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Do Labor Intensive Industries Generate Employment?

Evidence from firm level survey in India

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Foreword

One of the policy puzzles faced during the past two decades in India has been its inability to translate output growth into employment growth. India's trade liberalization was expected to lead to a shift in its industrial structure towards more labor intensive industries and provide greater encouragement to the application of labor intensive methods of production. Against this background, an appraisal of the labor intensive sectors in Indian organized manufacturing assumes importance. ICRIER was commissioned a research project on "Labor Intensity and Employment Potential of Indian Manufacturing" by the National Manufacturing Competitiveness Council, Government of India. The study was structured in two parts. In the first part, the focus was on identification of the labor intensive industries within organized manufacturing sector. In the second part, a firm level survey was carried out, of the selected labor intensive industries to identify the constraints in expanding employment opportunities in labour intensive industries in India. It is hoped that the findings will be of interest to both policy makers and researchers.

(Rajiv Kumar)
Director & Chief Executive

June 17, 2009

Abstract

This study attempts to address the issue of declining labour intensity in India's organized manufacturing in order to understand the constraints on employment generation in the labour intensive sectors. Using primary survey data covering 252 labour intensive manufacturing-exporting firms across five sectors—apparel, leather, gems and jewellery, sports goods, and bicycles for 2005-06 an attempt is made to find out the factors which constrain employment generation in labour intensive firms. The study shows several constraints in the path of employment generation in labour intensive sectors—non-availability of trained skilled workers, infrastructure bottlenecks, low levels of investment, labour rules and regulations, and a non-competitive export orientation. The study suggests a set of policy initiatives to improve the employment potential of these sectors.

Key words: *Indian Organized Manufacturing, Labor Intensity, Employment Growth, Skilled workforce, Wage structure, Export status, Machinery Usage, Labor laws, South Asia*

JEL classification: *E24; J24; J31 and D24*

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I. Introduction

An important objective of India's economic liberalization has been providing employment opportunities not only to meet the backlog of unemployed people but also for new additions to the labour force. Even today, agriculture accounts for a bulk of the total employment in the economy. Industry is still the least important employer, accounting for just 16 per cent of the total employment. Further, despite its impressive growth rates in the 1980s and 1990s, organized manufacturing in India has 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 concerns given that the 11th Plan objective was 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 performance of the industrial sector, especially with organized employment registering a 2 per cent growth per annum over the period 1980–95 (employment growth in unorganized manufacturing during the same period declined to around 1.7 per cent per annum). Indian manufacturing recorded respectable growth following economic reforms of the 1980s and 1990s. The value added in manufacturing had a growth of around 7.5 per cent per annum over the decades of the 1980s and 1990s. However, with regard to the contribution of manufacturing as a whole to the Gross Domestic Product (GDP) of the country, it still had a low share of around 16 per cent (2006-07); this contribution is below that of other East Asian countries. If the manufacturing sector is to perform along the lines of China and other East Asian countries, its share both in GDP and in employment will have to increase substantially. A look at India's manufacturing performance over the two decades of 1980s and 1990s suggests that it has been a period of growth without employment creation or 'jobless growth'. The share of employment in manufacturing in India was only 13 per cent (2004–05), whereas in China it was 31 per cent and in Malaysia, it was 50 per cent respectively.

The 1980s are often called the decade of 'jobless growth' in Indian manufacturing, because the revival in output growth during this decade was not accompanied by

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adequate generation of employment. Only 484,000 new jobs were generated in India's registered factory sector between 1979-80 and 1990-91 (Thomas 2002). One of the explanations put forward for this is that of difficulty in labour retrenchment after the introduction of job security regulations in the late 1970s, as 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 resulted from a strategy of capital deepening pursued by 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 in employment growth in the factory sector in the 1980s could be explained by acceleration in product wages, which the study attributed to union-push. Several authors like, Bhalotra (1998), Nagaraj (1994) and Papola (1994), have highlighted other reasons for the stagnation in employment generation in the organized manufacturing sector. Both Nagaraj and Papola point out that during the 1980s there was faster growth of industries with low labour intensity and a slower growth of industries with high labour intensity. Also, Nagaraj and Bhalotra note 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 in 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 decade of the 1990s witnessed the process of economic reforms in India, which included a significant liberalization of both industrial activities and trade. Many expected this process of economic reforms to boost employment in the manufacturing sector, as there was increased outward orientation because trade and the industrial sector were deregulated. However a 13 per cent share in employment generation by organized manufacturing portrays the untapped potential of this sector despite more than a decade of economic liberalization. As a result of this we find that a vast majority of India's work force is still absorbed in low productive agricultural employment. Nagaraj (2000) points out that the faster employment generation in the organized manufacturing sector during 1990-91 to 1997-98 as highlighted by Goldar (2000) and Thomas (2002) was due to the investment boom in that decade. In his later study, Nagaraj (2004) points out that faster employment generation in organized manufacturing was restricted mainly to the first half of the 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 per cent of the workers in the organized manufacturing sector in the country, lost their jobs between 1995-96 and 2000-01.

The immediate point that comes up is the role of labour intensive sectors in enhancing the employment potential in organized manufacturing. Further, the impressive growth performance of some of the leading labour intensive sectors makes it important to ask why despite such a good growth performance, labour intensive firms are still unable to generate significant employment growth. A recent study (Das et al 2009) attempts to investigate the issue of the employment potential in organized manufacturing and comes up with the observation that labour intensity has decreased across all the labour intensive sectors in registered manufacturing in the country, thereby questioning the ability of firms with more labour per unit of capital to enhance employment

generation. If this is true, then this holds immense significance for manufacturing industries' role vis-à-vis employment generation. Further, if manufacturing in India is to perform along the lines of China and East Asia, then its share in employment generation has to increase sharply and this calls for more focused policy initiatives for improving export performances, and consequently employment generation.

In the light of this argument, this study seeks to undertake an in-depth examination of the factors that constrain employment generation in labour intensive sectors in organized manufacturing. This holds significance for the policy initiative at a time when the government is thinking of ways to address the manufacturing slowdown in India. In particular, this study seeks to examine the sources and constraints of the employment potential in labour intensive sectors by looking at five selected sectors—apparels, leather, gems and jewellery, bicycles, and sports goods. An in-depth survey of firms in these sectors was undertaken across cities and towns that constitute their hubs. The empirical findings cover a number of aspects of the business environment that the labour intensive sector is facing.

The paper is structured as follows: Section II outlines certain aspects of labour intensive firms within organized manufacturing with focus on employment, wages, and labour productivity. The research focus, sampling technique, and sectoral coverage in the context of the firm level survey are discussed in Section III. The findings from the survey are analyzed in Section IV. Policy recommendations are outlined in Section V and the final section provides a conclusion to the paper.

II. Labor Intensive Industries and Indian Manufacturing: Employment, Wages and Labor Productivity

Despite the importance of labour intensive industries in generating employment, quantifying crucial issues like employment, productivity, and wages have not been well researched. While issues of employment generation and wages for India's organized as well as unorganized industries have been the subject of much research, very few studies have paid attention to the issues of changing factor intensity, particularly with reference to labour in India's post-reform era. There is also very little research on India's labour intensive sectors and their employment generation potential.

Studies by Chaudhuri (2002) and by Rani and Unni (2004) are amongst the few that have analyzed the issue of labour intensive sectors in India's manufacturing. Both these studies have reported a decline in labour intensity across organized and unorganized manufacturing and its sub-branches. There is no study that attempts to understand the determinants of low labour intensity in Indian manufacturing.[1]

Employment potential in labour intensive sectors in Indian manufacturing has been recently researched by Das et al (2009).The research indentified labour intensive sectors in Indian manufacturing for the period 1990-2004.[2]. It found that in the

[1]Goldar (2000, 2002), Nagraj (2000), and Tendulkar (2000) have analyzed the issue of employment growth for Indian industries; however these studies do not specifically consider the labor intensive sectors within manufacturing and their employment generating abilities.

