A Study on Labour Intensity & Employment Potential of Indian Manufacturing

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Labour Intensity and Employment Potential of Indian Manufacturing

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Foreword

The growth of organized manufacturing sector is a necessary condition for balanced growth of economy which ensures creation of jobs for the large workforce joining the job market every year. Economic history of developed and developing countries clearly demonstrates immense contribution of manufacturing to economic growth and to job creation through relocation of labour force from the traditionally low wage low productivity sector like agriculture to the higher wage manufacturing sector. In the context of India, where liberalization and reform of the industry was started from mid 80s, it was expected that the employment scenario both in terms of quantity as well as quality would get a respectable boost contributing to the inclusive growth across the country. The growth of manufacturing as well as growth of employment in the organized sector did not measure up to the expectations during the 90s.

The NMCC, therefore, has commissioned a study to ICRIER on the subject of "Labour Intensity and Employment Potential of Indian Manufacturing" to provide policy options for achieving the twin objectives-manufacturing growth and employment generation. The findings of the study which are based on both secondary data & primary survey indicate that the employment in the organized manufacturing sector over the period 1990-91 to 2003-04 has not been satisfactory. It is a matter of concern that even in the 31 labour intensive sectors which ICRIER has identified out of 97 industry segments have also registered very sharp decline in labour intensity during this period. Even though there has been an increase in the gross value added in the identified labour intensive industries, there has been no significant increase in the employment, indicating labour productivity gains. The study has specifically focused on five labour intensive sectors with good export potential namely, sports goods, apparel, leather, bi-cycle, and gem and jewellery. The specific recommendations have been made in respect of each of these five sectors.

The team of ICRIER led by Dr. Rajiv Kumar and Dr. Deb Kusum Das has done a very detailed analytical work and need to be congratulated. It is hoped that the findings of the study would help in designing appropriate interventions to strengthen the manufacturing base and enable employment opportunities to our vast labour force.

V. Krishnamurthy
Chairman, NMCC.

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Executive Summary

The organized manufacturing sector in India, despite its respectable growth following the reform process initiated in the 1980s and 1990s has not been able to perform its role of pulling workers away from agriculture and informal sector activities into the modern sector employment with higher productivity and wages. The decade of 1990s has been characterized as "Jobless" growth as despite growth in manufacturing, employment levels have been low and stagnating. Therefore the policy concern for expanding employment opportunities in organized manufacturing provides the context for this study.

The study attempts to examine the labor intensive industries of organized manufacturing in order to understand the employment generation potential of these industries and analyze what constraints the growth and employment of this sector. The study is structured in two parts- in the first part of the study, using secondary data from the annual survey of industries, we identify the leading labor intensive industries of the organized manufacturing and in the second part, we undertake an in-depth firm level survey of selected labor intensive industries in order to understand the deterrents in expanding employment in these industries.

In order to identify the labor intensive industries of organized manufacturing, the study utilized 97 four-digit industry level data from the Annual Survey of Industries for the period 1990-91 till 2003-04 to construct a measure of labor intensity, namely the labor-capital ratios. We undertook a concordance between NIC 1998 and NIC 1987 of four and three digit industries to build a continuous time series at the four-digit level NIC 1998 classification. Based on average L/K ratio for the 97 four digit industries during 1990-91 to 2003-04, 31 industries were identified as the labour intensive industries. An important finding of our study is that labor intensity is declining across majority of industries in the chosen time period. During 1990-91 to 2003-04 the average combined Gross Value Added (GVA) share (as percentage of total manufacturing value added) of these 31 industries have been 13.77 percent.

For the 31 identified labor intensive industries, we have documented industrial performance in terms of the employment growth, labor productivity and real wages growth as well as employment elasticity and capital productivity for the period 1990-91 to 2003-04. We observed an average employment growth of 4.1 percent per annum for the labor intensive sectors during the observed period. However we find that in most industries employment growth worsened in the second half of 1990s and improved in the early years of 2000s. As regards the employment elasticity, we find same trend as employment growth but there is a substantial jump in early 2000s. In case of real wages and labour productivity, the second half of 90s experienced as huge jump falling substantially in early 2000s. The noticeable experience of the period 1990-91 to 2003-04 has been the continuous falling of capital productivity across all major sectors.

In the second part of the study, we have chosen 5 sectors given their importance in terms of export potential in the world markets and their industrial performance during the reference period- Sports goods, apparel, leather, bicycles and gem& Jewellery Industries. The aim of the study was to determine what factors constrain the employment generation

in these labor intensive industries. An in depth firm level survey comprising more than 250 manufacturing as well as manufacturing- exporting units were undertaken across all major towns and cities that constitute hubs of these industries. The findings were many and constituted some common factors and many diverse issues that confront the business environment of these industries.

For sports goods, the survey comprised of units concentrated in Jalandhar, Meerut and Delhi which together constitute major centers of all sports item manufacturer in India. The product range of the 33 firms surveyed included traditional items- cricket, hockey, footballs and accessories to more value add items like- marshal arts, health and gymnastic equipments etc. Our major findings were lack of skilled manpower, inability to diversify export basket to more non traditional items, inability to upgrade to modern technology, unorganized and family based activity, seasonality of work.

For the apparel industry in India our survey focused on major apparel manufacturing hubs- Chennai, Bangalore, Tirupur, Mumbai, Ahmedabad, Delhi, Noida and Gurgaon and covered 74 firms manufacturing as well as exporting different types of men's women's and children's clothing and accessories. We observed sharp differences in firms operation across different regions. The major findings in this segment concerned shortage of skilled workforce and need for setting up training centers across different towns to provide trained workforce, the need for employing more women workers as this enhances firms efficiency of operations, changes in working rules and regulations, setting up of more apparel parks, more pro-active role for apparel export promotion councils.

For the leather industry, we have concentrated on three major items- footwear, garments and goods. A total of 74 firms were surveyed in Chennai, Kolkata, Delhi, Gurgaon, Noida, Agra and Kanpur covering all the three segments of leather industry. The leather industry is concentrated in both segments of manufacturing-organized as well as unorganized with a wide range of products that includes raw hides to fashionable shoes. Our findings from this sector are- need for training institute for workforce to be trained in skills required, encouraging women workforce, social-security needs attention, leather parks, labor laws reforms.

In the bicycle industry, a total of 35 firms comprising large, small and medium manufacturing-exporting units were surveyed in Ludhiana town of Punjab, which comprises almost 100 percent of India's bicycle Industry. The two major segments of the industry- manufacture of bicycle and manufacture of bicycle parts and accessories formed the sample units. Our major findings from this sector are shortage of workers who are ideally either school dropouts or school pass outs, input cost seems to be making India globally uncompetitive, target Latin American and African markets as these are markets for heavy bikes which are mostly manufactured in India.

For Gem and Jewellery Industry, we focused on two major components-diamonds and gold jewellery. For diamonds, we concentrated on two centers-Surat and Mumbai. For gold jewellery, the chosen locations were Chennai, Bangalore, Coimbatore, Delhi and Kolkata. A total of 36 firms were surveyed and these firms were either manufacturer-exporters or merchant- exporter. The major findings from this sector comprised the

following- technology up gradation, potential for women workforce generation, make the business environment more friendly, doing away with ESI, introduction of hallmarking and reconsider labor regulations.

In all five sectors the issues of infrastructure development and lack of easy finance for the industry were raised. The report did not go in depth into the issues but tried to contextualize them in terms of responses from the field survey, as number of previous reports on industries have highlighted them as pre-requisites for a well-developed industrial base.

Chapter 1

1. Introduction

1.1 The Motivation

An important objective of India's economic liberalization has been to provide for increasing employment opportunities not only to meet the backlog of the unemployed but also for the new additions to the labor force. Even today agriculture still accounts for the bulk of the total employment in the economy and industry is still the least important employer accounting for just 16 percent of the total employment. Further, organized manufacturing in India despite impressive growth rates in the 1980s and 1990s have not undergone a structural transformation away from agriculture to Industry as far as expanding employment opportunities with higher productivity and rising wages are concerned. This raises concern given the XIth Plan stated objective of achieving "inclusive growth"

The Partial Liberalization of the economy in the mid 1980s as well as the economic reforms of the 1990s resulted in modest changes in the industrial sector performance especially organized employment registering a 2 percent per annum growth over the period 1980-95 (The employment growth in the unorganized manufacturing in the same reference period declined to around 1.7 percent per annum). We also observed a sharp growth in the capital intensity of production across both organized and unorganized manufacturing industries.[1]

The low and stagnating levels of employment in the manufacturing sector and consequently the policy concern for seeking ways to expand employment opportunities, makes it imperative to focuses attention on the labor intensive industries which have strong employment generation potential. Further, these industries with their ability to export based on comparative advantage provides additional benefits in terms of producing for global markets and thereby producing larger volumes and in turn absorbing more workers. Therefore focusing on labor intensive industries has significant policy relevance and provides the context for the study.

1.2 Objectives of the Study

The present study attempts to understand what stimulates employment generation in labor intensive manufacturing industries. In particular, the study focuses on the following questions- (1) which are the industries with high labor intensity within organized manufacturing? (2) Has the labor intensity declined in the identified industries over the years and if so what have been the reasons for it? (3) What has been the employment growth in these industries and if there is any linkage between employment, productivity and wages and (4) what are the major factors that constrain the growth of this sector?

[1] A study by Rani and Unni (2004) shows that the sharp growth in capital intensity was not accompanied by rise in capital productivity and hence showing that there was a substitution of capital by labor without any commensurate technological up-gradation.

The objectives of the study are addressed by focusing on organized manufacturing and covering the period 1990-2003. In addition, a firm level survey of selected labor intensive industries is attempted to provide an in-depth as well as detailed assessment of the central issue- how to expand employment opportunities in general of labor intensive sectors by understanding what constrains growth in these industries. This is achieved using both secondary and primary data.

1.3 The Plan of the study

The study is structured in two parts. In the first part, we focus on the identification of the industries which are labor intensive within the organized manufacturing. In the second part, we carry out a firm level survey of the selected labor intensive industries to understand the role of labor intensive industries in expanding employment opportunities.

As regards the issue of identification of industries which are labor intensive, we have used secondary data- Annual Survey of Industries, CSO, Government of India for the period starting from 1990-91 and extending till 2003-04(the last year for which data is available). Using available information on labor and capital, we compute L/K ratio for 97 four digit manufacturing industries and document the labour intensive industries in Indian Organized manufacturing based on the average labor intensity of all 97 industries during 1990-91 to 2003-04. In addition, for these labor-intensive sectors, a few yardsticks of industrial performance are also computed and discussed to identify the best performers. This is the subject matter of chapter 2.

The second part of the study entails a detailed field level survey of five selected labor intensive manufacturing sectors- sports goods, apparel, leather, bicycles and gems and Jewellery industries. These sector studies are an attempt to understand the issue of labor intensity and employment generation in a wide variety of industries so that effective policy recommendations can be devised based on our survey findings.

In Chapter 3 the purpose is to provide an appraisal of the field survey, which is being undertaken as part of this study at the firm level to help us understand various nuances about the employment generation potential of the labor intensive sectors. Beginning with the rationale underlying the selection of sectors for firm level survey, this chapter provides the design of the survey questionnaire, focusing on the questions and the ends that those questions desire to address, the method of selecting the firms- the sampling criterions in place, including the coverage of the sample. Finally the chapter outlines the probable limitations of the survey.

Chapters 4, 5,6, 7 and 8 focuses on the following labor intensive industries- sports goods, apparel, leather, bicycles and gems & jewellery. In each of these chapters, we have made an attempt to outline the industry coverage with industry specific details of the survey. In addition, we list the survey findings from each of the industries and finally outline policy recommendations based on our survey findings.

Our final chapter consists of summary and conclusions of the study. Here we highlight the findings from each of our surveyed industries and finally suggest some policy recommendations keeping in mind the growth potential of these industries. Some future research ideas are also outlined.

Chapter 2

Labour Intensity in Organized Manufacturing - An Industry Level Perspective

2.1 Introduction

Indian Manufacturing has recorded respectable growth following economic reforms of the 1980s and 1990s. The value added in manufacturing had a growth of around 7.5 percent per annum over the decades of 1980s and 1990s. However with regard to the contribution of manufacturing as a whole to the GDP of the country, it still has a low share of around 17 percent (2003) and further, this contribution is below that of East Asian countries.

If the manufacturing sector is to perform along the lines of China and East Asian countries, its share both in GDP and employment have to increase substantially. A look at India's manufacturing performance over the two decades suggests that it has been a period of growth without employment creation- "jobless growth". The share of employment in manufacturing in India is only 13 percent (2004-05)[2], whereas in China it is 31 percent and in Malaysia, it is 50 percent respectively. Further, the employment in the organized manufacturing has declined in the recent past. As a result of which we find that India's large labor force remains trapped in low-productivity agriculture, low paid urban informal sector jobs resulting in poverty and inequality. This is the basic issue for examination.

In this context, it is imperative that we focus attention on the labor-intensive industries of organized manufacturing which have immense employment generation potential. Further, labor intensive sectors also help in promoting exports along the lines of India's comparative advantage by engaging unskilled labor force in such firms. Organized manufacturing in India today is geared to play an important role in a business environment of a liberalized industrial climate supplemented with low trade barriers and given the twin role of labor intensive sectors in generating- exports and resultantly employment, a detailed strategy focusing on the labor intensive sectors becomes important from the economic policy point of view. Against this background, an appraisal of the labor intensive sectors in Indian organized manufacturing assumes immense importance. In particular, we would like to focus on: (1) which are the sectors with high labor intensity in organized manufacturing, (2) has the labor intensity changed in the identified sectors over the years to more capital intensive way of production (3) what has been the employment growth in these sectors and finally is there any linkage between employment, labor productivity and real wages growth in the labor intensive sectors.

[2] Economic Survey 2007-08

2.2 Review of Literature

Employment Generation and Labour Intensity[3] in the Registered Manufacturing Sector of India

The basic idea behind economic reforms has been the reduction in the size of the public sector and the lifting of government controls and regulations on production, trade and investment would usher in a more competitive environment, improve efficiency and hence growth. The pattern of industrialisation is expected to be not only internationally competitive but also "sufficiently labour-intensive" (Chaudhuri, 2002). The lifting of government controls and greater reliance on market forces, what should now become more important are the labour-intensive goods for which labour surplus countries like India are supposed to have a competitive advantage. On theoretical ground, India's trade liberalization is expected to lead to a shift in her industrial structure towards labour intensive industries. Also, it should provide greater encouragement to the application of labour intensive methods of production. Inasmuch as this causes an increase in the demand for labour in industries, there should be an upward pressure on the real wage in the industrial sector. Import liberalization may additionally contribute to higher wages through its productivity enhancing effects. Thus, a favorable effect of import liberalization on industrial wages is to be expected (Goldar, 2003).

The 1980s

The 1980s is often called the decade of "jobless growth" in Indian manufacturing, for the revival in output growth in this period was not accompanied by adequate generation of employment. Only 4, 84,000 new jobs were generated in India's registered factory sector between 1979-80 and 1990-91(Thomas, 2002).

Several explanations have been put forward for this positive but very low employment growth in organized manufacturing during 1980-81 to 1989-90. One of the views being that labour retrenching had become difficult after the introduction of job security regulations in the late 1970s, and this forced employers to adopt capital-intensive production techniques (Fallon and Lucas, 1993 cited in Goldar, 2000). According to another view, the slowdown in employment growth had resulted from a strategy of capital deepening pursued by the firms, an important reason for which was the increase in real cost of labour in the 1980s (Ghose, 1994). A study undertaken by the World Bank (1989) also asserted that the sharp deceleration of employment growth in factory sector in the 1980s could be explained by acceleration in product wages, which the study attributed to union-push.

Several authors, like, Papola (1994), Bhalotra (1998) and Nagaraj (1994), have highlighted other reasons for the stagnation in organised manufacturing employment in the 1980s. Both Nagaraj and Papola have pointed out that during the 1980s the composition of the organised manufacturing sector changed in favour of less labour intensive industries. There was faster growth of industries with low labour intensity and

[3] Labour intensity is defined as number of workers per unit of net fixed capital stock (in real terms).

slower growth of industries with high labour intensity. Also, Nagaraj and Bhalotra have noted a significant increase in actual hours worked per labour (or man-day per worker) indicating a more intensive use of the workforce in the 1980s, resulting in the slowdown of employment growth. According to Nagaraj (1994), the "overhang" of employment that existed in the 1970s was intensively used in the 1980s, thus generating only a few additional employment opportunities in the later decade.

The 1990s

The decade of 1990s witnessed the process of economic reforms in the country, which included significant liberalization of both industrial activities and trade. This process of economic reforms was expected by many to boost employment in the manufacturing sector, as greater labour market flexibility and increased orientation towards trade could change the industrial structure in favour of labour intensive industries and techniques of production. On the other hand, there were also apprehensions about adverse implications of such reforms for manufacturing employment on several grounds. Ghose (1994) had opined that faced with greater competition on the one hand and having easier access to foreign technology and imported capital goods on the other, firms in the manufacturing sector could adopt advanced technology leading to a rise in the capital intensity. Also, firms, in order to be cost competitive, could be driven towards cutting down employment.

However, the experience of the 1990s shows that manufacturing growth in this decade was accompanied by significant growth in employment. 17,63,000 new jobs were created in India's registered manufacturing sector between 1991-92 and 1997-98 compared to only 4,84,000 jobs in the earlier decade (Thomas, 2002). According to Goldar (2000), the growth rate of employment in organised manufacturing sector in India for the period 1990-91 to 1997-98 was 2.69 percent per annum which was well above the growth rate of 0.53 percent per annum achieved in the 1980s. He attributed two major reasons for this growth in employment: slowdown in growth of real wages in the 1990s and faster growth of small and medium-sized factories in organised manufacturing, which are more labour intensive than large sized factories. He also highlighted that the entire increase in employment in the organised manufacturing sector, which has taken place in the 1990s, is accounted for by private sector factories.

However, Nagaraj (2000) contested the views of Goldar, and argued that faster employment generation in the organised manufacturing sector was due to the investment boom in that decade. In his later study, Nagaraj (2004) pointed out that faster employment generation in organised manufacturing was restricted mainly to the first half of 1990s. As the boom went bust, there was a steep fall in employment in the second half of the 1990s. Relative cost of labour did not seem to matter in employment decisions, as the wage-rental ratio declined secularly. According to Nagaraj, about 1.1 million workers, or 15 percent of workers in the organised manufacturing sector in the country, lost their jobs between 1995-96 and 2000-01.

However, there are very few studies which have paid specific attention to the question of changes in labour intensity of organised manufacturing in the post reforms era.

Chaudhuri (2002) studied the changes in labour intensity for the 3-digit groups in the organised manufacturing sector for the period between 1990-91 and 1997-98. He found that labour intensity had progressively gone down from 0.78 in 1990-91 to 0.56 in 1997-98. Moreover, this trend was observed not only in capital-intensive industries but also in labour-intensive industries. He also found that relatively more real investment had taken place in the labour- intensive sectors during this period, but the rate of growth of output (value added) of labour intensive sectors had been slower than that of capital- intensive sectors. As a result, the share of labour intensive sectors in aggregate value added (in organised manufacturing) had gone down between 1990-91 and 1997-98. U. Rani & J. Unni (2004), observed a sharp growth in capital intensity (declining labour intensity) in both the organised and unorganised sector. The positive growth in capital intensity was not accompanied by a rise in capital productivity in both sectors, which again implied a substitution of capital for labour, without any technological upgradation, across all industry groups at the two-digit level in both the sectors.

While studying industrial growth and structure of Maharashtra, Burange (1999) found that over the period from 1979-80 to 1994-95 the overall employment in the manufacturing sector of the state had declined. The state realized a high growth in fixed capital resulting in decrease in employment. The labour-intensive industries such as food products, cotton textiles, wool, silk and synthetic fiber, wood and wood products, basic metal and alloy industries and transport equipments recorded a decline in employment during this period.

As regards evidence at the national level, Thomas (2002) reported that as in 1995-1998, labour intensity varied widely across the different two-digit industries in the registered manufacturing sector. While Jute Textiles (two-digit group 25) had the highest labour intensity, Electricity (generation, distribution and transmission; two-digit group 40) had the lowest labour intensity. The other two-digit industry groups in a decreasing order of labour intensity were: Beverages, Textile Products, Leather, Wood Products, Repair Services, Food Products, Others, Metal Products, Cotton Textiles, Machinery, Transport Equipment, Paper, Wool and Silk, Non-metallic Minerals, Rubber and Petroleum, Chemicals, and Basic Metals.

Taking into account the factors affecting the labour intensity and employment generation Nagaraj (2000) had argued that investment was an important factor influencing employment generation in the organised manufacturing sector in the decade of 1990s. It may be pertinent to note here that according to Goldar (2000), the two factors that had significantly influenced employment generation in organised manufacturing in the 1990s were- the rate of growth of real wages (with a negative relationship with employment growth) and the rate of growth of output (with a positive relationship with growth in employment).The evidences reported by Thomas (2002) however contradict such hypotheses. By analyzing Annual Survey of Industries (ASI) data at the two-digit level for the period from 1979-80 to 1997-98, he concluded that among the major generators of employment in the 1990s, a few industries were labour-intensive, and a few others, capital intensive. Among the labour intensive industries that were also major generators of employment in the 1990s, there were many which had received very low shares of

total manufacturing investment and also had only slow growth in value added (for instance, manufacture of Textile Products, Repair of Capital Goods, and manufacture of Beverages and Tobacco). On the other hand, a few capital intensive industries, which received major shares of investment and also had high rates of value added growth, generated only little employment (for instance, manufacture of Basic Metals).

It is also worthwhile to analyze labour productivity and real product wages trends of organised manufacturing sector in India, since; both of them are inversely proportional to labour intensity and hence can be expected to have a negative relationship with employment growth. Likewise, technological progress needs to be factored in while analyzing changes in labour intensity and employment potential of the manufacturing sector. It is supposed that technological progress which is highly capital intensive, may tend to reduce the employment potential of manufacturing sector.

The shares of import-competing and export-oriented sectors in total manufacturing output are another important aspect that needs to be taken into account. As Ghose (2000) observed, growth in trade of manufactures between developing and industrialized countries could be expected to increase the employment elasticity in manufacturing in the former and reduce it in the latter. Trade is expected to increase the share of export-oriented industries and reduce the share of import-competing industries in manufacturing output. This means a rise in the employment elasticity in developing countries (as export-oriented industries in such countries are more labour intensive than import-competing industries) and a fall in the employment elasticity in industrialized countries (as import-competing industries in these countries are more labour intensive). Ghose, based on his analysis of UNIDO database for industrial statistics for several countries, for the period from 1981 to 1994, concluded that the experience of India (as also that of China, Indonesia and Malaysia) supported the proposition that trade would increase employment elasticity in manufacturing in developing countries.

Likewise, Goldar (2002) also found that employment elasticity (gross) in organised manufacturing sector of India increased from 0.26 in the period 1973-74 to 1989-90 to 0.33 in the period 1990-91 to 1997-98. He concluded that trade liberalization encouraged the growth of labour intensive industries and techniques of production, and this led to an increase in employment elasticity.

As seen from the given literature, the impact of factors which have significantly influenced employment generation in manufacturing sector in India in the post reforms era has been quite varied and this debate is yet to be settled. Also there are very few studies which have paid specific attention to the question of changes in labour intensity of organised manufacturing in the post reforms era. So the proposed study would attempt to investigate these issues in depth and fill in the gap in the existing literature on labour intensity in manufacturing sector in India.

2.3 Database, Time Period and Methodology

The manufacturing sector can be documented in many ways – 2, 3, 4 digit industrial classification allows us classify manufacturing into finer subgroup, and in turn observe the performance of the sector at the level of a finer sub group. We have for our purposes, documented the manufacturing performance for around 97 industries at four digit level of industrial classification (NIC 1998) in order to assess the Labor Intensity of organized manufacturing sector in the context of widespread and far reaching economic liberalization attempted in India since the beginning of 1991. The 97 four-digit industries belong to the registered manufacturing sector, as documented in the Annual Survey of Industries, Central Statistical Organization; Government of India[4].

We had to undertake a concordance between NIC 1998 and NIC 1987 of four and three digit industries to build a continuous time series at the four-digit level NIC 1998 classification. The 97 four digit industries are spread across the 23 (15 to 37) two digit divisions: They are manufacture of food and beverages (division 15), manufacture of tobacco products (division 16), manufacture of textiles (division 17), manufacturing of wearing apparel (division 18), tanning and dressing of leather (division 19), manufacture of wood and wood products (division 20), manufacture of paper and paper products (division 21), publishing, printing and reproduction of recorded media (division 22), manufacture of coke, refined petroleum etc. (division 23), manufacture of chemical and chemicals products, (division 24), manufacture of rubber and plastics (division 25), manufacture of other non metallic products (division 26), manufacture of basic metals (division 27), manufacture of fabricated metal products (division 28), manufacture of machinery and equipment (division 29), manufacture of office, accounting and computer machinery (division 30), manufacture of electrical machinery (division 31), manufacture of radio and TV (division 32), manufacture of medical, precision etc. (division 33), manufacture of motor vehicles, trailers and semi-trailers (division 34), manufacture of other transport equipment (35), manufacture of furniture, manufacturing n.e.c (division 36), recycling (37). These 23 divisions constitute the entire manufacturing sector of India.

The time period of the study is chosen from 1990-91 to 2003-04, the latest year for which data is available from the Annual Survey of Industries. We have chosen to examine the post liberalization era, as it has thrown up plethora of opportunities for Indian manufacturing sector in terms of liberalized business environment supplemented by reforms in industrial as well as trade policies and labor intensive sectors have an important role to play, given the liberal trade rules and regulations as regards exports and thus consequently on employment generation.

[4] We considered around 150 four digit industries across various groups ranging from food products to transport equipments. Some industries had to be merged in order to build a continuous data series resulting in 97 four digit industries for final consideration

Methodological Aspects of Labor Intensity Computation

Our purpose in this chapter was to highlight the labor intensive sectors of organized manufacturing sector of India. Labor intensity is defined as number of workers per unit of gross fixed capital sock (in real terms). The data base of the study was the *Annual Survey of Industry,* volume1- Summary Results for the Factor Sector, yearly issues published by the Central Statistical Organization, Government of India. Supplementary databases used were the Index Number of Wholesale Prices, prepared by the office of the Economic Advisor, Ministry of Industry, Government of India and National Accounts Statistics- yearly issues.

We have taken into consideration all the 150 four digit industries at the NIC 1998 classification of the organized manufacturing sector, however to build a continuous time series at NIC 1998, we have had to merge as well as delete some four digit industries resulting in the total number of industries getting reduced to 97. These 97 industries cover the entire spectrum of organized manufacturing industries in India at the four digit level. Organized manufacturing industries comprise those industrial units which are registered as "factories", i.e. they employ 10 or more workers with power or 20 or more workers without power.

We collected data on total persons engaged, fixed capital and depreciation to construct the industry-wise labor intensity measure. For the number of persons, we used the data on total persons engaged.

For gross fixed *capital stock* in real terms, we used the perpetual inventory method of calculating real gross fixed capital. To arrive at this, we needed an estimate of benchmark fixed capital stock, a time series on gross investment and a capital goods price series. The bench mark capital stock is calculated by applying the gross-net ratios obtained from the RBI Bulletin for the year 1973-74 to the net fixed capital stock available from the annual survey of industries for that year. The bench mark real capital stock is arrived at by inflating it with the average capital goods price for the year 1964-65 to 1973-74. The time series on gross investment is arrived at as the sum of net fixed capital as well as depreciation, available on a yearly basis from the database. To arrive at the series of real gross investment, we deflate the yearly gross investment series so constructed by the capital goods price deflator. The capital goods price deflator is constructed as a weighted average of two components- construction (as a proxy for structures) and machinery & equipment (as a proxy for equipments). The implicit price deflator for investment in construction and machinery& equipment is used to deflate the nominal gross investment series. The deflator is composed of ratio of current gross capital formation by type of assets to constant gross capital formation by type of assets. The industry specific shares of construction and plant & machinery in the total is used as weights. These weights were for the year 1983-84. The annual rate of discarding of capital stock is assumed to be 2 percent per annum.

After computing the industry wise labor intensity for each year, we obtain for each industry a figure which is average labor intensity for the period 1990-2003. Next we took

an average across all industries of this average L intensity. This turns out be 0.26. All industries with average L/K greater than 0.26 are labeled as labor intensive industries and all industries with average L/K less than 0.26 are labeled as capital intensive ones. In our sample of 97 industries, we observed 31 industries as labor intensive and 66 as capital intensive. Further these 31 labour intensive industries have a value added contribution of almost 13 percent in 2003-04.

We have also addressed the issue of industrial performance to assess how these labour intensive industries have fared over the period of study 1990-2003 in terms of three different, but important yardsticks of industrial performance- employment growth, real wages growth and labor productivity growth. Each of these different yardsticks merit attention in the light of India's attempt at becoming a fully liberalized economy and further to assess the important role that labor intensive industries are playing in the manufacturing sector of India.

For computing employment growth, we consider total persons engaged as a measure of employment by industry groups. From the yearly employment growth by industry categories, we are able to get the average annual growth in employment for the period 1990-2003 as well as the sub periods- 1990-95, 1996-00 and 2000-03. For calculating the growth in real wages by industry groups, one can consider either the real product wages (nominal wages deflated by output price index) or real wages (nominal wages deflated by consumer price index). We have considered the real product wages as this has implications for employment growth. We have arrived at nominal wages by dividing total emoluments by total persons engaged and thus we get a figure for nominal income per person. The next step is to deflate this series of nominal income per person by the output price index and we arrive at real product wage by industry groups. As in the case of employment, from the yearly growth in real wages, we are able to arrive at the average annual real wages growth. The last computation concerns labor productivity defined as value added per worker. For value added, we have considered real gross value added at constant 1993-94 prices and for workers, we have considered total persons engaged. From the yearly growth in labor productivity, we compute the average annual growth in labor productivity for the periods mentioned above.

2.4 Empirical Findings

In this section, we document the changing profile of the whole labour intensive industries as identified by the L/K ratio for the period 1990-91 to 2003-04. We have identified 31 industries in 4 digits level of disaggregation (NIC 1998) as labour intensive[5] which are drawn from wide array of manufacturing activity- Food and Beverages (15); Tobacco Products (16); Manufacture of Textiles (17); Manufacture of Wearing Apparel (18), Tanning and Processing of Leather (19); Manufacture of Wood and Wood Products (20); Publishing and Printing (22); Manufacture of Nonmetallic Minerals (26); Manufacture of Fabricated Metal Products (28); other Transport Equipments (35) and Manufacture of Furniture (36). The labour intensive industries are listed in Table 2.1A. During 1990-91

[5] Industries with L/K ratio 0.26 and above for the period 1990-91 to 2003-04

to 2003-04 the average combined Gross Value Added (GVA) share (as percentage of total manufacturing value added) of these 31 industries have been 13.77 percent.

For the year 2003-04, for which the latest ASI data are available, the average L/K ratio for the whole registered manufacturing sector comes down to 0.16. If we fix the labour intensity criteria of 0.26 L/K for 2003-04, the number of labour intensive industries comes down to 15. The GVA share for these 15 industry group is 9.56 percent. We observe three new industries groups entering as labour intensive industries in 2003-04. They are Manufacture of machinery for mining, quarrying and construction (2294),Manufacture of carpet and rugs other than by hand (1722) and Manufacture of pumps, compressors, taps and valves + Manufacture of bearings, gears, gearing and driving elements + Manufacture of ovens, furnaces and furnace burners + Manufacture of lifting and handling equipment (2912 + 2913 + 2914 + 2915). The number in the parenthesis signifies Industrial code of NIC98 in 4 digit level of disaggregation.

Table 2.1A: Labour Intensive Industries: 1990-91 to 2003-04

Sl. No	NIC98	Industries	L/K
1	1600	Manufacture of tobacco products	2.69
2	1912	Manufacture of luggage, handbags, and the like, saddlery and harness	0.96
3	1810	Manufacture of wearing apparel, except fur apparel	0.85
4	1544 + 1549	Manufacture of macaroni, noodles, conscious and similar farinaceous products + Manufacture of other food products n.e.c.	0.61
5	3693	Manufacture of sports goods	0.60
6	2010	Saw milling and planing of wood	0.60
7	2023	Manufacturing of wooden containers	0.50
8	1730	Manufacture of knitted and crocheted fabrics and articles	0.48
9	3691	Manufacture of jewellery and related articles	0.44
10	3592	Manufacture of bicycles and invalid carriages	0.42
11	2692 + 2693	Manufacture of refractory ceramic products + Manufacture of structural non-refractory clay and ceramic products	0.42
12	1541	Manufacture of bakery products	0.41
13	2022	Manufacture of builders' carpentry and joinery	0.37
14	2811	Manufacture of structural metal products	0.36
15	1820	Dressing and dyeing of fur; manufacture of articles of fur	0.36
16	3694 + 3699	Manufacture of games and toys +Other manufacturing n.e.c.	0.36
17	2222	Service activities related to printing	0.34
18	1920	Manufacture of footwear.	0.34
19	1723	Manufacture of cordage, rope, twine and netting	0.33
20	1721	Manufacture of made-up textile articles, except apparel	0.32

Sl. No	NIC98	Industries	L/K
21	2919 + 2923 + 2927 + 2929	Manufacture of other general purpose machinery + Manufacture of machinery for metallurgy + Manufacture of weapons and ammunition + Manufacture of other special purpose machinery	0.32
22	2899	Manufacture of other fabricated metal products n.e.c.	0.32
23	2021	Manufacture of veneer sheets; manufacture of plywood, laming board, particle board and other panels and boards	0.31
24	2211 + 2219	Publishing of books, brochures, musical books and other publications + Other publishing	0.31
25	2696	Cutting, shaping and finishing of stone	0.30
26	2102	Manufacture of corrugated paper and paperboard and of containers of paper and paperboard	0.30
27	1533	Manufacture of prepared animal feeds	0.29
28	3610	Manufacture of furniture	0.29
29	1712	Finishing of textile excluding khadi/handloom	0.28
30	2109	Manufacture of other articles of paper and paperboard	0.27
31	2519	Manufacture of other rubber products	0.26
		Value Added Share (13.77 percent)	

Source- Author's calculation based on Annual Survey of Industries, various issues.

Table 2.1B: Labour Intensive Industries: 2003-04

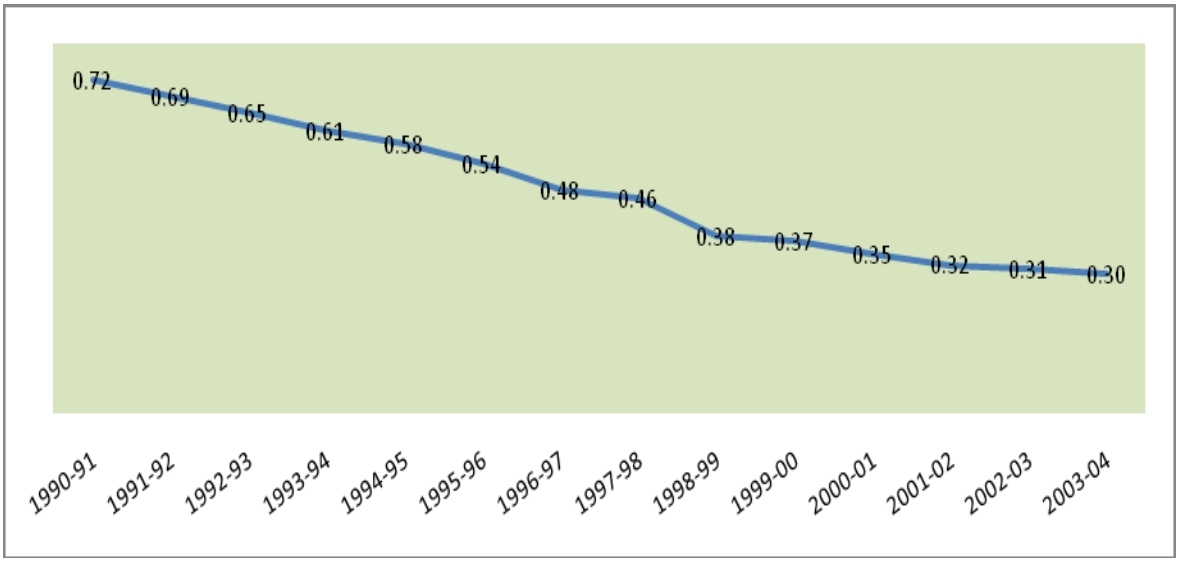
Sl. No	NIC98	Industry	L/K
1	1600	Manufacture of tobacco products	1.38
2	1810	Manufacture of wearing apparel, except fur apparel	0.57
3	1912	Manufacture of luggage, handbags, and the like, saddlery and harness	0.45
4	3693	Manufacture of sports goods	0.44
5	2924	Manufacture of machinery for mining, quarrying and construction	0.43
6	1544 + 1549	Manufacture of macaroni, noodles, conscious and similar farinaceous products + Manufacture of other food products n.e.c.	0.42
7	2023	Manufacturing of wooden containers	0.35
8	3691	Manufacture of jewellery and related articles	0.34
9	2010	Saw milling and planing of wood	0.32
10	1721	Manufacture of made-up textile articles, except apparel	0.32
11	2899	Manufacture of other fabricated metal products n.e.c.	0.32
12	1920	Manufacture of footwear.	0.29
13	1723	Manufacture of cordage, rope, twine and netting	0.27
14	1722	Manufacture of carpet and rugs other than by hand	0.27
15	2912 +	Manufacture of pumps, compressors, taps and valves +	0.26

Sl. No	NIC98	Industry	L/K
	2913 + 2914 + 2915	Manufacture of bearings, gears, gearing and driving elements + Manufacture of ovens, furnaces and furnace burners + Manufacture of lifting and handling equipment	
		Value Added Share (9.57 percent)	

Source: Author's calculation based on Annual Survey of Industries, various issues.

When we take into account the yearly average labour intensity[6] (L/K) for the 31 labour intensive industries from 1990-91 to 2003-04, we observe a continuous fall from 0.72 in 1990-91 to 0.30 in 2003-04. (Chart 2.1)

Chart 2.1: Labour Intensity (L/K) of All Labour Intensive Industries: 1990-91 to 2003-04



In Table 2.2, we document the change in the labor intensity for the whole 31 industries for each of the 3 phases of economic liberalization- 1990 to 1995; 1996 to 2001 and 2000 to 2004. Across the all sectors, we find more or less consistent decline in all sectors. In some sectors like – tobacco products, leather luggage, wearing apparel, sports goods, wood, fur products and metal products, the decline is over 50 percent, whereas in the others it is less than 50 percent. It is also evident from the table that there is a progressive decline running through the different time points. Further, our results for the labor intensive sectors are in agreement with Chaudhuri (2002), which points out that contrary to what the advocates of reform and trade openness would suggest, the relative importance of labor intensive goods in output has gone down[7].

[6] Simple average of the whole 31 industries on yearly basis

[7] Refer Table 8 of Chaudhuri (2002), wherein the author has shown that in registered manufacturing, labor intensity has decreased progressively from 1990-91 to 1997-98.

Table 2.2: Changes in Labour Intensity (L/K)*- Selected Time Periods

Sl. No	NIC98	Industry	1990-91 to 1995-96	1996-97 to 1999-00	2000-01 to 2003-04	1990-91 to 2003-04
1	1600	Manufacture of tobacco products	3.69	2.32	1.57	2.69
2	1912	Manufacture of luggage, handbags, and the like, saddlery and harness	1.27	0.89	0.58	0.96
3	1810	Manufacture of wearing apparel, except fur apparel	1.12	0.73	0.57	0.85
4	1544 + 1549	Manufacture of macaroni, noodles, conscious and similar farinaceous products + Manufacture of other food products n.e.c.	0.77	0.53	0.45	0.61
5	3693	Manufacture of sports goods	0.84	0.47	0.35	0.6
6	2010	Saw milling and planing of wood	0.71	0.65	0.38	0.6
7	2023	Manufacturing of wooden containers	0.63	0.45	0.36	0.5
8	1730	Manufacture of knitted and crocheted fabrics and articles	0.66	0.35	0.35	0.48
9	3691	Manufacture of jewellery and related articles	0.57	0.39	0.31	0.44
10	3592	Manufacture of bicycles and invalid carriages	0.56	0.34	0.28	0.42
11	2692 + 2693	Manufacture of refractory ceramic products + Manufacture of structural non-refractory clay and ceramic products	0.55	0.39	0.25	0.42
12	1541	Manufacture of bakery products	0.53	0.37	0.26	0.41
13	2022	Manufacture of builders' carpentry and joinery	0.52	0.27	0.24	0.37
14	2811	Manufacture of structural metal products	0.51	0.3	0.19	0.36
15	1820	Dressing and dyeing of fur; manufacture of articles of fur	0.51	0.29	0.22	0.36
16	3694 + 3699	Manufacture of games and toys +Other manufacturing n.e.c.	0.44	0.36	0.23	0.36
17	2222	Service activities related to printing	0.39	0.32	0.28	0.34
18	1920	Manufacture of footwear.	0.46	0.28	0.23	0.34
19	1723	Manufacture of cordage, rope, twine and netting	0.38	0.3	0.27	0.33
20	1721	Manufacture of made-up textile articles, except apparel	0.35	0.3	0.3	0.32
21	2919 + 2923 + 2927 +	Manufacture of other general purpose machinery + Manufacture of machinery for metallurgy +	0.3	0.33	0.34	0.32

Sl. No	NIC98	Industry	1990-91 to 1995-96	1996-97 to 1999-00	2000-01 to 2003-04	1990-91 to 2003-04
	2929	Manufacture of weapons and ammunition + Manufacture of other special purpose machinery				
22	2899	Manufacture of other fabricated metal products n.e.c.	0.46	0.29	0.15	0.32
23	2021	Manufacture of veneer sheets; manufacture of plywood, laming board, particle board and other panels and boards	0.4	0.27	0.22	0.31
24	2211 + 2219	Publishing of books, brochures, musical books and other publications + Other publishing	0.51	0.25	0.07	0.31
25	2696	Cutting, shaping and finishing of stone	0.36	0.22	0.31	0.31
26	2102	Manufacture of corrugated paper and paperboard and of containers of paper and paperboard	0.37	0.27	0.22	0.3
27	1533	Manufacture of prepared animal feeds	0.34	0.3	0.21	0.29
28	3610	Manufacture of furniture	0.34	0.29	0.19	0.29
29	1712	Finishing of textile excluding khadi/handloom	0.36	0.25	0.2	0.28
30	2109	Manufacture of other articles of paper and paperboard	0.33	0.22	0.22	0.27
31	2519	Manufacture of other rubber products	0.33	0.24	0.17	0.26
		Average Labour Intensity	**0.63**	**0.43**	**0.32**	**0.48**

*Note: * L/K-* Labor intensity is defined as number of workers per unit of gross fixed capital stock
Source: Author's calculation based on Annual Survey of Industries, various issues.

In terms of combined GVA share of these labour intensive industries in total Manufacturing Value Added, we observe increase in share from 12.94 percent in 1990-91 to 15.90 percent in 2000-01 but it declined to 12.91 percent in 2003-04. Out of 31 labour intensive industries we observe the declining GVA share in 10 industries. The broad categories of products which experienced decline in GVA share are Manufacturing of Other Food Products, Manufacturing of bicycles and invalid carriages, Manufacturing of Wood and of products of Wood and Cork except Furniture, Manufacturing of non-metallic mineral products, Manufacturing of structural metal products, Publishing, Cutting, shaping and finishing of stone, Manufacture of other rubber products. **In Table 2.3**, the gross value added share of the labor intensive sectors are listed for the years 1990-91, 1996-97, 2000-01 and 2003-04 reflecting the three different time periods of the study.

