

## **ARE LABOUR-INTENSIVE INDUSTRIES GENERATING EMPLOYMENT IN INDIA? EVIDENCE FROM FIRM LEVEL SURVEY**

**Deb Kusum Das and Gunajit Kalita\***

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

### **I. INTRODUCTION**

An important objective of India's economic liberalisation has been to provide employment opportunities not only to meet the backlog of the unemployed but also for facilitating new additions to the labour force. Even today, agriculture still accounts for the 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, organised manufacturing in India despite its impressive growth rates in the 1980s and 1990s, 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 the fact that the objective of the Eleventh Plan was to achieve 'inclusive growth'.

The partial liberalisation 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 organised employment registering a 2 per cent per annum growth over the

---

\* Deb Kusum Das is Reader, Department of Economics, Ramjas College, University of Delhi and Consultant, Indian Council for Research on International Economic Relations (ICRIER). Gunajit Kalita is a Researcher with ICRIER. This paper is extracted from the project, "Labour Intensity and Employment Potential of Indian Manufacturing", undertaken at ICRIER under a research grant from the National Manufacturing Competitive Council, Government of India. The authors would like to acknowledge the comments received at various stages of the study by Dr. Rajiv Kumar, Mr. V. Krishnamurthy, Mr. Govindrajan, Professor Arup Mitra and Professor Nisha Taneja. The authors would also like to express their gratitude to Dr. Meenu Tewari and Professor Pushpa Trivedi for their comments on the project report. The first author would like to acknowledge the comments received from the seminar participants on some aspects of the research project at the University of Dundee, Scotland. The usual disclaimers apply. For comments and feedback, contact [dkdas@icrier.res.in](mailto:dkdas@icrier.res.in); [gkalita@icrier.res.in](mailto:gkalita@icrier.res.in).

period 1980-95 (the employment growth in the unorganised manufacturing sector during the same reference period declined to around 1.7 per cent per annum). The value added in manufacturing achieved a growth of around 7.5 per cent per annum over the decades of 1980s and 1990s. However, with regards to share of employment in manufacturing in India is only 13 per cent (2004-05). The period of the 1980s is often called the decade of 'jobless growth' in Indian manufacturing, as the revival in output growth during this period was not accompanied by the 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 was that of difficulty in labour retrenchment after the introduction of job security regulations in the late 1970s, which 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 the firms, an important reason for which was the increase in the 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 the factory sector in the 1980s could be explained by the acceleration in product wages, which the study attributed to a union-push. Papola (1994), Bhalotra (1998), and Nagaraj (1994), have highlighted that during the 1980s, there was faster growth of industries with low labour intensity and slower growth of industries with high labour intensity and indicated a more intensive use of the workforce in the 1980s, resulting in the slowdown of employment growth.

The decade of the 1990s witnessed the process of economic reforms in India, which included significant liberalisation of both industrial activities and trade. This process of economic reforms was expected by many to boost employment in the manufacturing sector, as there was increased outward orientation after the deregulation of trade and the industrial sector. However, the organised manufacturing sector's share of 13 per cent in employment generation portrays the untapped potential of this sector. Nagaraj (2000) pointed out that faster employment generation in the organised manufacturing sector during the period 1990-91 to 1997-98, as highlighted by Goldar (2000) and Thomas (2002), was due to the investment boom during that decade. In his later study, Nagaraj (2004) pointed out that faster employment generation in the organised manufacturing sector was restricted mainly to the first half of the 1990s. As the boom went bust, there was a steep fall in employment during the second half of the 1990s. The relative cost of labour did not seem to matter in employment decisions, as the wage-rental ratio declined secularly.

The immediate point that draws attention here is the role of labour-intensive sectors in enhancing the employment potential of organised manufacturing. A recent study (Das, *et al.*, 2009) has attempted to investigate the issue of the employment potential of organised manufacturing and comes up with the observation that labour intensity has decreased across all the labour-intensive sectors in Indian registered manufacturing, thereby questioning the ability of firms with more labour per unit of capital to enhance employment generation. In the light of the above observations, this study seeks to examine the sources and constraints of the employment potential of the labour-intensive sectors by studying five selected

sectors—apparels, leather, gems and jewellery, bicycles, and sports goods. An in-depth survey of the firms catering to the above industries was undertaken across cities and towns that constitute the hub of these sectors.

The paper is structured as follows. Section II outlines certain aspects of labour-intensive firms within the organised manufacturing industries with a focus on employment, wages and labour productivity. The research focus, sampling technique and sectoral coverage in the context of the firm level survey is discussed in Section III. The findings from the survey are analysed in Section IV. The policy recommendations are outlined in Section V. The final section concludes the paper.

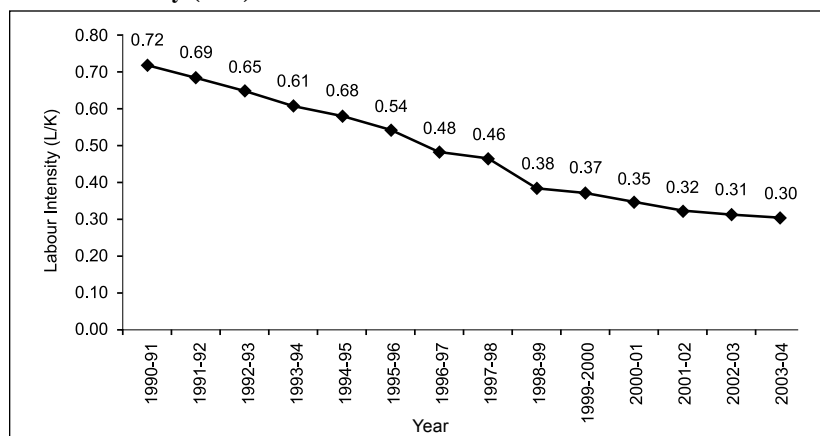
## **II. LABOUR-INTENSIVE INDUSTRIES AND INDIAN MANUFACTURING: EMPLOYMENT, WAGES AND LABOUR PRODUCTIVITY**

Despite the importance of labour-intensive industries in generating employment, the quantification of crucial issues like employment, productivity and wages have not been well-researched. While the issues of employment generation, wages, etc., for India's organised as well as unorganised industries have been the subject of many research studies, very few studies have paid attention to the issues of changing factor intensity, particularly with reference to labour in India's post-Reforms era. Studies by Chaudhuri (2002) as well as by Rani and Unni (2004) are amongst the few studies that have analysed the issue of labour-intensive sectors in India's manufacturing. Both these studies have reported the decline in labour intensity across manufacturing sub-branches as well in both the organised and unorganised sections of Indian industry. There is hardly any study that attempts to understand the determinants of low labour intensity in Indian manufacturing.<sup>1</sup>

The subject of employment potential of the labour-intensive sectors of Indian manufacturing has been recently researched (Das, *et al.*, 2009) and some very interesting facts have emerged from the study. For the period 1990-2004, the labour-intensive sectors of Indian manufacturing were identified and for the identified sectors, it was found that labour intensity was constantly declining over the phases of the study. An examination of the yearly average labour intensity (L/K) for the 31 labour-intensive industries<sup>2</sup> from 1990-91 to 2003-04 shows a continuous fall from 0.72 in 1990-91 to 0.30 in 2003-04. During the period 1990-91 to 2003-04, the average combined Gross Value Added (GVA) share (as a percentage of the total manufacturing value added) of these 31 industries was 13.77 per cent.