[2]Using Annual Survey of Industries (ASI) data for the period 1990-91 till 2003-04, the labor intensity defined as number of labor per unit real gross fixed capital (L/K ratio) for 97 (at the four-digit level)

identified sectors labour intensity was declining constantly over the period of the study (see **Table 1**). The yearly average labour intensity[3] (L/K) for the 31 labour intensive industries[4] from 1990-91 to 2003-04, saw a continuous fall from 0.72 in 1990-91 to 0.30 in 2003-04. During 1990-91 and 2003-04 the average combined Gross Value Added (GVA) share (as percentage of total manufacturing value added) of these 31 industries was 13.77 per cent.

Table 1: Labor Intensive Industries in Organized Manufacturing: 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
21	2919 + 2923 +	Manufacture of other general purpose machinery + Manufacture of machinery for metallurgy +	0.32

industries was constructed. The average labour intensity (L/K ratio) in Indian manufacturing during 1990-91 to 2003-04 was 0.26 and based on this criterion, 31 labour intensive industries which have L/K ratio more than 0.26 during the whole period were selected.

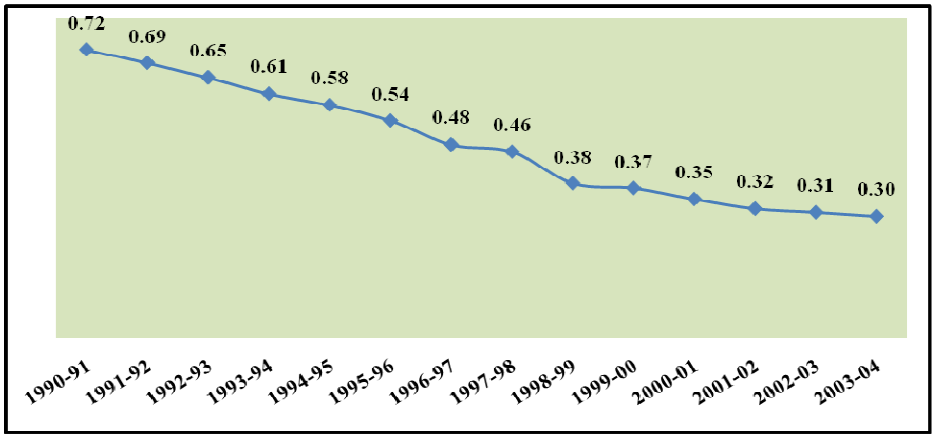
[3] Labor intensity is defined as number of workers per unit of gross fixed capital stock (in real terms)

[4]The identified 31 industries at 4-digits level (NIC 1998) as labor intensive are drawn from a wide array of manufacturing activities—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 non-metallic minerals (26); manufacture of fabricated metal products (28); other transport equipment (35); and manufacture of furniture (36).

Sl. No	NIC98	Industries	L/K
	2927 + 2929	Manufacture of weapons and ammunition + Manufacture of other special purpose machinery	
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: Das et. al (2009)

Chart 1: Labor Intensity (L/K) of All Labor Intensive Industries: 1990-91 to 2003-04



Source: Das et. al (2009)

The decline in labour intensity in the case of these labour intensive sectors seemed inevitable due to the inclusion of new and sophisticated technologies in production processes which are more capital intensity. The manufacturers to ensure scale and price competitiveness engage with more capital intensity; however we find that there is a decline in capital productivity. This has serious implications for employment- in a country like India with limited resources, spending more on capital which yields declining productivity not only limits employment but also lower labour

productivity[5]. **Chart 1** summarizes the state of labour intensive industries in India's organized manufacturing for the period 1990-91 to 2003-04.

The performance of labour intensive industries in terms of indicators like employment growth (including elasticity), labour productivity growth, and growth in real product wages[6] were computed. The 31 labour intensive sectors witnessed an employment growth of 4.1 per cent per annum for the period 1990-91 to 2003-04. If this period is sub-divided into three periods—1990-91 to 1995-96, 1996-97 to 1999-00, and 2000-01 to 2003-04—we observe employment growth declining from around 6 per cent to around 2 per cent per annum by the end of the 1990s and again gaining to around 5 per cent in 2003-04. The low employment growth recorded in the second sub-period is mainly due to a decline in employment generation by industries[7] which have a large employment share. The period 2000-04 again shows an increase in employment growth in industries with a large share.

The study by Das et al. (2009) makes an attempt to compute the employment elasticity of the labour intensive sectors for the period and its sub-periods to find out some plausible reasons behind the observed pattern of employment growth. The employment elasticity for the 31 sectors shows a decline from period one to period two, while it shows a jump from period two to period three. Comparing the growth in value added and employment (12 and 5.24 per cent per annum respectively) in period three with that in period two (2.36 and 1.88 per cent per annum respectively), they see that employment growth and elasticity improved in the 2000s. After 2000-01 there was a substantial improvement because both employment and real gross value added (GVA) growth jumped after 2001-02. In the second phase of the reforms, in spite of real GVA growth remaining high, the output growth did not translate into employment growth. The employment elasticity also allows Das et al (2009) to identify the industries with potential for employment generation for the period 2000-2004[8]. However, when the entire period is looked at, it can be seen that several industries do not present a very encouraging picture.

This raises an important question as to whether this reflects an enhancement of labour productivity or a rise in real wages or both. Further, in a reforming economy, it is argued that via competition from trade exposure, efficiency will improve and if output also expands given a dynamic business environment in an open economy, we expect demand for labour to push real wages up. In this context, Das et al. (2009) computed the productivity and real product wages for the 31 labour intensive sectors (**Table 2**).

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[5] Our argument is based on the following identity: Rate of growth of labour productivity = Rate of growth of capital productivity + Rate of growth of capital intensity. Das et al (2009) highlights this argument.

[6] While analyzing trends in real wages, one may consider either the real product wage (nominal wages deflated by output price index) or real wage 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, 'real wages' is used throughout in the sense of real product wages.

[7] The industries with a large share in employment generation include tobacco, wearing apparels, footwear, clay and ceramic products, refractory and non-refractory industries, and cutting and polishing industries.

[8] Knitted and crocheted fabrics, jewellery, refractory as well as non-refractory items, footwear, made up textiles, and publishing are some of the labor intensive sectors with high employment elasticity.

Table 2: Changes in Labor Productivity, Employment and Real Wages: Labor Intensive Industries

(% per annum)

Performance Indicators	1990-91 to 1995-96	1996-97 to 1999-00	2000-01 to 2003-04	1990-91 to 2003-04
Labor productivity growth	5.39	4.55	11.78	-0.72
Real wages growth	2.73	1.79	4.68	1.97
Employment growth	4.10	5.49	1.88	5.24

Note: The figures represent the weighted average of 31identified labor intensive industries at four digit NIC 98 level of industrial classification.
Source: Das et. al (2009)

III. Firm Level Survey: Research Focus, Questionnaire, Sectors and Sampling Framework

In this section we provide an appraisal of the survey of firms focusing on the underlying methodology for addressing the research agenda. Three aspects of the firm level survey are discussed—the research agenda on which the survey was carried out, the design of the questionnaire, and the selection of firms.

Research focus

The need for increasing employment opportunities in the manufacturing sector in the post-reform period constitutes an important challenge for policy makers in India. The potential for employment generation of the labour intensive sectors thus becomes an important research focus. Given that the dynamics of the manufacturing sector in India since the 1990s has undergone changes through liberalization as well as relaxation of rules and regulations that govern trade procedures (both export and import), and industrial deregulations, labour intensive sectors, particularly those with an export orientation, are expected to expand their output to cater to international markets, and in turn generate more employment. Against this background our research shows that almost one-third of the manufacturing industries (4-digit National Industrial Classification [NIC] 1998) despite being labour intensive show a declining L/K ratio. Further, these industries encompass important items of export like leather, textiles, food processing, sports goods, and metal based products. We find that the labour intensive sectors recorded a low employment growth of 4 per cent per annum and from a policy point of view, it is important to examine the employment generation potential of these sectors by undertaking a study of their employment pattern. Our study aims to assess if with the expansion of production activities in a liberalized industrial and trading regime, there is an automatic expansion of the workforce or are there still serious impediments to employment generation. The focus of the survey, therefore, is two-fold: first, to assess if labour intensive firms are generating employment, and second understanding and analyzing the impediments in employment generation at the level of labour intensive firms.