Table 2.3: Gross Value Added (GVA) share of Labour Intensive Industries in Total Manufacturing Value Added (in Percent)

Sl. No	NIC98	Industry	1990-91	1996-97	2000-01	2003-04
1	1600	Manufacture of tobacco products	1.68	1.69	2.38	2.03
2	1912	Manufacture of luggage, handbags, and the like, saddlery and harness	0.04	0.08	0.08	0.09
3	1810	Manufacture of wearing apparel, except fur apparel	1.12	1.68	2.03	1.52
4	1544 + 1549	Manufacture of macaroni, noodles, conscious and similar farinaceous products + Manufacture of other food products n.e.c.	2.12	1.63	1.36	0.99
5	3693	Manufacture of sports goods	0.02	0.04	0.04	0.04
6	2010	Saw milling and planing of wood	0.08	0.05	0.03	0.02
7	2023	Manufacturing of wooden containers	0.02	0.01	0.01	0.01
8	1730	Manufacture of knitted and crocheted fabrics and articles	0.35	0.58	0.77	0.65
9	3691	Manufacture of jewellery and related articles	0.10	0.39	0.56	0.63
10	3592	Manufacture of bicycles and invalid carriages	0.40	0.19	0.16	0.17
11	2692 + 2693	Manufacture of refractory ceramic products + Manufacture of structural non-refractory clay and ceramic products	0.67	0.60	0.61	0.59
12	1541	Manufacture of bakery products	0.34	0.33	0.41	0.29
13	2022	Manufacture of builders' carpentry and joinery	0.02	0.04	0.01	0.01
14	2811	Manufacture of structural metal products	0.44	0.40	0.20	0.33
15	1820	Dressing and dyeing of fur; manufacture of articles of fur	0.01	0.01	0.01	0.00
16	3694 + 3699	Manufacture of games and toys +Other manufacturing n.e.c.	0.20	0.26	0.37	0.33
17	2222	Service activities related to printing	0.02	0.01	0.02	0.01
18	1920	Manufacture of footwear.	0.98	0.48	0.54	0.43
19	1723	Manufacture of cordage, rope, twine and netting	0.18	0.13	0.11	0.11
20	1721	Manufacture of made-up textile articles, except apparel	0.07	0.10	0.21	0.22
21	2919 + 2923 + 2927 +	Manufacture of other general purpose machinery + Manufacture of machinery for metallurgy +	1.40	1.67	1.86	1.17

Sl. No	NIC98	Industry	1990-91	1996-97	2000-01	2003-04
	2929	Manufacture of weapons and ammunition + Manufacture of other special purpose machinery				
22	2899	Manufacture of other fabricated metal products n.e.c.	0.17	0.22	0.73	0.60
23	2021	Manufacture of veneer sheets; manufacture of plywood, laming board, particle board and other panels and boards	0.26	0.30	0.14	0.15
24	2211 + 2219	Publishing of books, brochures, musical books and other publications + Other publishing	0.40	0.39	0.19	0.07
25	2696	Cutting, shaping and finishing of stone	0.19	0.31	0.37	0.34
26	2102	Manufacture of corrugated paper and paperboard and of containers of paper and paperboard	0.27	0.31	0.74	0.31
27	1533	Manufacture of prepared animal feeds	0.13	0.15	0.23	0.23
28	3610	Manufacture of furniture	0.06	0.21	0.26	0.25
29	1712	Finishing of textile excluding khadi/handloom	0.72	0.57	1.01	0.88
30	2109	Manufacture of other articles of paper and paperboard	0.04	0.06	0.12	0.06
31	2519	Manufacture of other rubber products	0.44	0.44	0.33	0.37
		Combined GVA Share	**12.94**	**13.33**	**15.90**	**12.91**

Source: Annual Survey of Industries, various years.

As regard to the share of the organized and unorganized manufacturing in employment, we find from **Table 2.4** that only 14 percent of the workers are engaged in organized sector as against 86 percent in unorganized manufacturing. For some of the labor intensive sectors- textiles& wearing apparel, leather products, we find over 75 percent of the workers are engaged in unorganized sector. This holds true for many of the non-labor intensive sectors also. In the case of organized manufacturing, sectors like coke, refined petroleum, basic metals, and motor vehicles and other transport equipments have more employment share than their unorganized counterparts. But their share of employment in total manufacturing workforce is very low (0 to 1 percent) as compared the labour intensive industries. In terms of GVA share of the organized manufacturing, it is much higher at 75 percent whereas it is around 25 percent in unorganized manufacturing. Thus there is whole mismatch of output generation and creation of employment opportunity because of this skewed patter of distribution of workforce in unorganized manufacturing. To capture the employment generation potential of Indian manufacturing especially the

labour intensive sectors, there is an urgent need of increasing their GVA share to total manufacturing value added.

Table 2.4 lists the employment growth in Indian manufacturing- organized as well as unorganized industries for the period of 1990s and 2000s[8]. Organized manufacturing sectors-other manufacturing, metal products, chemicals and textiles & leather are the only broad groups which show growth rates in excess of 2 percent per annum. The rest of the broad groups- food, beverages, tobacco, paper, non metallic, machinery and transport had virtually no employment growth.

Table 2.4: Share of Organized and Unorganized Manufacturing in Employment, 2000-01

NIC (2 Digit)	Industry	Percent of Workforce		Percent of Total Workforce		GVA Share (percent)	
		Unorganized	Organized	Unorganized	Organized	Unorganized	Organized
15	Food and Beverages	87.03	12.97	15.9	2.37	4.32	7.97
16	Tobacco	88.24	11.76	7.92	1.06	1	1.8
17	Textiles	84.95	15.05	14.37	2.55	3.58	7.26
18	Wearing Apparel	94.18	5.82	10.63	0.66	3.16	1.54
19	Leather and Leather Products	77.71	22.29	0.93	0.27	0.38	0.59
20	Wood and Wood Products	99.29	0.71	12.14	0.09	2.24	0.16
21	Paper and Paper Products	64.32	35.68	0.59	0.32	0.21	1.95
22	Publishing and Printing	86.64	13.36	1.12	0.17	0.69	1.17
23	Coke, Refined Petroleum and Nuclear Fuel	31.87	68.13	0.05	0.11	0.02	3.71
24	Chemical and Chemical Products	51.1	48.9	1.32	1.26	0.44	15.93
25	Rubber and Plastic Products	64.01	35.99	0.77	0.44	0.54	2.5
26	Other Non Metallic Non Mineral Products	89.78	10.22	7.09	0.81	1.98	4.2
27	Basic Metals	23.91	76.09	0.31	0.98	0.25	7.74
28	Fabricated Metals	87.87	12.13	3.69	0.51	1.58	2.02
29	Machinery and Equipment	63.91	36.09	1.14	0.65	0.74	4.69

[8] Also refer to the study by Rani and Unni (2004) which analyses the impact of economic reforms on the manufacturing sector and explores the employment generation potential of the growth of the manufacturing sector.

30	Office Accounting and Computing Machinery	7.63	92.37	0	0.03	0	0.4
31	Electrical Machinery and Apparatus	61.46	38.54	0.59	0.37	0.42	2.62
32	Radio, Television and Communication Equipment	36.22	63.78	0.1	0.17	0.07	1.63
33	Medical Precision and Optical Instruments	42.85	57.15	0.07	0.1	0.06	1.47
34	Motor Vehicles	36.47	63.53	0.25	0.43	0.19	3.32
35	Other Transport Equipment	31.79	68.21	0.15	0.32	0.11	1.64
36	Furniture	97.13	2.87	6.95	0.21	2.75	0.94
37	Recycling	98.39	1.61	0.09	0	0.03	0
	Total	**86.15**	**13.85**	**86.15**	**13.85**	**24.76**	**75.24**

Source: Annual Survey of Industries and NSS0 reports, various years.

For the unorganized manufacturing, sectors - machinery & equipments, textiles& leather, basic metals show employment growth rates in excess of 3 per cent per annum, others show growth rates of around 1 percent per annum or more. Only two sectors, food & beverages and chemicals show no growth in employment. So, we observe a very low employment growth in organized manufacturing especially organized labour intensive sectors. Bulk of the employment growths have been experience by unorganized non-labour intensive industries.

Table 2.5: Employment Growth in Organized and Unorganized Manufacturing (in %): Selected Time Periods

Industry	Unorganised Mfg.*	Organised Mfg.**
Food, Beverages and Tobacco	0.9	0.96
Textiles and Leather	3.05	1.21
Paper and Products	1.69	0.1
Chemicals and Products	0.87	2.02
Non-Metallic Mineral Products	0.65	0.82
Basic Metals	3.9	-0.91
Metal Products	2.89	2.05
Machinery and Equipment	4.1	0.82
Transport Equipment	1.44	0.02
Other manufacturing (incl Wood)	1.29	3.88

*Note: * Period covered for Unorganized Manufacturing is 1989-90 to 2000-01.*
*** Period covered for Organized Manufacturing is 1990-91 to 2003-04*
Source: Annual Survey of Industries and NSS0 reports, various years.

Let us now consider the different yardsticks of industrial performance for identified 31 labor intensive industries – employment growth, employment elasticity, real wages

growth and labor productivity growth. **Table2.6** lists the employment growth by labor intensive industry groups for the period 1990-2003 and its sub periods. The weighted[9] average rate of growth of employment in all the labour intensive industries for the whole period 1990-91 to 2003-04 is 4.1 percent per annum. If we sub divide the period into different stages of liberalization in Indian economy, the employment growth went down sharply from 5.49 percent in 1990/91-1995/96 to 1.88 percent in 1996/97-1999/00. The performance improved after 2000 but remained marginally below at 5.24 percent per annum during 2000/01-2003/04. The dismal performance of the second period can be explained partly by the fact that employment growth declined sharply in industries like tobacco products, wearing apparel, refractory and non- refractory clay and ceramic products, footwear, publishing, cutting, shaping and finishing stone whose employment share is very large. The best performers in this reform period which experienced more than 10 percent rate of growth in employment are made up-textiles (16.7 percent p.a.), fur & articles of fur (14.5 percent p.a.); sports goods (13.6 per cent p.a.); knitted & crocheted fabrics (13.2 percent p.a.); leather goods (12.2 percent p. a.), jewellery articles (11.4 percent p.a.) and wearing apparel (10.35 percent p.a.), other fabricated metal products (21.46 percent p.a.), plywood-laming board (20.23 percent p.a.).

Table 2.6: Changes in Employment Growth (percent per annum) of Labour Intensive Industries: Selected Time Periods

Sl. No	NIC98	Industry	1990-91 to 1995-96	1996-97 to 1999-00	2000-01 to 2003-04	1990-91 to 2003-04
1	1600	Manufacture of tobacco products	2.17	0.45	0.36	1.09
2	1912	Manufacture of luggage, handbags, and the like, saddlery and harness	19.95	9.39	5.07	12.12
3	1810	Manufacture of wearing apparel, except fur apparel	19.64	2.42	6.67	10.35
4	1544 + 1549	Manufacture of macaroni, noodles, conscious and similar farinaceous products + Manufacture of other food products n.e.c.	4.50	1.51	0.53	2.36
5	3693	Manufacture of sports goods	16.22	21.03	3.04	13.65
6	2010	Saw milling and planing of wood	-1.20	-12.57	-1.56	-4.81
7	2023	Manufacturing of wooden containers	1.33	3.43	0.08	1.59
8	1730	Manufacture of knitted and crocheted fabrics and articles	9.72	6.85	23.99	13.23
9	3691	Manufacture of jewellery and related articles	18.28	4.44	9.97	11.46
10	3592	Manufacture of bicycles and invalid	4.75	-4.32	-4.34	-0.84

[9] Weighted Average is calculated by taking average employment as the weight during respective period in each industry.

Sl. No	NIC98	Industry	1990-91 to 1995-96	1996-97 to 1999-00	2000-01 to 2003-04	1990-91 to 2003-04
		carriages				
11	2692 + 2693	Manufacture of refractory ceramic products + Manufacture of structural non-refractory clay and ceramic products	-0.97	-0.77	2.10	0.03
12	1541	Manufacture of bakery products	4.39	1.76	-1.35	1.81
13	2022	Manufacture of builders' carpentry and joinery	-0.41	29.05	0.74	9.01
14	2811	Manufacture of structural metal products	0.46	-6.50	-0.48	-1.97
15	1820	Dressing and dyeing of fur; manufacture of articles of fur	20.10	41.59	-19.35	14.57
16	3694 + 3699	Manufacture of games and toys +Other manufacturing n.e.c.	8.29	13.97	-0.97	7.19
17	2222	Service activities related to printing	8.18	2.24	-7.12	1.65
18	1920	Manufacture of footwear.	3.76	0.40	3.83	2.75
19	1723	Manufacture of cordage, rope, twine and netting	1.50	20.85	-1.17	6.63
20	1721	Manufacture of made-up textile articles, except apparel	9.69	27.89	14.45	16.76
21	2919 + 2923 + 2927 + 2929	Manufacture of other general purpose machinery + Manufacture of machinery for metallurgy + Manufacture of weapons and ammunition + Manufacture of other special purpose machinery	4.08	-10.52	2.54	-0.89
22	2899	Manufacture of other fabricated metal products n.e.c.	10.23	50.02	6.93	21.46
23	2021	Manufacture of veneer sheets; manufacture of plywood, laming board, particle board and other panels and boards	6.55	-9.42	1.87	0.20
24	2211 + 2219	Publishing of books, brochures, musical books and other publications + Other publishing	3.85	-28.57	-10.01	-10.39
25	2696	Cutting, shaping and finishing of stone	8.67	-2.90	57.81	20.23
26	2102	Manufacture of corrugated paper and paperboard and of containers of paper and paperboard	7.16	6.18	5.12	6.23
27	1533	Manufacture of prepared animal feeds	11.13	7.53	1.14	6.95

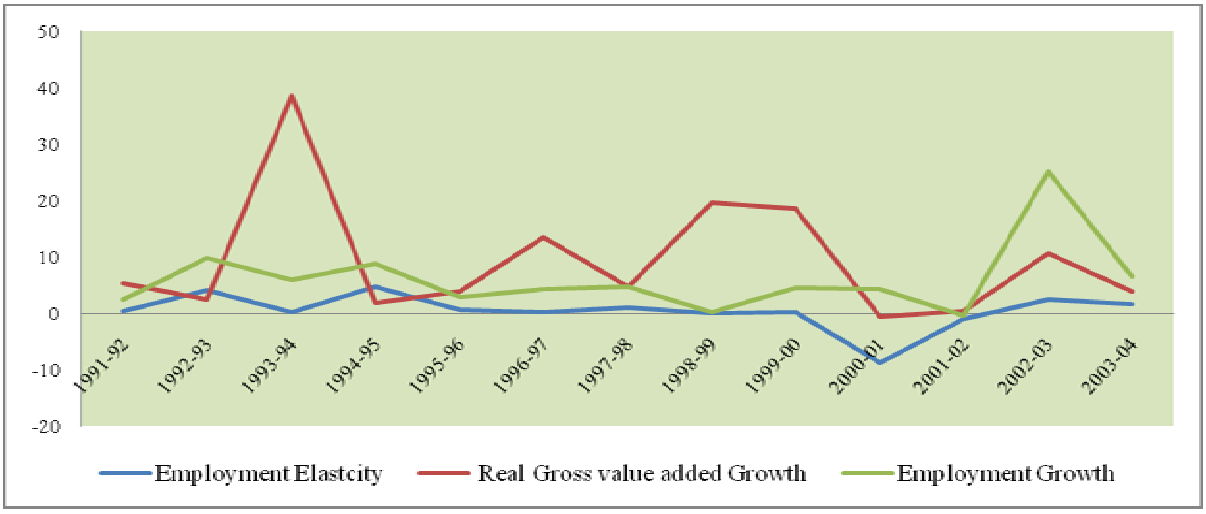
Sl. No	NIC98	Industry	1990-91 to 1995-96	1996-97 to 1999-00	2000-01 to 2003-04	1990-91 to 2003-04
28	3610	Manufacture of furniture	11.84	5.08	1.96	6.72
29	1712	Finishing of textile excluding khadi/handloom	5.19	8.85	-0.17	4.67
30	2109	Manufacture of other articles of paper and paperboard	13.90	4.55	5.26	8.36
31	2519	Manufacture of other rubber products	5.15	4.29	-0.91	3.02
	Weighted Average	**All Labour Intensive Industries**	**5.49**	**1.88**	**5.24**	**4.10**

Source: Annual Survey of Industries, various years

In the third period between 2000-01 and 2003-04, we can observe decline in employment growth in 19 industries but the overall average of the whole labour intensive industries improved as compared to previous period because of employment growth in industries like wearing apparel, knitted and crocheted fabrics, jewellery, footwear and cutting, shaping and finishing stone and their employment share in total employment is very large.

Now what explains the performance of the labour intensive industries in terms of employment growth which have not shown a sign of improvement over the whole reform period? Let us first examine the employment elasticity in the labour intensive sectors. Employment elasticity indicates an increase in employment in response to growth in the output of the concerned sectors. (Chart 2.2)

Chart 2.2: Employment Elasticity in All Labour Intensive Industries



Employment elasticity for the labor intensive industries is calculated as the ratio of weighted average of employment growth rate for labor intensive industries to weighted

average[10] of real gross value added growth rate for the same group. When we examine the yearly trends of employment elasticity, we observe that it has declined after 1994-95 and reached to a negative level in 2000-01. After 2000-01 we observe a substantial improvement because both employment and real gross value added growth has jumped after 2001-02. In the second phase of the reform, in spite of real GVA growth remaining high, the output growth did not translate into employment growth.

Table 2.7: Changes in Employment Elasticity of Labour Intensive Industries: Selected Time Periods

Sl. No	NIC98	Industry	1990-91 to 1995-96	1996-97 to 1999-00	2000-01 to 2003-04	1990-91 to 2003-04
1	1600	Manufacture of tobacco products	0.71	0.03	0.22	0.15
2	1912	Manufacture of luggage, handbags, and the like, saddlery and harness	0.41	-5.84	0.45	0.57
3	1810	Manufacture of wearing apparel, except fur apparel	0.72	0.28	-1.20	0.91
4	1544 + 1549	Manufacture of macaroni, noodles, conscious and similar farinaceous products + Manufacture of other food products n.e.c.	2.16	1.65	-0.11	-5.59
5	3693	Manufacture of sports goods	0.41	1.82	0.45	0.66
6	2010	Saw milling and planing of wood	0.08	-3.47	-0.23	1.97
7	2023	Manufacturing of wooden containers	0.28	0.28	-0.06	0.31
8	1730	Manufacture of knitted and crocheted fabrics and articles	0.55	0.31	2.73	0.82
9	3691	Manufacture of jewellery and related articles	0.21	0.12	1.69	0.24
10	3592	Manufacture of bicycles and invalid carriages	0.58	-0.75	-0.63	-0.12
11	2692 + 2693	Manufacture of refractory ceramic products + Manufacture of structural non-refractory clay and ceramic products	-0.12	-0.09	0.74	0.01
12	1541	Manufacture of bakery products	0.99	0.29	-0.56	0.42
13	2022	Manufacture of builders' carpentry and joinery	0.16	0.51	0.02	0.31
14	2811	Manufacture of structural metal products	0.04	2.55	-0.06	-0.34
15	1820	Dressing and dyeing of fur;	0.40	-2.62	-0.21	0.34

[10] Weighted Average is calculated by taking employment as the weight during in respective years for each industry.

Sl. No	NIC98	Industry	1990-91 to 1995-96	1996-97 to 1999-00	2000-01 to 2003-04	1990-91 to 2003-04
		manufacture of articles of fur				
16	3694 + 3699	Manufacture of games and toys +Other manufacturing n.e.c.	0.38	0.40	-0.30	0.36
17	2222	Service activities related to printing	0.41	0.27	2.01	0.18
18	1920	Manufacture of footwear.	-8.94	0.04	2.14	0.78
19	1723	Manufacture of cordage, rope, twine and netting	0.39	1.21	0.35	1.15
20	1721	Manufacture of made-up textile articles, except apparel	0.52	0.83	1.51	0.82
21	2919 + 2923 + 2927 + 2929	Manufacture of other general purpose machinery + Manufacture of machinery for metallurgy + Manufacture of weapons and ammunition + Manufacture of other special purpose machinery	0.27	-3.30	-1.26	-0.15
22	2899	Manufacture of other fabricated metal products n.e.c.	0.66	0.70	0.84	0.70
23	2021	Manufacture of veneer sheets; manufacture of plywood, laming board, particle board and other panels and boards	0.56	1.57	0.17	0.03
24	2211 + 2219	Publishing of books, brochures, musical books and other publications + Other publishing	0.59	1.06	2.54	1.50
25	2696	Cutting, shaping and finishing of stone	0.47	-0.33	3.25	1.33
26	2102	Manufacture of corrugated paper and paperboard and of containers of paper and paperboard	4.48	0.39	0.20	0.47
27	1533	Manufacture of prepared animal feeds	0.61	0.62	0.01	0.18
28	3610	Manufacture of furniture	0.48	0.33	0.23	0.40
29	1712	Finishing of textile excluding khadi/handloom	0.44	0.24	0.10	0.31
30	2109	Manufacture of other articles of paper and paperboard	0.54	0.16	-1.44	0.48
31	2519	Manufacture of other rubber products	0.52	0.36	0.38	0.45
	Weighted Average	**All Labour Intensive Industries**	**0.54**	**0.15**	**2.22**	**0.46**

Source: Annual Survey of Industries, various years

Dividing the aggregate employment elasticity of all the labour intensive industries into three phases of liberalization in **Table 2.7**, **we** see that the aggregate employment elasticity declined to 0.15 in 1996/97-1999-00 from 0.54 in the previous period. The

recent phase has seen a very huge jump in employment elasticity to 2.22. We see such a huge jump because during this period the average[11] real GVA growth was 2.36 percent per annum and employment was growing at an average rate of 5.24 percent per annum (Table 2.6). During 1996/97 to 1999-00 the average rate of growth of real GVA was 12.88 percent but employment grew at 1.88 percent per annum. From the above Table 2.7 we identify the industries with huge potential for employment generation just by looking at their employment elasticity in the recent period. They are knitted and crocheted fabrics (2.73), jewellery (1.69), refractory and non refractory clay and ceramic products (0.74), footwear (2.14), made-up textile (1.51), other fabricated products (0.84) and publishing (2.54). But if we observe their performance in the whole 1990-91 to 2003-04 period, lot of them lose the steam. Thus the question arises whether labour productivity growth and/or real wages growth can explain these trends in employment and also are their movements consistent with the arguments put forwarded in favour of labour intensive industries in a labour abundant country like India under liberalization.

Labour productivity is defined as real gross value added per worker and capital productivity is defined as real gross value added per unit of gross fixed capital stock (in real terms) (GFCS). We have already seen that across all the labour intensive industries the average labour intensity (number of workers per unit of gross fixed capital stock in real terms) has declined from 0.72 in 1990-91 to 0.30 in 2003-04. Alternatively capital intensity has gone up from 1.39 in 1990-91 to 3.30 in 2003-04. Following Chaudhuri (2002) Capital intensity can go up with capital remaining constant or declining, if the number of workers goes down. From **Table 2.8,** it is evident that the average capital intensity increase has been associated with additions to average gross fix capital stock per industry. The compounded annual rate of growth (CARG) of average GFCS during 1990-91 to 2003-04 has been 13.06. In such cases, a rise in capital intensity may mean technological upgradation. It may also mean substitution of capital for labour.

Table 2.8: Change in Capital Intensity, Capital Productivity and Labour Productivity

Years	Capital Intensity	Capital Productivity	Labour Productivity	Gross Fix Capital Stock[12] (Rs Lakh)
1990-91	1.39	0.38	0.60	77183.5
1991-92	1.46	0.39	0.63	82455.3
1992-93	1.54	0.34	0.59	92377.2
1993-94	1.64	0.41	0.74	105312.9
1994-95	1.72	0.39	0.75	119313.9
1995-96	1.85	0.36	0.73	134619.3
1996-97	2.07	0.34	0.77	149183.4
1997-98	2.15	0.33	0.83	166984.1
1998-99	2.60	0.33	0.90	178027.0
1999-00	2.68	0.32	0.94	208438.3

[11] Weighted Average
[12] Average Gross Fixed Capital Stock per industry

Years	Capital Intensity	Capital Productivity	Labour Productivity	Gross Fix Capital Stock[12] (Rs Lakh)
2000-01	2.89	0.28	0.93	211482.4
2001-02	3.11	0.27	0.98	226628.2
2002-03	3.19	0.25	0.88	239761.8
2003-04	3.30	0.25	0.91	636660.2
CARG (1990-91 to 2003-04)	**7.63**	**-3.55**	**3.82**	**13.06**

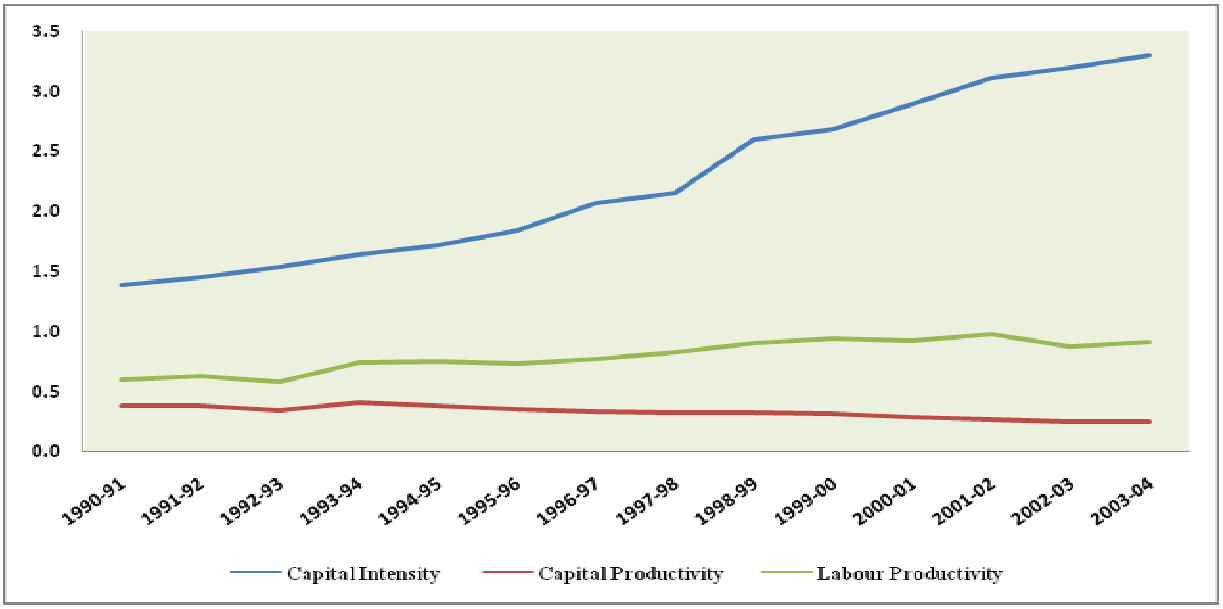
Source: Annual Survey of Industries, various years, author calculation

Let us consider the identity:

Rate of Growth of Labour Productivity = Rate of growth of Capital Intensity + Rate of Growth of Capital Productivity

When capital intensity rises, if capital productivity rises or remains the same, labour productivity also rises. In such cases we can consider production efficiency to have improved and the rise in capital intensity is most likely to have been associated with technological upgradation. But with a rise in capital intensity, if capital productivity declines substantially, then it is likely that there has been merely a substitution of capital for labour [Ghose 1994].

Chart 2.3: Capital Intensity, Capital Productivity and Labour Productivity



From table 2.8 and above chart 2.3, we observe that capital intensity has grown with CARG of 7.63 during this period but since capital productivity has gone down at CARG

of -3.55 percent, the labour productivity grew at CARG of 3.82 percent. What these numbers imply that during 1990-91 to 2003-04 though capital intensity in the labour intensive sectors of Indian manufacturing has gone up substantially, the declining capital productivity has lead to substitution of labour by more capital and eventually restricted the employment potentials of these sectors.

Let us now look into individual industries to see the trends in growth of both labour as well as capital productivity (**Table 2.9** and **Table 2.10** respectively) movement during three different reform periods and try to see whether there is any relation to the observed employment trends across all labour intensive industries **(Table 2.6).**

Table 2.9: Changes in Labour Productivity Growth in Labour Intensive Industries (Percent per annum)

Sl. No	NIC98	Industry	1990-91 to 1995-96	1996-97 to 1999-00	2000-01 to 2003-04	1990-91 to 2003-04
1	1600	Manufacture of tobacco products	0.94	18.26	1.42	6.42
2	1912	Manufacture of luggage, handbags, and the like, saddlery and harness	29.96	-5.47	8.1	12.33
3	1810	Manufacture of wearing apparel, except fur apparel	5.1	6.27	-11.02	0.5
4	1544 + 1549	Manufacture of macaroni, noodles, conscious and similar farinaceous products + Manufacture of other food products n.e.c.	-1.11	-0.45	-5.01	-2.11
5	3693	Manufacture of sports goods	23.58	25.22	-0.69	16.62
6	2010	Saw milling and planing of wood	-14.7	14.78	7.76	1.28
7	2023	Manufacturing of wooden containers	0.69	27.02	-0.03	8.57
8	1730	Manufacture of knitted and crocheted fabrics and articles	7.62	15.25	-11.48	4.09
9	3691	Manufacture of jewellery and related articles	58.66	27.85	-4.54	29.73
10	3592	Manufacture of bicycles and invalid carriages	2.62	20.43	6.9	9.41
11	2692 + 2693	Manufacture of refractory ceramic products + Manufacture of structural non-refractory clay and ceramic products	9.7	8.06	0.58	6.39
12	1541	Manufacture of bakery products	0.16	6.84	4.16	3.45
13	2022	Manufacture of builders' carpentry and joinery	-4.89	-0.3	33.39	8.3
14	2811	Manufacture of structural metal products	15.09	3.93	8.25	9.55
15	1820	Dressing and dyeing of fur;	17.5	9.5	102.47	41.19

Sl. No	NIC98	Industry	1990-91 to 1995-96	1996-97 to 1999-00	2000-01 to 2003-04	1990-91 to 2003-04
		manufacture of articles of fur				
16	3694 + 3699	Manufacture of games and toys +Other manufacturing n.e.c.	13.73	20.81	5.11	13.26
17	2222	Service activities related to printing	11.41	7.88	2.64	7.63
18	1920	Manufacture of footwear.	-4.19	9.99	-1.94	0.86
19	1723	Manufacture of cordage, rope, twine and netting	5.36	-3.9	0.09	0.89
20	1721	Manufacture of made-up textile articles, except apparel	8.41	3.44	-2.82	3.43
21	2919 + 2923 + 2927 + 2929	Manufacture of other general purpose machinery + Manufacture of machinery for metallurgy + Manufacture of weapons and ammunition + Manufacture of other special purpose machinery	10.27	21.55	-4.53	9.19
22	2899	Manufacture of other fabricated metal products n.e.c.	5.33	5.97	1.16	4.24
23	2021	Manufacture of veneer sheets; manufacture of plywood, laming board, particle board and other panels and boards	6.06	3.76	9.06	6.28
24	2211 + 2219	Publishing of books, brochures, musical books and other publications + Other publishing	2.68	11.93	6.92	6.83
25	2696	Cutting, shaping and finishing of stone	9.48	11.8	12.94	11.26
26	2102	Manufacture of corrugated paper and paperboard and of containers of paper and paperboard	-5.29	9.15	14.65	5.29
27	1533	Manufacture of prepared animal feeds	2.65	-3.37	82.15	25.26
28	3610	Manufacture of furniture	13.33	12.87	4.74	10.54
29	1712	Finishing of textile excluding khadi/handloom	4.61	26.17	-1.6	9.33
30	2109	Manufacture of other articles of paper and paperboard	11.75	21.45	-5.78	9.34
31	2519	Manufacture of other rubber products	4.31	7.86	-3.77	2.92
	Weighted Average	**All Labour Intensive Industries**	**4.55**	**11.78**	**-0.72**	**5.39**

Source: Annual Survey of Industries, various years, author calculation

Table 2.10: Changes in Capital Productivity Growth in Labour Intensive Industries (Percent per annum)

Sl. No	NIC98	Industry	1990-91 to 1995-96	1996-97 to 1999-00	2000-01 to 2003-04	1990-91 to 2003-04
1	1600	Manufacture of tobacco products	-4.34	2.15	-5.74	-2.77
2	1912	Manufacture of luggage, handbags, and the like, saddlery and harness	20.90	-18.66	-4.12	1.03
3	1810	Manufacture of wearing apparel, except fur apparel	-0.59	-3.02	-12.79	-5.09
4	1544 + 1549	Manufacture of macaroni, noodles, conscious and similar farinaceous products + Manufacture of other food products n.e.c.	-7.24	-7.42	-9.50	-7.99
5	3693	Manufacture of sports goods	23.62	-0.69	-5.86	7.07
6	2010	Saw milling and planing of wood	-17.75	-0.24	4.09	-5.64
7	2023	Manufacturing of wooden containers	3.42	2.39	-7.59	-0.29
8	1730	Manufacture of knitted and crocheted fabrics and articles	-4.62	1.17	-4.57	-2.82
9	3691	Manufacture of jewellery and related articles	47.26	27.28	-12.65	22.68
10	3592	Manufacture of bicycles and invalid carriages	-2.21	-0.34	2.36	-0.23
11	2692 + 2693	Manufacture of refractory ceramic products + Manufacture of structural non-refractory clay and ceramic products	-1.75	-3.85	-3.74	-3.01
12	1541	Manufacture of bakery products	-4.45	-3.19	-3.81	-3.86
13	2022	Manufacture of builders' carpentry and joinery	-12.06	-5.19	23.86	1.10
14	2811	Manufacture of structural metal products	-1.47	-5.93	2.15	-1.73
15	1820	Dressing and dyeing of fur; manufacture of articles of fur	7.27	-9.23	81.10	24.91
16	3694 + 3699	Manufacture of games and toys +Other manufacturing n.e.c.	3.16	18.17	-4.67	5.37
17	2222	Service activities related to printing	7.45	8.47	-3.04	4.54
18	1920	Manufacture of footwear.	-4.36	2.46	-0.98	-1.22
19	1723	Manufacture of cordage, rope,	-5.64	-0.14	-5.52	-3.91

Sl. No	NIC98	Industry	1990-91 to 1995-96	1996-97 to 1999-00	2000-01 to 2003-04	1990-91 to 2003-04
		twine and netting				
20	1721	Manufacture of made-up textile articles, except apparel	6.89	2.99	1.60	4.06
21	2919 + 2923 + 2927 + 2929	Manufacture of other general purpose machinery + Manufacture of machinery for metallurgy + Manufacture of weapons and ammunition + Manufacture of other special purpose machinery	4.32	-5.49	-5.37	-1.68
22	2899	Manufacture of other fabricated metal products n.e.c.	1.82	24.23	-3.25	7.16
23	2021	Manufacture of veneer sheets; manufacture of plywood, laming board, particle board and other panels and boards	-0.25	-8.82	2.50	-2.04
24	2211 + 2219	Publishing of books, brochures, musical books and other publications + Other publishing	-0.08	-26.96	-7.33	-10.58
25	2696	Cutting, shaping and finishing of stone	-3.99	-2.21	14.05	2.11
26	2102	Manufacture of corrugated paper and paperboard and of containers of paper and paperboard	-8.15	0.44	15.12	1.66
27	1533	Manufacture of prepared animal feeds	1.56	-0.92	68.05	21.26
28	3610	Manufacture of furniture	13.02	9.97	-4.53	6.68
29	1712	Finishing of textile excluding khadi/handloom	-1.41	12.02	-2.74	2.32
30	2109	Manufacture of other articles of paper and paperboard	6.12	24.89	-3.47	8.94
31	2519	Manufacture of other rubber products	-0.17	1.85	-8.24	-2.03
	Weighted Average	**All Labour Intensive Industries**	**-1.83**	**-0.05**	**-4.40**	**-2.01**

Source: Annual Survey of Industries, various years, author calculation

Now a careful observation of Table 2.10 will show that capital productivity has gone up in industries which are more labour intensive (Table 2.1A). The industries which have experienced increase in capital intensity over the reform period have also experienced a decline in capital productivity. Now this trend is not surprising because of the fact that the factor input abundant in India is unskilled labour. But with import liberalization and

the availability of capital at lower rate has induced manufacturer to install extra capacity to maintain both scale and price competitiveness. India being abundant in unskilled labour force, what explains the declining capital productivity in more capital intensive industries is the scarcity of skilled workforce to work on the new installed capital.

Let us now examine the trend of real wages (real product wages[13]) in all the labour intensive industries of organized manufacturing. The weighted average yearly rate of growth of real wages for the whole period of 1990-91 to 2003-04 has been 2.73 percent. If we observe the trends in different time period, the real wages growth had increased substantially in period 1996-97 to 1999-00 and came down in the recent past.

Table 2.11: Changes in Real Product wage Growth

Sl. No	NIC98	Industry	1990-91 to 1995-96	1996-97 to 1999-00	2000-01 to 2003-04	1990-91 to 2003-04
1	1600	Manufacture of tobacco products	0.55	1.2	0.57	0.76
2	1912	Manufacture of luggage, handbags, and the like, saddlery and harness	9.4	5.4	11.52	8.82
3	1810	Manufacture of wearing apparel, except fur apparel	3.13	7.56	0.09	3.56
4	1544 + 1549	Manufacture of macaroni, noodles, conscious and similar farinaceous products + Manufacture of other food products n.e.c.	1.66	0.17	3.33	1.71
5	3693	Manufacture of sports goods	3.33	-6.07	10.44	2.63
6	2010	Saw milling and planing of wood	-10.1	2.15	6.8	-1.13
7	2023	Manufacturing of wooden containers	-5.06	-7.3	11.35	-0.7
8	1730	Manufacture of knitted and crocheted fabrics and articles	-1.12	17.71	-1.97	4.41
9	3691	Manufacture of jewellery and related articles	7.22	7.44	8.03	7.54
10	3592	Manufacture of bicycles and invalid carriages	4.08	7.74	1.67	4.46
11	2692 + 2693	Manufacture of refractory ceramic products + Manufacture of structural non-refractory clay and ceramic products	2.09	2.91	9.2	4.53
12	1541	Manufacture of bakery products	-1.33	-1.73	7.16	1.16

[13] While analysing trends in real wages, one may consider either the real product wage (nominal wages deflated by output price index) or real wages in the sense of real income of the workers (nominal wages deflated by consumer price index). The analysis presented here focuses on the real product wage because that has implications for growth in employment. Thus, in here, "real wages" is used throughout in the former sense, i.e. the real product wages

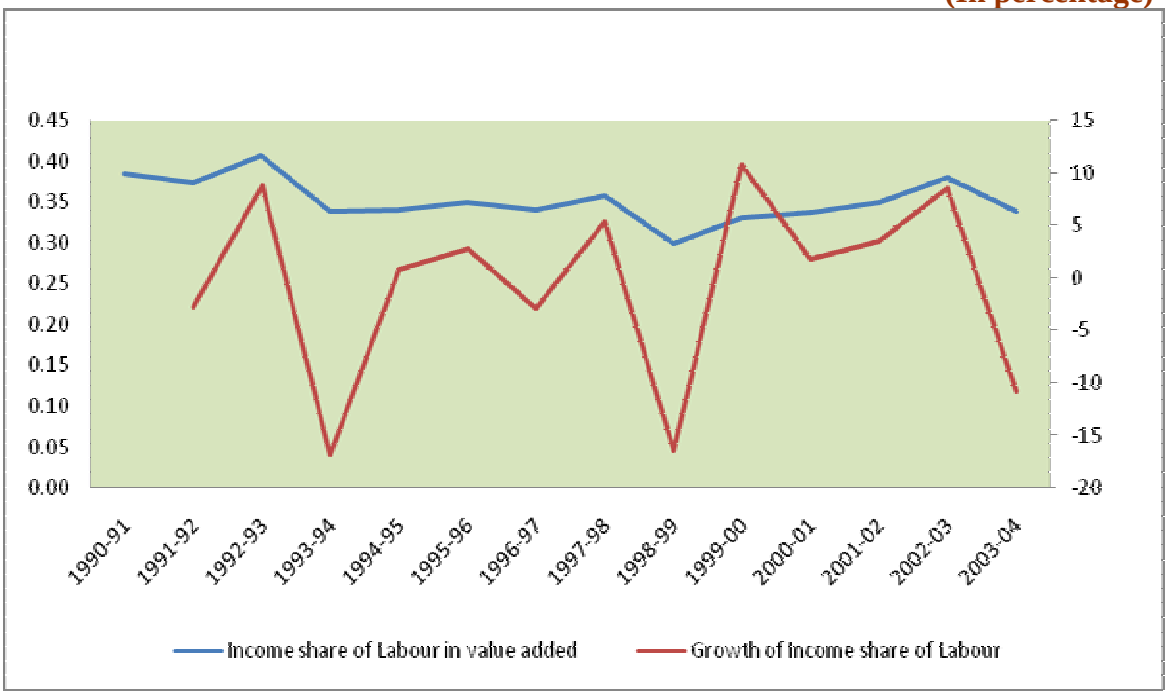
Sl. No	NIC98	Industry	1990-91 to 1995-96	1996-97 to 1999-00	2000-01 to 2003-04	1990-91 to 2003-04
13	2022	Manufacture of builders' carpentry and joinery	0.96	-1.95	9.63	2.73
14	2811	Manufacture of structural metal products	-2.24	5.28	-2.23	0.07
15	1820	Dressing and dyeing of fur; manufacture of articles of fur	14.94	-4.46	21.66	11.04
16	3694 + 3699	Manufacture of games and toys +Other manufacturing n.e.c.	10.63	14.43	8.04	11
17	2222	Service activities related to printing	7.57	8.93	25.19	13.41
18	1920	Manufacture of footwear.	-0.82	0.59	5.4	1.53
19	1723	Manufacture of cordage, rope, twine and netting	0.29	0.9	-0.28	0.3
20	1721	Manufacture of made-up textile articles, except apparel	2.58	1.68	-0.31	1.42
21	2919 + 2923 + 2927 + 2929	Manufacture of other general purpose machinery + Manufacture of machinery for metallurgy + Manufacture of weapons and ammunition + Manufacture of other special purpose machinery	3.7	9.41	-2.98	3.4
22	2899	Manufacture of other fabricated metal products n.e.c.	4.74	5.38	-0.97	3.18
23	2021	Manufacture of veneer sheets; manufacture of plywood, laming board, particle board and other panels and boards	5.8	-6.06	8.47	2.97
24	2211 + 2219	Publishing of books, brochures, musical books and other publications + Other publishing	5.26	0.33	-8.55	-0.51
25	2696	Cutting, shaping and finishing of stone	4.86	12.34	-0.3	5.57
26	2102	Manufacture of corrugated paper and paperboard and of containers of paper and paperboard	-2.21	5.44	2.41	1.57
27	1533	Manufacture of prepared animal feeds	1.46	-1.02	4.88	1.75
28	3610	Manufacture of furniture	8.89	-8.88	8.25	3.23
29	1712	Finishing of textile excluding khadi/handloom	0.57	15.61	1.41	5.46
30	2109	Manufacture of other articles of paper and paperboard	4.56	18.48	-0.37	7.33
31	2519	Manufacture of other rubber products	0.44	7.11	-4.18	1.07
	Weighted Average	**All Labour Intensive Industries**	**1.79**	**4.68**	**1.97**	**2.73**

Source: Annual Survey of Industries, various years, author calculation

The movement in the growth of real wages can be explain by the movement of labour productivity or by the ratio of wages to productivity which equals income share of labour in value added or both (Goldar, 2003). If we observe the movement of aggregate labour productivity growth of all the labour intensive industries and real wages, the second phase of reform from 1996-97 to 20003-04, had very high labour productivity growth which was more than the growth of real wages. But the trend of decrease in employment in the same period is paradoxical if we go by the theoretical argument of increase in labour productivity and real wages growth which is supposed to increase the employment. Thus the explanation lies somewhere outside the framework of standard theoretical argument, which become more serious when we observe large unskilled labour pool to get absorbed in the factory sector. We observe that over the whole reform period the income share of labour in value added has gone down till 1998-99 but after that it has started rising till it falls in 2003-04 (Chart 2.4).

