1999	88	51	241	102	97	102	147	91	136	117	115
	2000	78	62	64	172	93	117	140	105	143	70	120
	2001	76	54	129	104	93	125	153	111	137	83	124
	2002	72	67	48	43	93	106	135	105	130	65	114
	2003	81	110	127	89	98	95	102	93	106	100	99
	2004	100	100	100	100	100	100	100	100	100	100	100
	2005	98	120	192	109	87	108	100	95	106	127	99
	2006	105	168	270	148	83	119	111	90	109	162	103
2007	109	198	262	46	80	94	99	101	114	170	98	
Manufacture of dairy product	1998	75	158	136	86	104	98	96	121	67	111	97
	1999	87	164	141	117	109	97	84	92	63	120	89
	2000	134	134	96	182	104	99	89	99	74	125	93
	2001	99	132	83	77	105	89	104	121	85	103	101
	2002	105	131	137	75	101	91	79	69	69	120	82
	2003	115	134	129	70	100	100	92	93	108	123	99
	2004	100	100	100	100	100	100	100	100	100	100	100
	2005	110	117	98	93	92	105	86	102	93	109	96
	2006	102	94	60	68	104	104	56	171	72	90	101
2007	100	88	104	67	107	86	52	66	89	98	80	

Leather and Leather Products Industry

1) Macro and Economic Competitiveness Index

YEAR	ECI	MC	DSC	PSC	FLC-TDL	FLC-MF	INDUST COST COMP	IC-TDL	IC-MF	Scaled MCI
1995	98	560	64	107	142	138	100	94	54	170
1996	99	479	68	111	138	129	100	94	54	165
1997	96	450	71	106	113	127	100	94	54	161
1998	99	544	72	102	84	89	100	94	54	134
1999	101	681	83	101	93	95	100	123	60	105
2000	97	134	94	108	101	98	93	91	70	122
2001	98	100	100	110	99	98	94	83	75	130
2002	97	110	95	105	101	97	92	103	91	90
2003	98	176	92	100	102	96	99	103	94	95
2004	100	100	100	100	100	100	100	100	100	100
2005	101	142	96	100	100	100	115	98	81	139
2006	103	106	96	97	100	100	112	92	83	143
2007	103	106	96	93	100	100	108	104	79	127

2) Demand Competitiveness Index

Year	Footwear	Demand Competitiveness
1994-95	6,197	62
1995-96	6,456	64
1996-97	6,799	68
1997-98	7,074	71
1998-99	7,205	72
1999-00	8,356	83
2000-01	9,429	94
2001-02	9,995	100
2002-03	9,566	95
2003-04	9,220	92
2004-05	10,034	100
2005-06	9,678	96
2006-07	9,663	96

3) Price Competitiveness Index

Year	Leather and Leather Products		Price Competitiveness Index
	Leather Products	Footwear	
1995	75	125	108
1996	83	120	107
1997	84	125	111
1998	89	115	106
1999	93	107	102
2000	105	98	101
2001	107	108	108
2002	101	114	110
2003	92	112	105
2004	100	100	100
2005	107	95	100
2006	117	90	100
2007	112	89	97

4) Firm Productivity Index

Category	Year	Capital Output Ratio	Labour Productivity	Per Unit Wage Productivity	Overall Productivity
		Output/ Invested Capital	Output/ Workers	Input/ Wages	Input/ Output
Tanning and Dressing of Leather, Manufacture of Luggage handbags, Garments, Saddlery and Harness	1995-96	44	39	63	142
	1996-97	54	47	76	138
	1997-98	61	51	77	113
	1998-99	167	146	104	84
	1999-00	91	69	79	93
	2000-01	89	81	99	101
	2001-02	104	75	89	99
	2002-03	103	89	99	101
	2003-04	103	68	69	102
	2004-05	100	100	100	100
Manufacture of Footwear	1995-96	74	70	126	138
	1996-97	81	74	138	129
	1997-98	87	75	137	127
	1998-99	79	110	118	89
	1999-00	80	98	114	95
	2000-01	82	94	105	98
	2001-02	94	97	107	98
	2002-03	93	87	96	97
	2003-04	97	105	107	96
	2004-05	100	100	100	100