The design of the questionnaire

The questionnaire was structured to seek both quantitative as well as qualitative answers from the firms. Accordingly, it focused on the following aspects: section one

covered general information about the business enterprise (age, size, major items of production, inputs); section two focused on sales and employment data (value/volume, total persons engaged—managerial, workers, permanent, temporary and outsourced— gender, wage rate by category, hours worked, educational background, social security benefits, machines used, domestic versus imported machines, machines to workers); section three, asked questions about export items including volumes, export destinations, competitors, tariff status of imported inputs, export assistances availed, and infrastructural bottlenecks and; the final section dealt with qualitative questions on technology, labour laws, exporting, and government initiatives.

The questionnaire aimed to address issues that are crucial for understanding the employment potential of labour intensive firms. Apart from recording the numbers for different categories of workers (including gender segregation), an attempt was also made to track the educational background of the workers in order to get an idea of the total persons engaged as skilled and unskilled persons. Further, wages and shift operation data of the workers was also compiled. An important aspect of the survey was to ascertain if the firms were substituting workers by machines. Hence, quantification in terms of man-machine ratio was also attempted. Information on aspects of social security arrangements was also tracked. Appropriate weightage was also given to understanding export profiles of labour intensive firms, including issues of competition in an open trading environment and measures available to stay competitive in global markets.

The qualitative questions were generated to help the investigators understand several crucial aspects that the firms used when deciding to hire more people and in turn enhancing employment potentials. Attention was given to the twin issues crucial to any examination of employment generation in developing countries: the technology-employment nexus, and the labour laws-employment nexus. The role of the government vis-à-vis employment generation was also addressed keeping in mind possible policy formulations. As with any firm level survey in a developing country, the budget and time constraints were major considerations in the design of the questionnaire.[9]

The Sectors and coverage

The sectors chosen for the study were guided by two considerations. Firstly, the five sectors selected were among the major labour intensive sectors among the 31 sectors identified by Das et al. (2009)**.** They comprised 9 per cent of the total employment in organized manufacturing. Secondly, the chosen sectors were important foreign exchange earners for India. Also based on the computed yardsticks of industrial performance—employment growth, real wage growth, and labour productivity—these sectors had been impressive performers and thus important for a study on the labour intensive sector (**Box 1** gives the reasons for selecting these five sectors).

[9]Considerations were given to the fact that labor intensive firms in India belong mostly to unorganized as well as small scale family based business initiative and thus questions on financial aspects of business would not be welcome. Due attention was also given to the fact that executives/owners do not give appointments for survey related queries on businesses and hence the number/range of questions was kept small and simple.

Box 1: The five core labor intensive sectors- A snapshot

The sample sectors—leather, apparels, gems and jewellery, sports goods, and bicycles

1. Leather goods with focus on footwear, garments, and luggage/handbags comprise a sector where India stands to gain a bigger share of the global leather market. With its present share of less than 3 per cent in global trade in leather, this sector has enormous growth potential. Realizing this growth potential, this sector was chosen to examine the employment generation possibilities for the next 20-25 years.
2. The apparel sector, with focus on different types of garments and accessories, shows impressive employment growth in the period 1990-2003. Further, the apparel market for India is relatively underdeveloped and has the potential to double its present market share. Thus the potential for employment generation is an important issue to investigate in this sector.
3. The gems and jewellery sector comprises diamonds, gold jewellery and semi-precious stones. It accounts for 20 per cent of India's total exports, even though the country has reached a peak in diamond exports. This sector was chosen for highlighting the emergence of gold jewellery exports and in turn investigating its employment generation potential.
4. The sports goods sector, despite a low global market share of barely 1 per cent, exports 60 per cent of all sports items manufactured in India. This sector was chosen as it has the scope of expanding its market base and hence potential for employment generation.
5. The bicycle sector with an annual turnover of more than 12 million cycles is second only to China. Given that the production is concentrated only in a few countries, this sector has immense scope for exports and hence for generating employment.

Source: Authors compilation from the annual reports of the export promotion councils

Special attention was paid to the selection of 252 firms from different geographical locations within a city, old as well as new firms, large plants versus small plants in terms of number of factories, and exports versus domestic markets. For apparels, in consultations with the Apparel Export Promotion Council (AEPC) based in Gurgaon, we concentrated on three regions—southern, western, and northern. In southern India, we focused on apparel manufacturers (and exporters) in three cities—Chennai, Bangalore, and Tirupur. Mumbai and Ahmedabad were chosen for the survey in the western zone. In the north zone, firms located in Delhi, Gurgaon, and NOIDA were chosen. These three zones form the core of the apparel manufacturing firms in the country.

Meetings with the Leather Export Promotion Council in Chennai were instrumental in the selection of the categories of leather products to be surveyed. It was decided that in order to have a truly representative sample of the leather sector, the needed to be surveyed: leather footwear, leather goods (handbags, wallets, folders, and luggage

etc.), and leather garments, which constitute a bulk of the leather exports from India. Further, Kanpur, Agra, and Chennai were identified for leather footwear; Chennai and Kolkata for leather goods; and Chennai and Delhi for leather garments as these cities had a bulk of the manufacturing centers for these products.

Gems and jewellery is one sector where a bulk of the manufacturers is located in the unorganized sector, with no compilation of a member directory either at the all-India level or even at the city level in cities like Chennai, Delhi, and Kolkata. Therefore, the sample included only those firms information about which was available with the Gems and Jewellery Export Promotion Council in Mumbai. We focused on firms in Mumbai and Surat for diamonds while for gold jewellery some information was obtained from Chennai, Bangalore, Coimbatore, Delhi, and Kolkata.

The sports goods sector in India is mainly located in Jalandhar and Meerut with some manufacturing activity also taking place in the National Capital Region (NCR) of Delhi. For bicycles we surveyed the manufacturing as well as manufacturing-exporting units in Ludhiana, as a bulk of the manufacturers-exporters are concentrated in this city.

Sampling framework

The sampling technique chosen to create the sample size was based on a combination of convenience and judgment sampling. We were not able to carry out random sampling due to very large numbers in each of the sectors. Further, we found that in each sector the firms can belong to either the organized or the unorganized manufacturing sector. Then there is no database available from any source for these segments.[10] When it was not possible to identify every member of the population, the pool of available subjects became biased and hence random sampling was not considered appropriate for the survey. Given this situation we explored some other probable sampling techniques like systematic sampling. But we faced a problem that every N^{th} firm selected from the list of available population was not in operation though it was listed in the available records of the population. Similarly, other options like stratified sampling too were not feasible, given the availability of population data. 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 plausible outcome as there was no surety that selected firms would figure in the sample**.** We thus followed the method of judgment sampling where the sample was selected based on our judgment of the profile of the firms in the labour intensive sectors and also because of the respondent firms' readiness to take part in the survey. In this connection, we involved the export promotion councils for apparel, leather, gems and jewellery, and sports goods. For bicycles, we undertook a survey of bicycle manufacturers and exporters on the internet.

Keeping in mind budget and time constraints a certain number of respondents from each zone was fixed. Special attentions were paid to selecting firms from different

[10] Annual Survey of Industries has a database of all firms belonging to the registered manufacturing sector; however, the secrecy clause under which data is gathered from the firms does not allow disclosure of names of the firms listed with it under each NIC industrial sector.

geographical locations, old as well as new firms, large versus small plants in terms of number of factories, exports versus domestic markets.

IV. Findings of the Survey

An analysis of the survey findings has been attempted across all the five labour intensive sectors in terms of three size classes—small turnover firms, medium turnover firms, and large turnover firms. **Table 3** lists the number of firms as well as the definitions of each category under the five selected labour intensive sectors. The findings are sector specific and are centered on several issues that impact the employment generation potential of these firms.