Chart 2.4: Income Share of Labour in Value Added = Real Wages /Labour Productivity

(In percentage)



Note: Left hand scale is for income share and right hand is for rate of growth

The growth rate of real wages to real value added hardly shows as any trends with very high fluctuations. We have seen a continuous fall in the labour intensity in all the 31 most labour intensive industries of organized manufacturing sector, coupled with that the decline in capital productivity, employment elasticity and income share of labour to value added ask for a serious inside look of some of these sectors. And this is only possible with analysing these trends in firm level and understanding the ground realities of labour market structure and skill level of existing workforce in these industries.

2.5 Conclusion

The objective of the study concerns the role of labor intensive sectors in employment generation in Indian registered manufacturing. During this reform period the out growth has not translated to employment growth and it becomes imperative that some way need to be looked through the labour intensive sectors of the Indian manufacturing. Thus the aim of this chapter was to identify the labor intensive industries of the organized manufacturing sector. In addition, certain yardsticks of industrial performance namely– employment growth, real product wages growth and labor productivity growth were examined to get an appraisal of the performance of the labor intensive sectors. The period of the study was chosen as the 1990s and early 2000 covering the period 1990-2003 and three sub-periods- 1990-95, 1996-00 and 2000-03.

The chapter has following outcomes- firstly we observed that the average labour intensity (L/K ratio) in Indian manufacturing during 1990-91 to 2003-04 has been 0.26. And based on this criterion we have 31 labour intensive industries which have L/K ratio more than 0.26 during the whole period. The identified 31 industries in 4 digits level of disaggregation (NIC 1998) as labour intensive which are drawn from wide array of manufacturing activity- Food and Beverages (15); Tobacco Products (16); Manufacture of Textiles (17); Manufacture of Wearing Apparel (18), Tanning and Processing of Leather (19); Manufacture of Wood and Wood Products (20); Publishing and Printing (22); Manufacture of Nonmetallic Minerals (26); Manufacture of Fabricated Metal Products (28); other Transport Equipments (35) and Manufacture of Furniture (36). The labour intensive industries are listed in Table 2.1A. During 1990-91 to 2003-04 the average combined Gross Value Added (GVA) share (as percentage of total manufacturing value added) of these 31 industries have been 13.77 percent.

When we take into account the yearly average labour intensity (L/K) for the 31 labour intensive industries from 1990-91 to 2003-04, we observe a continuous fall from 0.72 in 1990-91 to 0.30 in 2003-04. Now the decline in labour intensity in case of these labour intensive sectors seems inevitable due to inclusion of new and sophisticated technologies in the production process which are more capital intensive. The concerning result that come across is the decline in capital productivity which can have serous implication on employment when the question of capital substituting labour arises. Indian manufacturer which faces scarcity of resources allocation towards more of capital or labour and in the absence of enough skilled labour force, have relied more on capital to maintain the scale as well as price competitiveness.

We tried to examine the trend of employment growth in all the labour intensive industries through few industrial performance indicators like employment elasticity, labour productivity growth and real product wages growth. The employment elasticity declined after 1994-95 and reached to a negative level in 2000-01. After 2000-01 we observe a substantial improvement because both employment and real gross value added growth has jumped after 2001-02. In the second phase of the reform, in spite of real GVA growth remaining high, the output growth did not translate into employment growth. In terms of labour productivity growth and real wages growth the second phase experienced and

substantial rise. But the decline in capital productivity had a negative effect on the labour productivity growth and may have restricted it to achieve its full potential, which can be explained by the scarcity of skilled workforce.

Given that the focus of the study is on the analytics of the labor intensive sectors and their employment generation potential, the next course of action is a micro level perspective on the labor intensive sectors, with the aim of understanding how can employment be maximized in such sectors with a firm level survey, which is focus of the next chapter.

Appendix

Labor Intensive Industries of Indian Organized manufacturing: Product Profile

Code NIC 1998	Industry Description	Products
1600	Manufacture of tobacco products	tobacco products and products of tobacco substitutes- Cigarette Tobacco, cigars, pipe tobacco, chewing tobacco, snuff
1912	Manufacture of luggage, handbags, and the like, saddlery and harness	luggage, handbags and likes of leather, composition leather or any other material such as plastic sheeting, textile materials, vulcanized fibre or paper boards, saddlery and harness, nonmetallic watch straps, driving belts, packings
1810	Manufacture of wearing apparel, except fur apparel	wearing apparel made of leather or composition leather, workwear, outerwear made of woven, knitted or crocheted fabric, nonwovens , coats, suits, ensembles, jackets, trousers, skirts, underwear and nightwear (woven, knitted or crocheted fabric lace), shirts, T shirts, Underpants, briefs, pyjamas, nightdresses, dressing gowns, blouses, slips, brassieres, corsets, babies garments, tracksuits, ski suits, swimwears, hats and caps, other accessories(gloves, belts, shawls, ties, cravats, hairnets)
1544 + 1549	Manufacture of macaroni, noodles, conscious and similar farinaceous products + Manufacture of other food products n.e.c.	pasta such as macaroni, noodles, couscous, canned or frozen pasta
3693	Manufacture of sports goods	hard, soft, inflatable balls; rackets, clubs and bats; skis, bindings and poles, sailboards, requisites for sport fishing, hunting, mountain climbing, leather sport gloves, sports headgears, bows and crossbows, gymnasium as well as fitness centre or athletic equipments
2010	Saw milling and planing of wood	sawing, machining and planing of wood; slicing, peeling and chipping logs; wooden railway sleepers; unassembled wooden floorings; wood wool, wood

Code NIC 1998	Industry Description	Products
		flour, chips and particles, drying of wood, chemical treatment of wood with preservatives or other materials
2023	Manufacturing of wooden containers	packing cases, boxes, crates, drums and similar packings of wood; pallets, box pallets and load boards of wood; barrels, vats, tubs and other coopers' product of wood; wooden cable drums
1730	Manufacture of knitted and crocheted fabrics and articles	pile and terry fabrics; net and window furnishing type fabrics, hosiery (socks, tights and pantyhose), pullovers, cardigans, jerseys, waistcoats and similar articles
3691	Manufacture of jewellery and related articles	coins; worked pearls; precious and semiprecious stones, diamonds, manufacture of jewellery of precious metals or base metals clad with precious metals; manufacture of goldsmiths article of precious metals (dinner ware, flatware, hollowware, toilet articles, office or desk articles, articles for religious use), technical or laboratory articles of precious metals
3592	Manufacture of bicycles and invalid carriages	non motorized bicycles; parts and accessories of bicycles, invalid carriages with or without motors, parts and accessories of invalid carriages
2692+ 2693	Manufacture of refractory ceramic products + Manufacture of structural non-refractory clay and ceramic products	refractory mortars, concretes, ceramic goods (heat insulating ceramic goods of siliceous metals, refractory bricks, blocks and tiles, retorts, crucibles, muffles, nozzles, tubes, pipes), wall tiles, mosaic cubes, ceramic flags and paving, clay building materials, ceramic bricks, roofing tiles, chimney pots, pipes, conduits, flooring blocks in baked clay
1541	Manufacture of bakery products	fresh, frozen and dry bakery products, breads and rolls, fresh pastries, cakes, pies and tarts; rusks, biscuits, preserved pastry and cakes, snack products (cookies, crackers, pretzels) tortillas, frozen bakery-pancakes, waffles and rolls

Code NIC 1998	Industry Description	Products
2022	Manufacture of builders' carpentry and joinery	wooden goods used in construction industry (beams, rafters, roof struts, glue laminated and pre fabricated wooden trusses, doors, windows, shutters and frame, stairs and railings wooden beadings and mouldings, shingles and shakes, parquet floor blocks, strips), prefabricated buildings or elements thereof – wood
2811	Manufacture of structural metal products	metal frameworks or skeletons for construction (towers, masts, trusses, bridges); industrial frameworks in metals (blast furnaces, lifting and handling equipments), pre fabricated buildings of metals(site huts, modular exhibition elements); metal doors, windows and frames, shutters and gates
1820	Dressing and dyeing of fur; manufacture of articles of fur	bleaching and dyeing of fur skins; fur wearing apparel and clothing accessories, assemblies for fur skins (dropped fur skins, plates and mats and strips); diverse articles of fur skins (rugs, pouffes, industrial polishing cloths)
3694+ 3699	Manufacture of games and toys +Other manufacturing n.e.c.	dolls and doll garments and accessories, toy animals, wheeled toys designed to be ridden, toy musical instruments, articles for tables and parlour games, playing cards, pin tables, coin operated games, billiards, special tables for casino, automatic bowling alley, electronic games (video consoles and chess), puzzles, reduced size recreational models + Brooms and brushes, shoe n cloth brushes, pens and pencils of all kinds, pencil leads,
2222	Service activities related to printing	bindings of printed sheets into books, brochures, magazines, catalogues; plate making services; engraving or etching of cylinders for gravures; preparation of plates and dies, proofs, artistic works including litho stones and prepared woodblocks; production of reprographic products; design of printing products, etc

Code NIC 1998	Industry Description	Products
1920	Manufacture of footwear.	footwear for all purposes, of any material, by any process: gaiters, leggings and similar articles; uppers and parts of uppers, outer and inner soles, heels
1723	Manufacture of cordage, rope, twine and netting	twine, cordage, ropes and cables of textile fibers, knotted nettings of twine, cordage or rope; fishing nets, ships' fenders, unloading cushions loading slings, rope or cable fitted with metal rings
1721	Manufacture of made-up textile articles, except apparel	blankets, traveling rugs, bed & table& toilet linen, quilts, eiderdowns, cushions, pouffes, sleeping bags: made up articles (curtains, valances, blinds, blinds, bedspreads, furniture or machine covers, tarpaulins, tents, camping goods, sails, sun blinds, loose covers for cars, machines or furniture, flags, banners, pennants, dust cloths, dishcloths, life jackets, parachutes, textile part of electric blankets, hand woven tapestries
2919 + 2923 + 2927 + 2929	Manufacture of other general purpose machinery + Manufacture of machinery for metallurgy + Manufacture of weapons and ammunition + Manufacture of other special purpose machinery	Refrigerating, freezing industrial equipment, non-domestic fans, gas-generators, heat exchangers, weighting machinery, hot equipment handling machines, casting machines, ingot moulds, tanks, fighting vehicles, paper-pulp machinery and related machineries
2899	Manufacture of other fabricated metal products n.e.c.	Pails, cans, drums, buckets, metallic closures, tins and cans for food products, nails and pins, bolts, screws, nuts and related products.
2211 + 2219	Publishing of books, brochures, musical books and other publications + Other publishing	Newspapers, magazines, periodicals, posters, dairies, calendars, maps and embossers, photos, engravings, postcards
2696	Cutting, shaping and finishing of stone	Construction stones, road stones, cemeteries stones, roofing stones and stone furniture,
2021	Manufacture of veneer sheets; manufacture of plywood, laming board, particle board and other	Veneer sheets, plywood, veneer panels, particle boards, fiberboard, and densified wood.

Code NIC 1998	Industry Description	Products
	panels and boards	
2102	Manufacture of corrugated paper and paperboard and of containers of paper and paperboard	Corrugated paper, paperboard, solid boards, office box files, folding paper board containers, corrugated paper containers
1533	Manufacture of prepared animal feeds	Pet feeds and farm animal feed,
3610	Manufacture of furniture	Furniture of all kinds except stone, ceramic and concrete.
1712	Finishing of textile excluding khadi/handloom	Bleaching, dyeing, printing, , dressing, drying, steaming, shrinking, mending and sanforizing of textile fibers, yarn, fabric and apparels
2109	Manufacture of other articles of paper and paperboard	Personal and household paper, cleansing tissue, wall paper, filter paper, duplicator stencils, envelopes and letter cards
2519	Manufacture of other rubber products	Rubber pipes, sheets, plates, rods. Rubber conveyor belts, rubber mattresses, rubber floor coverings etc

Source: National Industrial Classification (All Economic Activities) 2004, CSO, Government of India.

Chapter 3

Labor Intensity and Employment Potential – An Overview of Firm Level Survey

3.1 Introduction

The need for growth in employment opportunities to provide employment to the increasing labor force constitutes an immediate challenge for the manufacturing sector in the post reform era. The dynamics of the manufacturing sectors have undergone changes since the 1980s with gradual reforms in rules and regulations governing the industrial business environment. Further with full scale easing of trade restrictions in the 1990s with lowering of industrial tariffs and non tariff barriers, the labor intensive manufacturing units could become engines of employment generation through emphasis on export promotions and large scale production for the domestic markets.

Our estimates based on annual survey of Industries data base suggest that almost 1/3rd of the manufacturing industries at the level of four digit industrial classification as labor intensive sectors. Further these industries encompass important export oriented sectors – textiles, leather, food processing, sports goods including games and toys, metal based products etc. As regards their employment generation, we find that the L intensive industries record an employment growth of 4.1 percent per annum during the period of 1990s and early 2000s and the top 20[14] L intensive sectors shows an employment growth of almost 6 percent per annum. Thus from a policy perspective, it is crucial to examine these labor intensive sectors by undertaking a rigorous analysis of their employment generation potential? In particular, we need to profile these sectors with respect to their employment pattern to assess if with expansion of productive activity in a liberalized business environment, there is an automatic expansion of workforce or if there are still serious impediments to expanding the workforce? In sum, our objective is two fold- one to examine if labor intensive units are generating employment and two, what could be done in terms of initiatives from the government to expand the employment generating potential of these units?

Our purpose in this chapter is to provide an appraisal of the field survey, which is being undertaken as part of this study at the firm level to help us understand various nuances about the employment generation potential of the labor intensive sectors. Beginning with the rationale underlying the selection of sectors for firm level survey, this chapter provides the design of the survey questionnaire, focusing on the questions and the ends that those questions desire to address, the method of selecting the firms- the sampling criterions in place, including the coverage of the sample. Finally the chapter outlines the probable limitations of the survey.

[14] In terms of L/K ratio during 1990-91 to 2003-04

3.2 The Sectors- Apparel, Leather, Gems & Jewellery, Sports Goods & Bicycles

We have selected the following 5 sectors, given their importance and performance in the Indian manufacturing- Wearing Apparel, Leather Products, Sports goods, Bicycles and Gems & Jewellery for a firm level survey. Further, these five sectors were chosen taking into further consideration several factors including the computed yardsticks of industrial performance- growth in employment, growth in real wages as well as growth in labor productivity.

- Leather goods, with focus on luggage, handbags, footwear, comprise a sector where India stands to gain a bigger share of the global leather market. India presently has a share of less than 3 percent of the global trade in leather as against China's 20 percent and realizing the enormous growth potential of the leather industry, this sector was chosen for study in the context of employment growth potential in the coming 20-25 year span.

- The apparel industry with focus on various types of garments shows impressive rate of employment growth over the period 1990-2003. Further the industry has also tremendous potential for growth as the apparel market is relatively underdeveloped and has the potential to double its current world markets share in the coming years. Thus employment generation potential becomes an important issue to investigate.

- The global market share of sports good in India is barely 1 percent, yet about 60 percent of the sports goods manufactured in India are exported, thus this sector provides scope for expanding the market base and hence has employment generation potential.

- The Gems & Jewellery sector mainly comprises diamonds and gold jewellery and some semi precious stones. This sector accounts for 20 percent of total Indian exports (2004-05). The industry has seen remarkable growth since 1966-67 ($28 million) to 2004-05 ($16 billion). This sector exhibiting such growth potential also throws up ample avenues of labor employment.

- The bicycle industry comprises manufacture of bicycles and parts. The bulk of the manufacturing units are located in the small scale sector as against a small number of firms in the organized sector.

3.3 The Survey Questionnaire

A questionnaire was designed for the survey of firms belonging to the chosen sectors- Leather, Apparel, Sports goods, Gems& Jewellery and Bicycle industries. There were several considerations that guided the design of the questionnaires. Two major issues that were taken into account while designing the survey questionnaire was the time availability factor with the investigator, given that CEO and companies executives are averse to answering any set of questions that occupy more time than they deem fit for an

appointment and secondly, to keep uneasy questions such as those which question financial aspects of a company's performance outside the purview of the survey. Further, emphasis was laid on the kind of quantitative questions to ask- questions where numbers were available readily without looking in details into the Accounts department or HR departments. The qualitative questions were worded simply so that the CEO/manager could have a quick grasp of the questions. The objective of the study- employment generation potential of labor intensive firms together with the proposed end result of the study – to bring out important issues that need attention from a policy point of view when targeting employment generation from labor intensive firms were given due considerations in the selection of the questions.

The questionnaire was structured into three parts. Part-I dealt with general information, Part-II dealt with Sales and Employment database, Part-III the Export orientation of the manufacturing firms and Part-IV addressed the qualitative questions. The first segment of the questionnaire catered to general questions which forms an overview of the firm and the industry. Starting with the date of inception, major product(s), turnover, shares in total exports, major raw materials, and number of plants (factories). These when filled helped us to create a profile of the company in terms of broad parameters.

The second part addressed issues pertaining to domestic sales in terms of value and volume for current year and past years. The quantitative aspects of employment database were dealt with in terms of total persons engaged in terms of managerial and non managerial workforce. For non-managerial workforce defined as workers in the questionnaire, information was sought on permanent workers, temporary workers and outsourced workers. Further, information on gender segregation in terms of male and female were also sought. Information on wage rate per shift of the worker categories- permanent, temporary and outsourced was also sought for current year as well as past years and also in terms of male and females, so as to see if there is a wage inequality across worker category as well as male and females. Information was also desired on the number of shifts that a company works per day of 8 hours. It is important to point out that field investigators were given instructions to ascertain if the number of hours per shift remains at 8 or different companies define shifts in terms of varying number of work hours. The second set of issues pertaining to employment concerned the educational background of the workforce- Five different categories of educational background was specified to have an idea of skilled and unskilled nature of workforce- less than class 10, class 10-12, graduate, graduate with technical skills (computer literate, vocational specialization etc) and graduate with any kind of industry related qualification (for example leather technologist, etc). Labor welfare considerations were taken care of in the form of questions pertaining to compliance code (social security code etc). Further firms were asked to specify if any social security benefits were accruing to workers in the form of health insurance, accident insurance, life insurance, pension/gratuity or even ESI.

An important aspect of the survey was to ascertain if the labor intensive firms were over time substituting capital for labor as in an era of reforms, with avenues for importing modern technology becoming easier due to relaxation and simplification of rules and regulations on imports and exports. In the light of this, we sought information on the

number of machines in operation in the current and past years as well as the distribution of machines in use between imported and domestically manufactured. Further, we also sought information on how many workers work on a single piece of machine and the distribution of workers who work on machines and those who do not work directly with a machine

The third segment of the questionnaire sought to create database on the export orientation of the manufacturing firms. Data was sought on major export products of the firms, given that firms make a long list of items some exclusively for the export markets and some for domestic consumption. The export destinations were categorized in terms of 9 zones- North America comprising of US and Canada, Western Europe/UK which is broadly European Union. Eastern Europe comprising mostly transition economies, Middle east, Africa, East Asia, South Asia, Japan, Australia/New Zealand. Export volumes were desired for top 3 export items. An attempt was made to find out the international competitors (countries) product wise. Questions were also asked seeking tariff status of raw materials, if they were being imported. If the exporters were using any export promotion schemes, they were asked to list those down and finally in the context of infrastructural activities, they were asked to list what improvements did they desire from the several options listed- ports, airports, feeder roads, rail freights, power supply and any other non listed factor, one would like to highlight.

The final segment of the questionnaire concerned the qualitative questions. Several aspects of technology-employment nexus were attempted here for information-if the manufacturing firm is aware of latest technological change taking place globally in his/her field of manufacturing, if there is a significant gap in the technology in use in the company and best practice technology globally available, if the firm has undertaken technology up-gradation in the last 5 years and finally if modern technology has indeed been labor displacing. Some questions on exports were also asked- if the firms face any constraints in entering an export market or accessing new export markets. Some questions on capacity constraints were also addressed in terms of export order refusals and reasons behind those.

Questions were also addressed on aspects of labor markets such as employment in the last 10 years- whether it has increased, declined or stagnated? What are the major deterrents on hiring people? Whether there is shortage of labor at the level of skilled and unskilled workforce? If the firm under survey has a labor union, if yes, how much influential are they in negotiating wages, work-shifts, product patterns etc. Has the factory faced nay labor dispute, strikes and closures in the recent past on account of trade union or other activities?

Finally the questionnaire seeks to know from the firms, as to what incentives/support do they require from the following- government policies for industry as well as export promotions; industry as well as export promotion councils, ministry of labor (regarding the Industrial development act,- hiring and firing, safety nets etc); customs rules and regulations, export-import bank.

3.4 Sampling Framework

The population across these five labor intensive sectors was too large for the survey to include all firms, thus a small and carefully chosen sample was considered. The size of the sample was dictated mainly by two considerations- the budgetary allocation for conducting the survey and the time at the disposal of the survey team. For selecting sample firms for our purpose, we needed a database which documents the full population of each of the L intensive sectors. Given the nature of the industries- L intensive sectors, we found that they had presence in both organized and unorganized segments of manufacturing. Thus we needed an agency which could guide us in firm selection from the various segments. The population (universe) was procured from various industry associations and export promotion councils- Apparel Export Promotion Councils (Gurgaon), Leather Export Promotion Council (Chennai), Sports Goods Exports Promotion Council (New Delhi), Gems and Jewellery Export Promotion Council (Mumbai) and Bicycle Manufactures Associations (New Delhi).

The sampling technique chosen to create the sample size of different L intensive sectors was based on a combination of convenience and judgment sampling. We were not able to carry out a random sampling due to very large populations in each of the sectors. Further we found that in each sector firms can belong to either organized or even unorganized manufacturing. Further there is no database available from any source for these segments[15]. Thus when it is not possible to identify every member of the population, the pool of available subjects become bias and hence random sampling was not considered appropriate for the survey of firms. We explored with other probabilistic sampling techniques also. The systematic sampling was tried, but we faced a problem that every N^{th} firm selected from the list of available population, was not in operation though listed in the available record of population. Similarly other options like stratified sampling too was not a feasible option, given the population data availability. Further, it was a perquisite that appointments were taken before the investigating team visited each firm and thus firms selected at random or any other sampling method may not have been a very efficient outcome as there was no surety that selected firms would figure in the sample. We thus undertook judgment sampling where in the sample was selected based on judgment about the profile of the L intensive sectors and also on prior intimation of the readiness of the respondent firm to the survey. In this connection, we involved the export promotion councils of Apparel, Leather, Gems & Jewellery, Sports goods. For Bicycles, we undertook a survey on the internet of bicycle manufacturer and exporters.

For Apparel, in consultations with Apparel Export Promotion Council based in Gurgaon, we concentrated on three zones- Southern region, Western region and Northern region. In South, we focused on apparel manufacturers (and exporters) in three cities- Chennai, Bangalore and Tirupur. Mumbai and Ahmedabad were chosen for survey in western zone. In the North zone, firms situated in Delhi, Gurgaon and Noida were chosen for survey. These three zones form the core of the apparel manufacturing firms in the

[15] Annual Survey of Industries has a data base of all firms belonging to the registered manufacturing sector, however because of the secrecy clause under which data is gathered from the firms, it does not allow disclosure of names of the companies listed with it.

country. We fixed a certain number of respondents from each zone keeping in mind given budget and time considerations in mind. Attempt was made to be truly representative of the entire populations. Special attention were made to select firms from different geographical locations within the city, old as well as new firms, large plants versus small plants in terms of number of factories, exports versus domestic markets. We were able to cover around 75 apparel firms across India.

Meetings with the leather export promotion council in Chennai were instrumental in selection of the categories of leather product to be surveyed. It was decided that in order to have a truly representative sample of the leather industry, the following sectors needed to be surveyed- leather footwear, leather goods (handbags- wallets- folders- luggage etc), and leather garments, which constitute the bulk of leather exports from India. Further, it was identified that the following cities- Kanpur, Agra, Chennai for Leather Footwear; Chennai and Kolkata for Leather goods; Chennai and Delhi for leather garments were to be included for the survey as these cities constituted the bulk manufacturing centers for these products. We did not keep a priori any pre assigned number of firms to be surveyed as it was very difficult to find appointments with firms already in the population and these take up valuable time thereby causing difficulties in maintaining pre assigned numbers. As with apparel, special attention was given to geographical location, old as well as new firms, firms with large number of factories and with few etc.

Gems and Jewellery is one sector, where the bulk of manufacturers are located in the unorganized sector, with no compilation of member directory either at all India level or even at regional cities like- Chennai, Delhi and Kolkata available. Therefore, the sample was constrained to include only those firms whose information was available with the Gems and Jewellery Export Promotion Council in Mumbai. We focused on firms in Mumbai and Surat for Diamonds and for gold jewellery, we were able to get some information from Chennai, Bangalore, Coimbatore, Delhi and Kolkata.

Sports goods industry in India is mainly located in Jhalandhar and Meerut and some manufacturing activity also takes place in NCR region of the capital. In association with the sports goods export promotion council based in New Delhi, we were able to get a list of manufacturers and exporters in both these cities. As with other L intensive sectors, our sample selection was based on convenience and judgment and reflects what is truly representative of the sports good industry in India. It is important to mention here, that as with other sectors, not every manufacturer in the country is listed with the export promotion councils, even if they indulge in exports. For Bicycles, we surveyed the manufacturing as well as manufacturing exporting units in Ludhiana, as the bulk of manufacturer-exporters are concentrated in this city. As with other L intensive sectors, due considerations were placed on selecting firms covering different locations within the city, firms with exports and those without exports, plants- small and large etc.

3.5 Coverage of the Survey

The survey coverage was based on several considerations- given that for each of the labor intensive industries – apparel, leather, sports goods, gems & jewellery, bicycles , the

central question was regarding employment generating ability (potential) of the sectors, it required that the survey be focused on an all India level, representation be given to as many products that the industry lists and representation be given to firms with export commitments and those which cater to domestic markets.

The survey covered firms from each sector from the perspective of an all India coverage. For apparel, we identified that south, west and northern regions of India comprise the bulk of apparel manufacturer and covering cities like Chennai, Bangalore, Tirpur in south India, Mumbai and Ahmadabad in western India and Delhi along with Gurgaon and Noida form more than 75 percent of apparel units in the country and reflects truly an all India perspective. The leather industry in India is located mostly in three states- Tamil Nadu, West Bengal and Uttar Pradesh. For our purposes, we concentrated in five cities- Chennai in south, Kanpur and Agra in north and Kolkata in eastern India. Though leather manufacturing takes place in other cities of India also notably in Mumbai, Delhi and other places, the bulk of production is catered from these five cities that form the core of our sample firms and reflects an all India position. Gems and Jewellery industry primarily consists of diamonds and gold jewellery, though some amount of precious stones and jewellery out of it forms part of this industry also. Surat and Mumbai are the twin hubs of diamond polishing industry and nearly 100 percent of the units engaged in such activities are located here. Gold Jewellery manufacturers are situated almost in every town of India such is the nature of the industry- cottage and households. For our sample to reflect an all India sample, we have chosen units engaged in gold jewellery manufacturing in the following cities- Chennai, Bangalore, Delhi, Coimbatore and Kolakata. The sports goods industry is largely centered on three north Indian towns – Jhalandhar, Meerut and Delhi. This in turn form more than 80 percent of production centers and reflects an all India scenario. The bulk of Bicycles manufacturers and exporters are concentrated in the town of Ludhiana with some production taking place in Delhi and Rajkot.

The survey also covered a wide array of products under each of the five chosen labor intensive sectors. For leather, we focused on three different categories-leather goods primarily of handbags for ladies, gents purse, belts, gloves and wallets, folders and other accessories, leather footwear and leather garments (coats, jackets, over coats etc). Together, these three products cover the bulk of leather items manufactured in India. For apparel, we concentrated on readymade apparel mainly consisting of items made of woven, knitted or crocheted fabrics- suits, jackets, skirts, night wears, track suits, t shirts, shirts, trousers, briefs, dressing gowns encompassing both males and females and babies garments. In case of sports, the main items covered by the survey included inflatable balls and accessories, cricket balls and bats. These constitute the products manufactured by bulk of the firms, though small amounts of sporting equipments- mountain climbing, fishing and hunting as well as athletic and gymnastic equipments are also covered. The bulk of the items manufactured by the bicycle firms include non motorized bicycles and their parts and accessories. In the case of gems & jewellery sector, diamond cutting and polishing, manufacture of jewellery of gold and semi precious stones constitute the main array of products manufactured and exported and our sample firms take that into account.

The survey emphasized the coverage of firms which are manufacturer-exporters on two grounds-one it is well known that India's comparative advantage in trade (exports) lies with sectors and firms that depict high labor intensity as it takes into account the employment generation potential. Second, the availability of compiled directory of firm level records is almost non existent in India other than those maintained and updated by the export promotion councils catering primarily to export oriented firms. Thus the coverage of the survey is mostly on exporting units, though an effort has been made to gather information and include in the sample firms which are catering to exclusively the domestic markets.

3.6 Limitations of the Field Survey

A field survey in terms of offering a micro perspective to the issue at hand with primary data provides quality analytical insights. Further, it goes beyond the realms of secondary data with its depth in coverage of facts and figures. However a field survey along with its huge cost and time factor leaves a lot to be achieved when seen in terms of the problems that are faced by the investigators.

We list below some of the limitations of this survey. The first concerns the coverage issue, a study of employment generation potential of labor intensive sectors, needs to cover both firms engaged in exporting as well as meeting the needs of the large domestic market, given that employment generation potential in a country like India cannot be answered adequately by concentrating only on one segment, given that India's export share in these sectors is rather low. Further, in a country like India with a large domestic market, employment generation is as much the responsibility of the labor intensive firms operating and catering to the domestic economy. In two sectors, namely gems & Jewellery and sports goods, the bulk of the units are not registered with the export promotion councils and there seems to be the view that majority of the firms are not exporters. It is only when we look at both exporting units and those engaged in domestic market, can we truly make an inference on employment potential. There is no single apex body be it governmental or private in India that does a complete enumeration of all firms engaged in production as regards the compilation and maintenance of a data base of units across all India. In the light of the ground reality, it was considered the best available option to work with the database of the export promotion councils set up by the Ministry of Commerce catering to units which engage in exports.

The second crucial issue concerns the reluctance on part of the respondents to provide time and share information on crucial variables which are essential in making inferences on employment potential. There is a general feeling of discomfort to answering questions pertaining to volumes and sales on turnover, exports, investment data to name a few. Answering questions on employment details in terms of gender segregation, work shifts, permanent versus out sourced workforce were not welcome. Since many firms, which were family owned, were found wanting when it came to answering many questions on technology, labor laws etc. In such cases, it was left to the field investigators to make inferences based on what they could decipher from the answers. Most firms were

comfortable in engaging discussions on qualitative aspects of the survey rather than providing quantitative information.

Another important limitation was the inability to have the trade unions perspectives on dimensions of employment and labor laws in force. The views reflected in our survey concerns managerial perspectives on these issues. However it would be important to mention that almost 90 percents of the firms surveyed in the selected export oriented L intensive sectors reported absence of any labor unions in their organizations. Finally, it is also important to mention that though we have covered the major production centers of all the chosen L intensive sectors, still we have left uncovered some important centers as well as product items due to paucity of funds and time- semi-precious stones (Jaipur and Hyderabad), leather goods (Mumbai), readymade garments (Surat), bicycle accessories (Delhi).

In conclusion, we would like to state that despite limitations, the field survey has collected information on more than 250 L intensive firms encompassing different sectors. The survey has resulted in the collection of valuable information regarding several important dimensions of this research study. These are in terms of workforce, skilled and unskilled, out sourced versus permanent workers, male versus female workforce, number of shifts worked, average wage rates for both female and male workers, permanent and outsourced workers etc. Several important aspects of technology related information were also available- machines, machines and workers, technology in use, technology gap etc. These data would be important when analyzing the determinants of L intensive employment generation from policy perspective.

Appendix- The Survey Questionnaire

INDIAN COUNCIL FOR RESEARCH ON INTERNATIONAL ECONOMIC RELATIONS

Linking India to the World Economy

Field Survey
On
"How to Enhance Employment Generation and Exports of Labour Intensive Firms"

Region…….
City/Town……
Date…….
Respondents Title/Position……
Respondents Name……
Interviewers signature……..

Part-1 General Information

- Year of joining/starting Business…….
- Total Turnover

	2005-06
Total Turnover	
Share Export (in %)	

- Major Products

Main Products	% Share in Total Exports
1	
2	
3	

- No of Plants/Factories

One	less than 10	less than 20	More than 20

- Major Raw Materials
  1…… 2…… 3……

Part–II Sales and Employment Information

1. Total Sales (Domestic)

	Value			Volume		
	1	2	3	1	2	3
2005-06						
2004-05						
2003-04						

2. Number of Total Persons Engaged

Year	Managerial Staff	Workers		
		Permanent	Temporary	Outsourced
2005-06				
2004-05				
2003-04				

3. Details of Workforce (in Number)

	Permanent		Temporary		Outsourced	
	Male	Female	Male	Female	Male	Female
2005-06						
2004-05						
2003-04						

4. Wage rates (in Rs): Wage per shift

Year	Permanent		Temporary		Outsourced	
	Male	Female	Male	Female	Male	Female
2005-06						
2004-05						
2003-04						

* One work shift = 8 hours

5. Hours worked per week

Year	How many Shifts of 8 hours in a month
2005-06	
2004-05	
2003-04	

6. Education Background of workforce (as a % of total workforce)

Less than Class 10	Class 10-12	Graduate	Graduate + Technical Skills	Industry Specific Qualifications

7. Are You Adopting any Compliance Code(or Social Security Code)

Yes	No

8. If yes, what social security benefits are available to the workforce

	Health Insurance	Accident Insurance	Life Insurance	Pension/gratuity	Others
Managers					
Workers					

9. No. of Machines Used

2005-06	
2004-05	
2003-04	

10. Nature of Machines used- Imported versus Domestically manufactured (in Number)

	Imported Machines	Domestic Machines
2005-06		
2004-05		
2003-04		

11. Machines and workforce

	How many workers work on a single machine
2005-06	
2004-05	
2003-04	

12. Machines and Workers

	Number of workers who need machines for working	Number of workers who do not need machine for working
2005-06		
2004-05		
2003-04		

Part–III Exports

13. Major Export Items

	Item #1	Item #2	Item#3
2005-06			
2004-05			
2003-04			

14. Major Export Destination

USA/Canada	Japan
Western Europe/UK	South Asia
Eastern Europe/Russia	Australia/New Zealand
Middle East	
Africa	
East Asia	

15. Export volumes (Qty)

	Item#1	Item # 2	Item #3
2005-06			
2004-05			
2003-04			

16. Product Category & International Competitors

Item # 1	
Item # 2	
Item # 3	

17. Raw Material and Tariff Status of Major Export Items

	Domestically	Imported	Tariffs (in case of Imported)
RM1			
RM2			
RM3			

18. Export Promotion Schemes that you are availing

19. What improvements do you need in Infrastructure Services

Port	
Airport	
Feeder Roads	
Rail Freights	
Power Supply	
Others	

Part–IV Qualitative Details

1. Are there any technological changes taking place globally in this industry?

2. Is there any significant gap in the technology adopted globally and technology adopted by you?

3. Have you adopted any new technology of production in the past 5 year?

4. Is new technology in your field necessarily labor displacing?

5. What constraints do you face in entering export markets/ new export markets?

6. How many orders did you decline in recent years?

7. Which of the following do you think are important factors for your firm in rejecting new orders? [Capacity constraint, lack of government support, lack of workforce]

8. What has happened to employment in the last 10 years? Whether it has declined/increased or remained stagnant?

9. What are the major deterrents on hiring more people?

10. Is there a shortage of labor at various categories?

	Yes / No
Skilled	
Semi Skilled	
Unskilled	

11. Is there a labor trade union in your organizations and do they have any impact on product structure, wages, shifts of working?

12. Has there been any labour Disputes/strikes/closures in your factories?

13. What incentives do you need from the following sources to improve both exports and employment generation?

Government Policies for the industry	
Government policies specifically for exports	

Support from Industry Associations	
Support from Export Promotion Council	
Ministry of Labor (Hiring and Firing Practices, including social security)	
Customs rules and regulations for both exporting and importing raw materials, machines, technology	
What kind of support do you expect from Exim Bank	

Please Attach Business Card (Seal of the firm)

Core-6A, Fourth Floor, India Habitat Centre, Lodi Road, New Delhi – 110 003
Phone: 24645218-19-20, 24692070, 24616329
Fax: 91-11-24620180 ☐ Website: www.icrier.org

Any Extra Information

Chapter 4

Sports Goods Industry- Evidence from Firm Level Survey

4.1 Introduction

The labour-intensive sports goods industry in India has emerged not only as significant foreign exchange earner, but also as an important provider of employment. The origin of the sports goods industry goes back to Sialkot (Pakistan) and since independence the manufacturing units are concentrated in Jalandhar (Punjab) and Meerut (UP). Jalandhar has more than 100 units and about 20,000 home based units with a turnover of approximately Rs. 450 crores, where as in Meerut, there are 23 units, out of which 15 units are manufacturing sports items[16] The production structure of the industry comprises three fold setup- big units which are geared to mainly to exports besides catering to the domestic markets, small units which manufacture for the domestic market. Both these big as well as small units are registered under factories act 1948. The final set up is those of home based units who are outsourced orders of big exporting units.

The items manufactured by the units range from balls to sporting equipments, however export items include inflatable balls, cricket balls and bats, gloves and protective equipments, badminton rackets and shuttle cocks. Exports in 1990-91 were of the order of Rs 66 crore and after 10 years the exports have gone up to Rs 247.18 crore in 2000-01. In the recent past, an effort has been made to increase India's exports of sports goods. The items offered for exports included amongst others- inflatable balls, cricket balls The main items of exports are inflatable balls (Rs 105.02 crore), protective equipment for cricket (Rs 25.16 crore), boxing equipment (Rs 22.88 crore), cricket bats (Rs 15.88 crore), hammocks (Rs 11.45 crore), golf balls (Rs 10.51 crore), carom board and chess (Rs 8.85 crore), fishing equipment (Rs 9.06 crore), cricket and hockey balls (Rs 6.21 crore) and others (Rs. 47.74 crore)[17]. The main markets for this industry are the UK, the US, Australia, Germany, South Africa, France, Italy, Canada, the Netherlands, New Zealand, Poland and Saudi Arabia.

Our estimates for this industry shows that though this sector has a low value added contribution , the recorded employment growth has been around 11.5 percent per annum for the period 1990-2003, which is much above the average of the whole L intensive sectors (4.1 per cent per annum). Further, with around 60 percent of the sports goods manufactured in India being exported, this sector holds immense importance as far as employment generating potential is concerned.

[16] In and around the city of Meerut, approximately 1000 tiny units are located in villages namely Abdullahpur, Jangethi, Mukampur, Naibasti, Malayana & Daurala etc. These units provide employment to approximately 12000 people.

[17] Source- Ministry of Commerce, Government of India

4.2 Industry Coverage

Our sample was selected from the list supplied by the sports goods export promotion council and focused on Jalandhar, Meerut and Delhi. Our sample coverage is 33 firms- 8 firms from Meerut, 17 from Jalandhar and 8 from Delhi. Of the 8 firms surveyed in the capital and NCR region, two firms were from Gurgaon. Further, Jalandhar and Meerut, together cater to around 75 to 80 % of the total domestic production. They have with more than 3000 manufacturing units, including around 120 exporters. The total Indian domestic market for various sports goods is estimated to be around Rs.170 crores of which cricket related items account for 70 percent of the market share. The industry is largely concentrated in the cottage and small scale sector.[18]

Exports figure prominently in the firms based in Jalandhar as well as Meerut. In our survey of 33 firms, we find that in 13 firms there is 100 percent export-orientation, while for rest of firms the export orientation ranged from a low of around 20 percent to nearly 90 percent. Inflatable balls (soccer & rugby balls, volley ball, basket balls) and cricket bats and equipments, form the core of the export basket[19]. Today, Sialkot in Pakistan and Jalandhar and Meerut in India are the largest producers and exporters of footballs.

Box 4. 1: Products of Sports Industry

- Hockey Sticks
- Badminton Raquets
- Cricket Equipments
- Boxing Equipments
- Soccer Accessories
- Discs
- Throwing Equipments
- Carrom Boards
- Tennis Balls
- Tennis Raquets
- Shuttlecocks
- Athletic Goods
- Sports Apparel
- Playground Equipments

Three firms from our survey namely- GUR1, JAL13, and MER8 have been amongst the top three exporting companies in 2004-05. In addition, GUR1 (inflatable balls), MER1 (cricket bats and equipments), DH2 (bladders) and MER5 (inflatable balls) have also been in the outstanding export awards for specific products.

Box 4.1 alongside shows the wide range of products manufactured by our surveyed firms. It is interesting to observe that a wide array of items are being manufactured which range from inflatable balls of various types to sports apparel. Some of the firms even reported manufacturing of health equipments and items of marshal arts. In addition to sports goods- firms also manufactures an excellent range of outdoor leisure items like camping equipment, tents and accessories, outdoor clothing, leisure footwear, sleeping bags, garden tools, beach requirements including furniture. These were however not in the purview of our sample firms. In particular, for Jalandhar based units, mostly traditional products like foot-ball, cricket bats, hockey and cricket balls, hockey sticks, tennis badminton and squash rackets, balls, soft leather goods, shuttle cocks etc are manufactured and exported. This industry being labor intensive

[18] Refer to Exim Bank occasional paper on " Sports Goods: A Sector Study", No.66, Dec. 1998 (Chapter on Sports Goods).

[19] It was learnt through conversation with the representatives of different firms both in Jalandhar and Meerut that manufacturers have been exporting to brands like Adidas, Asics, Dunlop, Decathlon, Fila, Gap, Kookabura, Nike, Puma, Reebok, Spaiding, Rawlings, Mitre and Maxfil.

despite inadequate capital and technology, has reached a stage where it is reckoned as a major cottage industry providing direct employment to about 10000 workers. Meerut, on the other hand manufactures products like tennis balls, tennis table, tennis net, boxing gloves, punching gloves, punching bags, punching balls in addition to traditional items like cricket balls, bats, and accessories, hockey sticks and accessories, inflatable footballs

These 33 firms comprising large as well as small units had a total turn over of Rs. 400 crore. Majority of the firms have a turn over between 5-15 rupees crores. Jalandhar is considered to be one of the biggest manufacturers of sports goods in the Asian region. The firms in our survey from this city show a turn over of Rs.148 crore comprising of big and small manufacturing-exporting units. In Meerut, our sample covered 8 firms with a turn over of Rs. 85 crore comprising different range of manufacturing units. It is interesting to observe that wherever firms are not in the 100 percent export orientation, still a substantial part of the turn over comes from exports however we also notice a pattern where the turn over accruing from domestic sales is increasing.[20] This can be interpreted as expansion of domestic market along with the expansion of export opportunities.