5) Industry Profitability and Cost Competitiveness

Category	Year	Raw Power Other							Sellin and Adm	Profitability Index	Cost Competitiveness Index
		ROCE	PBIDTM	CPM	Materials	and Fuel	Employee	Manf			
Tanning and Dressing of Leather, Manufacture of Luggage handbags, Garments, Saddlery and Harness	1998	50	62	213	105	89	93	78	99	94	93
	1999	100	66	224	92	93	89	97	108	123	96
	2000	101	75	86	98	99	93	94	89	91	94
	2001	92	65	83	107	106	93	91	93	83	98
	2002	97	57	162	105	93	101	89	89	103	95
	2003	106	100	99	107	100	98	94	102	103	100
	2004	100	100	100	100	100	100	100	100	100	100
	2005	112	69	102	109	100	92	99	99	98	100
	2006	105	68	89	102	112	95	107	102	92	103
2007	114	94	94	109	95	82	109	92	104	97	
Manufacture of Footwear	1998	44	72	58	82	105	110	109	129	54	107
	1999	71	60	39	110	109	119	100	86	60	105
	2000	57	80	87	88	102	78	111	78	70	91
	2001	87	79	45	122	91	41	101	98	75	91
	2002	86	98	94	92	100	49	108	100	91	90
	2003	80	108	110	117	113	49	105	100	94	97
	2004	100	100	100	100	100	100	100	100	100	100
	2005	78	52	118	152	142	116	126	110	81	129
	2006	92	105	45	127	115	149	104	110	83	121
2007	68	135	47	113	132	124	110	119	79	120	

Textiles and Garments Industry

1) Macro and Economic Competitiveness Index

YEAR	Textiles exports as a % of total	EXPORTS				FDI inflows as a % of total	GFCF				EXPORT COMPET INDEX	MACRO COMPETITIVENESS
		Spinning, Weaving and Finishing	Other textiles	Knitted and crocheted fabrics	Wearing Apparel		Spinning, Weaving and Finishing	Other textiles	Knitted and crocheted fabrics	Wearing Apparel		
1995	219	129	76	245	90	819	49	15	16	23	127	429
1996	201	128	77	233	90	508	53	17	19	25	126	275
1997	193	131	76	235	88	574	58	20	16	28	127	310
1998	176	114	72	163	102	264	64	22	15	30	112	157
1999	170	114	77	99	100	296	86	23	48	55	107	184
2000	153	113	75	107	102	29	55	28	52	67	107	42
2001	135	111	79	99	101	27	40	21	33	46	106	33
2002	126	108	85	85	101	57	62	36	45	69	103	58
2003	121	102	95	89	101	51	68	46	78	66	100	59
2004	100	100	100	100	100	100	100	100	100	100	100	100
2005	100	94	89	101	109	242	100	100	100	100	97	171
2006	82	94	96	96	106	25	100	100	100	100	96	62
2007	82	94	96	96	106	25	100	100	100	100	96	62

2) Demand Competitiveness Index

Textiles - Clothing		
Year	Rs.crore	Consumer Expenditure
1994-95	46,812	67
1995-96	49,655	71
1996-97	52,491	75
1997-98	57,272	82
1998-99	50,607	72
1999-00	57,936	82
2000-01	67,974	97
2001-02	65,182	93
2002-03	69,015	98
2003-04	67,462	96
2004-05	70,261	100
2005-06	80,225	114
2006-07	83,594	119