Table 3: The Labor Intensive Industries: Firms and Turnover

Sectors	High Turnover	Medium Turnover	Low Turnover	Turnover Definition
Apparel (74)	21	31	22	High (> 30 Rs. Crore), Medium (6-30 Rs. Crore), Low (< 6 Rs. Crore)
Leather (74)	14	36	24	High (> 30 Rs. Crore), Medium (10-30 Rs. Crore), Low (< 10 Rs. Crore)
Gems & Jewellery (36)	10	14	12	High(> 100 Rs. Crore), Medium (21-100 Rs. Crore), Low (<20 Rs. Crore)
Sports (33)	5	15	13	High (> 30 Rs. Crore), Medium (5-30 Rs. Crore), Low (< 5 Rs. Crore)
Bicycle (35)	14	9	12	High (> 5Rs. Crore), Medium (1.5-5 Rs. Crore), Low (< 1.5Rs. Crore)

Source: *Authors compilation from survey questionnaires.*

During the survey we tried to focus our attention on: employment, the status of machinery used, the nature of export emphasis that these firms' exhibit, and labour related issues that deter firms from hiring more workers.

IV.1 Employment Issues

Since the employment generation potential of labour intensive firms forms the core of this paper, it is important to understand the number as well as the nature of the workforce that these firms employ. Our survey focused on various aspects of employment like permanent, temporary, outsourced, gender segregation of the workforce, education profiles of the workers, and wages earned per shift, including whether the firms had a gender based wage differential. Given that the survey was cross- sectional in nature, we were only able to observe for any changes at a point in time, rather than over time. Thus, our analysis picks up inter-firm, inter-region differences in the employment status of labour intensive firms (wherever applicable).

This is also important for any kind of policy inferences that we attempt. **Table 4** shows the employment growth of several categories of workers computed over the period 2003-05.

Table 4: Employment growth (%) by categories of employment: 2003-05

Sector	Total Employed	Total Workers	Male Workers	Female Worker
Apparel				
High	7.92	6.85	6.77	7.01
Medium	11.16	11.06	12.04	8.47
Low	14.46	11.07	12.88	10.63
Leather				
High	5.22	5.01	4.13	6.57
Medium	9.19	8.29	8.71	14.33
Low	9.59	9.57	9.67	*
Sports				
High	15.46	17.18	12.2	31.66
Medium	12.21	10.49	11.05	15.91
Low	7.19	6.99	6.26	2.56
Bicycle				
High	2.7	2.1	*	*
Medium	5.0	2.8	*	*
Low	3.2	5.2	*	*
Gems & Jewellery				
High	*	*	*	*
Medium	*	*	*	*
Low	*	*	*	*

*Note: (1) *represents information not available (2) Total employed is inclusive of managerial staff (3) Total workers includes those employed on a permanent basis.*

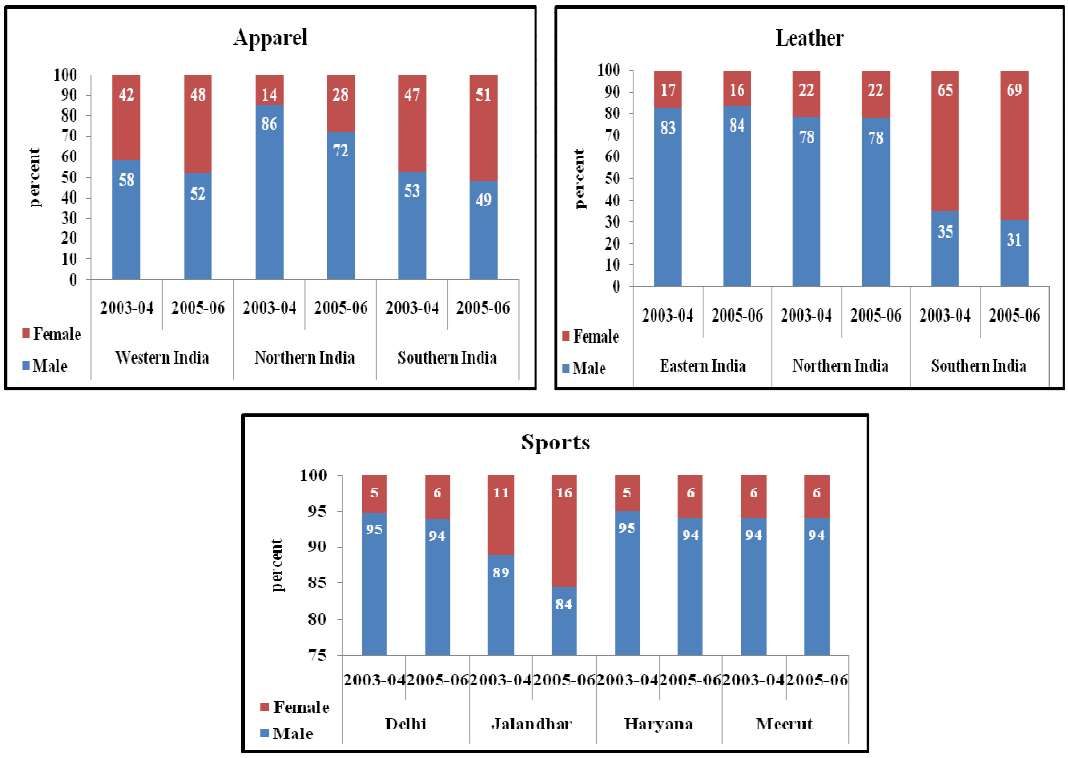
Source: Authors compilation from survey questionnaires.

As can be seen from **Table 4**, there are sharp variations across different sectors in terms of employment categories—total employed, total workers and male as well as female workers. Further, for each category, we also find variations within each division—low, medium, and high sales turnovers. For the apparel, leather, and sports goods sectors our computed growth rates are over 5 per cent per annum across different turnover sizes. For bicycle firms, we were only able to provide employment growth in terms of the total employed and total workers**.** For the gems and jewellery sector, firms were reluctant to provide any number on workforce as most of the firms were outsourcing the actual production of jewellery and thus had no worker based information. Overall, **Table 4** provides evidence of growth in employment in the selected labour intensive firms.

Since we found evidence of employment generation in the surveyed labour intensive firms, the important question was to figure out the ratio of male to female workers in the surveyed firms so as to get an idea of employment growth by gender. Further, it was also important to find out whether there was a regional pattern for employment generation by gender. Our survey came up with some interesting facts regarding

male-female worker ratios and regions. **Chart 2** shows the male-female breakup in employment in three labour intensive sectors—apparel, leather, and sports goods.[11] For apparel, we find that the male-female worker ratio in the western and southern regions is close to 50 per cent. For leather, female workers outnumber their male counterparts in the southern region. For sports, where manufacturing is located mostly in the northern region, we find the dominance of male workers. **Chart 2** shows that when it comes to employability of workers by gender, there seems to be a preference for and availability of female workers relative to male workers in the western and southern regions. In the northern and eastern regions, the employability is more in favor of male workers perhaps because of the customs and social practices prevalent in these regions.[12] Further, our data for the period 2005 over 2003 also indicates that the percentage of female workers relative to male workers has gone up in the apparel and leather sectors. Our survey findings also indicate that this trend towards the absorption of more female workers found favor with prospective employers as they considered female workers to be more productive in terms of their fixed work schedule and also because they were not involved in any trade union activity beyond their work schedule.