The survey covered a wide range of old as well as new firms–the year of inception of the oldest firm is 1948 and the youngest firm in the sample started production from 2002. Further, we find that firms operate on an average between 2-10 plants with majority being a single factory entity. 12 firms reported plant size of less than 10 factories. Notable amongst them were MER8, GUR1, JAL16 and JAL13. Finally firms use a wide array of raw material depending upon the product in question. Some of them are natural latex and synthetic rubber, leather, wood, steel, chemical substances, willows, PVC etc. some of these raw materials also figure in import baskets of the firms[21].

Table4.1 profiles the firms which were surveyed in Jalandhar, Meerut and Delhi region. It is interesting to note that wide variety of products represented in the sample despite the prominence of cricket and football in export list. Further, in two major production and export centers, we have old as well as new firms in our representative samples. It is also observed that majority of the firms manufacture through one factory, though a certain firm in our sample has 5 manufacturing units. To indicate the turnover pattern, a data very hard to come across and to keep the confidentiality of the numbers, we indicate a rough pattern of three types- High (H), Medium (M) and Low (L) according to definition used.

Though primarily our sample was selected from the list of firms supplied by Exports Promotion Council of Sports goods, we find that within the exporting category, there is a wide difference in the export orientation. We have firms with very high percentage of exports along with 100 percent exporting units. Further, we also have sample firms with zero as well as very small share of 5 percent exports. It is also interesting to note that high turnovers do not translate to high exports or vice versa as reflected in our sample.

[20] This is noticeable in 8 of the surveyed firms- MER1, JAL5, JAL15, JAL10, JAL13, GUR2, JAL9, and GUR1.

[21] For the full list of raw materials, refer to the survey forms available on request from ICRIER

Table4.1: The Sports Goods Industry- A Summary Profile of the Sample Firms

Firms	Location	Incorporation	Major Products	Plants	Turnover	Export Share in Turnover
DH1	Delhi	1980	Inflatable Balls	1	High	15
DH2	Delhi	1952	Sports Balls	3	Medium	50
DH3	Delhi	1969	Inflatable Balls	1	Low	100
DH4	Delhi	2002	Cricket Bats	1	Low	70
DH5	Delhi	1982	Sports Apparels	1	Low	15
DH6	Delhi	1988	Cricket Helmets	3	Medium	40
GUR1	Gurgoan	1960	Footballs, Golf Balls	3	High	95
GUR2	Gurgoan	1988	Playground Equipments	1	High	1
JAL1	Jalandhar	1949	Shuttlecock	4	Low	100
JAL2	Jalandhar	1948	Athletics Goods	1	Low	5
JAL3	Jalandhar	1963	Inflatable Balls	1	Medium	100
JAL4	Jalandhar	1970	Cricket Bat	1	Medium	100
JAL5	Jalandhar	1961	Cricket Equipment	1	Medium	95
JAL6	Jalandhar	1948	Footballs, Hockey	2	Medium	93
JAL7	Jalandhar	1974	Soccer Balls, Boxing Kit	1	Low	100
JAL8	Jalandhar	1968	Cricket	1	Low	0
JAL9	Jalandhar	1948	Racquets Shuttles	3	Low	30
JAL10	Jalandhar	1982	Cricket, Boxing	1	Low	100
JAL11	Jalandhar	1976	Inflatable Balls	1	Medium	100
JAL12	Jalandhar	1920	Rugby & Soccer Balls	1	Medium	100
JAL13	Jalandhar	1976	Football & Shin Pads	5	High	83
JAL14	Jalandhar	1967	Boxing, Marshal Arts	2	Medium	100
JAL15	Jalandhar	1975	Hockey Equipments	1	Low	53
JAL16	Jalandhar	1948	Inflatable Balls	3	Medium	80

JAL17	Jalandhar	2001	Cricket Bats	1	Medium	100
MER1	Meerut	1948	Cricket	3	Medium	20
MER2	Meerut	1983	Carrom Boards	1	Low	100
MER3	Meerut	1975	Cricket, Football	4	Medium	20
MER4	Meerut	1975	Discs, Shoot puts	1	Low	100
MER5	Meerut	1952	Soccer Accessories	1	Medium	100
MER6	Meerut	1961	Throwing Equipments	1	Medium	50
MER7	Meerut	1952	Cricket, Boxing	4	Low	90
MER8	Meerut	1979	Cricket Bats, Cricket Balls	3	High	71

Note- Turnover is defined as High (> 30 Rs. Crore), Medium (5-30 Rs. Crore) and low (1-5 Rs. crore).
Source- Survey Database

4.3 Survey Findings

Our findings are primarily drawn from the questionnaire based survey of selected manufacturing-exporting units in the sports goods industry. The focus of the questionnaire was on the employment generation potentials of L intensive firms and it encompassed several quantitative dimensions of employment – number of workers, male versus female workers, outsourced versus non outsourced workers, temporary versus permanent workers. Along with employment details, information was also collated on wages per shift and shifts per day. Data on gender and wages were also ascertained. The survey also focused on the educational profile of the workforce to gather information on skilled versus unskilled nature of employment requirements in these units. Social security benefits for workers an oft contentious issue for management of firms were also addressed in the survey. These form the subject matter of our findings on workforce absorption

An often debate issue of whether increased machinery usage is necessarily L displacing and detrimental to firms employment generation potential was addressed through questions on machinery and technology. First, information was collected on the number of machines in use in the current and past two years to make an inference about the mechanization of the firm. Secondly to address the K-L trade off, information was sought on how many workers work in a single machine alongside questions on how many workers need machines for work and the number that do not. It was felt important to gather information on technology aspects of mechanization- if the firms in question are aware of technological changes taking place globally. If yes, do they consider technology in use on par with technology available globally? Has there been technology up gradation in terms of adoption in the last five years and if yes, has it been L displacing?

The third dimension dealt with concerns of export orientation-products, destinations, competitors, importing raw-materials (tariffs, non tariff barriers), constraints in export markets- entry, orders and competition. The final dimension that we encounter concerns investigating the possible deterrents of employment generation- lack of skilled and trained personal, labor unions- strikes and disputes, labor laws.

4.3.1 Employment Scenario

There appears to be sharp variations in the data across firms when it comes to information on employment. Our appraisal of the data shows three things- one, managerial staff are lesser in proportion to the workers, two- male workers outnumber female workers and three outsourcing is increasingly becoming important. In respect of wages, we find that there are sharp discrepancies amongst male and female workers. Further, as regards work shifts, we find very low variations across firms. We also profile the educational background of workforce across different firms in order to assess the pattern of employment in terms of skilled versus unskilled workforce.

- **Employment growth including outsourcing**

For our sample firms, we have computed the rate of growth of employment for– managerial staff, workers, total employee, male workers and female workers. We find fluctuations in employment growth across firms for all categories. **Table 4.2** lists the findings of employment growth by category for all the 33 firms.

1. For managerial staff, we find that in majority of firms, there was absence of any growth. Only 11 firms show growth in excess of 10 percent out of which three firms- DH1, DH3 and GUR2 show growth rates of 80 percent or more. For the rest of the firms, the managerial employment growth rates range from 10 percent to 44 percent. The sample average is around 10 percent over the period 2003-05

2. As regards, the worker category, we find 22 firms exhibiting positive growth in employment. MER1 and GUR2 show growth rates in excess of 50 percent. The Firms which show growth rate of more than 20 percent are-JAL6 (Jalandhar), JAL4 (Jalandhar), JAL5 (Jalandhar), JAL15 (Jalandhar), DH6 (Delhi) and DH4 (Delhi). We also observe some firms which show a decline in employment- MER7 (Meerut), JAL2 (Jalandhar) and JAL9 (Jalandhar). The sample average is around 9 percent for the period 2003-05

3. For total employees, MER1 (Meerut) and GUR2 (Gurgaon), by virtue of impressive growth of managerial workforce, show high growth rates of total employees (including workers) over the period covered. It is interesting to observe that firms which show growth rates in excess of 20 percent are mostly from manufacturing units based in Jalandhar- JAL6, JAL5, JAL4 and JAL15. The sample average is the same as the previous category.

4. We find for permanent male workers, we observe positive rate of growth of employment in many firms, some firms also report absence of any employment growth. As with other categories, we find some firms reporting high growth in male workforce-MER1 (Meerut), GUR2 (Gurgaon), JAL15 (Jalandhar), JAL16 (Jalandhar), JAL6 (Jalandhar). These firms reported growth rates in excess of 20 percent or more over the period 2003-2005. We also find three firms-MER7 (Meerut), JAL2 (Jalandhar) and JAL14 (Jalandhar) showing decline in male workforce. The sample average is around 6 percent for the period 2003-05

Table 4 2: Employment Growth by Different Worker Categories- The Sports goods Firms

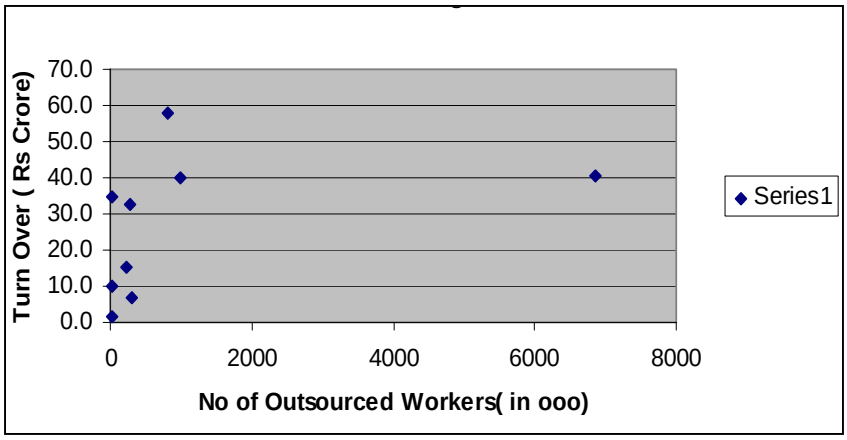
Firms	Rate of Growth of Managerial Stuffs	Rate of Growth of Permanent Workers (Male + Female)	Rate of Growth of Permanent Employee	Rate of Growth of Permanent Male Workers	Rate of Growth of Permanent Female Workers
DH1	100	0	3.8	0	0
DH2	0	9.3	5.5	16.9	14.3
DH3	116.7	N.A	0	0	NFW
DH4	0	25	20.8	25	NFW
DH5	0	5.6	5.4	5.7	33.3
DH6	0	21.4	19.1	0	18.2
GUR1	18.2	12.5	12.9	3.3	25
GUR2	83.3	59	62.1	54.5	116.7
JAL1	0	N.A	0	0	NFW
JAL2	43.8	-1.6	3.6	-2.4	0
JAL3	0	13.8	10.5	12.5	21.4
JAL4	16.7	30	27.8	16.7	16.7
JAL5	7.2	24.2	19.7	19.8	43.6
JAL6	25	20	21.4	20	NFW
JAL7	0	15.8	15.6	3.8	NFW
JAL8	0	0	0	0	NFW
JAL9	0	10	7.6	10	NFW
JAL10	0	10.5	10	11.1	0
JAL11	0	4.5	4.2	2.7	50
JAL12	0	0	0	0	NFW
JAL13	10	2.9	3.5	0	33.3
JAL14	5.6	-4.5	-2.4	-6.9	12.5
JAL15	25	25	25	25	NFW

JAL16	0	3.6	3.2	21.4	33.3
JAL17	3.6	5.6	5.4	4	25
MER1	5.6	50	38.2	50	NFW
MER2	0	0	0	0	NFW
MER3	0	0	0	5.6	3.6
MER4	0	5.6	4.8	5.6	NFW
MER5	0	4.5	4.1	3	NFW
MER6	0	0.8	0.7	0	NFW
MER7	0	-2.4	-1.9	-2.4	NFW
MER8	10.8	2.9	3.6	3.2	-16.7

Note: The rates of growth are calculated between 2005-06 and 2003-04
Source: Survey Database

5. For female workforce, we find sharp increases in employment rates across many firms that reported employment according to this category. Further, in some firms, we observe that firms which report male workforce growth also report female workforce growth and there are also large numbers of firm which show no female workers absorption. The top five firms in our sample which recorded high rates of female workforce growth are Gurgaon based GUR2, JAL11 (Jalandhar), JAL16 (Jalandhar), JAL5 (Jalandhar) and JAL13 (Jalandhar). The sample average is around 18 percent over the period 2003-05.

6. We find evidence of outsourcing from some firms in the sample. The number of persons in the outsourced category varies across firms with a low of 20 persons to a high of over 6,000 persons. The firms which reported data on outsourcing were- MER6 (Meerut), JAL5 (Jalandhar), JAL11 (Jalandhar), GUR2 (Delhi) and DH1 (Delhi). It is interesting to observe from **Chart 4.1 t**hat outsourcing does not show any relationship with turn over. We observe outsourcing activity of firms at different levels of turnover- high, medium and low.



Wages & Shifts

1. Our sample firms provide information mostly on wage structure for permanent male workforce. For female workers, we have information from few firms. The range for male workers varies in our sample from a low of Rs 2,400 per month to a high of Rs 8,000 per month. It is important to note that female workers are provided the same wage per month in most firms. In some of the sample firms, it is also reported that for both male and female workers, the firm adheres to the minimum wage applicable.[22] When firms are outsourcing, we find that they either pay by piece rates or by shifts rate.

2. Information was collected on the number of shifts that were in operation across firms. It was observed from our sample firms, that manufacturing units operated 26 shifts of 8-hourly duration per month. This was more or less uniform across all the sample firms. In case of workers working for some specific hours beyond the 8 hourly shifts, half of the full time wage rate was paid. In some firms, we do

[22] In case of a firm, information was available by temporary as well as permanent category for both male and female workers and it was observed that against a wage of Rs. 475 per shift for permanent workers, temporary workers were paid Rs. 210 per shift

however observe deviation from this norm on the higher side-JAL2 (Jalandhar), GUR2 (Gurgaon), GUR1 (Gurgaon), DH6 (Delhi) and DH4 (Delhi). Two of these firms fall in the category of high turnover, while the rest figure in low and medium categories.

Educational Background of Workforce

In order to assess the employment generation potential of skilled versus unskilled workforce in the sports goods industry, information were sought from the firms surveyed of the educational background of workforce in terms of categories- school pass out (class 10), high school pass out (class 12), graduate, (BA. B.Sc.B.com) and graduate + (graduate with additional technical skills and industry specific characteristics). **Table 4.3** outlines the educational background in percent across sports good firms.

1. From the table, we observe that for 12 firms, 80 percent or more of the total workforce employed belongs to the school pass out category. In the remaining firms, we find the school pass-out category comprising a range of 15-70 percent of the total workforce engaged. For the category- high school pass-out (class 11-12), we find that across all firms it ranges from a low of 10 percent of total workforce engaged to around 60 percent. If we combine these two categories, we find that in majority of the firms, 70 percent of the total workforce engaged are from educational backgrounds specified in these categories.

2. The percent of graduates constitutes 25 percent or more of the total workforce in 11 firms. For the rest of the firms, graduates comprise a smaller percentage of the total workforce. For the category, graduate +, the percentage of people with additional qualifications suitable to the sports industry, we find presence of very few people across firms thereby showing a very minor percentage of total workforces. Two firms- BDM and Cosco (India) however shows 15 percent of their total workforce comprising this category. The figures collated from the data on employment shows that the last category- Graduate + has very little presence in the total workforce across the manufacturing-exporting sports goods firms

Table 4.3: Educational Background by Total Persons Engaged (Percent in Total Workforce): The Sports goods Firms

Firms	< 10th	10th-12th	Graduate	Industry Specific Qualification	Compliance Code	Social Security Benefits
DH1	30	50	15	15	YES	YES
DH2	50	35	15		YES	NO
DH3	N.A	N.A			NO	NO
DH4	90		10		YES	YES
DH5		80	20		YES	YES
DH6	90	5	5		YES	YES
GUR1	10	30	60		YES	YES
GUR2	40	30	25	5	YES	YES
JAL1	90	10			NO	YES
JAL2	40	25	35		YES	YES
JAL3	N.A	N.A			YES	YES
JAL4	10	50	35	5	YES	YES
JAL5	37	29	28	6	YES	YES
JAL6	15	55	30		NO	YES
JAL7	90		10		YES	YES
JAL8	N.A	N.A			YES	YES
JAL9	90	5	5		NO	NO
JAL10	80	5	5		YES	NO
JAL11	50	40	10		YES	YES
JAL12	30	35	35		NO	NO
JAL13	80	5	15		YES	YES
JAL14	80	12	8		YES	YES
JAL15	98		2		YES	YES
JAL16	80	10	10		YES	YES
JAL17	80	5	15		YES	YES
MER1	50	10	25	15	YES	YES
MER2	15	60	15	10	YES	NO
MER3	50	20	30		YES	YES
MER4	20	50	25	5	YES	YES
MER5	50	25	25		YES	YES
MER6	70		25	5	YES	YES
MER7	50	40		1	YES	YES
MER8	95	5			NO	YES

Source: Survey Database

3. If we concentrate on firms, which have reported employment figures in excess of 400 workers- GUR1 (3345), JAL16 (700), MER8 (495), JAL7 (505), DH1(480), MER3 (400) and JAL5 (400) the majority of the workforce engaged are from the first two category- school and high school. **Box 2** along side shows the percentage share of the school and high school pass outs, which forms the dominant group as far as regards the employment situation in sports goods firms.

Box 4.2 ***Share of School & High School Pass outs in total Workforce in Top 5 Employers***

- GUR1 (40 %)
- JAL16 (90 %)
- MER8 (100 %)
- JAL7 (90%)
- DH1 (80 %)

4.3.2. The Status of Machinery Usage

An important aspect of the survey was to find out if the machines in the L intensive firms are replacing labor in the context of employment generation. To ascertain this, we collected information on machinery usage in the past three year, along with separation into domestically manufactured as well as imported machinery. Further information was also collected on how many workers work on a single machine along with information on number of workers using machines for manufacturing and the number that do not use machines for manufacturing. **Table 4.4** shows information on various aspects of machinery usage-machines in operation in 2003-04 and 2005-06 along with total workforce in 2003-04 and 2005-06. Further using the information in the first four columns, man-machine ratios were computed for 2003 and 2005 to ascertain whether it is declining or increasing.

1. We observe from the table that for most firms, there has been a positive growth in employment between 2003 and 2005. Further, firms also show an increase in machinery in operation during the same period. It would be important to mention that more than 90 percent of the firms reported that new machinery installed was imported from abroad.

2. As regards our man-machine scenario, we find that in 25 out of 33 firms employment has increased between 2003 and 2005. The machinery usage has however increased in 15 firms out of the 25 firms where employment has increased. In these 15 firms, we find that in 13 firms, total persons engaged-machine ratio has gone down thereby reflecting a fall in L intensity. This is consistent with our findings at the level of secondary data for sports goods industry. In 2 firms, MER3 (Meerut) and JAL5 (Jalandhar) we also find that persons engaged-machine ratio has increased. The Box below highlights the top firms in the both High and Low turnover category, which show a decline in man-machine ratio, thereby indicating decline in Labor intensity.

Table 4.4: Machinery Usage and Man-Machine Ratio: The Sports goods Firms

Firms	Total Persons Employed in 2003-04	Total Persons Employed 2005-06	Total Machines Engaged 2003-04	Total Machines Engaged 2005-06	Total Persons to Machine Ratio 2003-04	Total Persons to Machines Ratio 2005-06	Change in Ratio
DH1	635	480	250	250	2.54	1.92	Decline
DH2	326	385	150	150	2.17	2.57	Rise
DH3	N.A.	N.A	N.A	N.A	N.A.	N.A	N.A
DH4	22	27	4	10	5.5	2.7	Decline
DH5	156	173	N.A	100	N.A.	1.73	N.A
DH6	118	163	15	22	7.87	7.41	Decline
GUR1	2963	3345	N.A	N.A	N.A.	N.A	N.A
GUR2	95	213	30	36	3.17	5.92	Rise
JAL1	N.A.	N.A	3	4	N.A.	N.A	N.A
JAL2	75	85	N.A	10	N.A.	8.5	N.A
JAL3	62	75	10	30	6.2	2.5	Decline
JAL4	18	28	45	45	0.4	0.62	Rise
JAL5	287	400	110	132	2.61	3.03	Rise
JAL6	14	20	8	15	1.75	1.33	Decline
JAL7	385	505	5	12	77	42.08	Decline
JAL8	11	13	N.A	N.A	N.A.	N.A	N.A
JAL9	56	58	5	5	11.2	11.6	Rise
JAL10	40	48	N.A	44	N.A.	1.09	N.A
JAL11	60	65	7	10	8.57	6.5	Decline
JAL12	18	18	N.A	0	N.A.	N.A	N.A
JAL13	185	198	N.A	50	N.A.	3.96	N.A.
JAL14	42	40	N.A	25	N.A.	1.6	N.A
JAL15	15	23	3	6	5	3.83	Decline
JAL16	526	700	N.A	10	N.A.	70	N.A
JAL17	149	165	16	20	9.31	8.25	Decline

MER1	68	140	28	40	2.43	3.5	Rise
MER2	17	17	6	6	2.83	2.83	No Change
MER3	400	400	N.A.	200	N.A.	2	N.A
MER4	31	34	N.A	35	N.A.	0.97	N.A
MER5	37	40	35	40	1.06	1	Decline
MER6	70	71	11	20	6.36	3.55	Decline
MER7	26	25	18	18	1.44	1.39	Decline
MER8	462	495	150	180	3.08	2.75	Decline

Note: Total Persons = Managerial Workforce+ Male Workers + Female Workers. Managerial workforce has been included as there were supervisors associated with machines and firms reported supervisors in the managerial workforce
Source: Survey Database

Box 4.3: Turnover and Machine usage

High Turnover firms showing decline in man-machine ratio

- MER8
- DH1

Low Turnover firms showing decline in man-machine ratio

- MER7
- JAL15
- JAL7

3. Information was collected with respect to global technology in use world wide and in India in the sports goods industry by asking firms, if they were aware of the latest technology in use globally. We also asked firms for information on technology gap in the sports goods sector by ascertaining if any new manufacturing technology was adopted in the last 5 years and if so, were they labor displacing as is the common perception.

   - As regards the global technology, most of the firms responded by saying that they were aware of global technological changes and interpreted it to mean more efficiency of the machines in use, thereby highlighting technological innovation as against technical invention[23]. For some firms, global technology meant enhanced product quality. Further, firms which are small in terms of turn over however did not feel it important to be aware of global technological changes in their business operation. Our sample shows that technology gap is more manifested in small firms, which do not have the resources to upgrade technology in terms of sophisticated machinery being used in advanced countries[24]. We find that since global technology in terms of new technological innovation confirms to high volumes, small sized firms and big firms differed in their perceptions of narrowing technological gaps. For some firms, technology gap reflects the gap in government supports and incentives.

   - Majority of the firms in the sample have undertaken some form of technological up gradation in the last five years. The range of the up gradation however varies across firms-large and small. Some examples being introduction of new high capacity rotational molding machines (GUR1), introduction of Penn technology for making golf balls (GUR1), better raw materials like PVC leather, (DH4), special foams and plastics (DH6). It is important to point out that when firms are making traditional products like cricket and hockey items, we do not find much technological up-gradation taking place as most of these products are still being

[23] A firm reported awareness of global technology in terms of better raw materials usage by Taiwanese and Pakistani manufacturers in the 1980s thereby collapsing the Indian football exports.

[24] One of the firms with a low production base felt it was not advisable at this stage to narrow the technology gap as advanced technology address large scale of production.

manufactured using labor intensive techniques. As regards labor displacement, sample firms assert that though more machines means less hands and at the same time more machines in turn reflects more production which in turn calls for more workers and in turn reflects higher labor demand.

4.3.3. Export Status of Firms

The survey also focused on questions related to exports of sports goods from India and sought information on export basket of firms, export coverage, international competitors, various export incentive schemes that are on offer for this sector and which firms have been availed by the firms. Finally firms were asked to highlight what were major infrastructural bottlenecks for pursuing exports.

- Most of our surveyed firms have export orientation as is evident from Table 1 which shows the export share in turnover[25]. The data shows that 13 firms have 100 percent export orientation. These firms however belong to low and medium turn over category. The firms which recorded high turnover in our sample have export orientation range from a low of 15 percent to a high of 80 percent share. It is interesting to note that 3 Meerut based manufacturing-exporting units which record 100 percent exports each- produce items like soccer accessories, discs, and carom boards. The Jalandhar based manufacturing–exporting units specify traditional sporting items like cricket bats & balls, hockey sticks & balls and inflatable soccer balls as their primary export items. However we also find some diversification into non-traditional products- boxing equipments, marshal arts equipments, badminton equipments.

- In the Delhi region, we find that in addition to inflatable balls, a wide range of products figure in the export list- boxing equipments, golf balls, badminton equipments. It is important to mention that some of the surveyed firms also exported sports apparel, playground equipments- which indicated changing patterns in export baskets. The major market for most sports goods from India is in the developed markets of US, Europe and Japan. However we find shifts taking place from these markets to newer areas like Argentina, Chile, South Africa, Indonesia and even Middle East. For the items listed as main exports from the firms located in Delhi and NCT region, we find China, Pakistan and Taiwan as main international competitors.

- As indicated earlier, firms surveyed in Jalandhar are usually the traditional sports goods exporters- cricket & football items, though higher value added products are also being manufactured and exported- protective gear, athletic goods, health equipments to name a few. The firms also reported that for items of footballs and any other balls, Pakistan remains the chief competitor and countries like Germany

[25] The Indian domestic market for various sports goods items is around Rs. 170 crores of which cricket related products accounts for 70 percent of the total market- EXIM Occasional Paper No. 66, Sports Goods-A Sector Study, Dec. 1998., EXIM BANK of India, Mumbai

(athletic goods), China & Taiwan (boxing equipments) are also closing in as international competitors for new product lines.

- Firms surveyed in Meerut, cricket balls, bats and other accessories constitute the main export items. Further, mention must be made regarding the fact that items like carom boards, throwing items, boxing equipments are also being exported. For cricket and soccer related products, we find that Pakistan continues to be a major international competitor, whereas for other sporting items, China and East Asian countries continue to offer good competition..

- The survey also addressed questions on exports incentives, particularly the role of government in providing assistance/supports to exporting units. Two schemes – Market Development Assistance (MDA) grants and Duty Drawback schemes were listed under export incentives for exporting units. As regards MDA, it was felt by most firms that the MDA grants should be raised from the present sanctioned amount. For DDS, it was felt that given that the rate is low, claiming meager amounts become a cumbersome process and hence an upward revision of the scheme should be taken into consideration. **The Box 4.4** below highlights the various schemes that were availed by the firms in the sample.

Box 4.4: Export Promotion Schemes Availed by Different Firms

Firms availing Duty Drawbacks	Firms availing MDA grants	Firms availing facility of Exhibitions and "The Buyers & Seller Meets"	Firms availing DEPB	Information not available	Firms availing no export promotion schemes
GUR2 JAL10 JAL17 JAL3 JAL5 JAL9 MER3 MER4 MER6 MER8	DH1 DH3 JAL11 JAL16 JAL3 Mer1 Mer2 Mer5	DH1 DH6	DH4 JAL5	JAL7 JAL8	DH2 DH5 Gur1 JAL1 JAL12 JAL13 JAL14 JAL15 JAL2 JAL4 JAL6 MER7

4.3.4. Labor Issues

The Indian sports goods firms despite technological innovations in raw materials used, better techniques and instruments of production, still uses labor intensive methods to manufacture and exports traditional and low value added items. This leads to our assertion of what are the important issues that confront labor usage in this industry. Our investigators were specifically asked to bring this aspect into light during the questionnaire based survey. In the following paragraphs, we highlight some labor related issues which were put forward by the respondents in the light of labor intensity and employment generation potential of firms.

1. Most sports goods have a seasonal pattern (Football, Cricket & Hockey) and so does many sporting events (Soccer World cup, Winter Olympics). These in turn lead to seasons of peak and off peak labor demands. However most firms in India maintain a regular supply of workforce, making their labor costs high even in off peak seasons. The surveyed firms felt that there should be provisions to reduce workforce during seasons where export orders are low or nonexistent.

2. It was observed from the data on male and female workforce, that the male-female ratio is highly skewed against women workforce. Further, very few female workers opt for any kind of employment- full time or part time in sports firms in Jalandhar and Meerut due to social customs and attitudes, which work against women employment[26].

Box 4.5: Trade Union in Sports Firms

Presence of Trade Union	Labor Disputes/Strikes
• GUR1	Yes
• DH2	Yes
• DH1	Yes
• JAL5	No
• JAL6	Yes
• JAL4	No
• JAL7	Yes
• JAL13	Yes

3. When asked about the presence of any kind of labor unions (trade unions), we found that only 9 firms reported presence of labor unions. The **Box 4.5** alongside lists the 9 firms that reported the presence of trade union activity within their firms. These firms were further asked if they have had any kind of labor disputes leading to strikes, closures and lock outs in the past 3 years. It is evident from the box that some of the firms reported occurrence of strikes etc in their factories and plants. We would also like to mention that we did

[26] Our survey found that most manufacturers feel that women workers are more industries workers in relation to their male counterpart and thus should be encouraged to join the workforce. In addition, the management of a company felt that women when participating in the workforce -like stitching footballs would benefit the whole industry, however in his factory workers of a particular religious background work and they do not prefer their women to work in such activities even when they can be more efficient than men.

come across firms which reported that despite the presence of labor unions, the management was not faced with any closure or strikes in the last few years. The management also reported that even in the presence of trade union, the bargaining powers of workforce is very low[27]. In some firms, it was reported that the workforce itself was not in favor of having a trade union within the manufacturing-units.

4. Looking at the educational break up of the workforce, we find that in 90 percent of the sample firms, unskilled workers constitute the majority workforce. This turn leads to shortage of semi skilled and skilled workforce thereby imposing a huge cost burden on the manufacturers in terms of on the job training. Further, as available labor in this field is basically unskilled, the attrition rate in this industry is also very high.

5. We gather from discussions with management across firms that in the sports goods, the technology is rapidly changing in the global front and increasingly getting capital intensive for high value added products. Indian companies on its part are trying to narrow the technology gap with modern machines and also diversifying into new sports goods and markets, thereby requiring skilled workers to work with new technologies and products. In this light , most of the managers interviewed across firms have stressed the need for government to provide for more training schools and polytechnic in order to facilitate supply of skilled manpower

6. The inability to fire workers, even when demand for work is insufficient to employ workforce paves the way for indiscipline amongst workers[28]. This works against increasing workforce during times of peak season and or increased export orders as management is concerned about not being able to cut cost by retrenchment during periods of low season. In addition this also discourages manufacturer to increase their capacity during upswing as they are aware that in time of down-turn they cannot decrease wage cost of production by retrenching workers. Most of the surveyed firms asked for reforms in industrial development and regulation act and replacing this with flexible labor laws.

7. An important issue connected with shortage of skilled labor in the sports goods industry could be reflective of the differing minimum wage rates in different parts of the country and thereby leading to over congestion of workforce in certain pockets of the country and lack of skilled workforce in certain other parts.

[27] In support of the low bargaining power in the presence of trade unions, the management of one of the leading exporting company recorded that even in the circumstances of shutting down of factory for 3 months the management did not succumb to the unreasonable demands of the workers.

[28] Management implies indiscipline to reflect inefficiency arising from job security

4.4 Recommendations based on findings

Our recommendations are based entirely on the findings of our study. It would be important to mention at the outset that the selection of firms and consequently the survey reflects the sports goods industry.

1. It is very important that a directory of firms which are undertaking the manufacturing as well as exporting of sports goods items should be developed and a record maintained every five years to see the dynamics of sports goods manufacturing industry in terms of employment generation through tracking entry and exit of firms in this industry.

2. It was learnt from our survey that the sector faces shortage of skilled workforce. Further with emphasis on modern technology adaptation, workers need to be trained for handling such machines. Firms expressed inability to provide training when that attrition rates in the industry is high. Some kind of specialized training institute to train workers in manufacturing different types of sports items would be beneficial for the industry and would pave the way for generating employment in this sector.

3. We observe from the employment category that in sports goods firms, the percentage of female workforce as opposed to male workforce is low. It was learnt that there are some social inhibitions to working for female in Northern India. However the nature of sports goods manufacturing-stitching makes it easy for management to employ women workforce in large numbers and offers employment generation opportunities in this industry. Therefore we recommend that suitable incentives be devised for encouraging women workforce participation.

4. The survey indicates that most firms still manufacture traditional items of sports-cricket, football and hockey and accessories, which are mostly hand-made, thereby require very little of machinery. Further, most Firms understand about global technology, however when it comes to adaptation do not show much inclination for it due to reasons of size, exporting ability and investment. We feel that the export promotion council should organize fairs of machinery suppliers and educate firms of all size, the benefits of modern technology and make provisions to make the machinery available. Firms using modern machinery will be more competitive in export markets and thereby increase volumes and labor absorption.

5. The survey found that with regard to exports, firms based in Jalandhar were exporting traditional items of sports, whereas firms based in Meerut and Delhi were manufacturing more of non traditional sports items which hold immense export potential. It was felt that since Jalandhar has the maximum number of manufacturing units within the sports goods, some changes in the export basket of

firms from Jalandhar to non traditional higher value-added would offer scope for enhancing export revenues, volumes and offer employment opportunities.

6. Firms expressed that given seasonal nature of sports across the world, maintaining permanent workforce does not seem a viable business option in firms where exporting is also seasonal activity. Thus provisions should be given to retrench workers whenever not required.

7. Our survey indicates that seasonality of sports is a deterrent to the growth of this industry. We recommend that firms which face this problem should be encouraged to diversify their export basket to cater to seasonal and non seasonal sports. Further technology should also be such that firms can switch between producing seasonal and non seasonal items. This will take care of labor retrenchment issue and also maintain employment generation all through the year.

Chapter 5

Apparel Industry- Evidence from Firm Level Survey

5.1 Introduction

The apparel industry of India accounts for around 20 percent of Industrial output and more than 30 percent of export earnings. Production of apparel in India was until recently reserved for the small scale sector, defined as those with machinery investment of less than $230,000. Firms with investment capacity of larger than $230,000 were allowed to operate as only export oriented units. The apparel sector in India is highly fragmented and it is estimated that approximately 30,000 readymade garment manufacturing units and around three million people are working in the industry. Most apparel units are family run business venture employing very little machinery or utilizing sophisticated technologies.[29] Further, exporters of apparel are classified as merchant-exporters or manufacturer-exporters.

The Indian market for domestic readymade apparel is estimated to at $8 billion annually, out of which menswear accounts for 25 percent of the market and women's wear and children's wear 48 and 17 percents respectively. India's export of readymade apparel grew at the rate of 10 percent in volume in the 1990s. Cotton apparel formed the dominant segment of apparel exported from India.[30] The major competitors for India in the apparel sector include- Bangladesh, Myanmar, Indonesia, Taiwan, Hong Kong, Singapore and China. In the post reform era, this sector is faced with immense challenge to remain competitive after January 2005- the elimination of textile and apparel quotas. Several weaknesses plague this sector in its effort to remain competitive- the supply of quality fabrics, technological advancement, the fragmented structure of apparel firms and lack of product specialization. In addition, this industry is faced with high energy and capital costs, high taxation norms and low labor productivity all of which adds to the production cost. These features of the apparel sector point towards greater attention that needs to be directed, as this industry with the phasing out of WTO quotas has a much greater chance to grow in a quota free market[31].

Our analysis of the Indian manufacturing shows that apparel sector is ranked third in terms of labor intensity. Further, we also observe that there is a consistent decline in its L-K ratio from the early 1990s. When we look at the employment growth of this sector,

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[29] Refer http://apparel.Indiamart,com/lib/garments/Indian 07251998, Anju Sneh- Indian Apparel Industry- An Overview.

[30] Refer, USITC (2001), India's Textile and Apparel Industry- Growth, Trade and Investment Opportunities.

[31] India and China are the two countries poised to derive the maximum benefit from the phasing out of MFA. India's quota allocation for important markets like the US, EU and Canada was very low and post MFA, India's share in world apparel exports have been predicted to increase from 2.5 per cent in 2003-04 to 5 per cent by 2008.

we find that over the period 1990-2003, this sector has grown at an average annual rate in excess of 10 percent per annum against an average of 4.1 percent for the whole Labor intensive sectors. With apparel accounting for almost 30 percent of Indian exports and the industry and allied areas providing employment to around 80 million people in India. Therefore this sector in terms of its employment generation potential and also its position in a quota free world was chosen for study.

5.2 Industry Coverage

The sample selection and coverage of the firms was decided through consultation with the Apparel Export Promotion Councils- Head Office and its regional offices in-Delhi, Chennai, Bangalore, Tirupur and Mumbai. A total of 74 firms comprising large, small and medium manufacturing-exporting units were surveyed across the 7 cities/towns- Chennai, Bangalore and Tirupur in Southern India, Mumbai and Ahmedabad in Western India and Delhi, Noida and Gurgoan in Northern India and have a combined turn over above Rs. 3000 crores.

Our sampling firms capture a wide range of sales turn over thereby reflecting the presence of firms with different scales of operation – large, medium as well as small. **Box 1** alongside shows the top 10 firms in terms of sales turn over- GUR4 (Gurgaon) is the firm with the maximum turn over in our sample firms, CH1, located in Chennai with its ***Color Plus*** brand comes second and TIR12 from Tirupur- the third highest turnover. It is interesting to note that four firms in the top 10 category belong to Bangalore and rest of the firms are evenly spread over the other cities. From our survey, we find that almost 90 percent of the firms have an export commitment of 100 percent. Further, when looking at the top 10 firms in the survey, we find that barring two- AH1 and BA3, the rest have full export orientation.

Box 5.1: Top 10 Firms in terms of Sales Turnover

1. GUR4 (Gurgaon)
2. CH1 (Chennai)
3. TIR12 (Tirupur)
4. BA9 (Bangalore)
5. MUM10 (Mumbai)
6. AH1 (Ahmedabad)
7. TIR10 (Tirupur)
8. BA8 (Bangalore)
9. BA3 (Bangalore)
10. BA6 (Bangalore)

Table 1 lists the summary profile of sample firms. As the table shows the sample size of 74 firms are located in all the major centers of apparel production. Further, we have tried to survey an equal number of firms from each zone depending upon the response we have received for the survey. The sample covered firms with varying age structure. The oldest firm in our sample started operation way back in 1964 (TIR6-Tirupur) and rest of the firms are equally spread out from the 1970, 1980 and1990. The sample also covers many firms which have started operations in 2002, 2004 and even 2005. The youngest firms in the sample comprise firms which have set up operations in 2005- AH2 (Ahmedabad), TIR11 (Tirupur), TIR12 (Tirupur) and TIR3 (Tirupur). The majority of the firms however have been in operation for more than 20 years. These firms encompass both old as well as young manufacturing-exporting units.

Box 5.2: Factories and Apparel Industry

1. **South India**

BA8- Bangalore (22 Plants)
CH5- Chennai (20 Plants)
TIR12- Tirupur (16 Plants)

2. **North India**

GUR4-Gurgaon (21plants)

3. **Western India**

MUM10-Mumbai (15 plants)
AH4- Ahmedabad (8 plants)

As regards the numbers of factories in operation, through many firms have reported single manufacturing plants, we do have information on firms operating with more than 10 plants. We can safely see that on an average the norm is between 1-2 plants/factories per firm. **Box 5.2** alongside shows for each region the firms from our sample which report factories/plants in excess of 15. It is interesting to note that most of these firms also show high sales turn over.

The summary profile does not state the technology status of the firms, however we find from conversations with CEO of firms that there is need for widespread technological up gradation with purchase of machines to cater to different aspects of the apparel making- grading & marker making, spreading cutting, sewing, finishing, material handling.[32] We gathered information on whether machines embodying modern technology were imported or domestically procured and these will be discussed in our section on machinery usage.

The firms were categorized into different turnover levels- we defined turnover as high (H) when the sales turnover crossed RS 30 crores. The medium and low turn over was defined as firms earning between Rs 5-30 cores and below Rs 5 crores. The sample therefore reflects a good balance of firms spread across all spectrum of production. The share of exports in turnover is shown in the last column and we find that majority of the firms in our survey have hundred percent export orientation. It is also interesting to find that export orientation has no relationship with turnover as our sample information shows that firms across different turnover categories show 100 percent export orientation.

Since the focus is on wearing apparel firms, we see from the product list of the sample firms, a wide array of products listed under manufacturing as well as exports. There are essentially three broad product categories- men's wears, women's wear and children's wear, which encompass the whole gamut of wearing apparel sector. In particular items like men's T shirts, pants, shirts, jackets, jeans, men's undergarments belong to the men's wear group. For women's wear, items like- denim skirts, blouses, kurta, tops, bottoms formed the group and for children's wear, we find whole list of kid's wear. It would be important to point out that our sample firms produce majority of these clothes line. Our 74 sample firms cover the entire range of the wearing apparel industry as is evident from the firm wise products manufactured listed in Table 1.

[32]It was learnt from our survey in Tirupur, that due to unprecedented growth in apparel manufacturing activities in last four years, many machinery sellers like JUKI, LECTRA and PFAFF have set up their own offices in India now to provide guidance and sales support to firms on machinery purchase.