The decline in labour intensity in the case of these labour-intensive sectors seems inevitable due to the inclusion in the production process of new and sophisticated technologies, which are more capital-intensive. But an observed decline in capital productivity has serious implications for employment when the question of substitution of labour with capital arises. Indian manufacturers, who face scarcity of resources allocation for increasing capital or labour in the absence of an adequate skilled labour force, have relied more on capital to maintain the scale as well as price competitiveness. Figure 1 summarises the state of the labour-intensive industries of India's organised manufacturing sector for the period 1990-91 to 2003-04.

Figure 1  
Labour Intensity (L/K) of All Labour-intensive Industries: 1990-91 to 2003-04



The performances of the labour-intensive industries in terms of indicators like employment growth (including elasticity), labour productivity growth and real product wages<sup>3</sup> growth were computed (Table 1). The 31 labour-intensive sectors witnessed an employment growth of 4.1 per cent per annum for the period 1990-91 to 2003-04. In addition, if the above period is sub-divided into three periods, namely 1990-91 to 1995-96, 1996-97 to 1999-2000, and 2000-01 to 2003-04, we observe that the employment growth declines from around 6 per cent to around 2 per cent per annum by the end of 1990s, and again regaining to around 5 per cent in 2003-04. The low employment growth recorded during the second sub-period is mainly due to a decline in employment generation by industries<sup>4</sup> with a large employment share. The period 2000-04 again shows an increase in the employment growth of industries with a large share.

An attempt is made to compute the employment elasticity of the labour-intensive sectors for the period and its sub-periods to identify 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, and a jump from period two to period three. If we compare the growth in value added and employment (12 per cent per annum and 5.24 per cent per annum, respectively) in period three with that in period two (2.36 per cent per annum and 1.88 per cent per annum, respectively), we can see that employment growth and elasticity improved in the decade of the 2000s. After 2000-01, we observe a substantial improvement because both employment and real gross value added (GVA) growth has jumped after 2001-02. In the second phase of the reform, in spite of the real GVA growth remaining high, the output growth did not translate into employment growth. The employment elasticity also allows us to identify the industries with a potential for employment generation for the period 2000-2004<sup>5</sup>, but when we examine the full period, we find that several of them 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 the demand for labour to push up real wages. In this context, the productivity and real product wages for the 31 labour-intensive sectors are computed.

Table 1  
**Changes in Labour Productivity, Employment and Real Wages: Labour-intensive Industries**  
(% per annum)

| <i>Performance indicators</i> | <i>1990-91 to<br/>1995-96</i> | <i>1996-97 to<br/>1999-2000</i> | <i>2000-01 to<br/>2003-04</i> | <i>1990-91 to<br/>2003-04</i> |
|-------------------------------|-------------------------------|---------------------------------|-------------------------------|-------------------------------|
| Labour productivity growth    | 5.39                          | 4.55                            | 11.78                         | -0.72                         |
| Real wages growth             | 2.73                          | 1.79                            | 4.68                          | 1.97                          |
| Employment growth             | 4.1                           | 5.49                            | 1.88                          | 5.24                          |

*Note:* The figures represent the weighted averages of 31 identified labour-intensive industries at the four-digit NIC 98 level of industrial classification.

*Source:* Das, *et al.* (2009).

### III. FIRM LEVEL SURVEY: RESEARCH FOCUS AND SAMPLING FRAMEWORK

This section provides an appraisal of the survey of firms focusing on the research agenda on which the survey was carried out, the design of the questionnaire, and the selection of the firms as the underlying methodology. Given that the dynamics of the manufacturing sector in India has undergone changes since the 1990s, with the advent of liberalisation as well as relaxation of rules and regulations governing export and import and industrial deregulations, the survey therefore attempted to assess if labour-intensive firms are generating employment, and analyze the impediments to achieving the employment generation goal.

The questionnaire was structured to seek both quantitative as well as qualitative answers from the firms.<sup>6</sup> The survey attempted to generate employment data in both value/volume for the following—total number of persons engaged; managerial, workers; permanent, temporary and outsourced workers, gender, wage rates of each category, number of hours worked in each category and the educational background, etc. Supplementary information on social security benefits, trade unions, etc. was also generated. Qualitative questions were generated to help the investigators understand several crucial issues in deciding to hire more people and, in turn, enhance the employment potential. Attention was given to the twin issues crucial to any examination of employment generation in the 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 also of major consideration in the design of the questionnaire.

The sectors to be surveyed were decided on the basis of two conditions. First, they were the major labour-intensive sectors among the 31 identified labour-intensive sectors. Second, the chosen sectors were important foreign exchange earners for India. Special attention was given to geographic considerations, scale and age of the identified firms so as

to ensure a balanced sample.<sup>7</sup> The sampling technique chosen to create the sample size of different labour-intensive sectors was based on a combination of convenience and judgment sampling. Judgment sampling was thus undertaken wherein the sample was selected on the basis of the judgment about the profile of the labour-intensive sectors, and also on prior intimation of the readiness of the respondent firm to the survey. In this connection, the export promotion councils of the apparel, leather, gems and jewellery, and sports goods sectors were involved. For bicycles, a survey of bicycle manufacturers and exporters was undertaken on the Internet.

#### IV. FINDINGS FROM THE SURVEY

The analysis of the survey findings has been attempted across all five labour-intensive industries in terms of three size classes—small turnover firms, medium turnover firms, and large turnover firms. Table 2 lists the number of firms as well as the definitions of each category under each of the five selected labour-intensive industries. The findings are sector-specific and are centred on several issues that impact the employment generation potential of these firms.

Table 2  
Labour-intensive Industries: Firms and Turnover

| <i>Sectors</i>             | <i>High<br/>turnover</i> | <i>Medium<br/>turnover</i> | <i>Low<br/>turnover</i> | <i>Turnover definition (Rs. Crore)</i>        |
|----------------------------|--------------------------|----------------------------|-------------------------|-----------------------------------------------|
| Apparel (74)               | 21                       | 31                         | 22                      | High (> 30)<br>Medium (6-30)<br>Low (< 6)     |
| Leather (74)               | 14                       | 36                         | 24                      | High (> 30)<br>Medium (10-30)<br>Low (< 10)   |
| Gems and jewellery<br>(36) | 10                       | 14                         | 12                      | High (> 100)<br>Medium (21-100)<br>Low (< 20) |
| Sports (33)                | 5                        | 15                         | 13                      | High (> 30)<br>Medium (5-30)<br>Low (< 5)     |
| Bicycle (35)               | 14                       | 9                          | 12                      | High (> 5)<br>Medium (1.5-5)<br>Low (< 1.5)   |

*Source:* Author's compilation from the survey questionnaires.