3) Price Competitiveness Index

Year	Spinning, Weaving and Finishing		Manufacture of other textiles	Manufacture of knitted and crocheted fabrics	Wearing Apparel		Price Competitiveness Index
	Cotton Textiles	Other Natural Textiles	Other Misc. Textiles	Knit and Crochet Textiles	Man Made Apparel		
1994	80	61	57	77	107		81
1995	84	78	66	85	116		90
1996	81	90	71	88	104		89
1997	81	78	72	91	91		83
1998	83	84	72	90	85		83
1999	83	91	71	85	83		84
2000	86	93	74	83	88		87
2001	87	101	73	86	88		89
2002	85	100	78	90	90		90
2003	92	91	94	97	96		93
2004	100	100	100	100	100		100
2005	89	114	108	104	98		101
2006	91	122	102	103	98		103
2007	91	123	99	99	99		103

4) Firm Productivity Index

Year	Productivity Factory Level	Capital Output Ratio	Labour Productivity	Per Unit Wage Productivity	Overall Productivity	
	Output/Factories	Output/Invested Capital	Output/Workers	Input/Workers	Input/Output	
1995-96	41	122	41	45	96	
1996-97	49	127	43	47	98	
1997-98	48	135	43	44	89	
1998-99	83	89	66	72	97	
1999-00	79	90	79	88	99	
2000-01	88	96	86	96	99	
2001-02	85	96	81	92	101	
2002-03	92	99	92	102	99	
2003-04	100	100	100	100	100	
2004-05	111	106	112	127	101	
1995-96	100	70	57	51	91	
1996-97	96	67	54	55	103	
1997-98	85	59	49	57	117	
1998-99	53	73	54	51	95	
1999-00	72	80	66	64	98	
2000-01	89	89	60	56	95	
2001-02	67	81	69	64	94	
2002-03	74	85	72	69	98	
2003-04	100	100	100	100	100	
2004-05	109	93	96	95	100	

5) Industry Profitability and Cost Competitiveness

Category	Year	ROCE	PBIDTM	CPM	Raw Mat	Power and Fuel	Employee	Other Manf	Sellin and Admin	Profitability Index	Competitiveness Index
Spinning, Weaving and Finishing	1998	119	129	149	99	80	70	86	94	129	83
	1999	110	100	26	99	81	73	89	116	87	90
	2000	128	119	99	98	83	83	90	115	118	93
	2001	90	88	98	98	95	80	91	92	91	90
	2002	101	97	97	100	92	88	93	102	99	94
	2003	92	88	69	98	99	96	97	95	85	97
	2004	100	100	100	100	100	100	100	100	100	100
	2005	137	112	109	98	81	92	96	94	124	91
	2006	141	152	126	97	79	97	98	97	140	93
	2007	157	153	121	99	94	96	86	98	147	94
Manufacture of other textiles	1998	55	140	80	92	90	101	108	99	83	100
	1999	60	108	52	93	110	105	102	106	70	106
	2000	54	84	88	85	111	120	101	100	70	108
	2001	53	76	93	86	128	112	103	93	69	109
	2002	59	77	85	83	102	115	99	85	70	100
	2003	92	103	106	93	100	108	109	96	98	103
	2004	100	100	100	100	100	100	100	100	100	100
	2005	90	87	110	108	96	111	99	94	94	100
2006	78	100	126	100	99	119	100	65	95	96	
2007	75	82	105	105	91	114	89	99	84	99	