Table 5.1: The Apparel Industry- A Summary Profile of the Sample Firms

Firms	Location	Incorporation	Major Products	Plants	Turnover	Export share in Total Turn Over
AH1	Ahmedabad	1988	Denim, Fabric	3	High	15
AH2	Ahmedabad	2005	Nighty, Suit	1	Medium	0
AH3	Ahmedabad	1985	Laces Rick Racks, Tapes	1	Low	0
AH4	Ahmedabad	1981	Kids Wear, Denim	8	Medium	90
AH5	Ahmedabad	2000	Men's Shirt, Men's Trouser	1	Medium	90
AH6	Ahmedabad	1952	Garment Fabrics,	1	Medium	0
AH7	Ahmedabad	1992	Bed sheets, Denim	4	Medium	40
AH8	Ahmedabad	1994	Jeans, Trousers	1	Low	70
AH9	Ahmedabad	2001	Trousers,	1	Low	0
AH10	Ahmedabad	1994	Scarf, Dupatta	1	Low	0
AH11	Ahmedabad	1990	Cotton,Fabric,Bags,	1	Low	100
AH12	Ahmedabad	2000	Bottom, Denim	2	Low	100
BA1	Bangalore	1983	Women's Outwear, Men's Outwear	2	Low	100
BA2	Bangalore	1995	Men's Bottom & Shirt, Ladies	2	Low	100
BA3	Bangalore	1993	Men's Shirt, Ladies Blouse	3	N.A.	90
BA3	Bangalore	1976	Silk & Cotton based Garments	6	High	80
BA4	Bangalore	1995	Kids Wear, Men's & Women's Wear	3	Medium	100
BA5	Bangalore	1988	Gense Shirts, Ladies Blouse, Shorts	8	High	100
BA6	Bangalore	1983	Knitted Women's & Men's Wear	6	High	100
BA7	Bangalore	1997	Men's T-Shirt, Ladies Garments	1	Medium	100
BA8	Bangalore	1993	Readymade Garments,	22	High	100
BA9	Bangalore	1977	Men's Wear, Women's wear	18	High	100
CH1	Chennai	1986	Men's Wears, Female Wears	10	High	100
CH2	Chennai	1995	Men's Wear, Ladies Wear	2	Low	100
CH3	Chennai	2000	Readymade Garments,	1	Medium	100
CH4	Chennai	1980	Men's Shirt, Ladies Tops	2	N.A.	100
CH5	Chennai	1977	Men's Wears, Ladies Wears	20	N.A.	100
CH6	Chennai	1968	Ladies Garments,	5	High	100
CH7	Chennai	1982	Shirts, Bottom	3	Medium	100
CH8	Chennai	1996	Shirts, Men's Bottoms	2	Medium	90
CH9	Chennai	1976	Bottoms, Tops	6	High	100

Firms	Location	Incorporation	Major Products	Plants	Turnover	Export share in Total Turn Over
CH10	Chennai	1997	Men's Shirt, kids wear	1	Low	90
CH11	Chennai	1983	Tops, Bottoms	8	N.A.	100
CH12	Chennai	1992	Ladies Tops, Ladies Shirts	3	Medium	100
DH1	Delhi	1978	Handicrafts, Ladies Garments	1	N.A.	100
DH2	Delhi	1975	Ladies Garments,	1	High	100
DH3	Delhi	1992	Ladies Fashion Garments,	2	Medium	100
DH4	Delhi	1976	Ladies Garments, Kids Wear	9	High	100
DH5	Delhi	1970	Ladies Garments	1	Low	100
DH6	Delhi	1983	Kids Wear,	1	Low	50
DH7	Delhi	2002	Ladies Garments	1	Low	100
DH8	Delhi	1990	Ladies Garments	1	Low	100
DH9	Delhi	1993	Hand Embroider Garments,	1	Medium	100
DH10	Delhi	1973	Kids Wears, Ladies Fashion Garments	2	Medium	100
DH11	Delhi	1993	Ladies Garments,	1	Low	100
GUR1	Gurgaon	1990	Kids Garments, Ladies Garments	1	Medium	100
GUR2	Gurgaon	1975	Ladies Garments, Kids Wear	1	High	100
GUR3	Gurgaon	2002	Tops, Pants, Jackets, Skirts	1	Medium	100
GUR4	Gurgaon	1978	Ladies Garments, Men's Wear	21	High	100
MUM1	Mumbai	1971	Hosiery, Woven Garments	2	High	100
MUM2	Mumbai	2004	Gents Shirts, Ladies Wears	N.A.	Medium	100
MUM3	Mumbai	1981	Readymade Garments,	1	Medium	100
MUM4	Mumbai	1995	Readymade Garments,	Contract	Low	100
MUM5	Mumbai	1983	Readymade Garments, Accessories	2	High	35
MUM6	Mumbai	2004	Fabrics, Readymade Garments	2	Medium	90
MUM7	Mumbai	1981	Salwar Kamez, Skirt,	5	Medium	0
MUM8	Mumbai	1991	T-shirts, Jeans	Contract	Medium	100
MUM9	Mumbai	1994	Denim Jeans, Denim Skirts	1	Medium	100
MUM10	Mumbai	1972	Men's & Ladies Woven, Knitted	15	High	100
MUM11	Mumbai	2002	T-shirts, Bottoms	1	Medium	100
NO1	Noida	1998	Embellished Jackets, Handloom	1	Low	100
TIR1	Tirupur	1988	Men's, Women Kids Wear,	10	High	100
TIR2	Tirupur	1987	Garments,	4	Medium	100
TIR3	Tirupur	2005	T-Shirts, Underwear Garments	1	Medium	100
TIR4	Tirupur	1990	Sweatshirts, T-shirts	2	Medium	100

Firms	Location	Incorporation	Major Products	Plants	Turnover	Export share in Total Turn Over
TIR5	Tirupur	1987	Men's T-Shirts, Hosiery Garments	4	Medium	100
TIR6	Tirupur	1964	Gents Wears, Ladies Wears	2	Medium	100
TIR7	Tirupur	1996	Men's Shirt, Ladies Garments	1	Low	100
TIR8	Tirupur	2005	Kids Wear, Men's & Women	1	Low	100
TIR9	Tirupur	1991	All Knitted Garments,	5	N.A.	100
TIR10	Tirupur	1980	Kids Wears, Men's Wears	5	High	100
TIR11	Tirupur	2005	Women's Wear, Men's Wear	2	High	100
TIR12	Tirupur	2005	Men's Wear, Ladies Garments	16	High	100
TIR13	Tirupur	1995	Sweatshirts, T-shirts	2	Medium	100

Note- Turnover is defined as High (> 30 Rs. Crore), Medium (6-30 Rs. Crore) and low (1-6 Rs. crore).
Source- Survey Database

5.3 Survey Findings

Our findings are primarily drawn from the questionnaire based survey of selected manufacturing-exporting units in the apparel industry. The focus of the questionnaire was on the employment generation potential of L intensive firms and we dealt with various aspects/issues which have a bearing on the employment growth of these firms. In particular, we dealt with three crucial aspects of employment generation- first, the details of the workforce employed along with information on wages and educational background in quantitative dimension. Second, we look at the machinery usage aspects of employment. Third, the export status of firms was addressed keeping in mind the exporting-employment nexus. The final findings concern the labor issues- particularly rules/laws that hinder firms from generating more employment.

The outline of this section is as follows- section **5.3.1** covers the employment scenario as regards the apparel industry. The machinery usage of sample firms is outlined in section **5.3.2.** The exports-employment relationship, if any from our survey is highlighted in section **5.3.3** and in the final section our findings on labor rules and regulations in the apparel firms and their consequences for employment generation are addressed.

5.3.1 Employment Scenario

The data on workforce gives important insights into the employment scenario of the apparel industry. We can see from the information collected on workers- permanent, temporary, male and female as well as non workforce managerial staff that not only across firms, but across regions there exist variations. Our appraisal of the data shows- one, female workforce employment is higher in most southern regions surveyed, two- there are firms which are outsourcing almost 100 percents of its output, thereby not generating any direct employment.

Employment growth including outsourcing

For our sample firms, we have computed the rate of growth of employment for– managerial staff, workers, total employee, male workers and female workers. We find fluctuations in employment growth across firms for all categories. **Table 5.2** lists the findings of employment growth by category for all the 74 firms.

1. In the case of managerial staff, we find that for many firms, there was hardly any growth. Further our sample shows that some firms recorded over 25 percent growth in managerial staff- AH3 (Ahmedabad), BA5-(Bangalore), DH11 (Delhi), GUR2 (Gurgaon), MUM7 (Mumbai), TIR2 (Tirupur), TIR8 (Tirupur) and TIR6 (Tirupur).

Table 5.2: Employment Growth by Different Worker Category- The Apparel Firms

Firms	ROG of Managerial Staffs	ROG Permanent Employees	ROG of Permanent Workers	ROG of Permanent Male Worker	ROG of Permanent Female Workers
AH1	10.0	11.8	11.9	11.9	0.0
AH2	0.0	7.7	12.5	12.5	NPFW
AH3	50.0	35.3	33.3	50.0	0.0
AH4	12.5	18.6	18.8	18.8	18.6
AH5	12.5	-4.5	-5.3	-5.3	-5.3
AH6	0.0	7.7	9.5	9.5	NPFW
AH7	5.6	35.2	42.9	42.9	42.9
AH8	10.0	5.7	5.6	5.6	5.6
AH9	0.0	0.0	0.0	0.0	0.0
AH10	0.0	16.7	20.0	20.0	NPFW
AH11	0.0	30.5	32.1	33.3	31.3
AH12	0.0	43.1	50.0	50.0	50.0
BA1	9.4	8.1	8.0	8.5	7.6
BA2	N.A.	11.5	6.2	2.8	13.8
BA3	N.A.	N.A.	N.A.	N.A.	N.A.
BA3	6.3	6.3	6.3	6.3	6.3
BA4	0.0	14.7	14.9	21.4	14.3
BA5	50.0	7.7	7.1	7.1	7.1
BA6	5.8	10.5	11.5	23.1	3.8
BA7	OutSor	OutSor	OutSor	OutSor	OutSor
BA8	0.0	6.1	6.2	3.6	7.1
BA9	10.7	5.6	5.2	5.2	5.1
CH1	N.A.	2.1	2.1	5.1	1.4
CH2	N.A.	N.A.	N.A.	N.A.	N.A.
CH3	0.0	0.0	0.0	0.0	0.0
CH4	16.4	25.8	28.4	29.3	28.3
CH5	N.A.	8.3	2.9	2.5	4.3
CH6	0.0	1.2	1.3	-3.1	2.2
CH7	10.0	12.3	12.5	12.5	12.5
CH8	N.A.	7.7	3.1	0.0	3.8
CH9	0.0	8.6	10.2	22.2	7.9
CH10	0.0	0.0	0.0	NPMW	0.0
CH11	N.A.	6.7	6.7	17.9	5.7
CH12	0.0	8.8	10.3	20.0	5.3

Firms	ROG of Managerial Staffs	ROG Permanent Employees	ROG of Permanent Workers	ROG of Permanent Male Worker	ROG of Permanent Female Workers
DH1	0.0	0.0	0.0	0.0	NPFW
DH2	12.5	2.9	0.0	-7.1	50.0
DH3	0.0	-4.9	-5.5	-5.8	-3.1
DH4	0.0	4.4	5.1	5.4	0.0
DH5	0.0	0.0	0.0	0.0	0.0
DH6	0.0	0.0	0.0	0.0	0.0
DH7	0.0	0.0	NPW	NPMW	NPFW
DH8	OutSor	OutSor	OutSor	OutSor	OutSor
DH9	N.A.	N.A.	N.A.	N.A.	N.A.
DH10	N.A.	N.A.	N.A.	N.A.	N.A.
DH11	50.0	31.8	27.8	35.7	0.0
GUR1	2.1	6.5	7.5	7.5	NPFW
GUR2	33.3	33.3	OutSor	OutSor	OutSor
GUR3	N.A.	N.A.	N.A.	N.A.	N.A.
GUR4	12.5	9.1	8.8	8.8	8.8
MUM1	0.0	0.0	0.0	0.0	0.0
MUM2	OutSor	OutSor	OutSor	OutSor	OutSor
MUM3	0.0	8.2	26.1	19.4	50.0
MUM4	0.0	0.0	OutSor	OutSor	OutSor
MUM5	12.5	1.7	0.0	0.0	0.0
MUM6	6.8	6.8	OutSor	N.A.	N.A.
MUM7	25.0	10.7	9.2	8.3	10.0
MUM8	OutSor	OutSor	OutSor	OutSor	OutSor
MUM9	25.0	25.0	OutSor	OutSor	OutSor
MUM10	0.0	5.5	5.6	3.3	16.7
MUM11	14.3	14.3	NPW	NPMW	NPFW
NO1	8.1	8.1	OutSor	OutSor	OutSor
TIR1	N.A.	N.A.	N.A.	N.A.	N.A.
TIR2	50.0	50.0	50.0	46.4	50.7
TIR3	N.A.	N.A.	N.A.	N.A.	N.A.
TIR4	14.3	-2.2	-3.7	-17.6	14.8
TIR5	N.A.	11.1	-16.7	-16.7	NPFW
TIR6	40.9	13.2	9.4	9.4	9.4
TIR7	0.0	0.0	0.0	0.0	0.0
TIR8	33.3	48.5	50.0	50.0	50.0
TIR9	N.A.	N.A.	N.A.	N.A.	N.A.

Firms	ROG of Managerial Staffs	ROG Permanent Employees	ROG of Permanent Workers	ROG of Permanent Male Worker	ROG of Permanent Female Workers
TIR10	10.0	12.4	12.5	12.5	12.5
TIR11	N.A.	N.A.	N.A.	N.A.	N.A.
TIR12	N.A.	N.A.	N.A.	N.A.	N.A.
TIR13	12.5	12.5	NPW	NPMW	NPFW

Note: NPW: No Permanent Workers, NPMW: No Permanent Male Workers, OutSor: Complete Outsource Work, NPFW: No Permanent Female Workers, ROG: Rate of Growth

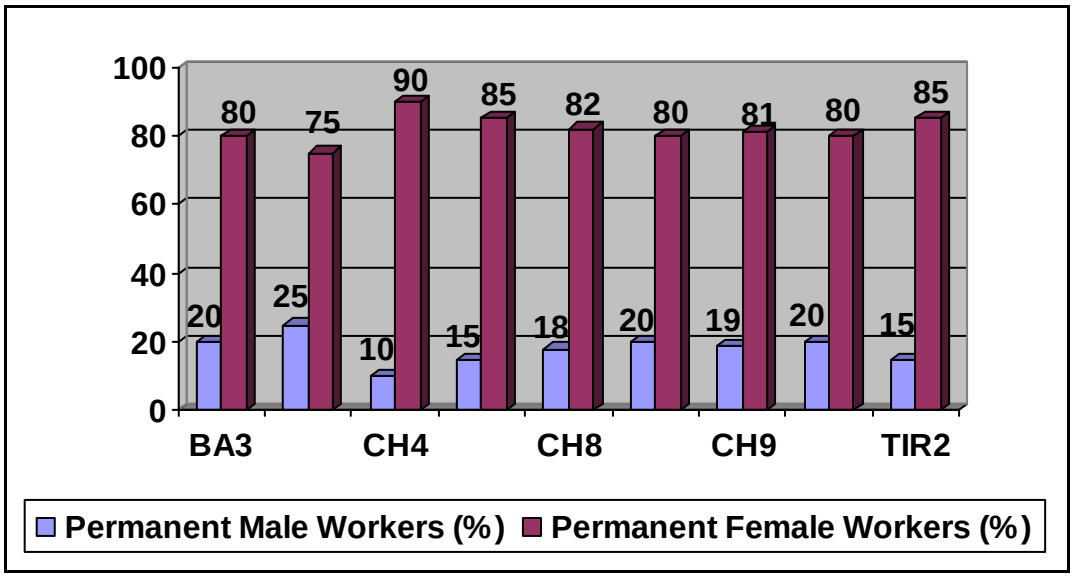
2. For the category, permanent workers, we find wide variations in growth rate across firms. If we present the information region wise, we observe that firms in Chennai record growth rates ranging from over 1 percent to around 28 percent, whereas firms in Bangalore show growth in excess of 5 percent with the highest of 15 percent. In case of Tirupur, we can see that some firms record more than 40 percent growth of permanent workforce. Firms in Ahmedabad show impressive growth rates of workers, whereas in Mumbai and Delhi, there evidence of lower growth performance in relation to other regions.

3. As regards, total persons engaged in firms (managerial and workers), we find that majority of firms show positive rate of growth. In only 3 firms we observe decline in growth rates- Atrium exports (Ahmedabad), Fashion knits (Tirupur) and First overseas (Delhi). The firms which record massive growth rates in excess of 40 percent also show impressive growth rates for workers as well as managerial workforce.

4. For permanent male workers, we find very few firms reporting absence of any growth. In addition, we find firms across different regions- south, west and north, show impressive growth rates. 12 firms record growth of more than 5 percent, 7 firms record growth in excess of 10 percent and 7 firms record more than 20 percent and 4 firms record in excess of 40 percent.

5. For permanent female workers, we find the same pattern more or less as in the case of permanent male workers. As with male counterparts, very few firms report zero growth in case of female workers.

Chart-5.1: Male to Female Workforce-South India



The growth rates however vary across firms. It would be interesting to point out here that in many firms, particularly in the southern regions- Chennai, Tirupur and Bangalore, the absorption of female workforce is more than the male workforce.[33]

6. In case of apparel industry, we see that some firms completely outsource their entire production. This is interesting as the pattern evident from our talks with managers is that a certain percentage of output is outsourced. In our sample, however we find evidence in at least 4 firms where the entire output is outsourced.

Wages & Shifts

The surveyed firms provide information on wages and shifts for majority of firms. In the apparel industry, we see that both female and male workers are offered the same wage and there is no discrimination against female workforce. The total number of shifts across firms is approximately in the region of 26 per month, though deviation from these norms is available in the case of few firms.

1. Our main findings is that across regions, there is differences in the wages per shift- In Tirupur, it ranges from 80-200 per shift, in Chennai and Bangalore, we find most firms offer wage at the rate of minimum wage applicable to Tamilnadu and Karnataka. For Ahmedabad and Mumbai, we see widely varying wage rates. For Delhi and Northern India, it is either minimum wages or some fixed rates. Further, we also observe wage differentials across firms for skilled/unskilled categories, permanent/ temporary categories of workers.

Table 5.3A: Wage Differential across Skilled and Unskilled Worker in Apparel Firms: Southern India (Rs. per Shift of 8 hours)

Firm	Male		Female	
	Skilled	Unskilled	Skilled	Unskilled
1. BA6	94	85	94	85
2. BA1	72	46	72	46
3. BA4	192	96	192	96
4. CH5	250	96	250	96
5. CH9	145	104	145	104
6. TIR5	200	80	200	80
7. TIR1	243	N.A.	162	N.A.
8. TIR13	120	N.A.	100	N.A.

[33] The argument behind presence of women workforce in large numbers is threefold- women are more skilled in relation to men in the case of garment manufacturing (garment stitching), two- women workforce are more disciplined and third- women are more responsible to their families.

Table 5.3B: Wage Differential across Workforce in Apparel Firms- Western India (Rs. per Shift of 8 hours)

Firms	2003-04				2004-05				2005-06			
	PM	PF	TM	TF	PM	PF	TM	TF	PM	PF	TM	TF
1.AH3	N.A.	N.A.	N.A.	N.A.	60	50	N.A.	N.A.	85	80	N.A.	N.A.
2.AH5	80	80	45	45	95	95	45	45	120	120	95	95
3.AH8	166	166	N.A.	N.A.	175	175	N.A.	N.A.	187	187	N.A.	N.A.
4.AH10	125	125	N.A.	N.A.	145	145	N.A.	N.A.	187	187	N.A.	N.A.
5.AH9	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	83	83	50	50
6.MUM3	145	145	N.A.	N.A.	150	150	N.A.	N.A.	156	156	62	62
7.MUM11	120	80	N.A.	N.A.	180	100	N.A.	N.A.	200	120	N.A.	N.A.

Note: Per-shift corresponds to 8 hours of work.
PM: Permanent Male Worker, PF: Permanent Female Worker, TM: Temporary Male Worker, TF: Temporary Female Worker

2. Information was collected on the number of shifts that were in operation across firms. It was observed from our sample firms, that manufacturing units operated 26 shifts of 8-hourly duration per month. This was more or less uniform across all the sample firms.

Educational Background of Workforce

We also profile the educational background of workforce across different firms in order to assess the pattern of employment in terms of skilled versus unskilled workforce in the apparel industry. Further information was collected from the firms surveyed of the educational background of workforce in terms of employment categories- school pass out (class 10), high school pass out (class 12), graduate, (BA. B.Sc.B.Com) and graduate + (graduate with additional technical skills and industry specific characteristics). **Table 5.4** outlines the educational background in percent across apparel firms.

1. We find that in almost 50 firms, the more than 75 percent of employed workforce was school pass-outs (class 10). This is true of firms from all cities and zones. Further, in a large number of firms, where percent of total workforce engaged by school pass out criterion did not comprise a majority, it was seen that the bulk of employment came from the high school pass out category (class 12). It is also important to note that in case of some firms, the employment category high school pass outs (class10-12) form the largest percentage of workforce absorbed. Thus

from the data available it becomes clear that either school pass outs or High school pass outs comprise the largest employment group. If we consider the two categories as a combined one, we see from the information collected, that the school and high school pass out constitute the near 100 percent employment category amongst all firms.

2. The percentage of graduates (managerial staff) employed in our sample apparel firms ranges from a low of 20 percent to a high of around 40 percent of total workforce employed. The managerial staffs are usually assigned supervisory responsibilities to oversee the functioning of machines and workers and hence their absorption capacity is low across all firms. Further, when we consider graduates with technical as well as industry qualification, we find that they also fall in the low employment category. From our sample, we see that either very few firms have reported this category or in case of reporting, we find very small percentages of employment in this category.

3. Our survey also raised questions about the compliance codes and social security benefits for workers. Majority of the firms responded positively when asked about adopting any compliance code. Further, majority of the firms also responded in positive about the various social security benefits that were available to their workers[34].

[34] Our survey listed many different kinds of social security benefits- health insurance, accident insurance, life insurance, pension/gratuity and others in order to ascertain which of the following was made available to workers.

Table 5.4 Educational Background of Total Persons Engaged (Percent of Total Workforce): The Apparel Firms

Firms	< 10th	10th-12th	Graduate	Industry Specific Qualification	Compliance Code	Social Security Benefits
AH1	80		20		No	No
AH2		75	25		No	Yes
AH3	25	5		70	Yes	No
AH4	60	10	30		No	Yes
AH5	80		15	5	Yes	Yes
AH6	N.A.	N.A	N.A.	N.A.	No	Yes
AH7	80		20		Yes	Yes
AH8	90		10		No	No
AH9		95	5		No	No
AH10		80	20		No	No
AH11	90		5	5	Yes	Yes
AH12	80		15	5	No	Yes
BA1	40	30	20	10	Yes	Yes
BA2	58	25	15	2	Yes	Yes
BA3	N.A.	N.A.	N.A.	N.A.	Yes	Yes
BA3	80*		20		Yes	Yes
BA4				*	Yes	Yes
BA5	90	8	2		Yes	Yes
BA6	60		35	5	Yes	Yes
BA7	N.A.	N.A.	N.A.	N.A.	No	No
BA8	90		10		Yes	Yes
BA9	60	20	10	10	Yes	Yes
CH1		70*	20	10	Yes	No
CH2	80		10	10	Yes	Yes
CH3		90	10		Yes	Yes
CH4	20	60	15	5	Yes	Yes
CH5	N.A.	N.A.	N.A.	N.A.	Yes	Yes

Firms	< 10th	10th-12th	Graduate	Industry Specific Qualification	Compliance Code	Social Security Benefits
CH6	45	50	5		Yes	Yes
CH7		70	20	10	Yes	Yes
CH8	90		5		Yes	Yes
CH9		70	10	20	Yes	Yes
CH10	97**		3		Yes	Yes
CH11	90		5	5	No	Yes
CH12	90		10		Yes	Yes
DH1	90		10		No	Yes
DH2	90		10		No	Yes
DH3	30	50	20		Yes	Yes
DH4	85		15		Yes	Yes
DH5	20	75	5		No	Yes
DH6	70	25			No	No
DH7	100**				No	No
DH8	N.A.	N.A.	N.A.	N.A.	No	No
DH9		70	30		Yes	Yes
DH10	30	40	10		No	Yes
DH11	90	5	5		Yes	Yes
GUR1	90		10		No	Yes
GUR2	30	70			Yes	Yes
GUR3	10	60	25	5	Yes	Yes
GUR4	80**	20			Yes	Yes
MUM1	10	30	50	10	Yes	Yes
MUM2	N.A.	N.A.	N.A.	N.A.	No	No
MUM3	60	20	10		Yes	No
MUM4	60	20	20		No	No
MUM5	N.A.	N.A.	N.A.	N.A.	Yes	Yes
MUM6					No	No
MUM7	30	10	40	20	No	Yes

Firms	< 10th	10th-12th	Graduate	Industry Specific Qualification	Compliance Code	Social Security Benefits
MUM8	N.A.	N.A.	N.A.	N.A.	No	No
MUM9					No	No
MUM10	70		2	28	No	No
MUM11	60	30	10		No	Yes
NO1	90			10	No	Yes
TIR1	30	80	20		No	No
TIR2	90	90	10		Yes	Yes
TIR3		75	10	10	Yes	Yes
TIR4	75	N.A.	5	5	Yes	Yes
TIR5	10			90*	Yes	Yes
TIR6	25	50		75	No	Yes
TIR7	75	15	25		Yes	Yes
TIR8			5	5	Yes	No
TIR9	N.A.	45	N.A.	N.A.	Yes	Yes
TIR10			10		Yes	Yes
TIR11	10		35	10	Yes	Yes
TIR12	90	90	10		Yes	Yes
TIR13	15		10		Yes	Yes

*Note: N.A. - Informational not revealed by the respondents. * indicates In-House Training for at least 2 months and ** corresponds Corresponds to only workers excluding manager*

Source: Survey Database

5.3.2 The Status of Machinery Usage

Given that our secondary data showed that across all L intensive industries, we observe a decline in the L intensity, we found it imperative to check if indeed this was reflective of the situation prevailing in different firms across India in the apparel sector. Thus to ascertain this, we collected information on machinery usage in the past three years along with information on how many persons are engaged in work exclusively with machines and how many without machines. It is important to mention here that our survey shows that whether to use machinery or not is longer a pertinent question as surviving in a competitive world with having access to modern machines is next to impossible. **Table 5.5** shows information on various aspects of machinery usage-machines in operation in 2003-04 and 2005-06 along with total workforce in 2003-04 and 2005-06. Further using the information in the first four columns, man-machine ratios were computed for 2003 and 2005 to ascertain whether it is declining or increasing.

1. Our surveyed firms show tremendous variations in total persons engaged and this is reflected in the range of 10-7,000 persons across firms. Further, we also observe positive growth in the employment of total persons engaged in most firms. The same pattern is observed as far as machinery usage is concerned both in terms of volume and growth of machinery.

2. Our calculations for man-machine ratio shows that in large majority of firms it is declining, thereby showing that growth in machinery usage outweighs the growth in employment generation. In our list of top 10 sales turn over firms, we find that in majority of them there is a decline in the man-machine ratio. It is important to understand what implication it has for employment generation where ever we find man-machine ratio declining. Our assertion based on conversations with firm's representatives is that unless machinery usage is increased, there will be no employment generation in firms because to be in production, firms must upgrade technology in terms of machines to better machines that cater to quality and volume aspects. Therefore only with more machines, can employment generation potentials be exploited.

3. Our sample also lists few firms where man-machine ratio has increased. These firms have shown an increase in the total persons engaged in relation to the growth in machinery. A look at their employment data shows that these firms have recorded very impressive growth rates of all categories of workforce including managerial workforce.

4. Information was collected with respect to global technology in use world wide and in India in the apparel firms by asking, if they were aware of the latest technology in use globally. We also asked firms for information on technology gap in the apparel sector by ascertaining if any new manufacturing technology was adopted in the last 5 years and if so, were they labor displacing as is the common perception.

Table 5.5: Machinery Usage and Man-Machine Ratio: The Apparel Firms

Firms	Total Permanent Employee 2003-04	Total Permanent Employee 2005-06	Total Machines Engaged 2003-04	Total Machines Engaged 2005-06	Total Persons to Machine Ratio 2003-04	Total Persons to Machine Ratio 2005-06	Change in Ratio
AH1	974	1204	600	750	1.62	1.61	Decline
AH2	13	15	N.A	N.A	N.A	N.A	N.A
AH3	17	29	1000	1018	0.02	0.03	Rise
AH4	408	560	300	400	1.36	1.4	Rise
AH5	990	900	700	700	1.41	1.29	Decline
AH6	52	60	7	7	7.43	8.57	Rise
AH7	220	375	68	68	3.24	5.51	Rise
AH8	140	156	95	110	1.47	1.42	Decline
AH9	9	9	18	18	0.5	0.5	No Change
AH10	6	8	N.A	N.A	N.A	N.A	N.A
AH11	41	66	25	35	1.64	1.89	Rise
AH12	29	54	35	45	0.83	1.2	Rise
BA1	446	518	90	150	4.96	3.45	Decline
BA2	650	800	400	500	1.63	1.6	Decline
BA3	N.A.	1060	N.A.	600	N.A.	1.77	N.A.
BA3	4800	5400	395	395	12.15	13.67	Rise
BA4	784	1014	400	600	1.96	1.69	Decline
BA5	710	820	500	700	1.42	1.17	Decline
BA6	788	954	350	546	2.25	1.75	Decline
BA7	OutSor	OutSor	OutSor	OutSor	OutSor	OutSor	OutSor
BA8	2685	3015	2450	3500	1.1	0.86	Decline
BA9	8360	9300	3400	5000	2.46	1.86	Decline
CH1	6720	7000	3500	4000	1.92	1.75	Decline
CH2	N.A.	64	N.A.	80	N.A.	0.8	N.A.
CH3	500	500	170	230	2.94	2.17	Decline
CH4	534	810	288	450	1.85	1.8	Decline
CH5	3662	4271	1640	1640	2.23	2.6	Rise
CH6	2088	2140	N.A.	344	N.A.	6.22	N.A.
CH7	281	350	400	800	0.7	0.44	Decline

Firms	Total Permanent Employee 2003-04	Total Permanent Employee 2005-06	Total Machines Engaged 2003-04	Total Machines Engaged 2005-06	Total Persons to Machine Ratio 2003-04	Total Persons to Machine Ratio 2005-06	Change in Ratio
CH8	310	358	180	180	1.72	1.99	Rise
CH9	1330	1560	640	1000	2.08	1.56	Decline
CH10	160	160	100	100	1.6	1.6	No Change
CH11	838	950	250	300	3.35	3.17	Decline
CH12	680	800	256	300	2.66	2.67	Rise
DH1	56	56	N.A.	N.A.	N.A.	N.A.	N.A.
DH2	52	55	60	70	0.87	0.79	Decline
DH3	185	167	75	75	2.47	2.23	Decline
DH4	400	435	1000	1000	0.4	0.44	Rise
DH5	22	22	6	8	3.67	2.75	Decline
DH6	22	22	8	10	2.75	2.2	Decline
DH7	1	1	9	10	0.11	0.1	Decline
DH8	OutSor	OutSor	OutSor	OutSor	OutSor	OutSor	OutSor
DH9	N.A.	95	6	20	N.A.	4.75	N.A.
DH10	N.A.	90	7	12	N.A.	7.5	N.A.
DH11	22	36	24	75	0.92	0.48	Decline
GUR1	124	140	150	150	0.83	0.93	Rise
GUR2	24	40	560	600	0.04	0.07	Rise
GUR3	N.A.	51		200	N.A.	0.26	N.A.
GUR4	22000	26000	8000	10000	2.75	2.6	Decline
MUM1	143	143	200	235	0.72	0.61	Decline
MUM2	OutSor	OutSor	OutSor	OutSor	OutSor	OutSor	OutSor
MUM3	73	85	32	35	2.28	2.43	Rise
MUM4	7	7	OutSor	OutSor	OutSor	OutSor	OutSor
MUM5	580	600	500	1000	1.16	0.6	Decline
MUM6	22	25	OutSor	OutSor	OutSor	OutSor	OutSor
MUM7	42	51	N.A.	N.A.	N.A.	N.A.	N.A.
MUM8	OutSor	OutSor	OutSor	OutSor	OutSor	OutSor	OutSor
MUM9	4	6	OutSor	OutSor	OutSor	OutSor	OutSor
MUM10	732	812	500	500	1.46	1.62	Rise
MUM11	7	9	85	90	0.08	0.1	Rise
NO1	43	50	N.A.	20	N.A.	2.5	N.A.

Firms	Total Permanent Employee 2003-04	Total Permanent Employee 2005-06	Total Machines Engaged 2003-04	Total Machines Engaged 2005-06	Total Persons to Machine Ratio 2003-04	Total Persons to Machine Ratio 2005-06	Change in Ratio
TIR1	N.A.	630	500	600	N.A.	1.05	N.A.
TIR2	500	1000	244	244	2.05	4.1	Rise
TIR3	N.A.	450	N.A.	220	N.A.	2.05	N.A.
TIR4	413	395	206	315	2	1.25	Decline
TIR5	180	220	N.A.	450	N.A.	0.49	N.A.
TIR6	91	115	N.A.	150	N.A.	0.77	N.A.
TIR7	134	134	70	100	1.91	1.34	Decline
TIR8	33	65	20	20	1.65	3.25	Rise
TIR9	N.A.	200	90	110	N.A.	1.82	N.A.
TIR10	12250	15300	2800	3500	4.38	4.37	No Change
TIR11	N.A.	247	250	250	N.A.	0.99	N.A.
TIR12	N.A.	1000	N.A.	400	N.A.	2.5	N.A.
TIR13	20	25	30	75	0.67	0.33	Rise

Note: N.A. Information Not Available from the respondent, OutSor: Complete Outsource Work

Source: Survey database

5. Most of the firms in our survey were aware of the technological change taking place globally. It was also indicated by the managements of the firms that tremendous improvements in internet and communication technology, helps firms stay aware of the global changes and this in turn allows the firms to be aware of modern technology-in use for manufacturing apparels

6. On the question of technology gap, we found many firms responded in different ways. Most firms agree that there is technology gap regarding the apparel firms and the best practice technology of this industry. Some firms state that they are small as compared to global production scale and in apparel industry, the machines are not too hi-tech and narrowing technological gap often means upgrading the machines. Therefore the firms felt that if one has to address the question of narrowing the technology gap, then the pertinent question to raise is who has the capacity to employ new technology? [35] Some other firms felt that technology gap is not the issue any more, but the problem of gaps that exist in terms of manpower skills, efficiency and discipline is the pressing issue and also needs attention if one really has to narrow technology gaps, as without addressing these gaps, mere lowering of technology gaps in terms of modern machines will not bear the desired outcome.

7. Around 70 percent of the surveyed firms responded by saying that they have adopted modern machines in the last five years. Further, majority of them feel that modern technology is labor displacing as one needs more of skilled workforce to work on these modern machines. It is important to point out here that this labor displacement is different from the conventional form of machines displacing workers. In the case of Indian apparel firms, it is being seen that unskilled workforce is getting regularly replaced by skilled workforce.[36]

5.3.3 Export Status of Firms

The survey also focused on questions related to exports of wearing apparel from India and sought information on export basket of firms, export markets, international competitors, various export incentive schemes that are on offer for this sector and which firms have been availed by the firms. Finally firms were asked to highlight what were major infrastructural bottlenecks for pursuing exports.

1. Most of the sample firms register 100 percent export orientations. There are however few firms which show absence of any kind of exports- they are mostly located in

[35] The issue is not about accessing newer machines as part of narrowing technology gaps, it often boils down to who can access these machines- considerations like capital cost, governmental supports in financing purchase of new machinery are major deterrents to bridging the technology gap.

[36] In a region like Northern India, this has implications for employment, as educated and skilled workers are short in supply to work for an industry like apparel, where modern technology embodied in sophisticated machines need skilled workers to work alongside. As an illustration of our observation we may state that these days CADCAM and PERK machines do the designing of the apparel and it needs skilled workforce to work on those machines.

Ahmedabad region. It is interesting to note that export orientation cuts across all types of scale of production-large, medium and small thereby indicating that turnover and export orientation do not have any relationship in our sample.

2. The export basket of the sample firms covered a wide range of men's, women's and children's wear. In particular, the sample firms manufactured for export outerwear for men, women and children made from woven, knitted or crocheted fabrics as well as non woven materials, leather or leather composition. In addition products like coats, suits, ensembles, jackets, trousers, skirts, shirts, T-shirts, pyjamas, nightdresses, dressing gowns, blouses, slips, babies' garments, tracksuits, ski suits and swim wear form a large part of the items for export markets. Our sample firms across different regions of India list these as their major products for the export markets.

3. Taking into consideration the observations from all the sample firms and all the regions covered in the survey, USA and European Union emerges as the top export destination for apparel manufacturer cum exporters. We also find South American countries like Argentina, Brazil and Mexico as export destinations of firms based in Chennai and Bangalore. In Tirupur, we found that USA, European Union, UK, form the bulk of export markets. For Delhi based firms, we found evidence of exports to Scandinavian countries too. The pattern remains same for firms in western India.

4. As regards competitors for Indian apparel firms, our sample firms indicated that China emerges as the #1 competitor for all firms across all regions. East Asian as well South Asian countries form the bulk of competitor countries for our surveyed firms- Indonesia, Philippines, Korea and Vietnam from East Asia and Bangladesh, Sri Lanka, Pakistan and even Nepal within South Asia constitute the second set of competitor countries. We also gather information about countries like Morroco and Turkey as potential competitors from our firms surveyed in Tirupur and Mumbai/Ahmedabad.

5. The surveyed firms reported many different schemes of export promotion offered by the government of India that they were availing- Firms in Tirupur were availing schemes like duty drawbacks, export promotion of capital goods, advance licensing scheme and technology up-gradation funds. In Delhi regions, very few firms were availing of any kind of export promotion schemes. In southern region, we find duty drawbacks, advance license scheme, duty entitlement pass book scheme as some of the export incentives that were in use. For firms based in Mumbai/Ahmedabad region, we see export promotion capital goods and duty drawbacks as the schemes reported by our firms, however as with Delhi region, very few firms were actually using these schemes. Our survey points out that in firms from the southern region seems to be more in usage of these schemes than in rest of the sample firms. One needs to check this aspect with information on the export status of sample apparel firms in southern region as against other firms. To have an idea if export incentives are related to export performance in terms of volumes exported.

5.3.4 Labor Issues

This section leads to our assertion of what are the important issues that confront labor usage in this industry. Our investigators were specifically asked to bring out this aspect during the questionnaire based survey. In the following paragraphs, we highlight some labor related issues which were put forward by the respondents in the light of labor intensity and employment generation potential of firms.

- The fundamental problem with apparel firms is that along with the usage of more modern machines, the skill requirements of the workforce also changes. In majority of the sample firms, our respondents talked about the shortage of skilled workers. This is an issue that needs to be addressed immediately if Indian firms are to remain competitive in global apparel markets.

- In a situation of skilled labor shortage, most of the respondent firms felt that labor laws need immediate attention. This is more because inability to hire- (shortage of trained manpower) and fire-(because trained manpower if fired in off season of one manufacturer may offer himself or herself as trained workforce for another manufacturer, depriving the first manufacturer of the services in next peak season) increases wage cost/sales ratio and forces a firm to be less competitive in global markets.

- In most of the sample firms, though there was absence of trade unions, yet employers felt that labor laws and regulations still confer workers with enough bargaining powers.

- Some of the issues raised by the firms in the context of labor were- provision to employ only contract workers in low season, extension of work shifts, provision of day and night shifts especially where women workforce are in majority.

- In sample firms across southern region, we find women workforce in majority. The primary reason for employing women workers is that apart from efficiency and discipline in work ethics, they also stay put in native places unlike males who migrate away from native places.

5.4 Recommendations based on findings

Our recommendations are based entirely on the findings of our study. It would be important to mention at the outset that the selection of firms and consequently the survey reflects the sports goods industry. Growth of employment in any sector is directly related to its output growth and output growth in terms depend on access to market and being competitive in the available markets. After removal of quotas under MFA, though the numbers of buyers and markets available have increased, it has bought down the price margin for the manufacturers to remain competitive. The volume and scale of production are determining the price that manufacturers are quoting for buyers and that's where China has an advantage. Since India's manufacturing of apparel is based on specialized

job in terms of design and pattern, our manufacturers loses in terms of volume. So, if we are specifically looking at employment generation in manufacturing sectors, then the incentives and opportunity for output growth will inevitably absorb the surplus labour force in the economy.

- Our survey across major production hubs- Chennai, Bangalore, Tirupur, Mumbai, Ahmedabad and Delhi indicate increasing usage of machines for designing, cutting, stitching, where workers need to be trained to work alongside those machines. Therefore demand for trained workforce emerges as a major deterrent for expansion of this sector. Further despite the presence of apparel training and designing centers in major towns, there still is a shortage of workforce. Further many firms are of the belief that training can only be effective when it is on the job. This needs attention. We recommend that the leading apparel manufacturers be requested and encouraged to set up training centers with government being the facilitator in terms of land, incentives, grants etc.

- Encouragement to women workers to join the apparel manufacturing industry through adequately devised incentive schemes as it is seen that firms operating in the southern region have predominantly female workforce and this has contributed to the smooth functioning of the factories in terms of lack of labor disputes and strikes and in turn to increasing efficiency of the units.

- We found that most firms target few international buyers from USA and European Union as major export destinations and in turn these companies source their purchases by allocating an equal amount to many Indian firms thereby restricting each Indian firm to small levels of production. This has consequences for employment generations. We recommend that Apparel Export Promotion councils play more effective role in educating firms not to be competitor within themselves and in turn make it possible for firms to source orders amounting to larger volumes of production and generating more employment.

- We recommend the setting up of apparel parks on the line of Netaji Apparel Park (NAP-Tirupur). In NAP, with infrastructure (power & building) leased by the government for certain number of years, 60 firms offers flexibility of production in terms of different scales of operation thereby negating individual capacity considerations in handling large export orders. Further, given different aspects of supply chain in the apparel sector like weaving and dyeing, knitting of fabrics, many established manufacturers have set up bases in the apparel park to increase their efficiency by taking care of good infrastructural facilities available there. This showed positive results for all round growth of the apparel industries functioning out of Tirupur. Therefore encouraging the growth of such apparel park either entirely through government support or through public-private partnership should provide employment generation potential via setting up of new firms or setting up of subsidiary of existing firms.

- On the export side, we recommend that the government reconsiders the effective ness of some of its schemes like duty drawbacks, export promotion of capital goods as there seems to be major dissatisfaction in availing such schemes amongst firms. Further, there seems to be a general belief amongst exporters that compared to China, India offers less incentives in all aspects of apparel manufacturing and hence India is unable to compete effectively vis- a-vis Chinese products in international markets.

- In our opinion, the core issues with workforce usage in apparel industry happens to be with women workers, how to reward labor efficiency, and off-season workforce. We therefore recommend that some attention be paid to the working conditions as well as rules and regulations so as to make an optimal usage of labor in apparel industries.

- Our discussions with management of apparel firms indicated that India lagged behind China on two major aspects e.g. flexibility of orders and timely delivery of consignment. This is mostly due to shortage of fabrics and infrastructural bottlenecks- Inadequate warehouses in ports, port working conditions and red tapism, inferior roads. We draw the attention of the relevant authorities to these aspects which deter the export potentials of firms and employment potential

- Our discussions with exporters particularly those based in Tirupur were of the opinion that there should be some association of exporters, who would act and liaison with international buyer firms on export orders pertaining to volume, price etc. The export promotion council which acts as facilitator in most cases could be encouraged to play this role as this would ensure some collective bargaining on part of small and medium firms.

Chapter 6

The Leather Industry- Evidence from Firm Level Survey

6.1 Introduction

India is the 3rd largest leather producer in the world after China and Italy. The Post liberalization era has opened up tremendous potential for employment generation for Indian leather industry the leather products segment has undergone a structural transformation during the last three decade from being a raw material exporter to that of value added products in the 1990s. With the advent of global brands of leather industry looking towards India- Florsheim, DKNY, Versace, Clarks, K shoes, Hugo Boss, Liz Claiborne, Guess, the industry seems poised for a larger share of the world market for leather products. It is important to mention that with its own raw material source, eco sustainable tanning base, presence of support industries like chemicals and finishing auxillaries, this industry offers prospects for growth in terms of employments and exports.

The Indian leather industry is spread over the formal as well as informal sectors and produces a wide range of products from raw hides to fashionable shoes[37]. The industry comprises of firms in all capacities starting from small artisans to prominent global players. Though, manufacturing of leather products takes place in many regions of the country- we find that Tamil Nadu, West Bengal and Uttar Pradesh form the core production centers.[38] The estimated production capacities of some major products of India's leather industry are-Leather footwear (900+ million pairs), Leather Garments (16 million pieces) and leather goods (63 million pieces). The industry with an annual production value of around US$ 4 billion employs about 2.5 million work-forces with women workers forming around 30 percent of the total workforce. The workforce requirement is mostly in terms of skilled manpower.