An attempt has been made to focus on the following issues—employment, the status of machinery usage, the nature of export emphasis that these firms exhibit, and labour-related issues that deter firms from hiring more workers.

##### 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 nature of the workforce that these firms employ. The survey focused on many aspects of employment—permanent, temporary,

outsourcing, gender segregation of the workforce, education profile, wages earned per shift including assessing whether gender-based wage differential is in existence. Given that the survey was cross-sectional in nature, the changes could be observed only at a point in time, rather than over time. Thus, wherever applicable, the analysis picks up inter-firm, inter-region differences in the employment status of labour-intensive firms, and this holds importance for any kind of policy inferences arrived at. Table 3 shows the employment growth of several categories of workers computed over the period 2003-05.

Table 3  
Employment Growth (%) by Categories of Employment, 2003-05

| <i>Sector</i>      | <i>Total employed</i> | <i>Total workers</i> | <i>Male workers</i> | <i>Female worker</i> |
|--------------------|-----------------------|----------------------|---------------------|----------------------|
| 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 and jewellery |                       |                      |                     |                      |
| High               | *                     | *                    | *                   | *                    |
| Medium             | *                     | *                    | *                   | *                    |
| Low                | *                     | *                    | *                   | *                    |

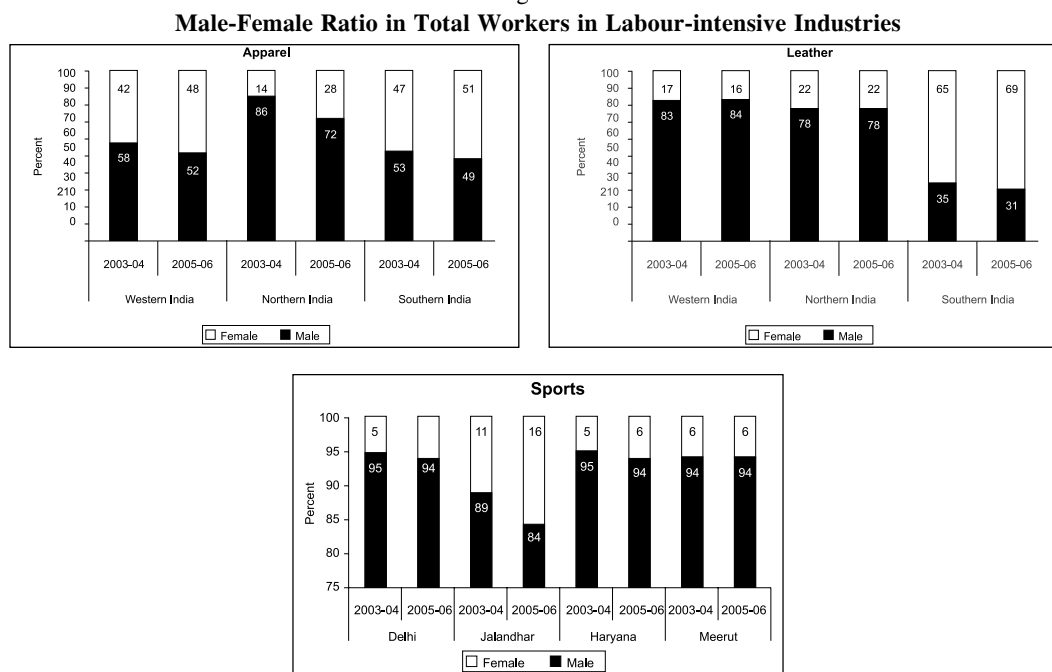
Notes: (1) \*represents information not available. (2) 'Total employed' is inclusive of managerial staff.  
(3) 'Total workers' includes those employed on a permanent basis.

Source: Author's compilation from the survey questionnaires.

It can be observed from Table 3 that there are sharp variations across different sectors in terms of employment categories—the total number of persons engaged, total number of workers, and male as well as female workers. Further, for each category, there are variations within each sector—low, medium and high sales turnover. For various sectors—apparels, leather and sports, the computed growth rates are over 5 per cent per annum across different turnover sizes. For bicycle firms, only the employment growth in terms of total employed and total workers has been provided. For the gems and jewellery sectors, the firms were reluctant to provide any numbers on the workforce as most of the firms were outsourcing the actual production of jewellery, and in actual practice, had no worker-based information. Overall, Table 3 does provide evidence of growth in employment taking place in the selected labour-intensive firms.

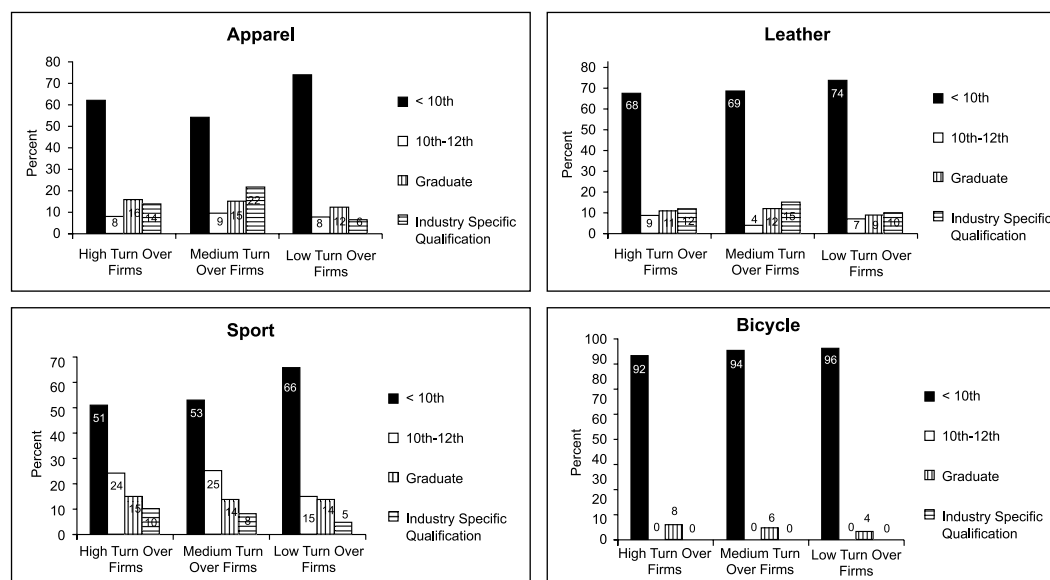
Since there is evidence of employment generation taking place in the surveyed labour-intensive firms, the important question was to figure out the ratio of the male to female workforce in the surveyed firms so as to obtain an idea of employment growth by gender. Further, it was also imperative to infer if there is a regional pattern for employment generation by gender. The survey throws up some interesting facts regarding the male-female workforce and region. Figure 2 highlights the male-female break-up in employment in three labour-intensive industries—apparel, leather and sports goods.<sup>8</sup> For apparel, there is close to a 50 per cent ratio of the male-female workers for the western and southern regions of India. For leather, the female workers outnumber their male counterparts in the southern region. For sports, the manufacturing is located mostly in the northern region and there is a dominance of male workers. Figure 2 projects a very important finding in terms of the employability of workers by gender, viz. that in the western and southern regions, there seems to be a preference as well as availability of female workers relative to males in the job market whereas in the northern and eastern regions, the prevalent customs as well as social ethos tilt the balance in favour of male workers.<sup>9</sup> Further, the data available for the period 2005 over 2003 also indicates that for both the apparel as well as leather sectors, the percentage of female workers relative to male workers has gone up. The survey findings also indicate that this trend towards the absorption of more female workers found favour with the prospective employers as the employers considered this category of workers to be more productive in terms of their fixed work schedule and also their non-involvement in any trade union activity beyond the work schedule.