Electronics and IT Hardware Industry

1) Macro and Economic Competitiveness Index

Years	Exports as % of total	Exports					FDI Inflows as a % of total	GFCF					EXPORT COMPET INDEX	MACRO COMPETITIVENESS
		Consumer Electronics	Industrial Electronics	Computers	Communication & Broadcast Equipment	Components		Consumer Electronics	Industrial Electronics	Computers	Communication & Broadcast Equipment	Components		
1995	86	45	82	154	82	108	78	41	44	84	50	38	89	64
1996	105	73	70	150	77	106	75	45	47	86	58	42	88	65
1997	130	89	81	165	63	94	108	48	71	94	59	43	85	84
1998	136	88	82	157	68	96	185	70	54	101	68	54	87	126
1999	133	77	79	177	71	93	416	20	58	112	75	56	88	241
2000	125	81	79	215	70	81	32	112	100	137	51	61	89	55
2001	130	84	87	207	59	80	45	91	122	58	35	70	86	55
2002	103	93	133	65	204	90	26	213	64	144	104	79	144	70
2003	123	75	105	125	49	103	70	180	55	117	148	107	78	99
2004	100	100	100	100	100	100	100	100	100	100	100	100	100	100
2005	99	145	127	71	119	83	154	100	100	100	100	100	113	127
2006	93	159	134	52	136	80	46	100	100	100	100	100	121	73
2007	93	159	134	52	136	80	46	100	100	100	100	100	121	73

2) Demand Competitiveness Index

Electronic Goods		
Year	Rs.Crore	Demand Competitiveness Index
1994-95	6374	12
1995-96	7532	14
1996-97	8843	17
1997-98	10094	19
1998-99	12037	23
1999-00	14538	27
2000-01	19305	36
2001-02	23397	44
2002-03	31805	60
2003-04	39548	75
2004-05	53035	100
2005-06	69242	131
2006-07	92102	174

3) Price Competitiveness Index

Year	Consumer			Computer	Components				Industrial	Communica-tions	Price Competitive-ness Index
	TV sets BW	TV sets colour	Picture tubes colour	Computer and Computer	Semi conductors	Electronic IC's	ACSR Conductor	Electronic equipments	Power Capacitor	Telephone instruments	
1994	106.4	106.5	96.1	92.7	97.9	98.1	108.4	100	114	87.8	80
1995	111.8	96.3	92.5	84	96.5	97.5	114.8	100	114	69.6	77
1996	111.3	95.2	91	71.9	93.5	97.5	119.9	78.9	107.3	66	73
1997	111.4	86.6	91	57.3	89.4	97.5	117.2	85.2	103.9	63.1	70
1998	109.7	66.8	80.6	52.5	87	107.5	109	116.5	99	59.3	67
1999	109.2	62.6	77.1	50.9	83.6	121.4	105.7	116.5	96.9	61.5	66
2000	108.5	63.2	80.6	51.1	87.7	136.7	110.7	99.2	82.5	63.7	66
2001	100.8	69.1	87.4	47.7	89.3	141.2	113.8	123.8	85.3	64.9	68
2002	93.5	67.8	81.3	48.5	86.2	140.9	107.5	123.8	88.1	64.7	66
2003	89.9	63.2	73.2	55.3	88	140.9	107.3	123.8	87.6	64.7	65
2004	88.1	54	64.8	52.6	85	134.9	106.8	123.8	87	70	100
2005	89.4	48.7	58	45.8	83.4	117.5	107.1	123.8	87	72.7	61
2006	85	42.8	45.2	38.6	80.9	117	116.5	123.8	87	65.7	57
2007	83.5	37.2	42.3	41.8	82.9	120.3	157	119.6	87	64.7	58

4) Firm Productivity Index

Category	Year	Productivity				Overall Productivity
		Factory Level	Capital Output Ratio	Labour Productivity	Per Unit Wage Productivity	
		Output/ Factories	Output/ Invested Capital	Output/ Workers	Input/ Wages	Input/Output
Consumer	1995-96	124	124	44	85	157
	1998-99	135	135	47	86	147
	1998-99	179	179	62	85	110
	1998-99	183	183	64	79	111
	1999-00	177	177	61	102	107
	2000-01	149	149	94	115	104
	2001-02	169	169	105	133	104
	2002-03	114	114	122	121	95
	2003-04	108	108	48	72	93
	2004-05	100	100	100	100	100
Computers	1995-96	47	47	55	74	92
	1998-99	47	47	55	75	93
	1998-99	49	49	54	64	89
	1998-99	49	49	53	70	97
	1999-00	101	101	70	99	101
	2000-01	71	71	78	92	99
	2001-02	71	71	82	80	95
	2002-03	92	92	97	93	99
	2003-04	103	103	111	107	98
	2004-05	100	100	100	100	100