The leather industry occupies and important position in the export market. The earnings from this sector increased from a modest Rs 280 million in late 1950s to around Rs 106, 912 million in the year 2004-05. Leather footwear leads the export basket with a share of around 35 percent and leather goods and garments occupying the second and third position in the export basket[39]. As far as India's export markets goes, we find that majority of our exports go to European Union. It would be interesting to point out that against a world import of US $ 88, 182 million, exports, from India account for around 3 percent of global trade against a share of 22 percent of China's. Italy comes second with a share of 15 percent. The above figures point to the fact that India stands to gain a bigger share of the market in the years to come.

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[37] According to an EXIM bank report (March 2006), the Leather sector comprises about 40,000+ small scale industries and accounting for 75 percent of total production.

[38] Apart from Tamil Nadu, West Bengal and Uttar Pradesh, we find that leather manufacturing takes place in Mumbai, Jalandhar, Hyderabad, Ambala, Gurgaon, Panchkula and Karnal also.

[39] If we look at region wise share of India's exports, we find that southern region comprising Chennai and nearby towns contribute around 40 percent of total exports by regions.

Our focus in this chapter is to explore the employment generation potential of leather industry in India. Our estimates of employment growth in this sector based on secondary data from the *Annual Survey of Industries* show consistent decline in employment from around 19 percent (1990-95) to about 5 percent (2000-2003). In addition, the L/K ratio is also seen declining- 1.27(1990-95), 0.89(1996-99) and 0.58 (2000-03). We investigate this finding with firm level evidence to throw light about the status of this labor intensive sector in terms of growth, exports and employment generation.

6.2 Industry Coverage

The sample leather manufacturing firms were selected in association with the Council for Leather Exports-(Chennai).We have concentrated on three major items of leather industry- footwear, garments and goods. In southern India, we focused on manufacturer and exporters in Chennai. Firms in Delhi, Gurgaon and Noida region were surveyed for leather garments and goods. Majority of the leather footwear firms surveyed were from Agra and Kanpur. Most of the leather goods firms were surveyed from Kolkata and Chennai.

Our surveyed firms belong to three categories of sales turn over- low (firms with turnover less than Rs.8 crore), medium (firms with turnover in the range Rs.9-32 crore) and high (above Rs. 32 crore). Most of the surveyed footwear firms fall in the category of either medium or low turnover, whereas the leather goods firms show medium or high turnover. For garments, we find the same patterns, firms either belong to medium or low turnover. From our sample, we find that very few manufacturing units depict high turnover- (13 out of 75 sample firms show a sales turnover in excess of Rs 32 crores). The **Box 6.1** alongside lists the firms in our sample which belong to the high turn over category. It is interesting to note that of the 13 firms with high turnover we find that except for 3 leather goods manufacturer, all are manufacturing leather footwear and are based in Chennai. These firms have a combined turnover of more than Rs. 1000 crore.

Box 6.1: Top 13 firms in Leather Industry in terms of Sales Turnover

- **NO5 (Footwear)**
- **CH11 (Footwear)**
- **KAN6 (Tannery)**
- **CH3 (Footwear)**
- **NO6 (Footwear)**
- **GUR2 (Goods)**
- **CH13 (Footwear)**
- **CH9 (Footwear)**
- **CH14 (Footwear)**
- **CH1 (Footwear)**
- **KOL12 (Goods)**
- **CH4 (Footwear)**
- **KOL6 (Goods)**

Most of our sample firms on an average have a capacity of production limited to one plant/factory. All the leather footwear units surveyed in Agra and Kanpur recorded a single plant, however the footwear firms in Chennai shows more than 2 plant/factory as the norm- CH1 (5 plants) and CH3 (9 plants) turn out be the exceptions in the footwear segment of leather industry. In the garment sector, we observe some variations as we

observe units with plants from 1 to10.For leather goods we see that most units are in the range of 1-3 plants.

The age structure of the firms shows that vast majority of the sample units started operations in the 1980s and 1990s. In addition, we have covered units, which are more than 40 years old also- CH13 (Chennai, 1949); DH6 (Delhi, 1957) and DH7 (Delhi, 1957). Our sample also surveyed some very young firms- NO3 (Noida, 2003); KOL5 (Kolkata, 2003), which had started operation some years back. It is useful to note that we did not find any pattern between age structure and turnover from our sample firms.

Box 6.2 Turnover & 100 % Export Orientation

- **Low Turnover**

AG4 (Agra)
100 percent Export Orientation
Leather Footwear

- **Medium Turnover**

CH2 (Chennai)
100 percent Export Orientation
Leather Footwear

- **High Turnover**

CH11 (Chennai)
100 percent export Orientation
Leather Footwear

Though primarily our sample was selected from the list of firms supplied by Council for leather exports and therefore we find that majority of the surveyed firms had 100 percent export orientation. In firms, which were not exporting their entire turn over, we find at least 50 percent of sales turnover was accruing from exports. Manufacturing units where we did not observe any kind of export orientation were mostly tanneries- where restrictions exist on exporting raw hides and skins. the leather manufacturing units manufacture a wide array of items – Hides, Skins, Leather Footwear, Leather Shoe Uppers, Leather Garments (Long coats, Jackets, Waist coats, pants as well as shorts), Leather goods (Wallets, Belts, Ladies bags, Handbags etc), Industrial Gloves and Saddlery. If we look at the export performance of leather and leather products during the last five years, we find that the exports of Leather Footwear has consistently dominated the export baskets from 2000-2005[40]. In addition, the export of finished leather along with leather garments and goods comes next in order of foreign exchange earnings. If we look at India's export destination, we find that the bulk of these exports are for US, UK, Germany and Italian markets. Finally it is interesting to note that Southern India, which is a major manufacturing region for leather products like- Footwear, garments and goods contributes a healthy 40 percent of India's total exports.

Table 6.1 provides a summary of the sample leather firms. It is interesting to note that within a sample size of 70 odd firms, we observe wide differences across firms and regions and products thereby providing an idea about the exact nature and pattern of the leather industry in India[41].

[40] DGCI & S, Kolkata
[41] For maintaining the confidentiality of firms, we have labeled turnover in terms of low, medium and high.

Table 6.1: The Leather Industry- A Summary Profile of the Sample Firms

Firms	Location	Incorporation	Major Products	Plants	Turnover	Export share in Total Turn over
NO1	Noida	1986	LFTW	1	Medium	0
NO2	Noida	1986	LGAR, LGD,LFTW	1	Low	100
NO3	Noida	2003	LFTW	1	Medium	100
NO4	Noida	1989	LFTW	2	Medium	100
NO5	Noida	2003	LFTW	1	High	75
NO6	Noida	1998	LFTW,LGAR	1	High	100
GUR1	Gurgaon	1995	LGAR,LGD	2	Medium	100
GUR2	Gurgaon	1988	LGD,LFTW	3	High	100
DH1	New Delhi	1980	LGAR	1	Medium	100
DH2	New Delhi	1992	LGAR	2	Low	100
DH3	New Delhi	2000	LGAR	10	Medium	100
DH4	New Delhi	1984	LGAR	9	Medium	100
DH5	New Delhi	2000	LGAR	1	Low	100
DH6	New Delhi	1957	LFTW	10	Low	10
DH7	New Delhi	1957	LFTW, LGAR	6	N.A.	100
DH8	New Delhi	1991	LGAR	1	Medium	100
DH9	New Delhi	2000	LFTW	1	Low	4
DH10	New Delhi	1989	LGAR	1	Medium	100
DH11	New Delhi	1992	LGAR, LGD	1	Medium	100
DH12	New Delhi	1997	LGD	1	Low	100
DH13	New Delhi	1992	LGAR,LGD	1	Medium	100
KOL1	Kolkata	1995	LGD	6	Medium	100
KOL2	Kolkata	1976	LGD	3	Medium	100
KOL3	Kolkata	1992	LGD	3	Medium	100
KOL4	Kolkata	1982	LGD	3	Medium	100
KOL5	Kolkata	2003	LGD	1	Medium	100
KOL6	Kolkata	1982	LGD	1	High	100
KOL7	Kolkata	1993	LGD	4	Medium	100
KOL8	Kolkata	1980	LGD	2	Medium	100
KOL9	Kolkata	1988	LGD	2	Medium	100
KOL10	Kolkata	1998	LGD	2	Medium	100
KOL11	Kolkata	1994	LGD	3	Medium	100
KOL12	Kolkata	1974	LGD	2	High	100
CH1	Chennai	1972	LFTW	5	High	70
CH2	Chennai	1989	LFTW,LGD	5	Medium	100
CH3	Chennai	1967	LFTW	9	High	95
CH4	Chennai	1982	LFTW	4	High	100

Firms	Location	Incorporation	Major Products	Plants	Turnover	Export share in Total Turn over
CH5	Chennai	1995	LGAR	2	Medium	80
CH6	Chennai	1987	LGAR	2	Medium	100
CH7	Chennai	1989	LGAR	6	Medium	100
CH8	Chennai	1992	LGAR	1	Medium	100
CH9	Chennai	1979	LFTW	4	High	100
CH10	Chennai	1998	LGD	2	Low	98
CH11	Chennai	1973	LFTW,LGD	8	High	100
CH12	Chennai	1991	LGD	1	Medium	100
CH13	Chennai	1949	LGTW,LGD	3	High	100
CH14	Chennai	1987	LFTW	3	High	100
AG1	Agra	1992	LFTW	1	Low	80
AG2	Agra	1971	LFTW	1	Medium	100
AG3	Agra	1980	LFTW	1	Medium	100
AG4	Agra	1991	LFTW	1	Low	100
AG5	Agra	1995	LFTW	1	Low	100
AG6	Agra	1998	LFTW	1	Low	100
AG7	Agra	1982	LFTW	1	Medium	100
AG8	Agra	1993	LFTW	1	Low	100
AG9	Agra	1984	LFTW	1	Medium	100
AG10	Agra	1988	LFTW	1	Low	100
AG11	Agra	1993	LFTW	1	Low	50
AG12	Agra	1990	LFTW	1	Low	100
AG13	Agra	1976	LFTW	1	Low	100
AG14	Agra	1978	LFTW	1	Medium	100
AG15	Agra	1987	LFTW	1	Low	100
AG16	Agra	N.A.	LFTW	1	Medium	100
AG17	Agra	1992	LFTW	1	Low	100
KAN1	Kanpur	1980	LFTW	1	Medium	50
KAN2	Kanpur	1976	LFTW	1	Low	50
KAN3	Kanpur	1993	LFTW	1	Low	0
KAN4	Kanpur	1985	LFTW	1	Low	0
KAN5	Kanpur	1980	LFTW	1	Medium	25
KAN6	Kanpur	1953	LFTW	3	High	80
KAN7	Kanpur	1976	LFTW	1	Medium	100
KAN8	Kanpur	1995	LFTW	1	Low	0
KAN9	Kanpur	1979	LFTW	1	Low	0
KAN10	Kanpur	1970	LFTW	1	Low	50

Note- 1.Turnover is defined as High (> 30 Rs. Crore), Medium (10-30 Rs. Crore) and low (1-10 Rs. crore).
2. LGD: Leathers Goods, LGAR: Leather Garments LFTW: Leather Footwear
Source- Survey Database.

6.3 Survey Findings

Our findings are primarily drawn from the questionnaire that was filled up in consultation with the firm's representatives of selected manufacturing-exporting units in the leather industry. The focus of the questionnaire was on the employment generation potential of L intensive firms and we dealt with various aspects/issues which have a bearing on the employment growth of these manufacturing-exporting units. In particular, we dealt with three crucial aspects of employment generation- first, the details of the workforce employed along with information on wages and educational background in quantitative dimension. Second, we look at the machinery usage aspects of employment. Third, the export status of firms was addressed keeping in mind the exporting-employment nexus. The final findings concern the labor issues- particularly rules/laws that hinder firms from generating more employment.

The outline of this section is as follows- section **6.3.1** covers the employment scenario as regards the Leather industry. The machinery usage of sample firms is outlined in section **6.3.2.** The exports-employment relationship, if any from our survey is highlighted in section **6.3.3** and in the final section our findings on labor rules and regulations in the leather firms and their consequences for employment generation are addressed.

6.3.1 Employment Scenario

The data on workforce gives important insights into the employment volume and pattern in the leather industry. We can see from the information collected on workers- permanent, temporary, male and female as well as non workforce managerial staff that not only across firms, but across regions there exist variations. Our appraisal of the data shows-

Employment growth including Outsourcing

For our sample firms, we have computed employment growth by categories of managerial staff, total employee, total workers, male workers and female workers taking into account both temporary as well as permanent workers. We find fluctuations in employment growth across firms for all categories. **Table 6.2** lists the findings of employment growth by category for all the 74 firms.

- Most firms reported employment by managerial category for the years 2003 and 2005 allowing us to compute employment growth by managerial staff. In many firms however due to lack of data we have not been able to report the employment growth. Further in many firms, since firms have not increased their managerial intake, we found zero rate of growth. Of the firms that reported data on managerial intake, we found a maximum growth of around 50 percent, but mostly firm's show a growth range of below 20 percent.

- When we consider the workers category, we find more than 50 percent growth in three firms- CH10 (Chennai), AG2 (Agra) and AG6 (Agra). For the rest of the firms-

the growth rate varies from a low of around 2 percent to a high of 23 percent. Observing the different product categories, we see that- for leather garments, (Chennai, New Delhi,) the employment growth by workers is mostly two-digit, leather goods, (Kolkata), we find that growth rates are in the range of 5-9 percent and for footwear (Agra and Kanpur), we observe in most firms absence of any growth, whereas footwear (Chennai) we find evidence of decent growth rates in excess of 5 percent.

- Both for male and female workers, our calculated growth rates as evident from the table, showed tremendous variability Further, it is evident in many firms that growth rate of female workers is more than the growth of male workers in the given time period[42] This is reflected from sample firms in Delhi and Kolkata. For our sample firms in Chennai region, we however see that there is a decline in female workforce in some firms. For rest of the region, we can only make inferences about the male workforce as comparing with female workers was not possible[43]. Our calculated growth rates show variations in growth of male workers across firms and regions.

- The table also provided information on total employees of the sample firms. We arrived at total employees by considering both male and female permanent and temporary workers. As with other categories, we find here variations across firms, products and regions. As regards the distribution of that growth rate, we find more than one-third of the sample firm's record less than 10 percent growth of employees. 12 firms show growth in the range of less than 25 percent but more than 10 percent and 3 firms show growth in excess of 50 percent.

- We observe outsourcing across most of the firms and all the product categories. But we have evidence on only three firms which showed 100 percent outsourcing. Further, many firms outsourced part of their production by sub contracting to a number of smaller firms. According to most of the managers outsourcing is a function of demand for the products, specification required by the buyers as firm may not have the technology in-house and the relative cost of production. We divide our sample into three product categories of leather footwear, leather goods and leather garments; we see a higher percentage of outsource work in footwear compared to other two categories.

[42] We observe from our sample that larger employment to women in this sector is no concession to them. It shows the recognition of their strength with the women workforce being defter in jobs (stitching) and we found factories where the entire workforce comprises women.

[43] We observe from the table, that in many firms across India there is absence of female workforce (NFW).Further this is more striking when we consider firms in Northern India- Delhi, Agra, Kanpur and Gurgaon

Table 6.2: Employment Growth by Different Worker Category-The Leather Firms

Firms	Rate of Growth of Managerial Stuffs	Rate of Growth of Employee	Rate of Growth of Workers (Male+Female)	Rate of Growth of Male Workers	Rate of Growth of Female Workers
NO1	0	8.33	11.11	11.43	10
NO2	N.A.	N.A.	N.A.	N.A.	N.A.
NO3	N.A.	N.A.	N.A.	N.A.	N.A.
NO4	N.A.	N.A.	N.A.	N.A.	N.A.
NO5	12.5	OutSor	OutSor	OutSor	N.A.
NO6	N.A.	OutSor	OutSor	OutSor	N.A.
GUR1	8.33	22.83	10	10	NFW
GUR2	0	8.7	9.52	N.A.	N.A.
DH1	0	14.44	16.25	15.79	25
DH2	12.5	2.63	0	0	NFW
DH3	N.A.	12.5	N.A.	N.A.	N.A.
DH4	N.A.	12.5	N.A.	N.A.	N.A.
DH5	7.14	8.21	8.33	8.33	NFW
DH6	0	OutSor	OutSor	N.A.	OutSor
DH7	N.A.	N.A.	N.A.	N.A.	N.A.
DH8	0	9.52	10	10	NFW
DH9	7.14	12.07	12.5	N.A.	N.A.
DH10	12.5	4.76	3.76	2.33	21.43
DH11	N.A.	N.A.	N.A.	N.A.	N.A.
DH12	N.A.	N.A.	N.A.	N.A.	N.A.
DH13	N.A.	N.A.	N.A.	N.A.	N.A.
KOL1	22.5	21.51	21.43	21.39	21.62
KOL2	7.69	6.34	6.02	5.75	7.14
KOL3	12.5	3.8	3.33	0.77	20
KOL4	18.75	12.83	12.5	N.A.	N.A.
KOL5	31.25	11.78	9.8	9.21	26.92
KOL6	0	9.88	10	9.68	14.29
KOL7	10	6.67	6.25	6.25	6.25
KOL8	33.33	24.11	23.94	22.12	55.56
KOL9	6	4.86	4.26	5.13	0
KOL10	14.29	6.13	5.56	5.56	5.56
KOL11	20	9.27	9.06	8.95	9.38
KOL12	9.7	9.32	9.09	5.56	15.79
CH1	0	5.25	5.58	5.58	5.58
CH2	N.A.	N.A.	N.A.	N.A.	N.A.
CH3	3.42	2.04	1.91	1.38	3.19
CH4	N.A.	N.A.	4.35	5.36	3.91
CH5	0	0	0	N.A.	N.A.

Firms	Rate of Growth of Managerial Stuffs	Rate of Growth of Employee	Rate of Growth of Workers (Male+Female)	Rate of Growth of Male Workers	Rate of Growth of Female Workers
CH6	12.5	4.49	4.35	3.76	6.82
CH7	12.5	7.89	7.47	10.61	5.56
CH8	12.5	7.99	7.47	12.5	5.56
CH9	25	7.12	5.15	5.56	5.05
CH10	16.67	50	54.76	50	55.32
CH11	16.67	3.73	2.63	3.16	2.41
CH12	25	5.92	3.03	8.33	2.5
CH13	4.69	6.13	6.25	6.25	6.25
CH14	N.A.	N.A.	N.A.	N.A.	N.A.
AG1	20	10.91	10	10	NFW
AG2	50	52.94	53.13	53.13	NFW
AG3	21.43	4.14	3.33	3.33	NFW
AG4	20	12.94	12.5	12.5	NFW
AG5	0	0	0	0	NFW
AG6	0	57.14	66.67	66.67	NFW
AG7	N.A.	N.A.	N.A.	N.A.	NFW
AG8	0	0	0	0	NFW
AG9	0	0	0	0	NFW
AG10	12.5	6.55	6.25	6.25	NFW
AG11	N.A.	N.A.	N.A.	N.A.	NFW
AG12	0	0	0	0	NFW
AG13	5.56	15.22	16.67	16.67	NFW
AG14	0	0	0	0	NFW
AG15	0	4.46	0	0	NFW
AG16	0	0	0	0	NFW
AG17	0	0	0	0	NFW
KAN1	0	0	0	0	NFW
KAN2	0	5.32	6.25	6.25	NFW
KAN3	N.A.	N.A.	0	0	NFW
KAN4	0	0	0	0	NFW
KAN5	0	0	0	0	NFW
KAN6	0	0	0	0	NFW
KAN7	0	0	0	0	NFW
KAN8	0	0	0	0	NFW
KAN9	0	0	0	0	NFW
KAN10	0	6.25	7.14	7.14	NFW

Note: OutSor: 100% outsource work, N.A.: Information not available, NFW: No female workers
Source: Survey database

Wages and Shifts

The surveyed firms provide information on wages and shifts for majority of firms. In the leather industry, we see that both female and male workers are offered the same wage and there is no discrimination against female workforce. The total number of shifts across firms is approximately in the region of 26 per month. We observe large variations in wages paid to workers across firms. These variations are noticeable in terms of both payments made via piece rates or monthly wages.

- For leather footwear manufacturing units across Noida, Agra and Kanpur and Chennai, we find workers- male as well as female being paid on an average around Rs.3000 per month with a growth rate in excess of 10 percent in some firms[44]. In the case of out-sourcing some firms reported payments of around Rs.2500 per month. For some firms which pay according to piece rates, a rate of Rs 30 per pairs was also reported. In both Agra and Kanpur, almost 95% of the sample firms pay according to piece rate of between Rs. 30 to Rs. 40. The presence of very high percentage of temporary and contract workers in total workforce actually leads to such a wage payment system.

- In the case of leather garments, our sample firms located in Chennai and Delhi, we find a wage structure of which extends from a low of Rs 2500 per month to a maximum of 15,000 per month. Our data reflects evidence of wage differentials between male and female workers. Firms which outsourced reported payments in piece rates of Rs.200 and Rs.300 per day for semi skilled and skilled workers.

- Our sample leather goods manufacturers were mostly based in Kolkata shows wide disparity across firms. We find in most firms a uniform wage structure for both male and female workers and in majority of the firms, the wage is above the minimum wage of Rs.2750 per month. We also find some evidence of payments by piece rates.

- As mentioned above number shift across all the firms varies between 24 to 26 shifts per months. But we also observe few firms operating 2 shifts of total 12 hours (8 hours of regular and 4 hours of extra) per day. Whenever firms are engaging workers beyond the stipulated one shift, they are being paid half day payment as extra. We also observe that the firms which are engaged in tannery have in general higher number of shifts around 48-50 shifts per months[45]

[44] Our database shows that NO5 (Noida) and CH7 (Chennai) offer wage structure that is way above what most of the firms in the respective product category offers- For making Leather footwear in NO5, workers are paid in the range of Rs 5,000-7,000 and for making leather garments in CH7 , workers are paid in the range of Rs 2500-15,000. It is interesting to point out that as per our labeling NO5 belongs to the High Turn Over category whereas CH7 belongs to Medium Turn Over

[45] For example: Unit CH5 has 24 to 25 shifts in Garment Manufacturing and 48-50 shifts in tannery per month

Educational Background of Workforce

We also profile the educational background of workforce across different firms in order to assess the pattern of employment in terms of skilled versus unskilled workforce in the apparel industry. Further information was collected from the firms surveyed of the educational background of workforce in terms of employment categories- school pass out (class 10), high school pass out (class 12), graduate, (BA. B.Sc.B.Com) and graduate + (graduate with additional technical skills and industry specific characteristics). **Table 6.3** outlines the educational background in percent across leather manufacturing units

- As with other industry groups, we find in the case of leather, the largest percentage of employment is in the category of school pass outs. In all most all the firms, we find that 95 percent of workforce is of the class 10 pass outs. Next in line is the High school pass outs. These two categories by and large form the entire employed population of most manufacturing units. Thus we find that employment pattern is that of unskilled workforce in the leather manufacturing cum exporting units.

- Of the total workforce, we find that on an average about 10 percent of it is from the category of graduates, thereby implying that in majority of the firms, 10 percent of the total persons employed are as managerial staff. Some firms in the sample reported a high percentage of workers with graduate degree- NO1 (Noida), NO2 (Noida) DH8 (Delhi) report a high figure of 40 percent or more of total workforce.

- One very important fact that came out after the dialogue with the firms is that in the level of workforce recruitment, the standards of educational qualification hardly make any difference. The work in this industry is very skilled based and people with any prior industry training are always preferred. In this regard our sample shows that there is very much scarcity of skilled labour with industry specific qualification even if that is not formal.[46]

- We find from our surveyed firms that workforce with industry specific qualifications-skills learned on the job either at previous workplace or gone through some sort of training in the current firm. Only two firms in our sample –KOL8 and CH10 Leather works has reported a high figure of 50 percent in their total workforce.

- Our survey also raised questions about the compliance codes and social security benefits for workers. Majority of the firms responded positively when asked about adopting any compliance code. Further, majority of the firms also responded in positive about the various social security benefits that were available to their workers[47].Across all the firm Employees State Insurance (ESI) and Provident Fund (PF) was common. [48]But we observe a much skewed picture in Agra and Kanpur

[46]For the firms- CH10 and KOL8, we were told that majority of their workforce were trained in industry specific skills – on the job elsewhere and therefore they would like to categorize their workforce as qualified in Industry skills category.

[47] Our survey listed many different kinds of social security benefits- health insurance, accident insurance, life insurance, pension/gratuity and others in order to ascertain which of the following was made available to workers.

[48] But managers from different firms raised questions about ESI scheme, which we will discuss in the later section.

where majority of the workforce as mentioned already is temporary or contract workers. We did not observe any form of social security benefits in the worker level except for managers. The absence of compliance code was across most of the firm was also came into picture.

Table 6.3: Educational Background of Total Persons Engaged (Percent in Total Workforce) – The Leather Firms

Name	< 10th	10th-12th	Graduate	Industry Specific Qualification	Compliance Code	Social Security Benefits
NO1	40	10	40	10	Yes	Yes
NO2	20	30	50		No	Yes
NO3		84	16		Yes	Yes
NO4	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
NO5		N.A			No	No
NO6	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
GUR1	N.A.				Yes	No
GUR2	50	42	8		Yes	No
DH1	80		10	10	Yes	No
DH2	75		25		Yes	Yes
DH3	60	30	10		Yes	Yes
DH4	80		20		Yes	Yes
DH5	10	60	20	10	Yes	No
DH6			100*		N.A.	N.A.
DH7	20	40	40		Yes	Yes
DH8	90		5	5	Yes	Yes
DH9	92		8		No	Yes
DH10	20	60	15	5	Yes	Yes
DH11	N.A.				N.A.	N.A.
DH12	10	30	10	50		
DH13	70		20	10	Yes	Yes
KOL1		80	10	10	Yes	No
KOL2	70	25	5		Yes	Yes
KOL3	30	60	10		N.A.	N.A.
KOL4	95		5		Yes	Yes
KOL5		80	10	10	Yes	No
KOL6		80	10	10	Yes	Yes
KOL7	20		10	70	Yes	Yes
KOL8	60	34	6		Yes	Yes
KOL9	N.A.				Yes	No
KOL10	50	40	10		Yes	Yes
KOL11	90		10		Yes	Yes
KOL12	90		10		Yes	Yes
CH1		60	20	20	Yes	Yes
CH2	N.A.				Yes	Yes

Name	< 10th	10th-12th	Graduate	Industry Specific Qualification	Compliance Code	Social Security Benefits
CH3	78		12	10	Yes	Yes
CH4	90		10		Yes	Yes
CH5	80		20		Yes	Yes
CH6		80	10	10	Yes	No
CH7		90	10		Yes	Yes
CH8	90		10		Yes	Yes
CH9	70	10	10	10	Yes	No
CH10	60	6	30	4	Yes	Yes
CH11	70		20	10	Yes	Yes
CH12		90	10		Yes	Yes
CH13	90	5	5		Yes	Yes
CH14	N.A.				Yes	Yes
AG1	85		5		No	No
AG2	90		10		Yes	No
AG3	95		5		No	No
AG4	97		3		Yes	No
AG5	90		10		No	No
AG6	85		10	5	No	No
AG7	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
AG8	98		2		Yes	Yes
AG9	93		7		Yes	No
AG10	92		8		No	No
AG11	93		7		No	No
AG12	90		10		Yes	Yes
AG13	N.A.				No	Yes
AG14	98		2		Yes	Yes
AG15	N.A.				No	No
AG16	95		5		Yes	No
AG17	90		10		Yes	Yes
KAN1	90		10		No	No
KAN2	80		20		No	No
KAN3	N.A.				No	No
KAN4	N.A.				No	No
KAN5	N.A.				No	No
KAN6	N.A.				Yes	Yes
KAN7	N.A.				N.A.	N.A.
KAN8	N.A.				N.A.	N.A.
KAN9	93		7		No	No
KAN10	87		13		Yes	Yes

*Note: * The firm outsources 100 % of its production. The information corresponds to managers who are all graduates*
Source: Survey database

6.3.2 The Status of Machinery Usage

Given that our secondary data showed that across all L intensive leather industries, we observe a decline in the L intensity, we found it imperative to examine if indeed this was reflective of the situation prevailing in different firms across India in the leather sector. Thus to ascertain this, we collected information on machinery usage in the past three years along with information on how many persons are engaged in work exclusively with machines and how many without machines. **Table 6.4** shows information on various aspects of machinery usage-machines in operation in 2003-04 and 2005-06 along with total workforce in 2003-04 and 2005-06. Further using the information in the first four columns, man-machine ratios were computed for 2003 and 2005 to ascertain whether it is declining or increasing.

- We use total permanent employee (including both male and female workforce) to represent the workers to machine ratio in the leather industry. Our data reporting is limited by two facts- in some firms, the entire production was outsourced and in some firms, the respondents refused details of workforce employed. In firms, where data is provided for two periods, 2003-04 and 2005-06, we observe that in majority of those firms, there is an increase in the permanent employees, thereby reflecting growth in employment.

- In the case of machinery usage, we observe that across most units, firms have increased their machinery usage. This shows that leather manufacturing units across the country by purchasing more machines have been also upgrading their technology as new machines by and large embody better and improved technology of production.

- Our calculated man-machine ratio for surveyed firms, show that presence of all three possibilities- declining, increasing as well as unchanged. For leather goods, we find from our survey of units in Kolkata that in most cases there is an increase in man-machine ratio. Leather footwear, whose production is mainly concentrated in Chennai, Kanpur and Agra, we see in most cases no change in the ratio. In the case of leather garments, we a decline in the ratio. Our assertion here based on our sample is that in case of leather garments we see the incorporation of modern machines to assist workers in designing, cutting and stitching of garments. In other sectors- leather goods and footwear, we find that the employment growth outweighs the machinery growth or keeps pace with it.

  Based on the data available for change in person to machine ratio when we divide our sample into three categories of leather goods, leather garments and leather footwear, we get a clear picture of almost constant ratio in footwear sector (Chart 3) and similar trends of few firms getting more mechanized and other employing more labour relative to machines in both leather goods and leather garments (Chart 1 & 2).

Chart 6.1: Change in Man-Machine Ratio- Leather Goods

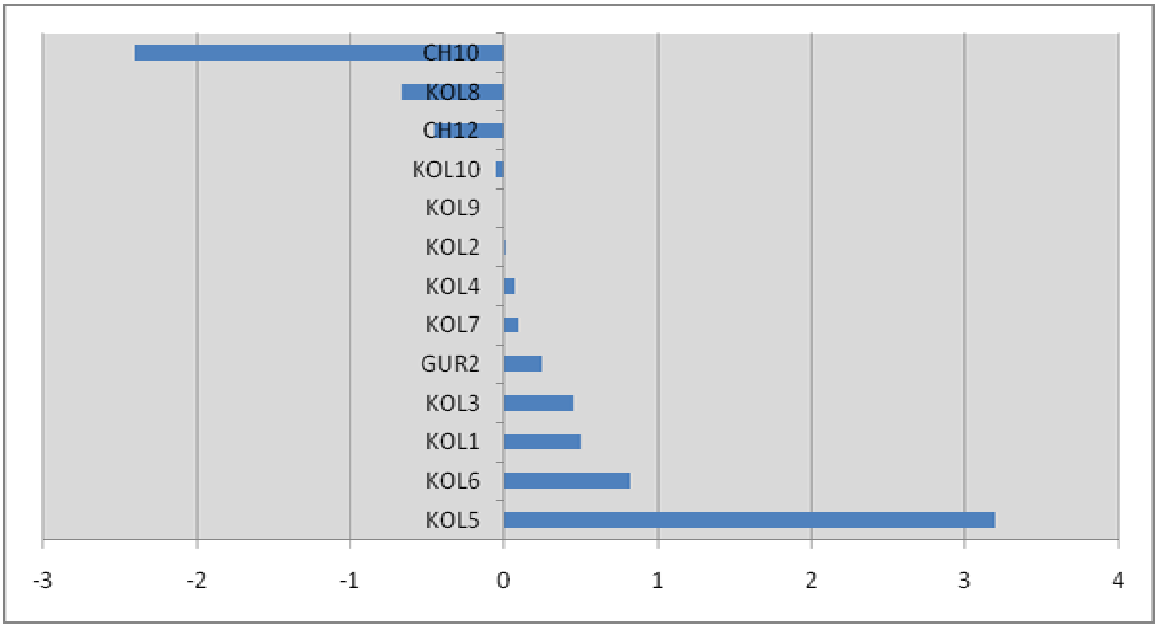


Chart 6.2: Change in Man-Machine Ratio-Leather Garments

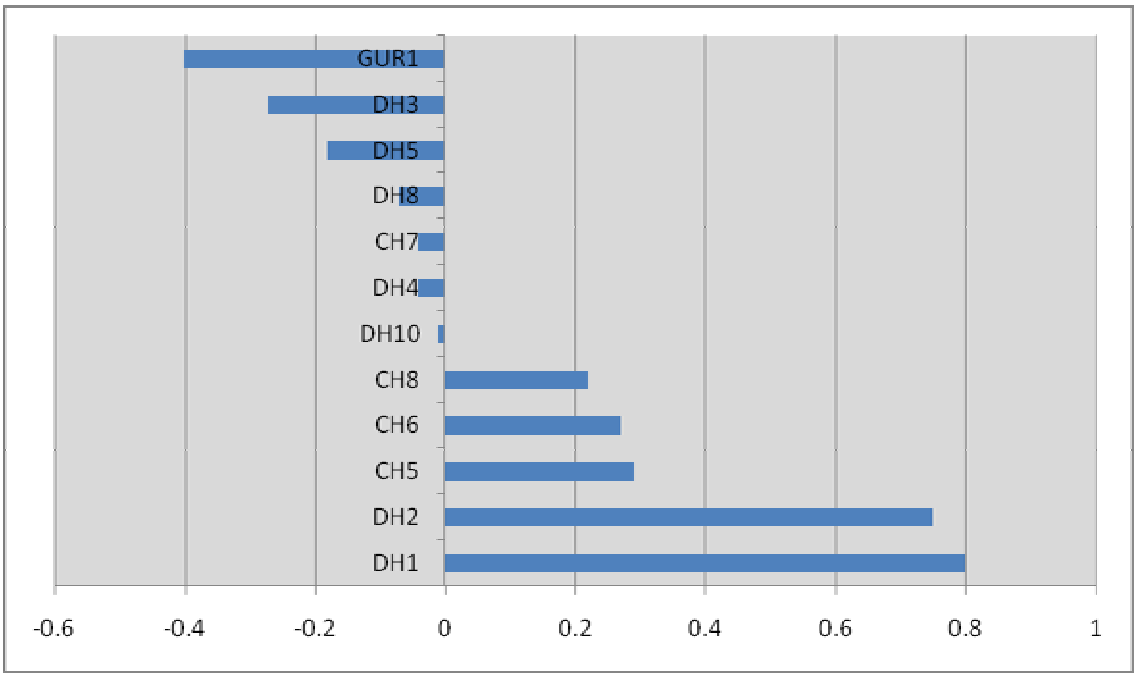


Chart 6.3: Change in Man- Machine Ratio-Leather Footwear

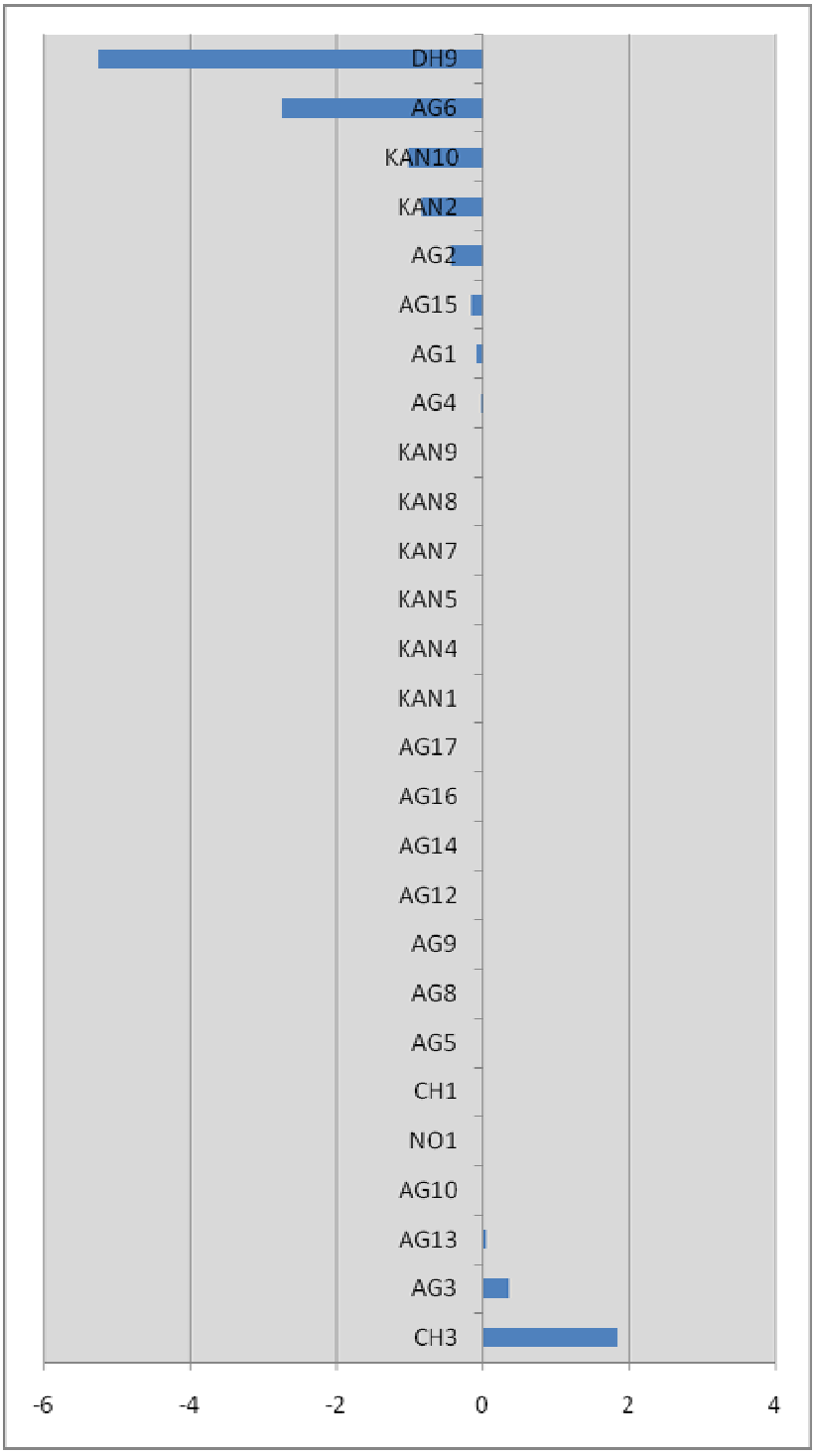


Table 6.4: Machinery Usage and Man-Machine Ratio: The Leather Firms

Name	Total Permanent Employee 03-04	Total Permanent Employee 2005-06	Total Machines Engaged 2003-04	Total Machines Engaged 2005-06	Total Persons to Machine Ratio 2003-04	Total Persons to Machine Ratio 2005-06	Change in Ratio
NO1	60	70	43	50	1.4	1.4	No Change
NO2	N.A.	N.A.	N.A.	100	N.A.	N.A.	N.A.
NO3	N.A.	30	12	14	N.A.	2.14	N.A.
NO4	N.A.	60	70	80	N.A.	0.75	N.A.
NO5	OutSor	OutSor	OutSor	OutSor	OutSor	OutSor	N.A.
NO6	OutSor	OutSor	OurSor	OutSor	OutSor	OutSor	N.A.
GUR1	230	335	126	150	1.83	2.23	Rise
GUR2	4600	5400	1920	2500	2.4	2.16	Decline
DH1	45	58	8	12	5.63	4.83	Decline
DH2	19	20	4	5	4.75	4	Decline
DH3	320	400	185	200	1.73	2	Rise
DH4	80	100	62	75	1.29	1.33	Rise
DH5	67	78	60	60	1.12	1.3	Rise
DH6	OutSor	OutSor	OutSor	OutSor	OutSor	OutSor	N.A.
DH7	N.A.	1000	N.A.	N.A.	OutSor	OutSor	N.A.
DH8	105	125	30	35	3.5	3.57	Rise
DH9	87	108	4	4	21.75	27	Rise
DH10	105	115	32	35	3.28	3.29	No Change
DH11	N.A.	285	250	250	N.A.	1.14	N.A.
DH12	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
DH13	N.A.	92	15	20	N.A.	4.6	N.A.
KOL1	265	379	75	125	3.53	3.03	Decline
KOL2	134	151	220	250	0.61	0.6	Decline
KOL3	395	425	84	100	4.7	4.25	Decline
KOL4	113	142	100	134	1.13	1.06	Decline

Name	Total Permanent Employee 03-04	Total Permanent Employee 2005-06	Total Machines Engaged 2003-04	Total Machines Engaged 2005-06	Total Persons to Machine Ratio 2003-04	Total Persons to Machine Ratio 2005-06	Change in Ratio
KOL5	433	535	40	70	10.83	7.64	Decline
KOL6	506	606	80	110	6.33	5.51	Decline
KOL7	45	51	65	85	0.69	0.6	Decline
KOL8	168	249	60	72	2.8	3.46	Rise
KOL9	72	79	80	88	0.9	0.9	No Change
KOL10	106	119	67	73	1.58	1.63	Rise
KOL11	259	307	N.A.	N.A.	N.A.	N.A.	N.A.
KOL12	177	210	N.A.	N.A.	N.A.	N.A.	N.A.
CH1	1344	1485	181	200	7.43	7.43	No Change
CH2	N.A.	2700	N.A.	N.A.	N.A.	N.A.	N.A.
CH3	2642	2750	240	300	11.01	9.17	Decline
CH4	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
CH5	400	400	135	150	2.96	2.67	Decline
CH6	234	255	83	100	2.82	2.55	Decline
CH7	475	550	180	205	2.64	2.68	Rise
CH8	194	225	200	300	0.97	0.75	Decline
CH9	1510	1725	N.A.	N.A.	N.A.	N.A.	N.A.
CH10	120	240	50	50	2.4	4.8	Rise
CH11	2885	3100	N.A.	N.A.	N.A.	N.A.	N.A.
CH12	76	85	20	20	3.8	4.25	Rise
CH13	864	970	N.A.	N.A.	N.A.	N.A.	N.A.
CH14	N.A.	322	N.A.	N.A.	N.A.	N.A.	N.A.
AG1	55	67	30	35	1.83	1.91	Rise
AG2	85	175	45	75	1.89	2.33	Rise
AG3	157	170	30	35	5.23	4.86	Decline
AG4	85	107	40	50	2.13	2.14	Rise
AG5	75	75	40	40	1.88	1.88	No Change

Name	Total Permanent Employee 03-04	Total Permanent Employee 2005-06	Total Machines Engaged 2003-04	Total Machines Engaged 2005-06	Total Persons to Machine Ratio 2003-04	Total Persons to Machine Ratio 2005-06	Change in Ratio
AG6	35	75	10	12	3.5	6.25	Rise
AG7	N.A.	260	N.A.	N.A.	N.A.	N.A.	N.A.
AG8	125	125	30	30	4.17	4.17	No Change
AG9	160	160	70	70	2.29	2.29	No Change
AG10	84	95	35	40	2.4	2.38	Decline
AG11	N.A.	85	N.A.	40	N.A.	2.13	N.A.
AG12	65	65	25	25	2.6	2.6	No Change
AG13	69	90	30	40	2.3	2.25	Decline
AG14	765	765	150	150	5.1	5.1	No Change
AG15	56	61	30	30	1.87	2.03	Rise
AG16	355	355	110	110	3.23	3.23	No Change
AG17	88	88	40	40	2.2	2.2	No Change
KAN1	70	70	8	8	8.75	8.75	No Change
KAN2	47	52	6	6	7.83	8.67	Rise
KAN3	N.A.	N.A.	4	4	N.A.	N.A.	N.A.
KAN4	40	40	5	5	8	8	No Change
KAN5	110	110	12	12	9.17	9.17	No Change
KAN6	1520	1520	N.A.	N.A.	N.A.	N.A.	N.A.
KAN7	260	260	12	12	21.67	21.67	No Change
KAN8	42	42	5	5	8.4	8.4	No Change
KAN9	24	24	3	3	8	8	No Change
KAN10	40	45	5	5	8	9	Rise

Note: OutSor: 100% outsource work, N.A.: Information not available,
Source: Survey database

- The firms were asked three major questions on technology- At the world level, what kinds of technological changes taking place? Is there a technology gap in the industry concerned and has the firm adopted any new technology in the recent past. First, most firms though aware of the technological changes taking place globally felt that adopting global technology was expensive (better machines cost more and need trained manpower to work on them) both in terms of money and workers. Therefore technology gap prevails in Indian leather industry. Various factors were attributed for this – higher prices of imported machines[49], lack of trained manpower, volatile export demand.