Figure 2



Source: Author's compilation from the survey questionnaires.

Figure 3  
Employment by Educational Categories—Labour-intensive Industries



Source: Author's compilation from the survey questionnaires

A third dimension within the employment issues of labour-intensive firms concerns the requirement of skilled versus unskilled workers in the labour-intensive firms. The selected sectors—apparel, leather, sports, bicycles, and gems and jewellery—and the products that they manufacture do not require the workers to acquire any training in handling very sophisticated machineries. In that context, it was imperative to provide the profile of employment by educational background in the surveyed firms. Figure 3 provides information in terms of the percentage of workers from different educational backgrounds across the selected labour-intensive sectors.

In all sectors,<sup>10</sup> it has been found that the majority of employed workers have educational qualifications below school grade (< 10). Qualifications like a graduate degree or an industry-specific degree are mostly applicable for managerial or supervisory level staff. This holds true across the different turnover sizes. For apparel, leather and sports firms, it has been seen that more than 65 per cent of the workforce has less than school grade qualifications, whereas for bicycle firms, the corresponding number is almost 100 per cent, signifying that for products like leather and apparels, there is need for higher level qualifications among the workforce, especially for supervisory roles in assembly line production. The survey results point to the fact that in all the sectors, it is the workers who have not even passed out of school that form the core of the production team. It may be important to point out here that firms call this category of workers 'unskilled workers'. According to the employers, skilled workers imply workers who have been trained to engage with machineries that are being increasingly put to use in the labour-intensive firms in order to increase the efficiency of the production process.

The survey points out that with the dominance of workers who have not even passed out of school forming the core of the production workforce, the managements in most labour-

intensive firms believe that it is the lack of a trained workforce that acts as a deterrent to employment generation. The training required to handle the specific machines in use for manufacturing in most firms, be they in the apparel, leather, sports, or bicycle sectors, require '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 constraint in the employment generation potential of firms.

The final issue concerns the examination of the wage rate in the labour-intensive sectors. For all the firms surveyed, the wages reflect payments for an eight-hourly shift. The information collected is for the wage payment for permanent workers, including permanent male and female workers. It was not possible to report any wage for temporary workers or even for outsourced workers.<sup>11</sup> It is evident from the survey that no difference between the wages paid to male and female workers was found. It can, however, be observed that there were differences between the wages for skilled workers and those for unskilled workers, in the case of both male and female workers. Further, there are variations in wages across different labour-intensive sectors, and the samples in this study also reflect some regional variations in wages. In some of the sectors, it was not possible to report the wage information, particularly for sports, as the workers could not be segregated into skilled and unskilled workers. In the bicycle sector, it was not possible to gather information on female workers.

Table 4  
Average Wage by Worker Category per Shift: Labour-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 and jewellery | 220     | 150       | 200     | 150       |

Notes: 1. The average wage figure corresponds to the information provided by the firms.

2. One shift corresponds to eight hours of work.

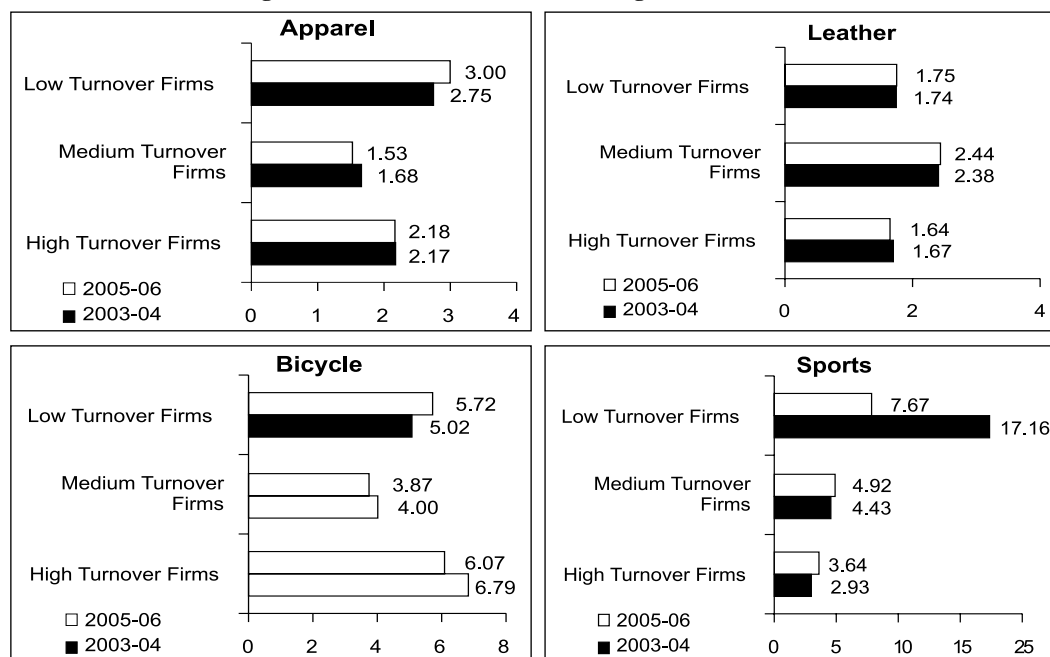
3. N.A. = Information not available.

Source: Author's compilation from the survey questionnaires.

## 2. Machinery Usage

In view of the finding of declining labour intensity across all labour-intensive industries (Das, *et al.*, 2009), it becomes imperative to check if labour is being substituted by capital 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, on the number of workers required to work on a single machine to be able to establish a relation between machines and the workforce. With information on the workforce and machines available for three continuous years, it was possible to compute a worker-machine ratio and show if this has declined, risen or remained unchanged for the labour-intensive firms under study. This is important for an understanding of the employment generation potential in the firms surveyed under the study.

Chart 4  
Change in Worker-Machine Ratio during 2003-04 and 2005-06



Source: Author's compilation from the survey questionnaires.