Chart 2: Male-Female Ratio in Total Workers in Labor Intensive Industries



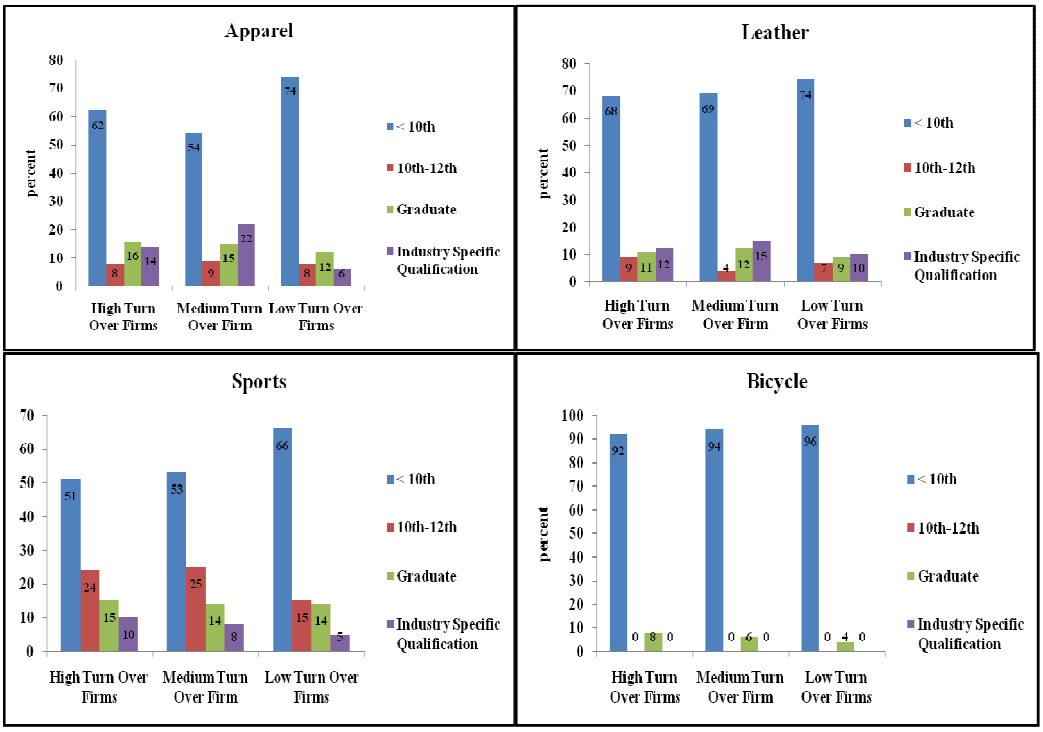
Source: Authors compilation from the survey questionnaires

[11]Unlike other labor intensive sectors, for the bicycle firms we were unable to get data on male-female workers. Further, given that most of the firms surveyed were in Ludhiana in Punjab, our interviewers felt that perhaps women job seekers were not seeking employment in bicycle manufacturing.

[12]Our survey findings for the leather and apparel sectors in the southern region show a relatively large number of female workers as compared to male workers. In addition, we find that in hubs like Tirupur, Chennai, and Bangalore, the absorption rate for the female workforce is much greater than that for the male workforce.

A third dimension within employment issues in labour intensive firms concerns the question of skilled versus unskilled worker requirements. Given that the firms are moving towards more capital intensive techniques of production to meet the price competitiveness and economies of scale of production, there is a gap between the available workforce and requirement of skills. The selected sectors and consequently the products manufactured require the workers to be trained in handling sophisticated machines. So it was imperative to have the employment profile of workers by their educational background. **Chart 3** provides information in terms of percentage of workers from different educational backgrounds across the selected labour intensive sectors.

Chart 3: Employment by educational categories- Labor Intensive Industries



Source: Authors compilation from the survey questionnaires

In all the sectors,[13] we find that a majority of the employed workers were educated below the school level (<10th class). Qualifications like a graduate degree and industry specific degrees are mostly applicable for managerial or supervisory level staff. This holds across the three different turnover sizes. For apparel, leather, and sports goods firms, we see that more than 65 per cent of the workforce has attained education less than school level (< 10th class) whereas for bicycle firms, this figure is almost 100 per cent. This shows that for products in the leather and apparel sectors those with higher levels of qualification are engaged in supervisory roles in assembly line production.

[13]We do not have information for two sectors—bicycle manufacturing and gems and jewellery. For bicycle manufacturing, we were not able to gather employment data by gender. In the case of the gems and jewellery sector, particularly for gold jewellery, the firms did not have production worker information since the production system is based on outsourcing to artisans. . The only information available was of people employed in retail showrooms.

The survey results also point out that in all the sectors it is those workers who have not passed school who form the core of the production process. It is important to point out here that the firms call this category of workers unskilled workers. According to the employers, skilled workers are those who have been trained to engage with machinery which is being increasingly put to use in labour intensive firms to increase the efficiency of the production process.

Employers in the firms surveyed were of the view that the bulk of the workforce employed were dominated by those who have not passed school, it is the lack of a trained workforce that acts as a deterrant to employment generation The training required to handle specific machines being used in most firms be it apparel, leather, sports goods, or bicycles sectors is 'on the job' training which requires time and resources both of which are scarce for labour intensive sectors. Therefore, the non-availability of trained workers emerges as an important issue in the employment generation potential of the firms.

The final issue concerns the examination of wage rates in labour intensive sectors. For all the firms surveyed, wages reflect payment for an 8-hour shift. The information that we were able to collect is for wage payment for permanent workers, including both permanent male and female workers. We were unable to get information of any wage for temporary workers or even outsourced workers.[14] We did not come across any differential wage rates for male and female workers. We do, however, observe wage differentials between skilled and unskilled workers for both male and female workers (**Table 5**). Further, there are variations in wages across different labour intensive sectors and our sample also reflects some regional variations in wages. In some of the sectors, particularly sports good, we were unable to get any information on wages as we did not find the workers divided into skilled and unskilled categories. In the bicycle sector, we could not gather information about female workers.

Table 5: Average Wage by worker category per shifts: Labor Intensive sectors

Sectors	Male		Female	
	Skilled	Unskilled	Skilled	Unskilled
Apparel	180	100	180	100
Leather	210	130	200	100
Sports	140	N.A.	140	N.A.
Bicycle	150	80	N.A.	N.A.
Gems & Jewellery	220	150	200	150

Note:

1. *The average wage figure corresponds to the information provided by the firms*
2. *Shift corresponds to 8 hours of work*
3. *N.A.= Information not available*

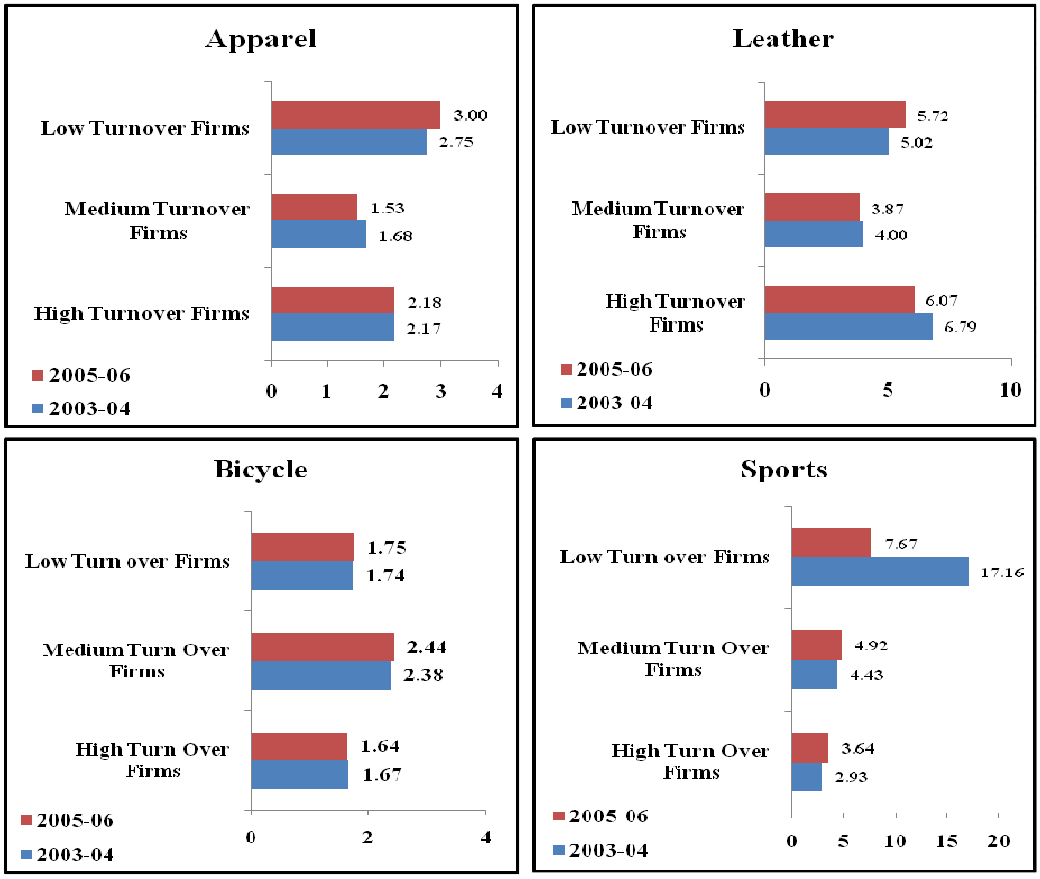
Source: Authors compilation from survey questionnaires.