- We found mixed response to adoption of modern technology in the recent past. We assert that this is due to the fact that large firms have the financial capability to undertake investment in modern machineries and hence consider technological up gradation as a natural phenomenon of moving to a higher end of value chain. On the other hand, small firms because of several constraints- skilled manpower, expensive machinery and fluctuating market demands are unable risk technological up gradation. As regards, new technology necessarily being labor displacing- our sample firms indicate by and large that new and modern machines means efficiency of workers rising and in turn labor costs gets reduced. This is however not true across all process in use in leather industry. [1] In the leather footwear industry, we have the situation where in case of hand-woven leather footwear, modern technology is always labor complementary, but at the same time in case of molded leather shoes, more machines means less labor. Further, in tanneries that use heavy machines makes production more efficient and at the same time reduces labor costs.

6.3.3 Export Status of Firms

The survey also focused on questions related to exports of leather products from India and sought information on export basket of firms, export markets, international competitors, various export incentive schemes that are on offer for this sector and which firms have been availed by the firms. Finally firms were asked to highlight what were major infrastructural bottlenecks for pursuing exports.

- Most of our sample leather manufacturing units show 100 percent export orientation. Even when we compare across different regions of India, we find that majority of the firms show strong export orientation. The only units which show zero export orientation are the tanneries located in Kanpur[50]. As with apparel, we find that export orientation is associated with large and small units (captured in terms of sales turnover) as well as old versus new units.
- Regarding the export sales we observe both decline and rise across all products and regions. But this important to mention that in general northern India based leather garment manufacturing firms have shown a decline in export sales, whereas Chennai based firms showing positive trends.

[49] If we consider China as a benchmark for technological and mechanization levels, then there is very little gap, but when compare with Italy and Denmark, we are behind by one year in terms of machines and skills used. This was asserted by firms based in Chennai.

[50] It is not surprising given that export of raw hides and skins is banned in India

Table 6.5A: Exports Sales Decline and Leather Firms

Decline in Export Sales	
Firms	**Major Products**
DH2	LGAR
DH4	LGAR
DH10	LGAR
DH5	LGAR
DH8	LGAR
NO2	LGAR
GUR1	LGAR
DH9	LFTW
DH6	LFTW
CH2	LFTW

Table 6.5B: Exports Sales Increase and Leather Firms

Increase in Export Sales	
Firms	**Major Products**
CH5	LGAR
CH6	LGAR
CH7	LGAR
CH8	LGAR
CH9	LFTW
CH12	LGD
CH14	LFTW
DH1	LGAR
DH13	LGAR
GUR2	LGD
KOL4	LGD
KOL7	LGD
KOL8	LGD
NO1	LFTW
NO3	LFTW
NO5	LFTW

- As regards, the composition of the export basket of leather firms- we find that footwear, finished leather, garments and goods comprise the top 4 products of this industry. If we look at the individual items of leather industry we find that India's share of the top 4 products at the world level is- 2 percent (leather footwear), 3 percent (finished leather), 7 percent (garments) and 5 percent (goods).

- Our survey indicated that apart from US and UK, the entire European Union including Russia forms a major market for Indian products. It was also evident that markets like South Africa, Australia, Japan, Middle East and some African countries were also being added to India's export destinations. Having graduated from mass-

based to quality-based, the leather industry is now looking to new export markets specially those in Latin America, middle-east and Asia-Pacific.

- As regards the question of major competitor in these export markets, China emerged as the sole competitor in almost all major markets across all the products. Further many firms reported that Thailand also emerges as a competitor country.

- When asked about the different export promotion schemes that the sample firms were availing- we find mention of schemes like duty drawbacks, export promotion capital goods, duty free replenishment certificate, duty entitlement passbook scheme, import-certificate from CLE being availed by the majority of sample firms.

The Box 6.3 below will summarize the findings across three different categories of products for their competitor countries, export promotion schemes availing and export destinations.

Box 6.3: Export Profile of Sample Leather Firms

Product Category	Competitor Country	Export Destinations	Export Promotion Schemes
Leather Garments	• China: Price Competition. It has advantage of large volume of production and thus economies of scale • Italy: Quality of the production for its use of very high technology • Bangladesh & Pakistan: For their cheap labour	USA, Whole European Union, South Africa	Duty Drawbacks, DEPB, EPCG, Attending Exhibitions and Fairs organized by CLE
Leather Goods	• China, Thailand: For use of alternate leather which is cheap • Japan: For the sophisticated design	USA, Whole European Union including Russia, South Asia, Canada	Duty Drawbacks, EPCG, CLE's Duty free Certificate, Duty Free Replenishment Certificate (DFRC)
Leather Footwear	• China: For large volume of production and economies of scale giving price advantage • Bangladesh, Portugal, Brazil: Preferential duty rates from many countries	USA, Whole European Union, Dubai, Kuwait, Egypt, Peru, Few Latin American Countries	Duty Drawbacks, EPCG, Target Plus, Duty free benefits from Department of Industrial Policy and Promotion (DIPP)

6.3.4 Labor Issues

This section leads to our assertion of what are the important issues that confront labor usage in this industry. Our investigators were specifically asked to bring out this aspect during the questionnaire based survey. In the following paragraphs, we highlight some labor related issues which were put forward by the respondents in the light of labor intensity and employment generation potential of firms.

- The fundamental issue in the leather industry concerns the shortage of skilled manpower. We infer from our sample firms that this shortage is essentially supply driven- lack of skilled manpower. Three main reasons were highlighted for this – demand generated by growth of numerous small firms, educational attainment leading to preference for other kind of jobs and low quality of trained manpower from training institutes.

- We observed in all manufacturing units across regions that in case of temporary workers, firms deal with contractors for all aspects of work and hiring decisions including wages etc. This has immense implications as firms do not have to keep records of available workforce and neither do they have to comply with all the requirements of permanent workforce.

- Most firms responded by saying that workers themselves are unwilling to comply with PF and ESI funds in terms of their contribution. In addition workers want to work for those firms, which do not comply with these schemes as these workers apart from being uneducated are also casual workers[51].

- As regards the presence of Labor Unions, very few firms in the sample responded in the affirmative. Some firms in the sample however maintained that trade union activities were detrimental to the business climate in terms of potentials of strikes, lock outs etc.

6.4 Recommendations based on findings

Our recommendations are based entirely on the findings of our study. It would be important to mention at the outset that the selection of firms and consequently the survey reflects the sports goods industry.

- We find as with other sectors, shortage of workforce to handle machines which are increasingly becoming sophisticated and in leather firms we observe by and large predominance of imported machinery embodying latest technology. Further, training institute are often unable to provide trained workforce in accordance with the needs of the firms in terms of modern machines. Therefore to overcome the shortage of trained workforce we recommend that modern training institutes

[51] Management of our sample firms felt that scrapping of ESI may be worthwhile to consider as it harms more than the benefit it confers.

either under the purview of leather export promotion council or with private initiative.

- In south India, we find predominance of women workforce in garment manufacturing, footwear as well as leather goods. It was stated that the efficiency of female workforce was greater than the male workforce and efficiency was interpreted in terms of discipline as well as work commitments. We recommend that in northern India, firms be provided incentives and therefore encouraged to absorb more female workforce as this will enhance the efficiency of manufacturing units.

- The small leather manufacturers often find it tough to survive in global leather trade because of competitive pricing and sales. We recommend that leather units which are successfully operating in the export markets and which often have to decline orders because of capacity constraints, outsource their needs to smaller and internationally non-competitive firms and in this way the employment generating potential of the industry will be enhanced. Therefore there could be some rules and regulations or even incentive mechanisms which make it lucrative for successful exporters to outsource.

- Majority of the firms expressed dissatisfaction with the ESI schemes. In the present ESI schemes, firms mentioned about the unavailability of doctors and medicines in all ESI hospitals and wherever available very low quality of service to workers. In the light of above we recommend that make it mandatory for firms to arrange for health insurance schemes for its workers and at the same time, review the functioning of the ESI schemes across the firms.

- In course of our discussions with some of the major manufacturer and exporters it was suggested that this industry will benefit, if leather parks are built as this will make international buyers access many domestic manufacturers at one place and on the other hands with infrastructural facilities available allow many small units to cater to international markets also.

- We observed that seasonality is an important aspect of leather industry as many of the products particularly ladies leather garments and ladies handbags are fashion products. In this context many firms highlight aspects of labor laws which hinders absorption and retrenchment of workers in peak and off peak seasons as deterrents to meeting export volumes. Therefore addressing aspects of labor laws reforms is pertinent to this sector.

- Our finding from the sample firms in Agra and Kanpur shows predominance of temporary workers in the manufacture of leather footwear. It is perhaps reflective of the fact that to avoid stringent labor regulations, these leather footwear manufacturing units are largely resorting to temporary workers. Our assertion is that from the overall industry point of view, this kind of firm behavior is posing as a deterrent to overall employment potential and needs attention in the context of reforms in labor laws

Chapter 7

The Bicycle Industry- Evidence from Firm Level Survey

7.1 Introduction

The bicycle industry is one of the five identified sectors for examination of the labor intensity and employment generation linkage. This industry with an annual turnover of more than 12 million bicycles is second only to China in terms of production level. As per government of India, guidelines the production of this industry is catered by both the large units as well as small scale sectors. The large scale manufacturing units belonging to organized sector manufactures bicycle frames, chains and rims for captive consumption, where as components, spares and accessories are manufactured by the small scale units. Most of the manufacturing units- be it small scale or registered manufacturing are located in Punjab and Tamil Nadu with Ludhiana (Punjab) being a major bicycle production hub.[52] Punjab also holds an 80 per cent share in India's production of bicycle parts. Two of the country's main bicycle producers, Avon and Hero Group are based in Punjab.

The bicycle production is mainly concentrated in India and China with Taiwan, France, Germany, Italy and Japan being the other fringe players in the world bicycle production. Though a substantial part of bicycle components get manufactured in the small scale sector in India, the manufacture and exports of complete bicycles fall within the purview of registered manufacturing units. As per estimates available, the exports of bicycles fall in the range of Rs. 150 crores. The major export markets for Indian bicycles and parts are African as well as South American countries-Nigeria, Mexico, Kenya, Uganda and Brazil. Bicycles and parts come under OGL category of India's trade rules and regulations with an import duty in the range of 35-40 percent depending upon whether the imported product is an end product like bicycle and carriages or parts and accessories.

Our examination of the organized manufacturing sector of India with secondary-data sources shows that the manufacture of bicycles and carriages (NIC code 3592) falls within the top 10 labor intensive industries of India and yet, we observe that there is a decline in the labor intensity of production over the years and this is reflected in this sector showing a negative employment growth during the period 1990-2003. These findings when contrasted with the fact that the Indian bicycle industry has an impressive turnover and wide acceptability for quality standards in international market, makes a strong case for examination of the sector particularly to provide answers as to why we are observing a declining pattern of labor intensity and what measures can be suggested to arrest this trend and seek to ways to enhance employment.

[52] It is estimated that out of the 4,000 odd manufacturing units- around 600 are based in organized sector and the rest of 3,400 units in small scale sectors. http://www.indiandata.com

7.2 Industry Coverage

A total of 35 firms comprising large, small and medium manufacturing-exporting units were surveyed in Ludhiana town of Punjab, which comprises almost 100 percent of India's bicycle manufacturing unit. We have covered units manufacturing bicycles as well as parts and accessories. Our sample firms show different ranges of export turnover share-firms manufacturing exclusively for domestic consumption to firms catering entirely for the export markets.

Box 7.1
Top 5 Firms in terms of Sales Turnover

- **LUD34**
- **LUD31**
- **LUD15**
- **LUD16**
- **LUD35**

In the **Box 7.1** alongside, we show the top 5 firms from our sample in terms of sales turnover. These firms have a combined turnover of more than 150 crores. It is interesting to note that except for LUD15, none of these firms are big exporters and cater to the home markets. Further, LUD34, LUD15, and LUD35 are manufacturer of bicycles as their major product, whereas LUD31 and LUD16 manufacture bicycle parts and components as their major products. We observe based on our sample firms that large number of firms produce exclusively for the home markets. Further, our sample firms with 100 percent export orientation are mainly exporting bicycles as against parts and components.

These 35 firms comprising manufacturers as well as manufacturer-exporters operate one plant/factory. It seems that the demand pattern facing these manufacturing units is compatible with a single plant production structure. The age structure however shows that the inception of the bicycle industry in Ludhiana goes back as early as 1948 (LUD28, a component manufacturer started production) while most of the sampled firms started production in the 1980s. The 1990s and thereafter shows the birth of as many as 11 manufacturing units from our sample survey.

The product range of the bicycle manufacturing firms extends from the manufacture of complete bicycles to a wide range of accessories, parts and components that we label in **Table 7.1** as bicycle parts.[53] It was seen from our sample firms, that most firms which manufacture bicycles as core product also manufacturers some parts and components. Further, we see that there are firms included in our sample which are exclusively specializing in manufacturing bicycle parts and accessories and exporting them. Our sample has covered 19 manufacturers cum exporters (in some case) of bicycle parts and accessories and rest as bicycle manufacturer-exporter. These firms comprise all categories of turnover-small, large and medium.

[53] The products listed as bicycle parts in our sample are mainly items like-hub cones and axles and nuts, seat clip, pump plates, pump covers, cooler kit covers, fasteners and sheet metal to name a few. components,

Table 7.1: The Bicycle Industry- A Summary Profile of the Sample Firms

Firms	Location	Incorporation	Major Products	Plants	Turn Over	Export Share in Turn over
LUD1	Ludhiana	1967	Bicycle Parts (BP)	1	Medium	NA
LUD2	Ludhiana	1985	Bicycle	1	Low	0
LUD3	Ludhiana	1990	Bicycle	1	Medium	50
LUD4	Ludhiana	1978	BP	1	Low	100
LUD5	Ludhiana	1975	Bicycle	1	Medium	50
LUD6	Ludhiana	1994	BP	1	Low	100
LUD7	Ludhiana	1985	Bicycle	1	Low	50
LUD8	Ludhiana	1974	Bicycles	2	Low	100
LUD9	Ludhiana	1987	Bicycles	1	Low	0
LUD10	Ludhiana	1966	BP	1	Low	70
LUD11	Ludhiana	2002	Bicycles	1	Low	0
LUD12	Ludhiana	1994	BP	1	Low	100
LUD13	Ludhiana	1997	BP	1	Low	0
LUD14	Ludhiana	2000	BP	1	Low	0
LUD15	Ludhiana	1965	Bicycles	1	High	100
LUD16	Ludhiana	1969	BP	1	High	50
LUD17	Ludhiana	1991	BP	1	Low	0
LUD18	Ludhiana	2004	BP	1	Medium	100
LUD19	Ludhiana	1990	Bicycles	1	Medium	100
LUD20	Ludhiana	1972	BP	1	Low	0
LUD21	Ludhiana	1988	Bicycles	1	Low	25
LUD22	Ludhiana	1984	BP	1	Low	0
LUD23	Ludhiana	1960	BP	1	Low	0
LUD24	Ludhiana	2001	Bicycles	1	Medium	0
LUD25	Ludhiana	2000	Bicycles	1	Low	0
LUD26	Ludhiana	2003	Bicycles	1	Low	100
LUD27	Ludhiana	1997	BP	1	Low	100
LUD28	Ludhiana	1948	BP	1	Low	0
LUD29	Ludhiana	1975	BP	1	Low	0
LUD30	Ludhiana	1988	Bicycles	1	Low	25
LUD31	Ludhiana	1995	BP	1	High	3
LUD32	Ludhiana	1986	BP	1	Low	0
LUD33	Ludhiana	1965	BP	1	Low	0
LUD34	Ludhiana	1964	Bicycles	1	High	50
LUD35	Ludhiana	1970	Bicycles	1	High	50

Note- Turnover is defined as High (> 30 Rs. Crore), Medium (5-30 Rs. Crore) and low (1-5 Rs. crore).
Source- Survey Database

7.3 Survey Findings

Our findings are primarily drawn from the questionnaire based survey of selected manufacturing-exporting units in the bicycle industry. The focus of the questionnaire was on the employment generation potentials of L intensive firms and it encompassed several important information pertaining to workforce absorption such as managerial staff, workers, permanent versus temporary workers, male versus female workers along with information on aspects-educational background of workers, wages and social security benefits. Information was also sought on the status of machinery usage across bicycle and spare parts manufacturer in order to gain an understanding of technology related aspects of machinery usage in order to be able to make an inference if firms were indeed becoming more capital intensive and thus necessarily cutting down on employment generation.

Given that employment generation could be brought about by increasing the volume of production by catering to export markets. We also attempted to profile the export status of the sampled firms in order to assess if export orientation is indeed an important feature of this industry. The final dimension that we seek to explore concerns investigating the possible deterrents of employment generation- lack of skilled and trained personal, labor unions- strikes and disputes, labor laws.

The outline of this section is as follows- section **7.3.1** covers the employment scenario as is evident in the bicycle units from our sample. The machinery usage of sample firms is outlined in section **7.3.2.** The exports-employment relationship, if any from our survey is highlighted in section **7.3.3** and in the final section our findings on labor rules and regulations in the leather firms and their consequences for employment generation are addressed.

7.3.1 Employment Scenario

The data on number of persons engaged in the sample manufacturing units gives important insights into the volume of employment generated in the bicycle industry. It is important to point out that unlike other sampled industries- apparel, leather and sports goods, the respondents were not able to extract detailed information regarding the break down of employed persons into categories - gender-male versus female. We have collected information by 3 categories- managerial staff, permanent workers and temporary workers. Therefore our estimates of employment growth would cover the categories mentioned before.

Employment growth including Outsourcing

The first category we looked at was the managerial staff, for which we hardly observe any growth rates except for a few firms- which report around 8 percent or more rates of growth during 2003-2005. It would be important to mention here most firms reported no change in managerial staff between our sample years, resulting in absence of growth. **Table 7.2** lists the findings of employment growth by category for all the 35 firms.

Table7.2: Employment Growth by Different Worker Category: The Bicycle Firms

Firms	Rate of Growth of Managerial Workers	Rate of Growth of Permanent Workers	Rate of Growth of Temporary Workers	Rate of Growth of Total Workforce
LUD1	0	0	NO TEMP	0
LUD2	0	7.1	0	4.7
LUD3	0	10	8.3	8.3
LUD4	0	12.5	0	2.4
LUD5	0	3.6	-8.3	0.2
LUD6	0	NO PERM	0	0
LUD7	0	0	0	0
LUD8	12.5	3.2	NO TEMP	3.9
LUD9	0	10	0	5.8
LUD10	N.A.	NO PERM	N.A.	N.A.
LUD11	0	0	12.5	5.9
LUD12	0	3.6	NO TEMP	3.3
LUD13	N.A.	N.A.	N.A.	N.A.
LUD14	0	8.3	-5.6	0
LUD15	0	0	0	0
LUD16	28.9	10.3	NO TEMP	11.5
LUD17	N.A.	N.A.	N.A.	N.A.
LUD18	12.5	12.5	0	10.8
LUD19	0	NO PERM	0	0
LUD20	0	0	NO TEMP	0
LUD21	0	0	12.5	6.8
LUD22	0	0	0	0
LUD23	N.A.	0	NO TEMP	N.A.
LUD24	0	0	0	0
LUD25	0	0	66.7	58.8
LUD26	0	0	-10	-3.6
LUD27	0	0	0	0
LUD28	0	NO PERM	0	0
LUD29	0	NO PERM	0	0
LUD30	0	0	18.5	12.8
LUD31	8.3	0	5.6	1.8
LUD32	0	NO PERM	0	0
LUD33	0	NO PERM	0	0
LUD34	0	0	0	0
LUD35	0	0	0	0

Note: NO PERM = No permanent workers, NO TEMP= No temporary workers, Total Workforce = Managers + Permanent + Temporary Workers
Source: Survey database

- As far as permanent workers in sample firms goes, we find that only in the small number of firms, the number of workers has increased during 2003-05. In some of them, we even find evidence of growth in excess of 10 percent. Many firms even reported absence of any kind of permanent workers. In large number of firms, where-ever we observe zero growth, we find that those firms did not report any increase in hiring.

- In the case of temporary workers, we find that in three firms, there is a decline in the growth rate of workers by this category. As with permanent workers, we find only in few firms, evidence of positive growth rates. Further, in large number of firms, where-ever we observe zero growth, we find that those firms did not report any increase in hiring.

- Overall, we find evidence of growth in total workforce of around 5 percent or more in 8 of our sample firms. These sample firms are mostly manufacturing complete bicycles and also record impressive sales turn over.

- Our sample firms do not show any kind of outsourcing of jobs.

Wages and Shifts

- The firms did not report much information of wages by gender thereby constraining us from making any inference about gaps in male-female wages. Thus we provide wage information only for total workers. For large number of firms, we found out that wages are in a band of Rs. 2000-3500 per month. Further some differential exist for males and female workers.

- One important aspect of the workforce working in this industry has been the presence of equal proportion of permanent and temporary workers and this regard there is a distinct division of wages as Rs 2000 for temporary workers and between 2500 and 3500 for permanent workers.

- The wage structure in the our sample signifies the fact that unlike other industries, though the working hours are specified as 8 hours of regular shifts, the payments are made on regular salary basis rather than shift wise. When a firm engages workers beyond the stipulated 8 hour of shifts, then they are pay on the basis of extra hours worked.

- As regards the shifts of operation are concerned, on an average we find firms to comply with 26 shifts per month. We had earlier observed that all bicycle manufacturers operate with one plant/factory.

Educational Background of Workforce

We profile the educational background of workforce across different firms in order to assess the pattern of employment in terms of skilled versus unskilled workforce in the bicycle industry. Therefore we collected information from firms on the educational background of the employed in 4 categories- school pass out (class 10), high school pass out (class 12), graduate, (BA. B.Sc.B.Com) and graduate + (graduate with additional

technical skills and industry specific characteristics). **Table 7.3** outlines the educational background in percent across bicycle manufacturing units [54]

- We observe from the information collected across bicycle firms that almost 100 percent of the employed category consists of school pass-outs and graduates. The category < or = class 10 comprises the major employed group in terms of over 95 percent absorption. The rest 5 percent is through graduates who essentially form the managerial workforce. We did not have any information on the other categories thereby indicating the dominance of school pass outs as workforce in the bicycle firms.

- In terms of compliance codes and social security benefits, majority of the firms acknowledged their positive contribution to both these categories. Except LUD16,which has reported of providing both Provident funds (PF) and Employee State Insurance (ESI), all sample firms' social security benefits only included (ESI), for both workers and managers.

Table 7. 3: Educational Background of Total Persons Engaged (Percent in Total Workforce): The Bicycle Firms

Firms	< 10th	Graduate	Compliance Code	Social Security Benefits
LUD1	93	7	Yes	Yes
LUD2	95	5	Yes	Yes
LUD3	96	4	Yes	Yes
LUD4	98	2	Yes	Yes
LUD5	95	5	N.A.	Yes
LUD6	94	6	Yes	Yes
LUD7	96	4	Yes	Yes
LUD8	96	4	Yes	Yes
LUD9	96	4	Yes	Yes
LUD10	96	4	Yes	Yes
LUD11	95	5	Yes	Yes
LUD12	96	4	Yes	Yes
LUD13	N.A.	N.A.	N.A.	N.A.
LUD14	96	4	Yes	Yes
LUD15	95	5	Yes	Yes
LUD16	90	10	Yes	Yes
LUD17	N.A.	N.A.	N.A.	N.A.
LUD18	95	5	No	No
LUD19	85	15	NO	No
LUD20	98	2	Yes	Yes
LUD21	96	4	Yes	Yes
LUD22	96	4	Yes	Yes
LUD23	95	5	Yes	Yes

[54] For Bicycle industry, we could get information on only two categories- school pass-outs and graduates and hence the table reflects the employment according to these categories.

Firms	< 10th	Graduate	Compliance Code	Social Security Benefits
LUD24	96	4	Yes	Yes
LUD25	97	3	Yes	Yes
LUD26	96	4	Yes	Yes
LUD27	96	4	Yes	Yes
LUD28	95	5	Yes	Yes
LUD29	96	4	Yes	Yes
LUD30	96	4	Yes	Yes
LUD31	90	10	Yes	Yes
LUD32	88	12	Yes	Yes
LUD33	96	4	Yes	Yes
LUD34	N.A.	N.A.	Yes	Yes
LUD35	92	8	Yes	Yes

Source: Survey database

7.3.2 The Status of Machinery Usage

Given that our secondary data showed that in the bicycle industries, we observe a decline in the L intensity, we found it imperative to examine if indeed this was reflective of the situation prevailing in different firms across India in the bicycle sector. Thus to ascertain this, we collected information on machinery usage in the past three years along with information on how many persons are engaged in work exclusively with machines and how many without machines. **Table 7.4** shows information on various aspects of machinery usage-machines in operation in 2003-04 and 2005-06 along with total workforce in 2003-04 and 2005-06. Further using the information in the first four columns, man-machine ratios were computed for 2003 and 2005 to ascertain whether it is declining or increasing.

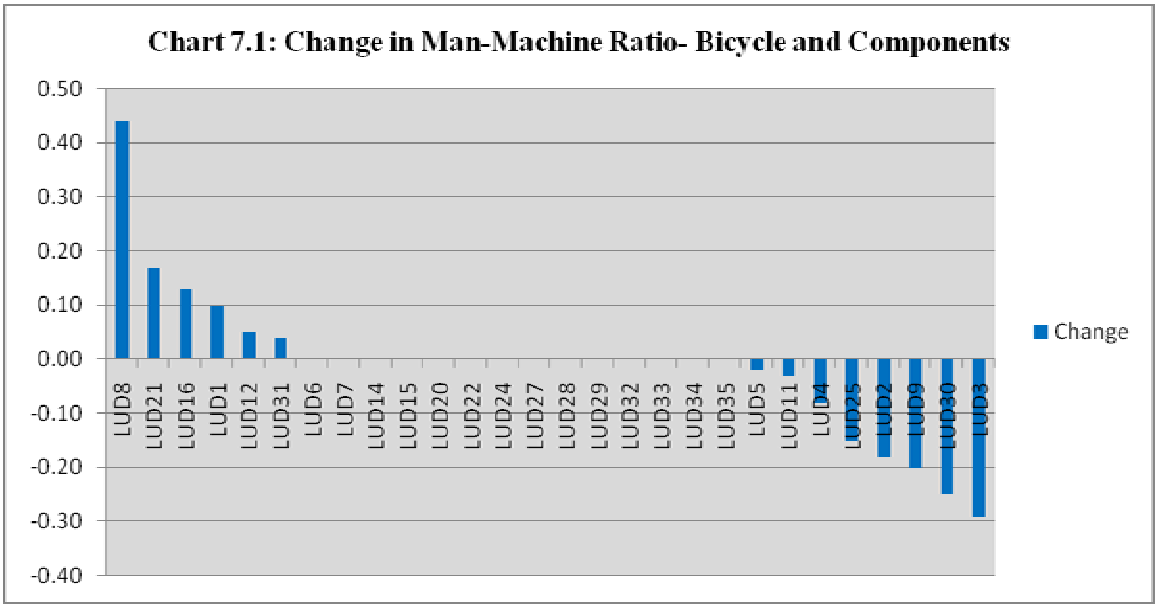
- We use here total workforce, which includes permanent+ temporary+ managerial to represent total persons engaged in the computation of man-machine ratio in the bicycle industry. From our sample, we observe in large number of units that the workforce engaged has increased over the period 2003-05. In others, it was reported that the manufacturing units did not seek an expansion of workers.
- In the context of machinery usage, we record situations of no increase in machinery usage along with cases, where there has been an increase in the number of machines-in-use. Further, most of the machines were procured from the domestic markets.
- Out of 35 sample firms, in 8 firms, we observe rise in the man-machine ratio and in 6 we observe a decline in man-machine ratio. A large majority of firms show no changes in the ratio, thereby suggesting that there has been the same proportionate change in both workers and machines. As with other industries, we also see mechanization taking place in firms which report an increase in the ratio
- As regards technology up gradation, we find that imported machineries are expensive to install as financing options for firms are very costly and does not distinguish between firm sizes.

Table 7.4: Machinery Usage and Man-Machine Ratio: The Bicycle Firms

Firms	Total Workforce in 2003-04	Total Workforce in 2005-06	Total No. Machines in 2003-04	Total No. Machines in 2005-06	Person to Machine Ratio in 2003-04	Person to Machine Ratio in 2005-06	Change in Ratio
LUD1	153	153	120	130	1.28	1.18	Decline
LUD2	53	58	28	28	1.89	2.07	Rise
LUD3	60	70	35	35	1.71	2	Rise
LUD4	103	108	60	60	1.72	1.8	Rise
LUD5	223	224	50	50	4.46	4.48	Rise
LUD6	32	32	15	15	2.13	2.13	No Change
LUD7	58	58	60	60	0.97	0.97	No Change
LUD8	51	55	18	23	2.83	2.39	Decline
LUD9	43	48	25	25	1.72	1.92	Rise
LUD10	N.A.	47	20	20	N.A.	2.35	N.A.
LUD11	17	19	10	11	1.7	1.73	Rise
LUD12	30	32	20	22	1.5	1.45	Decline
LUD13	N.A.	N.A	N.A.	50	N.A.	N.A.	N.A.
LUD14	17	17	10	10	1.7	1.7	No Change
LUD15	178	178	60	60	2.97	2.97	No Change
LUD16	309	380	220	300	1.4	1.27	Decline
LUD17	N.A.	80	N.A.	55	N.A.	1.45	N.A.
LUD18	51	62		N.A.	N.A.	N.A.	N.A.
LUD19	14	14	N.A.	N.A.	N.A.	N.A.	N.A.
LUD20	52	52	20	20	2.6	2.6	No Change
LUD21	37	42	20	25	1.85	1.68	Decline
LUD22	34	34	17	17	2	2	No Change
LUD23	N.A.	N.A.	25	40	N.A.	N.A.	N.A.
LUD24	104	104	50	50	2.08	2.08	No Change
LUD25	34	74	20	40	1.7	1.85	Rise
LUD26	14	13	N.A	N.A.	N.A.	N.A.	N.A.
LUD27	20	20	15	15	1.33	1.33	No Change
LUD28	42	42	30	30	1.4	1.4	No Change
LUD29	17	17	10	10	1.7	1.7	No Change
LUD30	39	49	25	27	1.56	1.81	Rise
LUD31	420	435	300	320	1.4	1.36	Decline
LUD32	28	28	20	20	1.4	1.4	No Change
LUD33	22	22	17	17	1.29	1.29	No Change
LUD34	420	420	350	350	1.2	1.2	No Change
LUD35	350	350	250	250	1.4	1.4	No Change

Source: Survey database

Chart 7.1: Change in Man-Machine Ratio- Bicycle and Components



Note: The chart does not include the firms whose information is not available

- In case of firms, where newer and modern machines were being added to the production process, it was not possible to reflect from the questionnaire whether these machines were bringing around the technological changes taking place globally especially in competitor countries like China and to a lesser extent in European nations which also manufacture bicycles and parts[55].

7.3.3 Export Status of Firms

The survey also focused on questions related to exports of bicycle and parts & accessories from India and sought information on export markets, international competitors, various export incentive schemes that are on offer for this sector and which firms have been availed by the firms. Finally firms were asked to highlight what were major infrastructural bottlenecks for pursuing exports.

- Information was not available on many aspects of the exports of the bicycle industry as respondents were not forthcoming with details.

- From our sample, we find that only 9 firms show an export orientation in terms of 100 percent turnover accruing from sales in the export market. Majority of these firms-LUD4, LUD6, LUD12, LUD18 and LUD27 exports bicycle parts & accessories. A few firms recorded export sales less than 100 percent of turnover. Further, in our sample, we also observe that large number of firms have identified them as primarily manufacturing for the domestic markets.

[55] This is a limitation of our report on bicycle firms as most of the respondents were either uncomfortable or unable to comment on the issues pertaining to technology and its adaptation.

- The export destinations for most of our sample firm comprised the following- European Union, US, Africa and Latin America. It is important to point here that some of the developing country markets- especially Africa and Latin America are more accessible to Indian manufacturing units because of the preferences of buyers in these countries for steel- based bikes as against lighter- sports bikes.

- As regards competitor country, most of the sample firms suggested that China was a major rival in the export markets with a near 80 percent share of global trade in bicycle and parts. China edges India in the world bicycle market because of its product being almost 30 percent cheaper than Indian cycles. Most of the firms pointed out that it is the input prices that account for price differential between Chinese bicycles and Indian ones.[56]

- Finally various reasons that were put forward by firms for export proceeds being low consisted of rupee versus dollar fluctuations, and depreciated Chinese currency. Further not much interest was shown in export promotion schemes as not many schemes were around for bicycle manufacturer-duty drawbacks, DEPB, EPCG seems the more popular ones

7.3.4 Labor Issues

This section leads to our assertion of what are the important issues that confront labor usage in this industry. Our investigators were specifically asked to bring out this aspect during the questionnaire based survey. In the following paragraphs, we highlight the labor related issues which were put forward by the respondents in the bicycle manufacturing units.

- Most of the firms pointed out that there is shortage of labor in general- more dearth of unskilled workforce in relation to skilled workforce. This shortage is very significant during the April-July months of the year.

- Our survey indicated that in all firms we did not find presence of any labor unions. This holds even for firms where we observed large workforce- LUD31, LUD34 and LUD16

7.4 Recommendations based on findings

Our recommendations are based entirely on the findings of our study. It would be important to mention at the outset that the selection of firms and consequently the survey reflects the Bicycle industry.

[56] We gather on the basis of information based from firms that main raw materials like MS round, CRC sheet and tube are much cheaper in China as against India. In particular, we see for MS rounds (14,400 versus 29,000), CRC sheet (21,000 versus 36,000) and for tubes (25,000 versus 43,000). All figures are in Indian rupees per ton.

- We find from our survey that most of the firms employ unskilled workforce considering that majority of those employed are either less than high school or at the most high school pass outs. Further most firms also reported shortage of workforce. Thus the recommendation is for providing training centers from where firms can draw trained workforce.

- India's specialty seems to be in heavy duty bike, where as in the export market the trend is towards light and sports bikes. It is recommended that emphasis is placed on emerging markets of Latin American and Africa to increase exports and in turn offer employment opportunities.

- Most firms attributed input cost differential between India and China as reasons for Chinese supremacy in the global markets. Our discussions with management revealed that steel prices have been increasing in the past few years and being the major-input into bicycle manufacturing erodes competitiveness of Indian bicycles. We recommend that government re looks at steel prices when used exclusively for manufacturing bicycle in order to give bicycle manufacturer cum exporters a competitive edge over China. Further, the product is very price elastic in any kind of market as it serves as a sole mode of transportation amongst poorer sections of society.

- Two major issues that affect output generation in sample firms and act as a disincentive for exports concern poor power supply and issues related to VAT refund. This needs as attention given export-employment linkage

Chapter 8

Gems & Jewellery Industry- Evidence from Firm Level Survey

8.1 Introduction

India's Gem and Jewellery industry is one of the major export earners as well as one of the fastest growing sectors of the economy. In the last four decades, this industry has performed impressively with exports increasing from $28 million (1960) to around $16 billion (2000). The main contributor to this impressive performance of the industry came from the Diamond sector, which accounted for near 74 percent of India's exports. In the past decade (1990-2000), however it is the jewellery sector which averaged a growth of nearly 40 percent per annum and ensured India's competitiveness in this industry.

In India, the gems and Jewellery industry is largely unorganized and dominated by family jewelers. In the diamond segment of the industry, there are more than 5000 processing units and in the gold jewellery section, 15,000 firms across the country contribute 80 percent of exports. Surat is a major processing centre for rough uncut diamonds, whereas Kolkata, Mumbai and Coimbatore specialize in different types of gold jewellery. The cutting and polishing of diamonds-processing of diamonds from India accounts for 90 percent share in volume terms for the global markets. In the case of gold jewellery, India's expertise is in the area of hand made jewellery in traditional and modern forms. In addition, precious and semi precious stones also find a large presence in the global trade from India.

The gem and jewellery industry owes its inception in India to the Government rules and regulations. First in the 1960s the GOI allowed an exporter to import rough diamonds worth 80 percent of the value of exports. The customs duty on imported rough diamond has been brought down to nil. Second, the EXIM policy of 2002-07 contains special focus on this sector- market access initiative, duty free imports, value addition norms. Third, the government has set up special economic zones with specific incentives for both units operating in SEZ and EOU. Thus we find that the focus of the government is clearly on export promotion and remaining competitive in the global markets.[57]

In our appraisal of the labor intensive industries of the Indian economy, we find that manufacture of jewellery and related articles (NIC code 3691) ranks within the top 10 labor intensive sectors of Indian manufacturing. Further looking at the time period of 1990-2003, we observe that there is a gradual decline in L intensity of production. This when juxtaposed with the fact that total gem and jewellery export from India has increased from $62 million in 1960s to around $12,000 in 2003, leads us to the issue of if growth in this sector is reflected in the substitution of labor by machines, then what happens to the employment potential of this essentially labor intensive sector?

[57] Refer to the section on Government regulations and support in "Gems and Jewellery" India Brand Equity Foundation, Davos, 2006.

8.2 Industry Coverage

The sample selection and coverage of the firms was decided through consultation with the Gems and Jewellery Export Promotion Councils- Head Office and its regional offices in-Delhi, Chennai, Mumbai, Surat and Kolkata. We focused on two major components of Gems and Jewellery– diamonds and gold jewellery[58]. For diamonds, we concentrated on two centers- Surat and Mumbai. For gold jewellery, the chosen locations were Chennai, Bangalore, Coimbatore, Delhi and Kolkata. For paucity of time, we could not cover the pearls and precious/semi precious stones (Hyderabad and Jaipur).

As indicated earlier, the gems and Jewellery sector comprises units mostly in the unorganized sector. We found that on an all India basis, there are approximately around 6,500 manufacturer-exporters as against 5lakh units that cater primarily to the domestic market.[59] Further, we find the emergence of several clusters across India for the different items of this industry- Jaipur (polishing stones- precious and semi precious), Delhi (manufacturing silver jewellery), Kolkata (gold jewellery), Hyderabad (studded jewellery), Nellore (gold Jewellery), Belgaum (studded jewellery), Coimbatore (gold Jewellery), Trichur(gold Jewellery) and Mumbai(gold jewellery).[60]

Our sample consists of 36 units across India, many of which are manufacturer as well as exporters. [61]From Southern India, our sample consists of firms located in Chennai, Bangalore and Coimbatore comprising of gold and diamond jewellery as their main products. In the North comprising of units located in Delhi manufacturing jewellery- both gold as well as diamond. In Kolkata the focus was on units manufacturing plain gold jewellery and in Mumbai and Surat, we tried to concentrate on Diamond firms. Many of these firms are family based enterprises. **Table 8.1** provides the details of the sample

Our sample firms indicate that within the broad gems and jewellery segment, a wide range of items are manufactured under jewellery- plain gold jewellery made by hand as well as machine made, lightweight versus non lightweight gold jewellery, studded jewellery-diamond studded, precious/semiprecious stones studded, pearls studded, colored gems stones studded, synthetic stones studded etc.

As in the case of other L intensive sectors, we have tried to cover firms which have existed for a large number of years along with recent entrants to the industry. The oldest firm in the sample was incorporated in 1905 (BA1- Bangalore) and the youngest in 2003 (DH1, Delhi and KOL1, Kolkata). Further we observed across firms that very few units have in-house permanent workforce to manufacture and most firms are outsourcing to their artisans who are outside the employment rolls of the firm, but yet maintain near

[58] The 3 major items of the Gems and Jewellery industry are Diamonds, Jewellery-studded as well as non studded and Color Stones.

[59] This figure was quoted by the representatives of the Gems and Jewellery export promotion council.

[60] Each of the clusters that make gold jewellery is involved in specialization- Kolkata for handmade light gold jewellery; Mumbai for machine made gold jewellery, Trichur for casting based gold jewellery, Nellore for handmade non light gold jewellery.

[61] An important trait of this industry was the refusal of large number of firms to be a part of the survey and in the case of those who participated, refusal to divulge details of sales turnover, employment etc.

permanent like workforce relationship with the firms. Some firms especially those based in Mumbai region manufacture through job work-done.

As regards the sales turnover, we have information only from a limited number of firms. It would be important to mention here that many firms found it uncomfortable to divulge details of sales turnover. BA4, Bangalore comes across from the sample as the firm with the highest turn over. The next best performances come from the diamond firms in Surat. From the available information we see that we have a very wide range of sales turnover across the sample firms.

The export share in total turn-over is nearly 100 percent for nearly half the firms in our sample. From the **Box 8.1** alongside, we find that the Top 5 sales turnover firms in our sample that have export orientation of 100 percent- BA4 and CH6 belong to the jewellery category and the rest are polished diamond exporters based in Surat. In many firms, there is also evidence of absence of any significant export linkage in many firms. Our sample also indicates that exports are not confined to only processed diamonds as we find that quite a number of firms within our sample who are exporting belong to the product category of gold as well as studded jewellery- diamond, precious stones and sliver. Further, most of the jewellery of these types finds markets in USA (44 percent) and UAE (40 percent).[62] It would be important to mention that in the year 2005-06, exports of total gems and jewellery from India to world markets were around $16 million.

Box 8.1
Top 5 Sales Turnover Firms with 100 percent Export Orientation.

- **BA4- Bangalore**
- **SUR5-Surat**
- **SUR3- Surat**
- **SUR- Surat**
- **SUR- Surat**
- **CH6- Chennai**

Finally we observe from our sample firms that the industry is blend of machines, design techniques as well as traditional artisans. In recent times, machine made gold jewellery is being manufactured in India along with vast amounts of artisan based hand made (traditional) jewellery. These kinds of jewellery have markets within India as well as abroad. In addition, we also observed from our discussions, that there is a transformation from unorganized sector to concept of branded jewellery.[63]

[62] In the year 2005-06, we found that USA and UAE together comprised around 85 percent of India's exports of Gold Jewellery. The rest of the exports go to countries like UK, Singapore, HongKong, Gemany, Belgium and Kuwait. Refer Gems and Jewellery, Annual Report (2005-06), The Gems and Jewellery Export Promotion Council, Mumbai, India.