Figure 4 highlights the worker-machine ratio for the four sectors—apparel, leather, sports goods, and bicycles. It is important to mention here that given the applicability of its machinery, the gem and jewellery industry is very different from the other surveyed industries, and it was thus not possible to generate a worker-machine ratio for this sector. For each sector, the worker-machine ratio can be shown by turnover size. For apparel as well as leather, it can be observed that in the case of low-turnover firms, there is a relative increase in the number of workers to machines. For medium and high turnover, a negligible variation is present. In the other industries, namely sports goods and bicycles, a mixed picture can be seen. In fact, the sports goods sector is an exception, wherein in the case of low turnover size, there is a decline in the worker-machine ratio. The statistical bars convey a very important aspect of labour-intensive establishments—that with every extra machine that the firm invests in and puts into operation, there is also an increase in the workforce needed to operate the machine. This observation applies, by and large, across firms of all turnover sizes, as it is seen that the increasing usage of machinery by firms to usher in the technological advancement embodied in those machines is not necessarily labour-displacing.

### 3. Trade Orientation

Trade liberalisation in India was expected to lead to a shift in her industrial structure towards more labour-intensive industries by encouraging more labour-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. The aim of the survey was also to find out how trade orientation of the firms increased the employment-generating potentials of these sectors. It is important to point out that many of the surveyed firms were 100 per cent export-oriented units. Information was collected on major products, and to the maximum extent possible, information on volume and quantity was also sought. Since the focus of this paper is on employment generation, additional information was sought on other dimensions like the export competitors, markets and the kind of assistance provided by the Government of India to the firms concerned. Table 5 summarises the export orientation of the five labour-intensive sectors under study.

Table 5  
**Export Orientation of Labour-intensive Industries—The Core Industries**

| <i>Sector</i>      | <i>Export basket</i>                                                                                                                                          | <i>Export market</i>                                        | <i>Export competitor</i>                                                                              | <i>Export assistance</i>                             |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|------------------------------------------------------|
| Apparel            | All kinds of garments and accessories—men's, women's and children's wear                                                                                      | US, EU (including UK), South American countries             | China, East Asian bloc—Vietnam, Indonesia South Asian countries—Bangladesh, Sri Lanka Turkey, Morocco | Duty drawbacks, EPCG, Technology upgradation funds   |
| Leather            | Leather footwear, garments and accessories (handbags, wallets, etc.)                                                                                          | US, EU, South Africa, Latin America, Middle East            | China, Bangladesh, Pakistan, Italy and Portugal, Brazil                                               | Duty drawbacks, EPCG                                 |
| Sports             | Traditional sports items—inflatable soccer balls, cricket bats and balls, hockey sticks and balls; Non-traditional 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                           |
| Gems and jewellery | Diamond processing Plain gold jewellery Plain and studded gold jewellery                                                                                      | US and UK, Middle East, Canada, Dubai, Singapore, Hong Kong | China, Italy, Malaysia, Gulf countries                                                                | Gold import licence, EPCG                            |

Source: Author's compilation from the survey questionnaires.

Table 5 shows that the export baskets of each of the five labour-intensive industries 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 contemporary products. The survey indicates that both the US and the EU form the core of India's export destinations, though for certain sectors such as sports items as well as bicycles, South American nations show a promise and potential of becoming India's export destination. In the case of diamond exports from India, all the major global markets continue to be India's export destinations, though in the case of gold jewellery, which the export promotion council of the gems and jewellery sector targets as its high growth product, most of the important markets lie predominantly in areas inhabited largely by people of Indian origin, who invest extensively in gold jewellery.

China emerges as the one country that a majority of Indian manufacturers-exporters identify as their primary export competitor. This holds true not only for traditional products like apparels and leather, but even for items like sports goods and equipments, 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 seems important. In the case of leather products, the emergence of Bangladesh as a possible competitor, leaving behind traditional competitors like Italy and Portugal, implies a significant finding of the survey. Overall, it emerges that China, with its large scale production for mass markets and its punctual delivery schedules finds favour with most buying agents, who procure orders from the region for leading EU and US sellers, including large retail chains.

The final assertion here is with respect to the role of the Government in boosting the export trade of labour-intensive firms. Following the 1991-92 trade reforms, the government continues to support exporters, both small and large, in various ways to enhance their export sales. The survey found that for most sectors, duty drawbacks and the export promotion capital goods scheme (EPCG) constituted two forms of export promotion assistance availed of by the firms. In addition, in apparel, it was found that some firms were utilising the technology upgradation schemes, whereas for sectors like sports goods, market development assistance seemed to feature as the most utilised export promotion scheme. It is pertinent to point out here that most labour-intensive firms felt that in order to boost exports, the export promotion councils set up by the Ministry of Commerce and Industry, Government of India, in each of the five sectors under study 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 existing infrastructural support, particularly the Internet and telecommunications, ports, and roads, make it difficult for exporters to sustain contact with buyers over longer periods.

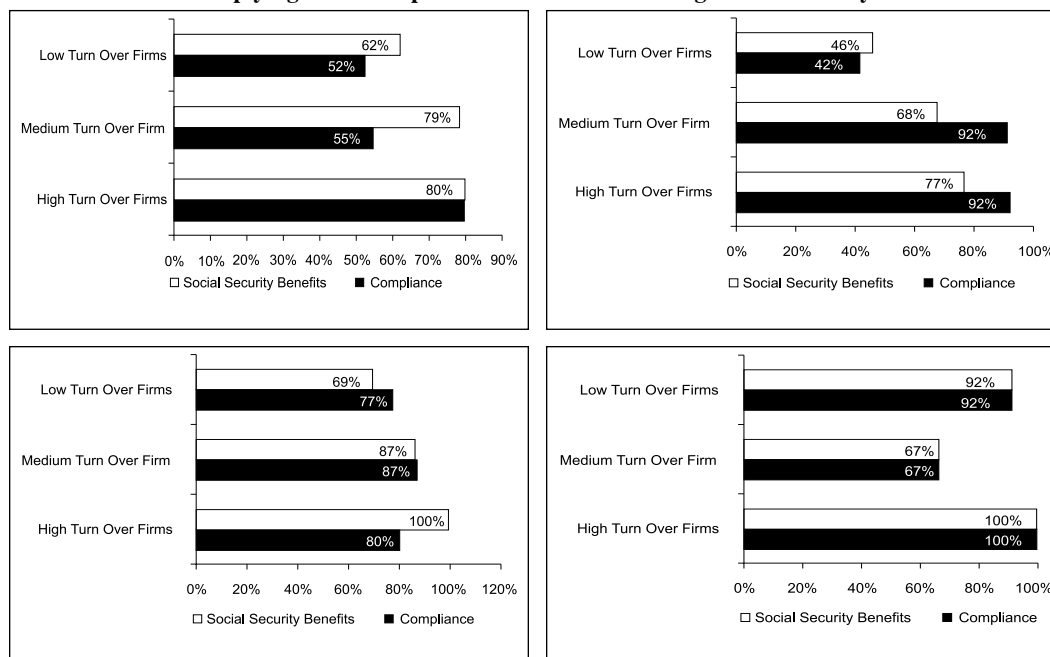
#### **4. Labour Issues**

A crucial issue pertaining to the employment generation potential of the labour-intensive firms pertains to the labour laws in practice in the business environment of India. The survey accordingly gathered information on employee strength (in numbers), division of

the workforce into permanent and temporary, identification of workforce by gender and the outsourcing of jobs, among other things. In addition, questions were also asked about the prevalence of trade unions and their ability to negotiate various issues such as wages, the number of shifts, even the product profile, and labour conflicts over the past three years. The information gathered on employment-related issues has been discussed in detail in the section on employment issues.