[14]It seems from the survey that labor intensive firms do outsource a significant amount of their production work, particularly in textile, leather, and sports items. The nature of outsourcing and the period of work often determine wages, which are in the form of piece rates and vary across firms, sectors, and the nature of the job.

IV.2 Machinery Usage

Against the finding of declining labour intensity across all labour intensive industries (Das et al 2009), it was imperative for us to check if capital was being substituted in place of labour in India's labour intensive firms? Towards this end, the survey set out to collect information on the number and nature of machines in use; and more precisely how many workers were working on single machine. With information on workforce and machines for three continuous years, we were able to compute a worker-machine ratio (**Chart 4**). This was important for our understanding of the employment generation potential in the surveyed firms.

Chart 4: Change in Worker-Machine ratio during 2003-04 & 2005-06



Source: Authors compilation from survey questionnaires

Chart 4 highlights the worker-machine ratio for four sectors—apparel, leather, sports goods, and bicycles. It is important to mention here that since the machines used for in gems and jewellery sector are very different from those used in the other surveyed sectors we were not able to generate a worker-machine ratio for this sector. For each sector, we show the worker-machine ratio by turnover size. For apparel as well as the leather sector, we observe that in the case of low turnover firms, there is a relative increase in workers to machines ratio? For the medium and high turnover segments, there is a negligible variation present in the worker-machine ratio**.** In the sports goods and bicycle sectors, we find a mixed picture. In fact, the sports goods sector is an

exception, where firms that have a low turnover show a decline in the worker-machine ratio. The statistical bars convey an important aspect of labour intensive establishments—with every extra machine that the firm invests in and puts into operation, there is an increase in the workforce to operate the machine. By and large our observation across firms in all turnover sizes is that an increasing use of machinery to bring in technological advancements is not necessarily labour displacing.

In today's world of global markets, firms must invest in machinery which embodies advanced technology so that production efficiency is enhanced and they can compete with lower unit costs in order to remain competitive. Towards this end, we find from our survey that the firms realize the advantages of being at par with world technology. This in turn ensures a greater potential for employment generation at the firm level as new machines need workers to operate them. Machines at the level of these labour intensive firms are mostly related to designing, cutting, and stitching be it for leather, apparel or even sports items. These are either computer driven or electronically set or manually operated thereby emphasizing the need for the involvement of workers.

IV.3 Trade orientation

Trade liberalisation in India was expected to lead to a shift in her industrial structure towards more labor intensive industries by encouraging more labor intensive methods of production in which India was expected to have a comparative advantage. The abundance of cheap labour was expected to help Indian manufacturing exporters to become price competitive. The available export demand for the labour intensive industries creates a further potential for employment generation in these sectors. Thus our aim in the survey was also to find out how trade orientation of the firms influencing the employment generating potentials of these sectors. It is important to point out here is that many of our surveyed firms were 100 per cent export oriented units. We gathered information on major products and information on volume and quantity to the extent possible was also sought. Additional information was sought on export competition, markets, and the kind of assistance provided by the Government of India. **Table 6** summarizes the export orientations of the five labour intensive sectors.

Table 6 shows that the export baskets of each of the five labour intensive sectors were diversified. The range of items produced for the export markets contains both high value as well as mass market products covering both traditional as well as newer products. Our survey indicates that both the US and the European Union (EU) form the core of India's export destinations, though for certain sectors —sports goods and bicycles—South American nations show promise and potential of being India's export destinations. In the case of diamond exports from India, all major global markets continue to be export destinations. However, in the case of gold jewellery, which the Export Promotion Council of Gems and Jewellery targets as its high growth product, most of the important markets remain in areas where people of Indian origin reside in large numbers who invest in gold jewellery.

Table 6: Export Orientation of Labor Intensive Industries- The core Industries

Sector	Export Basket	Export Market	Export Competitor	Export Assistance
Apparel	All kinds of garments and accessories-men's, women's and children's wear	US, EU (inc UK) South American countries	China East Asian bloc-Vietnam, Indonesia South Asian-Bangladesh, Sri Lanka Turkey, Morocco	Duty drawbacks EPCG Technology up gradation funds
Leather	Leather footwear, garments and accessories(handbags, wallets, etc)	US, EU, South Africa, Latin America, Middle East	China, Bangladesh, Pakistan Italy & Portugal, Brazil	Duty drawbacks EPCG
Sports	Traditional sports-Inflatable soccer balls, cricket bats and balls, hockey sticks and balls; Nontraditional sports-boxing, martial arts, Health sports	US, EU, Japan South America Middle East Indonesia	China Pakistan Taiwan	Market development assistance grants Duty drawbacks
Bicycle	Complete bicycle Bicycle accessories	US, EU, Latin America Africa	China	Duty drawbacks EPCG DEPG
Gem & Jewellery	Diamond Processing Plain Gold Jewelry Plain & Studded gold Jewelry	US & UK, Middle East, Canada, Dubai, Singapore, Hong Kong	China Italy Malaysia Gulf countries	Gold Import License, EPCG

Source: Authors compilation from survey questionnaires.

China emerges as the single country that a majority of the manufacturers-exporters identified as their primary export competitor. This holds true not only for traditional products like apparel and leather, but even for items like sports goods and equipment, and gems and jewellery. Countries like Bangladesh and Sri Lanka within South Asia have been export competitors for apparel and clothing products for some time, but the emergence of countries like Morocco and Turkey in these sectors seems important. In leather, the emergence of Bangladesh as a possible competitor leaving behind traditional competitors like Italy and Portugal is a significant finding of the survey. Overall, it emerges that China with its large-scale production for mass markets and its

on time delivery schedule finds favor with most buying agents, who procure orders from the region for leading sellers and large retain changes in EU and the US.

Our final assertion is with respect to the role played by the government in boosting exports of labour intensive firms. Following the 1991-92 trade reforms, the government continues to support exporters, small and large, in various ways to enhance their exports. The survey found that for most sectors, duty drawbacks and the export promotion capital goods scheme (EPCG) was some of the assistance that the firms availed of. In addition, in the apparel sector, we found some firms using technology up-gradation schemes, whereas in sectors like sports goods, market development assistance featured as the most utilized export promotion scheme. What should also be mentioned here is that most labour intensive firms felt that the export promotion councils set up by the Ministry of Commerce and Industry in each of the five sectors needed to play a more proactive role in terms of bringing more buyers and exporters into contact with each other. Further, the inadequacies of the infrastructural support available, particularly internet and telecommunications, ports, and roads make it difficult for exporters to sustain contact with buyers over a long period of time.

IV.4 Labour Issues

A crucial issue pertaining to the employment generation potential of labour intensive firms has to do with existing labour laws. Our survey gathered information on employee strength (in numbers), division of workforce into permanent and temporary, workforce by gender, and outsourcing of jobs. In addition, questions were also asked about trade unions and their abilities to negotiate wages, number of shifts and even product profiles, and about labour conflicts in the last three years.