[63] "Tanishq" the jewellery division of TATA group with unique designs and guaranteed product quality has been able to position itself as reputed brand in the country.

Table 8.1: The Gems and Jewellery Industry- A Summary Profile of the Sample Firms

Firms	Location	Incorporation	Major Products	Plants	Turnover	Export share in Total Turn Over
BA1	Bangalore	1905	PGJ	1	Medium	N.A.
BA2	Bangalore	1994	PSGJ	1	N.A.	N.A.
BA3	Bangalore	1889	PSGJ, DP	1	High	4
BA4	Bangalore	1982	PSGJ, DP	2	High	48
BA5	Bangalore	1995	PSGJ	1	Medium	50
CH1	Chennai	1935	PGJ,PSGJ	1	High	6
CH2	Chennai	1993	PGJ,PSGJ	1	Medium	20
CH3	Chennai	1953	PGJ,PSJ	50	N.A.	0
CH4	Chennai	1980	TJ,PSJ	5	N.A.	50
CH5	Chennai	1985	PSGJ	1	Low	100
CH6	Chennai	1991	PSGJ	12	High	32
CH7	Chennai	1992	PSGJ	outsourced	Medium	100
CH8	Chennai	1987	PSGJ	1	Low	100
CH9	Chennai	1993	TJ,PSJ	2	Low	100
COI1	Coimbatore	1986	PSGJ	1	High	7
COI2	Coimbatore	1975	PGJ,PSGJ	2	N.A.	N.A.
COI3	Coimbatore	1984	PSGJ	1	N.A.	6
COI4	Coimbatore	1929	PSGJ	50	N.A.	N.A.
DH1	Delhi	2003	PSGJ	outsourced	Medium	100
DH2	Delhi	N.A.	PSGJ	1	Low	100
KOL1	Kolkata	2003	PGJ,PSGJ	1	Medium	100
KOL2	Kolkata	1945	PGJ,PSGJ	outsourced	Medium	0
KOL3	Kolkata	2000	PSGJ	1	Medium	100
MUM1	Mumbai	2002	PSGJ	4	Low	25
MUM2	Mumbai	1992	PSGJ	Job work	Low	80
MUM3	Mumbai	1993	PSGJ	Job work	Low	100
MUM4	Mumbai	1986	DP	Job work	Medium	100
MUM5	Mumbai	1992	DP	Job work	High	100
MUM6	Mumbai	1987	DP	2	Low	100
MUM7	Mumbai	1982	PSGJ	6	Low	75
MUM8	Mumbai	N.A.	DP	N.A.	N.A.	100
SUR1	Surat	1977	PGJ,DP	6	High	100
SUR2	Surat	1972	DP	5	Medium	100
SUR3	Surat	1971	DP	3	High	100
SUR4	Surat	1973	DP	5	High	100
SUR5	Surat	1950	DP	1	High	100

Note: PGJ: Plain Gold Jewellery; PSJ:Plain Silver Jewellery; PSGJ: Plain and Studded Gold Jewellery; DP: Diamond Processing; TJ: Temple Jewellery

- *Turnover: <20 Crore = Low, 21-100 Crore= Medium, > 100 Crore= High*

Source: Survey Database.

8.3 Survey Findings

Our findings are primarily drawn from the questionnaire that was filled up in consultation with the firm's representatives of selected manufacturing-exporting units in the gems and jewellery industry. Given that the industry is structured in a format which is different from the other four labor intensive categories, our survey findings are not in the same type of classifications as used for the other industries.

Box 8.2: The Structure of Gems and Jewellery

It is important at the outset to appraise about the structure of the industry in this sector. The value chain of the industry can be represented in the following manner. At the start of the chain is the mining, followed by gemstone processing and gold jewellery manufacturing and finally jewellery retailing. The firms covered in our sample cater to the structure outlined below in the **Box8.2**- Gems Processing and Jewellery Manufacturing & Retailing.

Diamond Processing	Jewellery Manufacturing
MUM4	BA1
MUM5	BA4
MUM6	CH1
MUM8	CH2
SUR1	COI2
SUR2	KOL1
SUR3	KOL2
SUR4	CH3
SUR5	BA2
BA3	BA5
	CH5
	CH6
	CH7
	CH8
	COI1
	COI3
	COI4
	DH1
	DH2
	KOL3
	MUM1
	MUM2
	MUM3
	MUM7

In the diamond processing category, the firms listed in our sample are mostly importing rough diamonds and processing them to be consumed as studded jewellery. In the Jewellery segment, our focus was on gold jewellery and hence selection of firms in the sample was primarily restricted to those firms which reported gold ornaments as their major products. We have sample size of 10 firms representing the diamond cutting and polishing category and

8.3.1 Employment Scenario

The gems and jewellery industry is mostly confined to the unorganized sector and as with any unorganized sector activity, employment information is hard to come by. Further given its production structure, almost 99 percent of gold jewellery manufacturing is not done in house and completely outsourced. The diamond segment however is organized

differently with presence of large workforce in diamond factories engaged in cutting and polishing of diamonds. In the section below our appraisal of employment details of this industry is mostly qualitative based on visits to factories and learnt through discussions with management of the firms.

Employment including outsourcing

As regards employment, we were not able to report any employment numbers from our sample firms; however it was evident from some plant visits in Surat (SUR3 & SUR5,) that large number of workers –predominantly male workers in large factories with sophisticated machines. The value of the product and the intense production process makes it imperative to have in house workforce catering to different aspects of diamond polishing.

These work forces belong to various educational backgrounds. The educational background of workers cutting and polishing diamonds were mostly from school background. Further, each floor-called factory had supervisory staff, in addition to workers and these had educational qualifications extending beyond High Schools. Therefore, the employment was essentially in terms of managerial staff and workers.

In the case of gold jewellery- manufacturing and retailing, it is important to mention that manufacturing is in majority of cases out sourced. Each firm has around 25-50 contractors with them who in turn employ around 200-250 workers. These workers work through the contractor for many such firms[64] . Further each firm depending upon the number of retailing units employ additional staff who act as sales person. The employment structure is therefore –contractors, workers and managerial staff (mostly sales staff in retail units).

Information on the educational background of workforce in gold jewellery is essentially that of managerial staff, where from a minimum of high school pass out to graduates are employed. Given that outsourcing is a major activity of production, it was not possible to get information from the firms on educational qualification of workforce, they may not have seen at all. The firms however did mention that no specific educational background is important as far as jewellery making is concerned as these artisans are mostly manufacturing hand made jewellery and all that was important to the firm in employment was his/her adapt at making the jewellery-skills learnt on the job.

Wage structure across firms

In the case of diamonds, we observe different levels of wage structure for workers involved in various segments of diamond cutting and polishing. Those workers who are directly involved in cutting and polishing of diamonds are paid a wage that is different

[64] It was pointed out that in a format such as the one outlined, it was not possible to maintain product exclusivity.

than those who work as supervisory staff[65]. It is important to point out that supervisory staff who are technical (computer programmers as well as operators) are however paid a higher wage than normal supervisory staff. As a rough idea of the wage structure in this segment of gems and jewellery industry we observed from our survey that one firms pays a minimum of Rs. 5,000 for male as well as female workers.

The wage structure for gold jewellery consists of salary for managerial staff and piece rates for outsourced jobs. Many firms in our sample reported outsourcing of work as far as gold jewellery is concerned. The payment structure for such outsourced work is mostly via piece rates and in some cases in terms of a rupee rate per gram of gold. For large number of firms which manufacture as well as retail, we observe variations across regions in their wage structure. **Table 8.2** below lists the wage structure and we observe that the range extends 3,000 to 18,000 per month. This same wage holds for both female as well as male workforce.

Table 8.2: Wage Structure in Gold Jewellery- Manufacturer & Retailer (Rs. per Month)

Firms (Manufacturer + Retailer)	Major Products	Wages per month (Rs)	No of shifts per months (8 hrs shift)
BA1	PGJ	4000-10,000	24
BA3	PSGJ, DP	10,000-15,000	24
BA4	PSGJ	7200	48
CH5	PSGJ	4000-7500	26
CH6	PSGJ	3000-15000	24
COI2	PSGJ	4000-10000	24
COI13	PSGJ	3000-10000	24
MUM1	PSGJ	10,000+	35
MUM2	PSGJ	10,000+	35
MUM7	PSGJ	12,000-18,000	24

Note: PGJ: Plain Gold Jewellery, PSGJ: Plain and Studded Gold Jewellery and DP: Diamond Processing,
Source- Survey Database

[65] It was pointed out that a diamond cutter and polisher as distinct from a supervisory(managerial workforce) stands to earn at times more than managerial staff as due credits are given to his work experiences, efficiency and productivity.

In both diamond and jewellery segments, the social security provisions including compliance codes are for only managerial staff, who enter the record and accounts book of the firms. Majority of the firms in our sample have listed PF and ESI as two basic social security provisions that they adhere to. Very few firms reported any other kind of social security allowances that are made for by them. Very few firms reported about life insurance, health insurance, pension and gratuity as social security allowances other than ESI and PF.

8.3.2 The Status of Machinery Usage

It is seen from the different production patterns of diamond and gold jewellery segments of this industry that machinery usage vis-à-vis workers has completely different implications. Most of our sample firms within diamond industry indicate the usage of sophisticated machines (laser technology) in each step of cutting and polishing. As regards machine-worker relationship, it was reported that each new and advanced machine need workers to operate it and in turn generates employment for the firm and also increases the efficiency of the workforce. From our visits to the diamond firms in Surat, it was evident that global technology was in use in these units and further these machines were not labor displacing.

In the case of gold jewellery, the machine usage was almost zero as India still specializes in hand-made and these were carried out by workers using simple tools. Hence we are not able to comment on the machine-worker aspect of machinery usage in this segment of the gems and jewellery firms.

8.3.3 Export Status of Firms

The gems and jewellery industry with two distinct categories- diamonds and gold jewellery owes its export orientation to governmental efforts beginning 1960.[66] Both cut and polished diamonds as well as gold jewellery show positive trends as far as export growth is concerned. **Table 8.3** provides the export profile of the gems and jewellery industries.

- From our sample firms, we find that gold jewellery manufacturers as well as retailers in all major metropolitan cities have strong export orientation including in some cases even 100 percent exporting units, yet our survey shows that some firms do not show export inclination as they are major players in the regional markets.

- As regards the export destinations, we see that USA and Middle East consisting of non resident Indians to be major buyers of Indian gold jewellery. The second most important buyers come from markets in Singapore and Malaysia. Only one firm- Rajesh Exports based in Bangalore caters to markets in Europe and Australia in addition to USA and Middle East. It seems therefore that exports are mainly confined to NRI dominated markets.

[66] Refer to ICRA report on The Indian Gems and Jewellery Sector, July 2006.

- As regards competition in the global markets, we find that that CPD (cut and polished diamonds) enjoy market leaders position, though there is potential threat from China. In the case of gold jewellery, our sample firms indicated that for temple as well as heavy handmade jewellery, India has no direct competitors, but low weight jewellery essentially machine made, Italy and other developed countries figure as competitors.

- Our interaction with some of the major exporting firms, indicate that to ensure competitiveness in this industry, firms will have to emphasize on product designing and marketing

Table 8.3: Export Profile of Gems and Jewellery Industry

Firms	Products	Export Destinations	Competitor Country	Export Promotion Schemes availing
CH2	PGJ,PSGJ	Singapore	China	None
BA5	PSGJ	USA, Middle East	Gulf Countries	EPCG license
CH8	PSGJ	USA, Canada, UK	China (PGJ)	Gold Import license
DH2	PSGJ	Dubai	Italy	In SEZ
COI1	PSGJ	USA,UK	NMC*	Gold Import license
BA4	PSGJ,DP	USA,UK,UAE, Singapore, Malaysia, Hong-King	China (DP),None (PSGJ)	None
BA1	PGJ	USA, Dubai	Bangladesh	Replenishment Scheme
SUR2	DP	Israel, Hong-King	NMC*	None
SUR3	DP	Canada, UK, Middle East, Japan	NMC*	EPCG
BA3	PSGJ, DP	Japan	China	EPCG
COI3	PSGJ	USA, UK, Dubai, Singapore, Hong-Kong	Malaysia, Dubai	EPCG
MUM2	PSGJ	USA, Middle East	UAE	None
SUR4	DP	USA, Canada, Belgium, China	China (Polished Diamond)	EPCG

8.3.4 Labor Issues

This section leads to our assertion of what are the important issues that confront labor usage in this industry. Our investigators were specifically asked to bring out this aspect during the questionnaire based survey.

Most of the firms pointed out that there is shortage of trained labor as far as CPD is concerned. In case of gold jewellery manufacturer and exporters, we see the dominance of outsourcing. It is essential to point out that sample firms in the eastern region particularly feel that out sourcing is inevitable when labor laws are stringent and labor unions dormant. Thus unless flexible labor laws are in force it pays the management of the firms to continue outsourcing as a rational economic decision for this industry.

8.4 Recommendations based on findings

Our recommendations are based entirely on the findings of our study. It would be important to mention at the outset that the selection of firms and consequently the survey reflects the sports goods industry.

Growth of employment in any sector is directly related to its output growth. The aspect of output growth can be out of domestic demand or export demand. In this respect the gems and jewellery sector has achieved tremendous growth in output both for domestic market as well as export markets. This is evident from that fact that the predominant portion of the gold jewellery (both plain and studded jewellery) i.e. 80% of the Indian jewellery market, manufactured in India is for domestic consumption and 11 out of 12 diamonds available in the export markets are processed in India. This unique aspect of this sector, enjoying twin advantage of huge domestic demand for gold jewellery and ever expanding export market for the processed diamonds, give this sector enough scope to absorb more and more labor. In addition to the output growth, the sector being highly labor intensive, though labor intensity differs between different value chains provides employment opportunity for all unskilled, semi-skilled and skilled labor. The recommendation for this industry is solely based on the information gathered about how the industry has shaped up in different value chains and product categories.

- The most important aspect that needs urgent attention is the unorganized aspect of manufacturing of plain and studded gold jewellery. In India, as mentioned already in our findings that the export and retail units are not the manufacturing hubs and manufacturing is done by the traditional goldsmiths and craftsmen for various companies and their population is scattered in small clusters- Coimbatore, Kolkata and Nellore. These workers as they do not fall under companies act have always gone unnoticed and could hardly enjoy the benefits of government policies. We need to understand the fact that jewellery making need very high skills which have been handed down over generations and is exclusive to Indian jewellery. To intact this tradition, the organization of these workers into small units are very important.

- In continuation of the above, we would like to point out that employment strategies for diamond processing and gold jewellery segment of gems and jewellery sector have to be different. In diamond processing, we observe that with technology in use according to global standards, the need is for skilled manpower to work along side these sophisticated gadgets. In the case of gold and studded jewellery, with India's competitive advantage lying with handmade traditional jewellery we need to encourage more absorption of family based artisans into these kind of jewellery making and therefore organization of these scattered artisans into some kind of a worker-employer relationship format so that they are not deprived of the social security benefits etc.

- We find that Indian market prefers heavy weight gold jewellery, but in developed country markets, we find that low carat jewellery is in fashion. We recommend that some incentives be given to units which undertake technology up gradation in order to be able to manufacture machine based light weight low carat jewellery as these units can then focus on exporting and in turn create scale and volume leading to employment generation.

- Our survey of retail units across India and discussions with management of these units show that there is tremendous avenue for generating female workforce employment in the retail units. We recommend that some kind of incentive mechanism be devised for units which encourage them to offer employment opportunities to women in this sector.

- We found that majority of the firms in our sample are merchant-retailer and upon discussions with management, one of the factors that deter gold jewellery industry from becoming manufacturer-retailer is the unfriendly labor laws and perceived threat of unionism by workers. This is particularly true of major gold jewellery hub like Kolkata where labor unionism in rampant in most industries.

- Further, it was also learnt that there are more than 500,000 gold jewellery units across the country. Our discussions with some of gold merchant-retailers in our sample pointed out to the multiple License-Permit RAJ that prevails in the business environment of this industry even today. Some of the features that need attention to make the business environment more market competitive are (1) trade license from local municipality, (2) shop and establishment permit from state labor ministry, (3) Sales tax registration, (4) ESI registration, (5) Legal Metrology for weights and measures and (6) health license. We recommend that a single window clearance for domestic business operations be introduced.

- Our discussions with both diamond manufacturers and gold jewellery merchant-retailer shows complete dissatisfaction with the ESI schemes. In the present ESI schemes, all sample firms mentioned about the unavailability of doctors and medicines in all ESI hospitals and wherever available very low quality of service to workers. In the light of above we recommend that make it mandatory for firms to arrange for health insurance schemes for its workers.

- We found that gold jewellery manufacturing in India is still a dominant unorganized sector activity. Further manufacturers and retailers sub-contract work out to small workshops and this makes gold stock control and cartage quality control difficult to achieve. We recommend that ***Hallmarking*** be made mandatory for all merchant- retailers so that the industry can have hundred percent transparency.

- Firms in the Gems and Jewellery industry which export to the USA- one of India's major export market raised concern for the Generalized System of Preference (GSP) - duty free import in USA- expiring in 2008. Most exporters felt that if this concession is withdrawn, then the competitive edge of India's gems and jewellery sector might be eroded. This calls for some strategic action by Gems and Jewellery Export Promotion Council.

Chapter 9

Conclusions

9.1 Summary and Conclusions

The study attempted to examine the employment generating potential of labor intensive industries within organized manufacturing in India and in particular, outline the deterrents which constrain the growth of this sector from the point of view of employment growth. The study has been structured in two parts- in the first part of the study, using secondary data from the annual survey of industries, we identify the leading labor intensive industries of the organized manufacturing and in the second part, we undertake an in-depth firm level survey of selected labor intensive industries in order to understand the deterrents in expanding employment in these industries.

In order to identify the labor intensive industries of organized manufacturing, the study utilized 97 four-digit industry level data from the A*nnual Survey of Industries* for the period 1990-91 till 2003-04 to construct a measure of labor intensity, namely the labor-capital ratios. We have identified 31 industries in 4 digits level of disaggregation (NIC 1998) as labour intensive[67] which are drawn from wide array of manufacturing activity- Food and Beverages (15); Tobacco Products (16); Manufacture of Textiles (17); Manufacture of Wearing Apparel (18), Tanning and Processing of Leather (19); Manufacture of Wood and Wood Products (20); Publishing and Printing (22); Manufacture of Nonmetallic Minerals (26); Manufacture of Fabricated Metal Products (28); other Transport Equipments (35) and Manufacture of Furniture (36)

For the 31 identified labor intensive industries, we have documented industrial performance in terms of the employment growth, labor productivity and real wages growth as well as employment elasticity and capital productivity for the period 1990-91 to 2003-04. We observed an average employment growth of 4.1 percent per annum for the labor intensive sectors during the observed period. However we find that in most industries employment growth worsened in the second half of 1990s and improved in the early years of 2000s. As regards the employment elasticity, we find same trend as employment growth but there is a substantial jump in early 2000s. In case of real wages and labour productivity, the second half of 90s experienced as huge jump falling substantially in early 2000s. The noticeable experience of the period 1990-91 to 2003-04 has been the continuous falling of capital productivity across all major sectors.

In the second part of the study, we have chosen 5 sectors given their importance in terms of export potential in the world markets and industrial performance during 1990-91 to 2003-04- sports goods, apparel, leather, bicycles and gem& Jewellery Industries. The aim of the study was to determine what factors constrain the employment generation in these labor intensive industries. An in depth firm level survey comprising more than 250 manufacturing as well as manufacturing- exporting units were undertaken across all

[67] Industries with L/K ratio 0.26 and above for the period 1990-91 to 2003-04

major towns and cities that constitute hubs of these industries. The findings were many and constituted some common factors and many diverse issues that confront the business environment of these industries. In the following paragraphs, we list the sector wise findings.

- For sports goods, the survey comprised of units concentrated in Jalandhar, Meerut and Delhi which together constitute major centers of all sports item manufacturer in India. The product range of the 33 firms surveyed included traditional items- cricket, hockey, footballs and accessories to more value add items like- marshal arts, health and gymnastic equipments etc. Our major findings were lack of skilled manpower, inability to diversify export basket to more non traditional items, inability to upgrade to modern technology, unorganized and family based activity, seasonality of work.

- The apparel industry in India in the quota free regime holds immense significance for employment generation potential. Our survey focused on major apparel manufacturing hubs- Chennai, Bangalore, Tirupur, Mumbai, Ahmedabad, Delhi, Noida and Gurgaon and covered 74 firms manufacturing as well as exporting different types of men's women's and children's clothing and accessories. We observed sharp differences in firms operation across different regions. The major findings in this segment concerned shortage of skilled workforce and need for setting up training centers across different towns to provide trained workforce, the need for employing more women workers as this enhances firms efficiency of operations, changes in working rules and regulations, setting up of more apparel parks, more pro-active role for apparel export promotion councils.

- For the leather industry, we have concentrated on three major items of leather industry- footwear, garments and goods. A total of 74 firms were surveyed in Chennai, Kolkata, Delhi, Gurgaon, Noida, Agra and Kanpur covering all the three segments of leather industry.

- In the bicycle industry, a total of 35 firms comprising large, small and medium manufacturing-exporting units were surveyed in Ludhiana town of Punjab, which comprises almost 100 percent of India's bicycle Industry. The two major segments of the industry- manufacture of bicycle and manufacture of bicycle parts and accessories formed the sample units. Or major findings from this sector are shortage of workers who are ideally either school dropouts or school pass outs, input cost seems to be making India globally uncompetitive, target Latin American and African markets as these are markets for heavy bikes which are mostly manufactured in India.

- For Gem and Jewellery Industry, we focused on two major components-diamonds and gold jewellery. For diamonds, we concentrated on two centers-Surat and Mumbai. For gold jewellery, the chosen locations were Chennai, Bangalore, Coimbatore, Delhi and Kolkata. A total of 33 firms were surveyed and these firms

were either manufacturer-exporters or merchant- exporter. The major findings from this sector comprised the following- technology up gradation, potential for women workforce generation, make the business environment more friendly, doing away with ESI, introduction of hallmarking and reconsider labor regulations.

9.2 Policy Recommendations

Our recommendations are based entirely on the findings of our study. We conducted field survey of over 200 firms across these 5 industries to determine the issues that these firms have to grapple with when expanding employment in their respective manufacturing or manufacturing-exporting units. The questionnaire was structured into three parts. Part-I dealt with general information, Part-II dealt with sales and employment database, Part-III the export orientation of the manufacturing firms and Part-IV addressed the qualitative questions catering to technology and its up-gradation, labor laws including trade unionism, export bottlenecks and finally what incentives they require to enhance exports and employments? Our recommendations are sector specific given the wide variety of products that we have examined in course of our survey of 5 L intensive industries- sports goods, apparel, leather, bicycle and gems and jewellery.

The recommendations listed below encompass some limitations of the survey. These could be listed as- presence of more export oriented units in each of the sample, inability to offer workers perspective on the employment generation potential, as the qualitative part of the survey questions catered to the managerial view point and particularly in an industry like gems and jewellery where the artisans and job contractors are the actual workforce of the industry, this is important and finally we are unable to reflect from our sample firms whether they belong to organized manufacturing and which ones belong to unorganized segment of overall manufacturing, given that many of the chosen industries have sizeable unorganized presence.

General Recommendations

We list below some recommendations which are general in nature and apply to all the five labor intensive sectors of this study. Our recommendations are based on the observations combined from each of the labor intensive sectors studied and common to all the sectors.

Encouragement for female workers: Our survey indicates that number of women workers employed in the units situated in southern part of India far exceeds the number from all other parts of India. Our interviews with management of manufacturing-exporting units seem to indicate that these workers are preferred over their male counterparts on grounds of higher efficiency and discipline. In apparel, leather (goods/garments/footwear) and sports goods, women workers were more skillful at working with different kinds of machines- cutting, sewing, stitching etc. In the case of gold jewellery, retail units around the country were employing more women staff given the nature of the product. In addition with women workers, the management was less

prone to formation of trade unions and related activities. In order to encourage more female workers to join the industries which are specifically labor intensive, the government should provide incentives to industries to out source work more from female workers and also encourage setting up of units in villages, where female workers could be encouraged to take up full time or even part time employment depending upon domestic requirements and needs. To spread this message, the government- run voluntary organizations and other women organizations could be asked to participate in a campaigns to educate specially rural women workers about employment prospects in labor intensive manufacturing activities.

Setting up of Training Centers to generate skilled workers- We have observed that in each of the labor intensive sectors, there is a shortage of skilled workforce. The emphasis on the word-"skill" here is meant to reflect the ability of workers to handle modern machines, which are being increasingly put to use to increase the efficiency of the workers (output per unit of input). At present, we found that only in the case of apparel, apparel training and designing centers are functioning under AEPC and NIFT. In the case of leather, sports goods, and sports goods, we did not come across any such centers. We therefore recommend setting up of training centers in rural areas- villages with private initiative or private-government partnership. This has double benefits- provide workers training and as well as ensure that industries come closer to villages and set up units thereby reducing over-heads (transportation of workers)

Setting up of "Parks" in rural areas- The Apparel Park in Tirupur is fully functional and assisting manufacturer-exporters to meet the burgeoning demand for apparels. We observed that large scale exporters are out sourcing orders to small manufacturer who operate out of the park. It helps the exporters to closely work with units situated there in terms of product specifications and quality. We recommend that the government with private initiative (from NRI and MNC) should explore the possibility of setting up such parks in each district of states which are "hubs" of labor intensive exports-leather, textiles ,sports goods, bicycle and gems and jewellery. In the case of Sports goods, districts nearby Jhalandhar and Meerut should be explored for setting up of "Sports Goods" Park; in case of gems and Jewellery, districts near Chennai and Kolkata could be explored of setting up "Gold Jewellery" Park. Similar considerations could be for districts bordering Ludhiana and Leather goods production hubs- Chennai, Agra, Kanpur, Kolkatta, and Delhi including NCR. This would ensure provisions of employment opportunities to workers near their residence, thereby doing away with potential migration for employment opportunities. Further, it will generate revenue at the district level.

Reorient the role of Export Promotion Councils- The export promotion councils should be catering to the overall industry and not merely with handful of registered manufacture exporters. Their role should be redefined to help the small and medium enterprises are struggling to make a dent in the export market due to their small turnover. It would be important to spread the visibility of the small and medium manufacturer. Further, with rupee becoming stronger against the $, it would be advisable for the export councils to reach out to many other non-$ markets-European Union, Africa and Middle-East, Australia and Far East. In addition, many exporters in the face of a weak foreign

market would like to explore the domestic market and this is where the export promotion council can render meaningful guidance to the existing entrepreneurs to showcase their products to the rapidly expanding domestic economy.

Creating a Database of Manufacturer/Exporters- to ensure that policies aimed at enhancing employment generation in the labor intensive sectors reaches out to the innumerable manufactures as well as manufacturer exporters, it is highly desirable that the government has a database of firms within every district of the country. This will help us to track firms which are in the informal sector and those who are registered under the factories Act, thereby falling under organized manufacturing. A simple form incorporating the desired characteristics of the firms, which would be helpful in creating a time series of information, should be made mandatory and the submitted annually at the district headquarter. The government should in consultation with the Central Statistical Organization (CSO) work out the modalities for starting to create the database and also utilize the multiple associations that exist under each sector.

Further, there are too many associations within a sector- for example, the leather sector has the following associations- Indian Leather Garments Association, Indian Leather Products Association, Indian Shoe Federation, Indian Finished Leather Manufacturer and Exporters; All India Small Scale Tanners and Exporters; All India Skin and Hide Tanners & Merchants, All India Leather Machinery Manufacturers and also Council for Leather Exports. For creating a database which will be a crucial input into effective research for policy making, it is advisable that all the different aspects of the leather sector be merged under one roof- Leather Council of India which will address both domestic as well as global concerns for all components of leather industry. This council could be situated in every district of the states in which leather industry is operating. This will also provide a single platform for both the government and the leather industry in dealing with issues and concerns for this industry.

Small units and value chains- The emergence of India as a major economic competitor to China in export markets across all products, has put a tremendous pressure on scale of production for Indian manufacturer. China is keeping its competitiveness with low price level because of large scale of production. In this scenario when the scales of production become significant factor for deciding the prices for Indian product, it provides an opportunity to include small firms to value chain through outsourcing from bigger player and also threat in terms of getting wiped out of the market due to their low scales of production. The government has to identify these small firms in terms of specific products and need to maintain the database and under a common platform should bring both big player and the small counterparts to become complementary to each other. This can be both export market production and also for domestic supply. As mentioned already specifically in sports and gems and jewellery sectors the presence of numerous indigenous family based small units need some sort of organized platform to cater to the outsource jobs of bigger players. Government agencies can help these identified small units with machineries and also technical knowhow to create some sort of induced demand. Government need to play as a moderator between the organized big firms and unorganized small units.

Infrastructure bottlenecks- The rapid growth in a globalized environment requires a well-functioning infrastructure, including especially electric power, road and rail connectivity, telecommunications, air transport and efficient ports. India lags behind east and Southeast Asia. Availability of adequate infrastructure facilities i.e. power, road connectivity, transport facilities, energy, water, ports and airports are important to the robust performance of the small and medium sized manufacturing units. Poor quality of power and interruptions in the power supply often damage the plant and machinery/ equipment of the units. The interruption of power has been highlighted as a major problem for bicycle industries. In case of apparel firms the inadequate warehouse facilities in port have been a major concern as after MFA developed countries standards for exported products qualities have become really stringent. The problem of strikes in ports and inefficient transport facilities add to the cost of the productions. As the "Report of The Internal Group to Review Guidelines on Credit Flow to SME Sector", 2005, Rural Planning and Credit Department, RBI puts Facilitating public-private partnerships, attracting FDI into basic infrastructure as well as for establishment of industrial parks for small sector are the options already under consideration by relevant authorities. These need to be expedited. One solution to the infrastructure problem lies in increased emphasis on cluster development, which will factor into account the development of required infrastructure facilities in an organized manner for the cluster as a whole. Therefore, there is a need to strengthening of the National Cluster Development Programme and setting up of functional industrial parks.

Availability of Credit- Without adequate finance, manufacturing units cannot acquire or absorb new technologies nor can they expand to compete in global markets or even strike business linkages with larger firms. However, the small manufacturing units face significant barriers in getting institutional and financial resources to meet their fixed and working capital needs. The lack of finance has an impact on plan for capacity expansion as well as technological upgradation, which determine the competitiveness of a firm in terms of both price and quality of products. The impediments in output growth eventually lead to reduction in employment. As mentioned by the RBI report (2005) on SME, asymmetric information and high-risk perception, banks primarily prefer collateral-based lending rather than cash-flow analysis while working with small manufacturing borrowers. This is where the role of export promotion council can be pivotal in terms of an agent which can facilitate the easy flow of finance from banking sectors to the manufacturers.

Sector specific recommendations

Below we outline some sector specific recommendations. These recommendations are based on detailed examination of the response to the questionnaires which addressed issues which are crucial in understanding the employment generation potential of labor intensive manufacturing. The specific recommendations are provided below for 5 surveyed labor intensive sectors- sports goods, apparels, leather, bicycles and gem & jewellery respectively.

- **Sports goods Industry**

- It is very important that a directory of firms which are undertaking the manufacturing as well as exporting of sports goods items should be developed and a record maintained every five years to see the dynamics of sports goods manufacturing industry in terms of employment generation through tracking entry and exit of firms in this industry.
- It was learnt from our survey that the sector faces shortage of skilled workforce. Further with emphasis on modern technology adaptation, workers need to be trained for handling such machines. Firms expressed inability to provide training when that attrition rates in the industry is high. Some kind of specialized training institute to train workers in manufacturing different types of sports items would be beneficial for the industry and would pave the way for generating employment in this sector.
- We observe from the employment category that in sports goods firms, the percentage of female workforce as opposed to male workforce is low. It was learnt that there are some social inhibitions to working for female in Northern India. However the nature of sports goods manufacturing-stitching makes it easy for management to employ women workforce in large numbers and offers employment generation opportunities in this industry. Therefore we recommend that suitable incentives be devised for encouraging women workforce participation.
- The survey indicates that most firms still manufacture traditional items of sports- cricket, football and hockey and accessories, which are mostly hand-made, thereby require very little of machinery. Further, most Firms understand about global technology, however when it comes to adaptation do not show much inclination for it due to reasons of size, exporting ability and investment. We feel that the export promotion council should organize fairs of machinery suppliers and educate firms of all size, the benefits of modern technology and make provisions to make the machinery available. Firms using modern machinery will be more competitive in export markets and thereby increase volumes and labor absorption.
- The survey found that with regard to exports, firms based in Jalandhar were exporting traditional items of sports, whereas firms based in Meerut and Delhi were manufacturing more of non traditional sports items which hold immense export potential. It was felt that since Jalandhar has the maximum number of manufacturing units within the sports goods, some changes in the export basket of firms from Jalandhar to non traditional higher value-added would offer scope for enhancing export revenues, volumes and offer employment opportunities.
- Firms expressed that given seasonal nature of sports across the world, maintaining permanent workforce does not seem a viable business option in firms where exporting is also seasonal activity. Thus provisions should be given to retrench workers whenever not required.
- Our survey indicates that seasonality of sports is a deterrent to the growth of this industry. We recommend that firms which face this problem should be

encouraged to diversify their export basket to cater to seasonal and non seasonal sports. Further technology should also be such that firms can switch between producing seasonal and non seasonal items. This will take care of labor retrenchment issue and also maintain employment generation all through the year

- **Apparel Industry**

- Our survey across major production hubs- Chennai, Bangalore, Tirupur, Mumbai, Ahmedabad and Delhi indicate increasing usage of machines for designing, cutting, stitching, where workers need to be trained to work alongside those machines. Therefore demand for trained workforce emerges as a major deterrent for expansion of this sector. Further despite the presence of apparel training and designing centers in major towns, there still is a shortage of workforce. Further many firms are of the belief that training can only be effective when it is on the job. This needs attention. We recommend that the leading apparel manufacturers be requested and encouraged to set up training centers with government being the facilitator in terms of land, incentives, grants etc.
- Encouragement to women workers to join the apparel manufacturing industry through adequately devised incentive schemes as it is seen that firms operating in the southern region have predominantly female workforce and this has contributed to the smooth functioning of the factories in terms of lack of labor disputes and strikes and in turn to increasing efficiency of the units.
- We found that most firms target few international buyers from USA and European Union as major export destinations and in turn these companies source their purchases by allocating an equal amount to many Indian firms thereby restricting each Indian firm to small levels of production. This has consequences for employment generations. We recommend that Apparel Export Promotion councils play more effective role in educating firms not to be competitor within themselves and in turn make it possible for firms to source orders amounting to larger volumes of production and generating more employment.
- We recommend the setting up of apparel parks on the line of Netaji Apparel Park (NAP-Tirupur). In NAP, with infrastructure (power & building) leased by the government for certain number of years, 60 firms offers flexibility of production in terms of different scales of operation thereby negating individual capacity considerations in handling large export orders. Further, given different aspects of supply chain in the apparel sector like weaving and dyeing, knitting of fabrics, many established manufacturers have set up bases in the apparel park to increase their efficiency by taking care of good infrastructural facilities available there. This showed positive results for all round growth of the apparel industries functioning out of Tirupur. Therefore encouraging the growth of such apparel park either entirely through government support or through public-private partnership should provide

employment generation potential via setting up of new firms or setting up of subsidiary of existing firms.

- On the export side, we recommend that the government reconsiders the effective ness of some of its schemes like duty drawbacks, export promotion of capital goods as there seems to be major dissatisfaction in availing such schemes amongst firms. Further, there seems to be a general belief amongst exporters that compared to China, India offers less incentives in all aspects of apparel manufacturing and hence India is unable to compete effectively vis- a-vis Chinese products in international markets.
- In our opinion, the core issues with workforce usage in apparel industry happens to be with women workers, how to reward labor efficiency, and off-season workforce. We therefore recommend that some attention be paid to the working conditions as well as rules and regulations so as to make an optimal usage of labor in apparel industries.
- Our discussions with management of apparel firms indicated that India lagged behind China on two major aspects e.g. flexibility of orders and timely delivery of consignment. This is mostly due to shortage of fabrics and infrastructural bottlenecks- Inadequate warehouses in ports, port working conditions and red tapism, inferior roads. We draw the attention of the relevant authorities to these aspects which deter the export potentials of firms and employment potential
- Our discussions with exporters particularly those based in Tirupur were of the opinion that there should be some association of exporters, who would act and liaison with international buyer firms on export orders pertaining to volume, price etc. The export promotion council which acts as facilitator in most cases could be encouraged to play this role as this would ensure some collective bargaining on part of small and medium firms.

- **Leather Industry**

- We find as with other sectors, shortage of workforce to handle machines which are increasingly becoming sophisticated and in leather firms we observe by and large predominance of imported machinery embodying latest technology. Further, training institute are often unable to provide trained workforce in accordance with the needs of the firms in terms of modern machines. Therefore to overcome the shortage of trained workforce we recommend that modern training institutes either under the purview of leather export promotion council or with private initiative.
- In south India, we find predominance of women workforce in garment manufacturing, footwear as well as leather goods. It was stated that the efficiency of female workforce was greater than the male workforce and efficiency was interpreted in terms of discipline as well as work commitments. We recommend that in northern India, firms be provided incentives and therefore encouraged to absorb more female workforce as this will enhance the efficiency of manufacturing units.

- The small leather manufacturers often find it tough to survive in global leather trade because of competitive pricing and sales. We recommend that leather units which are successfully operating in the export markets and which often have to decline orders because of capacity constraints, outsource their needs to smaller and internationally non-competitive firms and in this way the employment generating potential of the industry will be enhanced. Therefore there could be some rules and regulations or even incentive mechanisms which make it lucrative for successful exporters to outsource.
- Majority of the firms expressed dissatisfaction with the ESI schemes. In the present ESI schemes, firms mentioned about the unavailability of doctors and medicines in all ESI hospitals and wherever available very low quality of service to workers. In the light of above we recommend that make it mandatory for firms to arrange for health insurance schemes for its workers and at the same time, review the functioning of the ESI schemes across the firms.
- In course of our discussions with some of the major manufacturer and exporters it was suggested that this industry will benefit, if leather parks are built as this will make international buyers access many domestic manufacturers at one place and on the other hands with infrastructural facilities available allow many small units to cater to international markets also.
- We observed that seasonality is an important aspect of leather industry as many of the products particularly ladies leather garments and ladies handbags are fashion products. In this context many firms highlight aspects of labor laws which hinders absorption and retrenchment of workers in peak and off peak seasons as deterrents to meeting export volumes. Therefore addressing aspects of labor laws reforms is pertinent to this sector.
- Our finding from the sample firms in Agra and Kanpur shows predominance of temporary workers in the manufacture of leather footwear. It is perhaps reflective of the fact that to avoid stringent labor regulations, these leather footwear manufacturing units are largely resorting to temporary workers. Our assertion is that from the overall industry point of view, this kind of firm behavior is posing as a deterrent to overall employment potential and needs attention in the context of reforms in labor laws

- **Bicycle Industry**

- We find from our survey that most of the firms employ unskilled workforce considering that majority of those employed are either less than high school or at the most high school pass outs. Further most firms also reported shortage of workforce. Thus the recommendation is for providing training centers from where firms can draw trained workforce.
- India's specialty seems to be in heavy duty bike, where as in the export market the trend is towards light and sports bikes. It is recommended that emphasis is placed on emerging markets of Latin American and Africa to increase exports and in turn offer employment opportunities.

- Most firms attributed input cost differential between India and China as reasons for Chinese supremacy in the global markets. A major raw material seems to be steel and its prices seem to be high. We recommend that government re looks at steel prices when used exclusively for manufacturing bicycle in order to give bicycle manufacturer cum exporters a competitive edge over China.

- **Gems and Jewellery Industry**

- The most important aspect that needs urgent attention is the unorganized aspect of manufacturing of plain and studded gold jewellery. In India, as mentioned already in our findings that the export and retail units are not the manufacturing hubs and manufacturing is done by the traditional goldsmiths and craftsmen for various companies and their population is scattered in small clusters- Coimbatore, Kolkata and Nellore. These workers as they do not fall under companies act have always gone unnoticed and could hardly enjoy the benefits of government policies. We need to understand the fact that jewellery making need very high skills which have been handed down over generations and is exclusive to Indian jewellery. To intact this tradition, the organization of these workers into small units are very important.
- In continuation of the above, we would like to point out that employment strategies for diamond processing and gold jewellery segment of gems and jewellery sector have to be different. In diamond processing, we observe that with technology in use according to global standards, the need is for skilled manpower to work along side these sophisticated gadgets. In the case of gold and studded jewellery, with India's competitive advantage lying with handmade traditional jewellery we need to encourage more absorption of family based artisans into these kind of jewellery making and therefore organization of these scattered artisans into some kind of a worker-employer relationship format so that they are not deprived of the social security benefits etc.
- We find that Indian market prefers heavy weight gold jewellery, but in developed country markets, we find that low carat jewellery is in fashion. We recommend that some incentives be given to units which undertake technology up gradation in order to be able to manufacture machine based light weight low carat jewellery as these units can then focus on exporting and in turn create scale and volume leading to employment generation.
- Our survey of retail units across India and discussions with management of these units show that there is tremendous avenue for generating female workforce employment in the retail units. We recommend that some kind of incentive mechanism be devised for units which encourages them to offer employment opportunities to women in this sector.
- We found that majority of the firms in our sample are merchant-retailer and upon discussions with management, one of the factors that deter gold jewellery industry from becoming manufacturer-retailer is the unfriendly labor laws and perceived threat of unionism by workers. This is particularly true of major gold

jewellery hub like Kolkata where labor unionism in rampant in most industries.

- Further, it was also learnt that there are more than 500,000 gold jewellery units across the country. Our discussions with some of gold merchant-retailers in our sample pointed out to the multiple License-Permit RAJ that prevails in the business environment of this industry even today. Some of the features that need attention to make the business environment more market competitive are (1) trade license from local municipality, (2) shop and establishment permit from state labor ministry, (3) Sales tax registration, (4) ESI registration, (5) Legal Metrology for weights and measures and (6) health license. We recommend that a single window clearance for domestic business operations be introduced.
- Our discussions with both diamond manufacturers and gold jewellery merchant-retailer shows complete dissatisfaction with the ESI schemes. In the present ESI schemes, all sample firms mentioned about the unavailability of doctors and medicines in all ESI hospitals and wherever available very low quality of service to workers. In the light of above we recommend that make it mandatory for firms to arrange for health insurance schemes for its workers.
- We found that gold jewellery manufacturing in India is still a dominant unorganized sector activity. Further manufacturers and retailers sub-contract work out to small workshops and this makes gold stock control and cartage quality control difficult to achieve. We recommend that ***Hallmarking*** be made mandatory for all merchant- retailers so that the industry can have hundred percent transparency.
- Firms in the Gems and Jewellery industry which export to the USA- one of India's major export market raised concern for the Generalized System of Preference (GSP) - duty free import in USA- expiring in 2008. Most exporters felt that if this concession is withdrawn, then the competitive edge of India's gems and jewellery sector might be eroded. This calls for some strategic action by Gems and Jewellery Export Promotion Council.

9.3 Future Research Directions

The present study is an attempt at examination of the labor intensive potential of the chosen Labour intensive industries. The coverage of the industries had been done keeping in mind the time and budget of the study in addition to their significance within overall organized manufacturing. The present study lacks a detailed quantitative evaluation of the determinants of employment generation in the Labour intensive firms, which could form the basis of effective policy making in this sector. This forms part of future research.

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