5) Industry Profitability and Cost Competitiveness

Category	Year				Power and		Other and		Profitability Index	Cost Competitiveness Index	
		ROCE	PBIDTM	CPM	Raw Mat	Fuel	Employee	Manf			Sellin and Admin
consumer	1998	64	5	111	194	293	278	97	67	61	186
	1999	68	-10	104	131	197	242	100	65	57	147
	2000	80	-31	101	112	157	335	100	76	58	156
	2001	94	25	120	282	427	243	102	55	83	222
	2002	88	1341	108	109	80	691	95	68	406	208
	2003	87	113	109	107	115	441	100	101	99	173
	2004	100	100	100	100	100	100	100	100	100	100
	2005	96	54	110	138	170	78	97	66	89	110
	2006	98	79	185	-3	119	897	97	86	115	239
2007	238	-282	276	1024	116	65	101	86	117	278	
computers	1998	108	94	114	77	76	26	138	107	106	85
	1999	103	117	100	64	68	26	150	130	106	87
	2000	155	146	96	84	83	22	150	94	138	87
	2001	95	119	97	84	82	25	149	111	101	90
	2002	89	102	91	68	69	49	131	129	93	89
	2003	88	115	72	68	69	185	85	111	91	104
	2004	100	100	100	100	100	100	100	100	100	100
	2005	104	94	88	83	85	61	161	90	97	96
	2006	128	119	78	65	67	51	179	88	113	90
2007	97	45	48	49	41	46	218	31	72	77	

Annexure 3
List of Companies Covered in Primary Survey
Food Processing Industry

Ovobel Foods	Anandabari Tea Company Private Ltd	Swan Dal And Food processing
UB Group	Assam Company Limited	Madam Agro Food India Pvt Ltd
MTR Foods	Okayti tea Co.	Champagne Indage Ltd
Dhanya Associates	Kothari Plantation Pvt Limited	Bombay Burmah
Sunil Agro Foods	Elite Tea agency	Dwarikesh Sugar
Seven Seas Seafoods P Limited	Goodricke Group Limited	MB sugars
Victoria Marine Agro Exports Limited	Hanuman Agro industries Limited	Lijat
Farm Suzane Pvt Limited	Bansidhar Badridass Modi (P) Ltd.	Freshtrop Fruits
Kothari Sugar & Chemicals limited	The North Western Cochar Tea Co Ltd	Fortune Foods
Tata coffee	Arcuttipore Tea Co.ltd.	Shree Renuka sugars ltd
Bannari AmmAN	Siewert & Dholakia (P) Ltd.	Flamingo Food Products
Jeypore sugars	Huldibari Industries & Plantations Co.ltd	Hak Agro Foods
Avanti Foods	Agarmet Corporation	JK sugar
EID Parry	A.J. Tea House Pvt. Ltd.	Jay Shree Tea & Industries Limited
Ponni Sugars	Globus Spirits	Scottish Assam Limited
Dharani Sugars	Raj Agro Mills	Dabur Towers
SKM EGG Products	Amrit Corporation	Mawana Sugars

Waterbase	Balram Pur Chinni Mill	Coca Cola
Amalgam Enterprises	Triveni Retail Ventures Limited	Surya Food And Agro ltd
Srinivasa Hatcheries	The Delhi Flour Mills	Liberty Oil Mills Limited
Tyroon Tea Company Limited	Flex Foods	Kadambari Food Products
Sethia oils limited	Agro Dutch Industries	Cinnatolliah Tea Garden
Chamong Tee Exports (P) Ltd.	Radico Khaitan Ltd.	Vishnu Sugar Mills Limited
Ledo Tea company Limited	Shaw Wallace Distilleries	Ramesh Chah Ltd
Tata Tea Limited	KC Oils	Kiran Tea Estates (P) Limited
Apeejay Tea group	Britannia	Manjushree Tea Emporium
Parkwood Farms Pt Limited	Mother Dairy	Shah Brothers
Andrew Yule & Co. limited	Paras Dairy	Terai Tea Company Limited