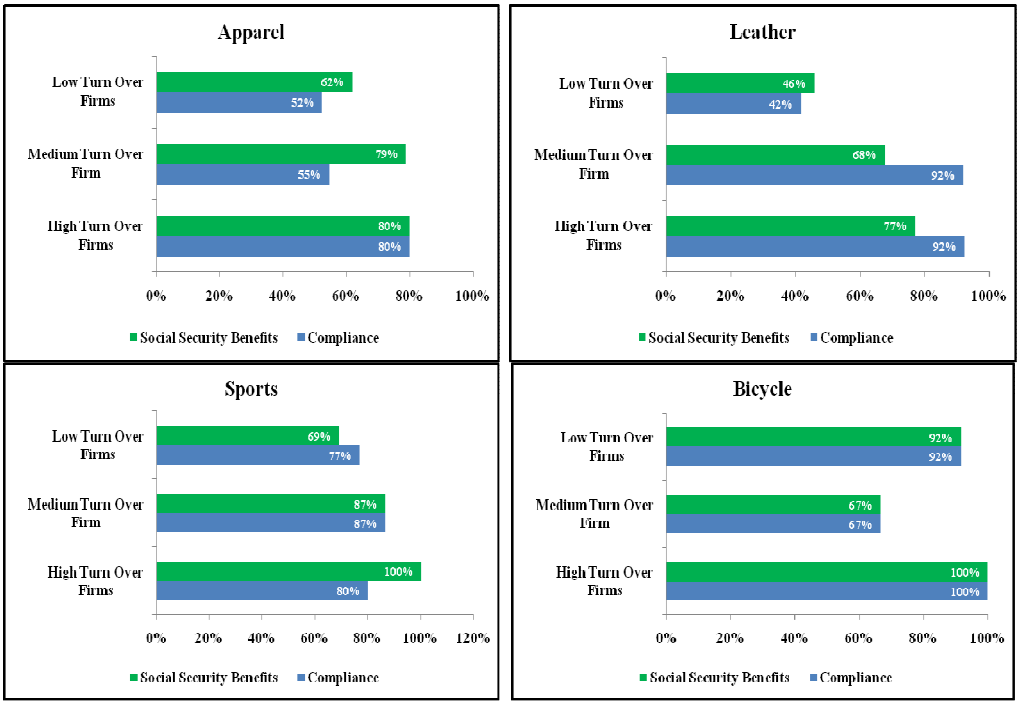
The following findings came up from our survey: First, outsourcing of jobs was a prevalent practice in firms from all the three turnover categories. Our discussions with employers across different sectors indicate that given the nature of export demands, particularly for firms manufacturing apparel and leather products, and also the nature of product-seasonal items, it was not feasible for them to employ people on a permanent basis as the pattern of work along with demand indicate lay-offs for some period of the year. Given the stipulations concerning rules and regulations for full time employment as provided by the office of the labour commissioner, outsourcing seemed to be a rational strategy, as well as a way of circumventing labour laws.

Second, our survey also gathered information about implementing labour laws like compliance with various labour issues including child labour, and providing social security benefits to workers who are employed on a permanent basis.[15] From our findings it is clear that almost all the firms surveyed complied with labour laws and also with social security considerations (see **Chart 5**). As can be seen from **Chart 5**, over 75 per cent of the surveyed firms in the high sales turnover category in apparel, leather, bicycles, and sports goods sectors met the different compliance requirements. Similar is the case for social security obligations. If we compare across firm sizes (turnover), we find different levels of compliance and social security obligations for

[15]By compliances, we refer to labor law compliances in India (Minimum Wages Act, child labor, payment of bonus, gratuity, ESI Act, and Factory Act); and by social security considerations, we refer to life insurance, health insurance, and accident insurance etc.

apparel as well as leather firms. In case of these two sectors, we observe that as firms graduate from low turnover to the higher end, the percentage response increases.

Chart 5: Firms complying with Compliance code & providing Social security benefits



Note: (1): The figures for compliances and social security implies the percentage of sample firms interviewed that follow the compliance requirement and provide social security benefits to the workforce (2) Information on gems and jewellery firms was not available.
Source: Authors compilation from survey questionnaire.

Overall, we find that in the leather and apparel sectors there are different responses when it comes to complying with labour laws and social security whereas for the sports goods and bicycles sectors, we find a more or less similar response for compliance and social security. This holds for all size classes. Our observation based on this information is that the labour laws specified in terms of rules and regulations, no matter how harsh they may be in the context of the production environment of these sectors are being implemented and complied with.

Third, what is particularly evident from firms based in southern India is that given 'everything else remains unchanged' employers prefer to employ more female workers (in both permanent and temporary jobs) as compared to male workers. This decision is based on previous experience and the socio-economic profile of female workers, as with female workers prospects of trade union activities within the factory premises are considerably low thereby minimizing chances of strikes and lockouts. **Table 7** gives information on trade union presence and labour conflicts in the labour intensive sectors.

Table 7: Trade Union, Labor Conflicts and Skilled Labor Shortages

Labor Intensive Industries	Trade Union Presence	Experienced Labor Conflict issues	Shortage of Workforce
Apparel	16	24	76
Leather	19	18	66
Sports	4	16	62
Bicycle	8	14	42
Gems & Jewellery	11	13	59

Note: (1) The figures signify the percentage of total firms interviewed (2) Trade Union Presence: Trade Unions having influence on the firm or workers are part of the trade union group (3) Experienced Labor Conflict issues: Firm experienced closure or production disruption due to labor conflict with management.
Source: Authors compilation from survey questionnaire.

Table 7 shows that trade unions were present in less than 20 per cent of the firms interviewed. Our survey also shows that in the apparel and leather sectors, around 16 and 19 per cent surveyed firms had the presence of trade unions. In the other sectors, the reported number was less. The fact that a small percentage of firms from our survey show the existence of trade union activities is significant as these firms are all labour intensive firms, and furthermost them are engaged in manufacturing-exporting with some firms having 100 per cent export obligations. Therefore, labour requirements of these firms are potentially larger as compared to other firms. In addition, information was also collated on labour conflicts so as to draw possible correlations between trade union presence and labour conflicts. Our findings show that only a small percentage of firms reported labour conflicts. It would be a good idea to ascertain if labour conflicts happened in those firms which have trade unions. In particular, it would be interesting to find out how many firms in the sample had both labour conflicts and the presence of trade unions. This would give us an idea if trade union presence has any bearing on labour conflicts particularly in India where labour laws are still very archaic. The deterrents when it comes to dealing with labour issues had to do with firms' inability to have flexible hiring practices like laying-off workers during times of sluggish export demand. We observed that firms took recourse to outsourcing of work to avoid prevalent hiring practices**.** It would be important to point that whenever full time employment was adhered to, most of the labour laws were complied with and social security obligations too were fulfilled.

Our findings from the survey point to two crucial issues within broad employment patterns. The first is that there is a shortage of skilled workers. 'Skill' here refers to the ability of a worker to handle the machinery that is being used in the factories. Most firms surveyed were of the view that centers to provide 'training' to the workers should be set up so that the firms can draw upon a steady pool of skilled workforce as and when required. The second finding indicates that there is a trend towards hiring female workers because of their efficiency and work ethics. This was clearly reflected by employers in southern India. When it comes to technology, our survey clearly shows that the emphasis was on using the latest available technology. Further the worker-machine ratio indicated that workers were not being substituted by machines. Labour intensive firms are expected to take part in global trade because of factor input

advantage. We, however, saw that these firms are far from achieving competitiveness in exports. Several reasons were cited by the firms for this state, including inadequate infrastructure, lack of export demand, and seasonality of export items. When it comes to labour rules and regulations, it was seen that the firms preferred large scale outsourcing to overcome difficulties of hiring and firing workers. In addition, it was interesting to note that in most of the surveyed firms which were also 100 per cent exporters, the presence of trade unions and labour conflicts did not figure as possible deterrents to employment generation.