The following findings can be reported from the survey. First, it seemed from the survey of firms belonging to various turnover categories—large, medium and small—that the outsourcing of jobs was a highly prevalent practice. Discussions that the survey officials had with the employers of firms of all sizes across sectors seem to indicate that given the nature of the export demand, particularly in firms manufacturing apparel and leather products, and also the nature and seasonality of the products, it was not considered feasible to employ people on a permanent basis, as the pattern of work along with the demand seem to indicate that there were large lay-offs for some period of the year. Also, the stipulations concerning the rules and regulations for full-time employment as provided to the firms from the Office of the Labour Commissioner, outsourcing seems to be a rationale strategy as well as a device to circumvent the labour laws in regulation.

Figure 5  
Firms Complying with Compliance Code and Providing Social Security Benefits



Notes: (1) The figures for compliances and social security imply the percentages of the sample firms interviewed that follow the compliance requirement and provide social security benefits to the workforce.  
(2) Information on gem and jewellery firms was not available.

Source: Author's compilation from the survey questionnaires.

Second, through the survey, information was also gathered on the implementation of labour laws, including compliance with all kinds of labour issues such as child labour, and the provision of providing social security benefits to workers who are employed on a permanent basis.<sup>12</sup> It was evident from the survey that almost all the firms surveyed engaged in both labour law compliances as also social security considerations. Figure 5 provides the percentage of the surveyed firms that met with compliances and provided social security. It can be seen that over 75 per cent of the surveyed firms in the category of high sales turnover in the apparel, leather, bicycles and sports goods sectors meet the different compliance requirements. Similar is the case for social security obligations. If the firm sizes (turnover) are compared, differences can be seen in the levels of meeting compliances and providing social security for apparel as well as leather firms. In the case of these two sectors, it can be observed that as firms graduate from low turnover to the higher end, the percentage response increases.

Overall, it can be seen that for leather and apparel, there are different responses towards meeting compliances and social security whereas for sports goods and bicycles, there is a more or less similar response for both compliance and social security. This holds true for classes of all sizes. On the basis of this information, it can be observed that in the case of labour-intensive firms in India, the labour laws specified in terms of rules and regulations are implemented, no matter how harsh the law may be in the context of the production environment of these sectors.

Third, it is particularly evident in the case of firms based in southern India that given “everything else remains unchanged”, employers prefer to employ female workers (in both the permanent and temporary categories) relative to male workers. This is based on previous experience and the socio-economic profile of female workers, as the prospects of trade union (TU) activities being undertaken by female workers within the factory premises are considerably low, thereby minimising the chances of strikes, lock-outs etc. Table 6 presents information on the trade union presence and labour conflicts in the labour-intensive sectors.

Table 6  
**Trade Union, Labour Conflicts and Skilled Labour Shortages**

| <i>Labour-intensive industries</i> | <i>Trade union presence</i> | <i>Experienced labour conflict issues</i> | <i>Shortage of workforce</i> |
|------------------------------------|-----------------------------|-------------------------------------------|------------------------------|
| Apparel                            | 16                          | 24                                        | 76                           |
| Leather                            | 19                          | 18                                        | 66                           |
| Sports                             | 4                           | 16                                        | 62                           |
| Bicycle                            | 8                           | 14                                        | 42                           |
| Gems and jewellery                 | 11                          | 13                                        | 59                           |

*Notes:* (1) The figures signify the percentage of the total firms interviewed; (2) Trade Union Presence: Trade unions having an influence on the firm or workers are part of the trade union group; and (3) Experienced Labour Conflict Issues: Firms that experienced closure or production disruption due to labour conflict with the management.

*Source:* Author's compilation from the survey questionnaires.

Table 6 shows trade union presence in less than 20 per cent of the firms surveyed. The survey of firms reveals that in the apparel and leather sectors, around 16 and 19 per cent, respectively, of the surveyed firms claimed a trade union presence. In the other sectors, the reported number is even less. The fact that a small percentage of the firms surveyed show the presence of Trade Union activities bears significance, as these firms are all labour-intensive, and furthermore, most of the firms surveyed are engaged in manufacturing-exporting with some firms having 100 per cent export obligations. Therefore, the labour requirements of these firms are potentially larger than those of other firms. In addition, information was also collated on the experiences relating to labour conflicts in order to draw possible correlations between trade union presence and labour conflicts. The findings show that only a small percentage of the firms reported labour conflicts. It would be a good idea to ascertain if the experiences of labour conflicts emanated from the firms which had trade union presence or from those which did not. In particular, it would be interesting to find out the number of firms in the sample reporting both a trade union presence and labour conflicts.

The deterrents that emerge under labour issues from the survey findings pertain to the inability of the firms to have flexible practices for hiring workers and also for laying them off during periods of sluggish export demand. In turn, it can be observed that firms take recourse to outsourcing of work in order to circumvent the prevalent hiring practices. It is also observed that whenever full-time employment was adhered to, most of the labour law compliances as well social security obligations were fulfilled. Finally, trade union activities are not dormant in the labour-intensive sectors surveyed, particularly in the south.

What are the conclusions that one can arrive at from these broad observations concerning various factors such as employment issues, machinery usage, trade orientation and labour issues in the context of labour-intensive firms? The findings based on the survey point to two crucial issues within the broad employment patterns. One is that there is a shortfall of skilled workers. The word 'skill' here refers to the ability of a worker to handle the machinery in use at factories. Most firms strongly advocated the setting up of centres to provide 'training to workers' so that the firm can draw upon a steady pool of skilled workforce, as and when required. Two, the findings seem to indicate that there is a trend towards hiring female workers on grounds of greater efficiency and adherence to work ethics. This was clearly reflected amongst the employers based in southern India. As regards the usage of machinery, it was noticeable that the emphasis was on ensuring that the technology embodied in the machines used by these firms was comparable to the latest world technology. Further, the worker-machine ratio indicated that it was not a case of machines substituting workers. Labour-intensive firms are expected to take part in global trade because of the factor input advantage. It can, however, be witnessed that these firms are far from achieving competitiveness in exports. Several reasons were cited for this including inadequate infrastructure, lack of export demand and the seasonality of export items. The final assertion here emerges from an investigation of labour rules and regulations; the practice of outsourcing to overcome the difficulties of hiring and firing of workers is present on a large scale. In addition, it is interesting to note

that in most of the surveyed firms, which were also 100 per cent exporters, trade union presence and labour conflicts did not figure as possible deterrents. Since the survey findings were able to list some of the shortcomings concerning the employment generation potential of the labour-intensive firms, the implementation of certain policies is suggested below to overcome these drawbacks.