Leather and Leather Products Industry

Relaxo Footwears Limited	Comfy Shoemakers private Limited	Sovereign Leather Innovators Pvt Ltd
Crew B.O.S Products	Shoemakers private Limited	Genius Leathercraft
Ganapati Shoe Machinery	Cheviot Company Limited	Pooja Exports
DCP Synthetics Pvt.Ltd.	Priya Gopal Bishoyi	Emmar Enterprises
Skin Craft	V.P Udyog Ltd	The Leather Mall
Lakhani	Acme Safetywears Ltd.	CCL Products
Bata India	Rajda Industries Exports Ltd.	Pakkar Leathers
Super House Limited	Saboo Cotspin Pvt Liimited	Leather Choice
Super Tannery	Planet Inc. Kolkata	Vinayaga Leder Exports Pvt Limited

Mirza International	Kanchan Vanijya Pvt Ltd	Nafisa overseas
Haryana Leather Chemicals Ltd	H.M Enterprises	Shahrez Creations
Sarup tanneries	Z.N.T International	Nooruddin Bros
Liberty Shoes	Leatherman	Elite leathers
Mayur leather	Exotic fashions Pvt Ltd	Farida Leather Company
Divya International	Lifestyle Furnishing Pvt Limited	Trimurthi Lederwaren Pvt Ltd
Gur Industries	M&M Exports	Imperial Impex
M&B Footwear Pvt Limited	Farinni Export Pvt.limited	Wellwin Industries Limited
Adidas	Islam International	Tanmix
Leather Fads	Leather Enterprises	PSM Udyog
Euro leder fashions ltd	Naumman Enterprises Pvt Limited	AHW
Fine-Line	Global Leather	Harry And Co.
Murli Industries Ltd	Apar Industries	Mercury Exports Mfg Pvt Ltd
Zirconium Chemicals Pvt ltd	Maa Kali Exports Pvt Limited	V.P Udyog Limited
Cheemo Designer Leather	Saraf Impex (P) Ltd	SPL Industries Limited

Textiles and Garments Industry

Aditya Birla Nuv	Vardhman Polytex Limited	Banswara Systex
Vardhman	Indian Acrylics	RSWM LTD
Royal Textile	Malwa Industries Ltd	Siyaram Silk
Rajapalayam Mills	Sangam India	Aarvee Denims
Indus Filaments	Modern Syntex	Jaybharat Textile
Gangotri Textile	Banwara Syntex	Donear Industries

Pearl Global	SH Rajasthani Syntex	IBF Industries
Arvind Mills	Ginni International	Welspun India
Priyadarsharni spinning	BSL	Gupta Synthetics
Sryalata Spinning Mills Limited	Alps Industries	Zenith Exports
Super Spinning	Pasupati Acrym	Pioneer Embroideries Ltd
Precot Meridian	Filatex india limited	Raj Rayon
GTN Industries	Ginni Filaments Limited	Futura Polyester
KG Denim	Rajda Narrow Fabric Industries	Zodiac Clothing Co. LTd
Celibrity Fashions	Chandni Textiles Ltd	Aditya Birla Nuv synth.
SRF	Atit Textile Industries Ltd.	Raymonds
S Kumars Nations	Ashok textiles industries	Corporate Home Concepts
Suryavanshi Spinning mills	Rimkar textiles	Himatsingka Seide Limited
Eastern Silk Industries Limited	Ramsons Textiles	Rajvir Industries
United Industrial	Parmanini Textiles	E.H Turel & Company
Swastik Enterprises	Panna Textiles	Indo Rama Synthetics (India) Ltd.
AMG Apparels	Dionodia Textiles	SRF Industries
Binny Limited	NRC Limited	S Kumar nations
Al Champdany Industries Ltd	Gandhi Readymade	Nahar Spinning
Gloster Jute mills Limited	Suryaamba Spinning Mills Limited	Spntea Industries
Pawan Trading Company	Alok Industries Limited	TT Limited
BK Birla Group Of companies	Eskay Knit	Abhishek Industries
Pasupati Spinning & Weaving Mills Ltd.	Krishna Life	Nova Petrochemicals
GPL Textile	Century Enka	Indorama Synthetics (India) Ltd.
Satluj Textile	Modern Syntex	