V. Policies to Address the Shortcomings

After finding out the shortcomings in the labour intensive sectors that act as deterrents to employment generation we devised a set of policies to address these. Our discussions on the basis of the survey centered around four aspects—the present employment scenario, the status of machinery used, trade orientation, and labour issues—all of which are significant in understanding the potential of employment generation in these sectors. The following emerged as crucial policy issues in these sectors:

Setting up of training centers to generate skilled workers

We observed that there is a shortage of a skilled workforce in all the sectors surveyed. 'Skill' here reflects the ability of the workers to handle modern machines which are being increasingly put to use to increase efficiency (output per unit of input). We found that in only one sector—apparel—there were training and designing centers functioning under AEPC and the National Institute of Fashion Technology (NIFT). In the case of leather and sports goods sectors we did not come across any such centers. Hence, we recommend the setting up of training centers in rural areas, especially in villages with private initiative or through private-government partnerships. This would have a double benefit as it would train workers and ensure that industries come up closer to the villages so that overheads like transportation costs for workers are reduced.

Encouraging female workers

Our survey indicated that the number of women workers employed in the units situated in the southern part of India far exceeds the number employed in the other parts. Our interviews with the management of manufacturing-exporting units indicate that these workers are preferred over their male counterparts on grounds of higher efficiency and discipline. In apparel, leather, and sports goods sectors women workers were more skilled at working with different kinds of machines like cutting, sewing, and stitching. In the case of gold jewellery, retail units around the country are employing more women given the nature of the product. In addition, with women workers there were lesser chances of trade unions being formed. In order to encourage more female workers to join labour intensive industries the government should provide incentives to these industries to outsource more work to female workers and also encourage the setting up of units in villages, where female workers could be encouraged to take up both full and part time employment, depending on their domestic requirements and needs. To spread this message, government-run voluntary organizations and other women's organizations could be asked to participate in

campaigns to educate women, particularly rural women about employment prospects in labour intensive manufacturing industries.

Setting up 'Parks' in rural areas

The Apparel Park in Tirupur is fully functional and is assisting manufacturers-exporters in meeting the burgeoning demand for apparels. We observed that large exporters are outsourcing orders to small manufacturers who operate out of this park. The large firms can work closely with units located in the park in terms of product specifications and quality. We recommend that the government should explore the possibility of setting up such parks in those districts of the states which are 'hubs' of labour intensive exports in leather, textiles, sports goods, bicycles, and gems and jewellery sectors with private initiative (from non-resident Indians and multinational corporations). In the case of sports goods, districts near Jalandhar and Meerut should be looked at for setting up of sports goods parks and; for gems and jewellery, districts near Chennai and Kolkata could be looked at for setting up gold jewellery parks. Similarly, districts bordering Ludhiana and leather goods production hubs like Chennai, Agra, Kanpur, Kolkata, and NCR too could be looked at. This would not only provide employment to workers near their homes thereby doing away with potential migration for employment opportunities but it would also generate revenue at the district level.

Reorienting the role of the export promotion councils

Export promotion councils set up by the Government of India to facilitate exports should cater to the entire industry and not only to a handful of registered manufacturers-exporters. The role of these councils should be redefined to help small and medium enterprises who because of their low turnover bases are struggling to make a dent in the export market. . Further, with the rupee becoming stronger against the dollar, it would be advisable for export councils to help small and medium firms to reach out to other non-dollar markets like EU, Africa, the Middle East, Australia, and the Far East. In addition, because of a weak foreign market many exporters would like to explore the domestic market and this is where the export promotion councils can give them meaningful guidance to showcase their products in the rapidly expanding domestic economy.

Small units and value chains

The emergence of India as a major economic competitor to China in export markets across all products has put tremendous pressure on scales of production for Indian manufacturers. China is sustaining its competitiveness (low price level) because of large scales of production. Thus, when the scales of production become a significant factor in deciding the prices for Indian products, it would pay to give an opportunity to the small firms in the value chain through outsourcing from bigger players**.** This would also eliminate the threat of their getting wiped out of the market because of their low scales of production. The government should identify these small firms in terms of specific products, maintain a database of these firms and see that the big and small players play complementary roles on a common platform. This can be done both for the export market as well as for the domestic sector. As has been mentioned earlier the presence of numerous indigenous family based small units in the sports

goods and gems and jewellery sectors need an organized platform so that the bigger players can outsource work to them. Government agencies can help these identified small units with machines and also technical knowhow to create induced demand. The government needs to play the role of a moderator between the organized big firms and the unorganized small units.

Removing infrastructure bottlenecks

The global environment today requires well-functioning infrastructure, including electric power, road and rail connectivity, telecommunications, air transport, and efficient ports.[16] India lags behind East and South East Asia in most of these crucial areas. Availability of adequate infrastructural facilities, i.e., power, road connectivity, transport facilities, energy, water, ports and airports are important for the robust performance of the small and medium sized manufacturing units. Poor quality of power and interruptions in supply often damage the plant and machinery/equipment of the units. The interruption of power has been highlighted as a major problem for the bicycle sector. In the case of the apparel sector, inadequate warehouse facilities in ports have been a major concern, as after the removal of multi fiber agreement (MFA), standards for exported products in the developed countries have become really stringent. Strikes in ports and inefficient transport facilities add to the cost of production. As the RBI (2005) report says facilitating public-private partnerships, attracting foreign direct investment (FDI) into basic infrastructure and establishing industrial parks for the small sector are options already under consideration by relevant authorities. These need to be expedited. One solution to the infrastructure problem lies in an increased emphasis on cluster development, which will factor in the development of required infrastructural facilities in an organized manner for the cluster as a whole. Therefore, there is a need to strengthen the National Cluster Development Programme and for setting up 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. This lack of finance has an impact on capacity expansion as well as on technological up-gradation, which determine the competitiveness of a firm in terms of both the price and the quality of products that it is manufacturing. The impediments in output growth eventually lead to a reduction in employment. As mentioned by the RBI report (2005) because of asymmetric information and high-risk perceptions about the small and medium enterprises (SME), banks prefer collateral-based lending rather than going in for a cash-flow analysis while working with small borrowers. This is where the role of the export promotion council can be pivotal as an agent which can facilitate the easy flow of finance from the banking sector to the manufacturers.

[16]The survey did not address infrastructure as a specific issue in labor intensive firms; however, information regarding infrastructural availability were gathered in the context of export deterrents.

Conclusions

The aim of the study was to determine the factors that constrain employment generation in five chosen labour intensive sectors—apparel, leather, sports goods, bicycles, and gems and jewellery. To this end, an in-depth firm level survey comprising of more than 250 manufacturing as well as manufacturing- exporting units was undertaken across all major towns and cities that constitute hubs of these sectors. As per the findings of the survey some factors were common to all the five sectors while there were also diverse issues that confront the business environment in these industries[17].

The study points out that several factors inhibit employment generation. In particular, lack of a skilled workforce, low levels of machinery used because of low levels of investment, and a non-competitive export orientation because of infrastructural bottlenecks, and rigid labour rules regarding hiring and firing act as possible deterrents to employment generation in labour intensive firms. To overcome these, the study suggests a set of policy initiatives that can address barriers to employment generation in these sectors.

The study and its recommendations encompass some limitations of the survey. These could be listed as: presence of more export oriented units in each of the samples, inability to offer workers' perspective on employment generation potential as the qualitative part of the survey addressed only managerial viewpoints. This holds particular significance in sector like gems and jewellery where the artisans and job contractors form the actual workforce of the sector. Finally, given that many of the chosen firms had a sizeable presence of unorganized workers we were unable to differentiate between firms belonging to the organized manufacturing sector and those from the unorganized segment of overall manufacturing.

[17] Refer to the National Manufacturing Competitiveness Council report on "A Study of Labor Intensity and Potential of Indian Manufacturing" 2008 for detailed sector specific policy recommendations.

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