## **V. POLICIES NEEDED TO ADDRESS THE SHORTCOMINGS**

The core of the paper was to devise a set of policies to address the shortcomings found in the survey, which act as deterrents to employment generation by the labour-intensive firms. The evidence from the survey centers around four crucial dimension—the present employment scenario, the status of machinery usage, trade orientation and labour. All these are significant for understanding the potential of employment generation in these sectors.

### **1. Setting Up of Training Centres to Generate Skilled Workers**

A shortage of skilled workforce has been observed in each of the labour-intensive sectors. The word ‘skill’ here is meant to reflect the ability of workers to handle modern machines, which are being increasingly put to augment the efficiency of the workers. In only one sector—apparel—we found the existence of training centres. In the case of the leather and sports goods sectors, however, we did not come across any such centres. It is, therefore, recommended that training centres be set up in the rural areas, with private initiative or private-government partnership. This has the double benefit of providing workers training as well as ensuring that the industries come closer to the villages and set up their units, thereby reducing overhead (transportation of workers) costs.

### **2. Encouragement for Female Workers**

The survey indicated that the number of women workers employed in the units situated in the southern part of India far exceeds the number from all other parts of India. Interviews with the management seem to indicate that these workers are preferred over their male counterparts on grounds of higher efficiency and discipline. In the apparel, leather, and sports goods sectors, women workers are seen to be more skilful in working with different kinds of machines for cutting, sewing, stitching, etc. In the case of gold jewellery, retail units around the country are employing more women staff because of the nature of the product. Apart from reasons based on grounds of efficiency, women workers are also preferred over their male counterparts because they are less prone to the formation of trade unions and related activities. Thus, in order to encourage more female workers to join the labour-intensive industries, the Government should provide incentives to industries to outsource more work to female workers and also to encourage them to set up units in villages, wherein female workers can be encouraged to take up both full-time as well as part-time employment, depending upon their domestic duties. Government-run voluntary organisations and other women’s organisations can be asked to participate in various campaigns to educate rural women workers about their employment prospects in labour-intensive manufacturing activities.

### **3. Setting Up of 'Parks' in Rural Areas**

The Apparel Park in Tiruppur is fully functional and assists manufacturers-exporters in meeting the burgeoning demand for apparels. It was observed that exporters are outsourcing orders on a large scale to small manufacturers, who operate out of the park. It helps the large firms to closely work with the units situated there in terms of product specifications and quality. It is recommended that the Government, with the help of private initiatives, from Non-resident Indians (NRIs) and multinational corporations (MNCs) should explore the possibility of setting up such parks in various districts in other states which can become are 'hubs' for labour-intensive exports from all the five sectors under study including leather, textiles, sports goods, bicycles, and gems and jewellery. In the case of sports goods, districts located near the cities of Jalandhar and Meerut, the key producers of these goods, should be explored for the setting up of 'Sports Goods' parks; in the case of gems and jewellery, districts near the cities of Chennai and Kolkata can be identified for setting up 'Gold Jewellery' parks. Similarly, districts bordering Ludhiana and other hubs for the production of leather goods including Chennai, Agra, Kanpur, Kolkata, and Delhi including NCR, can be explored for setting up parks for leather products. This would ensure the provision of employment opportunities to workers near their homes, thereby doing away with potential migration for employment opportunities. Further, it will generate revenue at the district level.

### **4. Re-orientation of the Role of Export Promotion Councils**

The export promotion councils set up by the Government of India to facilitate exports should cater to the overall industry and not merely to a handful of registered manufacturers-exporters. Their role should be redefined to help the small and medium enterprises, who are struggling to make a dent in the export market due to their low turnover base, and are, therefore, unable to ensure their visibility in the eyes of buyers. Further, with the rupee becoming stronger against the dollar, it would be advisable for export councils to help small and medium firms reach out to many other non-dollar markets including the EU, Africa, the Middle East, Australia and the Far East. In addition, due to a weak as well as unstable foreign market, many exporters would like to explore the domestic market, and this is where the export promotion council can render meaningful guidance to the existing entrepreneurs in helping them to showcase their products to the rapidly expanding domestic consumer base.

### **5. 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 the Indian manufacturer to enhance his scale of production. China is sustaining its competitiveness (low price level) because of the large scale of its production. Thus, when the scale of production becomes a significant factor in deciding the prices of Indian products, it pays to provide an opportunity for the inclusion of small firms in the value chain through outsourcing from bigger players, and also for avoiding the threat of getting wiped out of the market due to the low scales of production. The Government must, therefore, identify these small firms in terms of specific products

and maintain a database of both big and small players in the concerned sectors in order to bring all of them on a common platform. This can be done for both the export market as well as for the domestic sector. As already mentioned, specifically in the sports goods, and gems and jewellery sectors, the presence of numerous indigenous family-based small units necessitates the creation of an organised platform to enable them to cater to the jobs outsourced by bigger players. Government agencies can help these small units by providing them machineries as also the technical knowhow to create some sort of induced demand. The Government needs to play the role of a moderator between the organised big firms and the unorganised small units.

#### **6. Removal of Infrastructure Bottlenecks**

The availability of adequate power, road connectivity, transport facilities, energy, water, ports and airports, is important for ensuring the robust performance of small and medium-sized manufacturing units within the labor intensive industry. The 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 the case of apparel firms, the inadequate warehouse facilities in ports have been causes of major concern as after the removal of multi fiber agreement (MFA), the requisite product standards for exported products in the developed countries have become really stringent. The problem of strikes in ports and inefficient transport facilities add to the costs of production. As the “Report of The Internal Group to Review Guidelines on Credit Flow to SME Sector”, 2005, Rural Planning and Credit Department, RBI, points out, facilitating public-private partnerships, and attracting foreign direct investment (FDI) into basic infrastructure as well as for the establishment of industrial parks for the small scale sector are the options already under consideration by the relevant authorities. These need to be expedited. One solution to the infrastructure problem lies in the increased emphasis on cluster development, which will factor in the development of the required infrastructure facilities in an organised manner for the cluster as a whole. Therefore, there is a need to strengthen the National Cluster Development Programme for the setting up of functional industrial parks.

#### **7. Availability of Credit**

The small labour-intensive manufacturing units face significant barriers in obtaining institutional and financial resources to meet their fixed and working capital needs. The lack of finance has an impact on the plan for capacity expansion as well as technological upgradation. The impediments in output growth eventually lead to a 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 export promotion council can play a pivotal role as an agent for facilitating the easy flow of finance from the banking sector to the manufacturers.