Electronics and IT Hardware Industry

Excel Copier Systems	BPL Limited	Yokogawa India
Gemini Communications	CCS infotech	Toyama Electric
Powercap Systems Madras Pvt Ltd	VXL Instruments	APC
Tvs Electronics	Incap Limited	Precision
Spel Semiconduct	Dell India Pvt Limited	BEL
Total Power Conditioners Pvt Ltd	BEL	BCG Fuba India
Corporate Concepts	Wipro	Numeric Power
ECIL	Centum Electron	Rajasthan Electron
Hyderabad Flextech Limited	Miracle Electronic Devices Private	ST Microelectronics
ACI infocom	Lenovo	Barco
Anu Technologies	Siltech Corporation Inc.	LG
Astra Microwave Products Ltd	Techno Control	Samsung
BigBoss Infotech Limited	Atul Enterprises	Max Mobility Pvt Limited
ABB Limited	Whirlpool India Limited	Salora International
Emerson Networks	Panasonic	Zenith Computers Ltd
Gujrat Poly-AVX Electronics	Talbro	GTL Infrastructure
PCS Technologies	Naina Semiconductor Limited	Zicom
ABEE Info Cosumables Limited	Cosmo Ferrites	Siemens
Instrumentation Limited	Delta energy Systems india pvt ltd	Sharp India
IntelCorp Software Pvt Ltd	Bar-Tech Systems and automations ltd	Bathija International
Arraycom(India) LTd	JP Exports	Kamal Industries

Keltron Components	D-Link	IntelCorp Software Pvt Ltd
Optocircuits	Voltas Limited	Bajaj International Pvt limited
Ruttosha International Rectifiers	MIRC Electronics	KRCD India Pvt Ltd
IVP Limited	ESI	Godrej&Boyer Mfg Co.ltd

Annexure 4

Guidelines to Update the Index

- 1) To update the index, the agency carrying out the operation must append the latest year’s data to the sub-indices source sheets.
- 2) The Data Sources are as given below:

Data Sources

Index	Variables	Source
Export Competitiveness	Exports	Reserve Bank of India
Macro Competitiveness	Foreign Direct Investment ²	Department of Industrial Policy and Promotion
	Gross Fixed Capital Formation	Annual Survey of Industry
Demand Competitiveness	Private Final Consumption Expenditure	Centre for Monitoring Indian Economy
Price Competitiveness	Wholesale Price Index	Office of Economic Advisor to PM
Firm Competitiveness	No of Workers No of Factories Total Input Total Output Capital Invested	Annual Survey of Industry
Industry Competitiveness	Industry Level financials and costs	Capitaline

- 3) The Indices are dynamic and any updation will result in linked changes in all sheets. This will result in the corresponding index number appearing in the main sheet for the latest year for which data is entered.
- 4) The weights are dynamic and can be used irrespective for as long as there is a change in base year. When a new base is used, the weights will have to be re-worked.
- 5) For a one point change in the index number, the interpretation is a one point change in competitiveness of the corresponding index.

- 6) However, an increase in the cost competitiveness index has the opposite effect on the overall manufacturing competitiveness.
- 7) A comparison cannot be drawn across two sectors as each index is specific to the individual industry's competitiveness.
- 8) These competitiveness indices are an indication of the quantum and direction of change in the industry's competitiveness across time and regions.