## VI. CONCLUSIONS

The aim of this study was to determine the factors that constrain employment generation in five selected labour-intensive industries—apparel, leather, sports goods, bicycles, and gems and jewellery. To this end, an in-depth firm level survey, comprising more than 250 manufacturing as well as manufacturing–exporting units, was undertaken across all major towns and cities that constitute the hubs of these industries. The questionnaire was structured in three parts. Part I dealt with general information, Part II dealt with the sales and employment database, Part III with the export orientation of the manufacturing firms, and Part IV addressed the qualitative questions catering to technology and its upgradation, labour laws including trade unionism, export bottlenecks, and finally the incentives that they require to enhance exports and employments. The findings were numerous and threw up some common factors and many diverse issues that confront the respective business environments of these industries.<sup>13</sup>

The study points out that several factors inhibit employment generation. In particular, the lack of a skilled workforce, low level of machinery usage resulting from low levels of investments, non-competitive export orientation resulting in infrastructural bottlenecks, and rigid labour rules regarding hiring and firing act as possible deterrents to employment generation by labour-intensive firms. The study suggests a set of policy initiatives to ensure that the barriers to employment generation are removed.

The study and its recommendations listed above encompass some limitations of the survey. These could be listed as the presence of more export-oriented units in each sample, inability to offer a workers' perspective on the employment generation potential as the qualitative part of the survey questions catered to the managerial viewpoint, and particularly in an industry like gems and jewellery, wherein the artisans and job contractors are the actual workforce of the industry, this holds immense significance. Finally, it is not possible to reflect from the sample firms whether they belong to organised manufacturing and which of these firms belong(s) to the unorganised segment of overall manufacturing, given that many of the chosen industries have a sizeable unorganised presence. These form the future research agenda.

### Notes

1. Goldar (2000, 2002), Nagaraj (2000), and Tendulkar (2000) have analysed the issue of employment growth for Indian industries; however, these studies do not specifically consider the labour-intensive sectors within manufacturing and its employment-generating ability.
2. For details on industry-wise labour intensity see Table 1 in Das, *et al.* (2009)
3. 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 the 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.
4. The industries with a large share in employment generation are tobacco, wearing apparels, footwear, clay and ceramic products, refractory and non-refractory industries, and the cutting and polishing industries, among others.

5. Knitted and crocheted fabrics, jewellery, refractory as well as non-refractory items, footwear, made-up textiles, publishing, etc. are some of the labour-intensive sectors with a high employment elasticity.
6. The sample questionnaire containing detailed questions is provided as an annexure in the report.
7. Details of sample selection are presented and discussed in the report, *Employment Potential of Labour-Intensive Sectors*, ICRIER (2008).
8. Unlike other labour-intensive sectors, for bicycle establishments, it was not possible to obtain data on male–female workers. Further, given that most of firms surveyed were based in Ludhiana town of Punjab, the interviewers felt that perhaps women job-seekers were not seeking employment in cycle manufacturing.
9. The survey findings for leather and apparel in the southern region show a relatively large number of female workers as compared to male workers. In addition, it was found that in hubs like Tiruppur, Chennai and Bangalore, the absorption rate of the female workforce is much greater than that of males.
10. No information was available for two sectors—bicycle manufacturing, and gems and jewellery. For bicycle manufacturing, it was not possible to gather employment data by male and female workers. In the case of gems and jewellery, particularly for gold jewellery, since the production system is based on outsourcing to artisans, firms themselves did not have production worker information with them. The only information available pertained to people employed in retail showrooms.
11. It seemed from the survey that labour-intensive firms do outsource a significant amount of the production work, particularly in textiles, leather and sports items. The nature of the outsourcing job and the period of work often determine the wages, which are in the form of piece rates and vary across firms, sectors and the nature of the job required.
12. ‘Compliances’ here refers to labour law compliances in India (the Minimum Wages Act, child labour, payment of bonus, gratuity, the Wages Act, ESI Act, the Factory Act) and ‘social security considerations’ refer to life insurance, health insurance, accident insurances, etc.
13. Refer to ICRIER, 2008, for detailed sector-specific policy recommendations.

### *References*

- Annual Survey of Industries (Various Years), *Summary Results for the Factory Sector*, Central Statistical Organization, Government of India.
- Bhalotra, Sonia R. (1998), “The Puzzle of Jobless Growth in Indian Manufacturing”, *Oxford Bulletin of Economics and Statistics*, Vol. 60, No. 1, pp. 5-32.
- Chaudhuri, Sudip (2002), “Economic Reforms and Industrial Structure in India”, *Economic and Political Weekly*, January 12, pp. 155-62.
- Das, D.K.; Kalita, Gunajit and Wadhwa, Deepika (2009), “The Employment Potential of Labour-intensive Industries: An Appraisal of India’s Organised Manufacturing”, *Working Paper 236*, ICRIER, New Delhi.
- Fallon, P.R. and Lucas, R.E.B. (1993), “Job Security Regulations and the Dynamic Demand for Industrial Labour in India and Zimbabwe”, *Journal of Development Economics*, Vol. 40, No. 2, April, pp. 241-275.
- Ghose, A.K. (1994), “Employment in Organised Manufacturing in India”, *The Indian Journal of Labour Economics*, Vol. 37, No. 2, April-June, pp. 141-62.
- Goldar, Bishwanath (2002), “Trade Liberalisation and Manufacturing Employment—The Case of India”, *Employment Paper No. 2002/34*, International Labour Office, Geneva.
- (2000), “Employment Growth in Organised Manufacturing in India”, *Economic and Political Weekly*, Vol. 35, No. 14, April 1-7, pp. 1191-95.
- ICRIER (2008), “A Study of Labour Intensity and Employment Potential of Indian Manufacturing”, National Manufacturing Competitiveness Council, Government of India.

- Nagaraj, R. (2004), "Fall in Organised Manufacturing Employment—A Brief Note", *Economic and Political Weekly*, July 24, pp. 3387-90.
- (2000), "Organised Manufacturing Employment", *Economic and Political Weekly*, September 16, pp. 3445-48.
- (1994), "Employment and Wages in Manufacturing Industries: Trends, Hypothesis and Evidence", *Economic and Political Weekly*, Vol. 29, No. 4, January 22, pp. 177-86.
- Papola, T.S. (1994), "Structural Adjustment, Labour Market Flexibility and Employment", *The Indian Journal of Labour Economics*, Vol. 37, No. 1, January- March, pp. 3-16.
- RBI (2005), *Report of the Internal Group to Review Guidelines on Credit Flow to SME Sector*, Rural Planning and Credit Department. <http://rbidocs.rbi.org.in/rdocs/PublicationReport/Pdfs/62812.pdf>
- Tendulkar, S.D. (2000), "Employment Growth in Factory Manufacturing Sector during Pre- and Post-Reform Periods", Paper presented at a Conference to honour Professor K.L. Krishna on the theme *Industrialisation in a Reforming Economy: A Quantitative Assessment*, Delhi School of Economics, Delhi, December 20-22.
- Thomas, J.J. (2002), "A Review of Indian Manufacturing", *India Development Report 2002*, Oxford University Press, New Delhi.
- Rani, U. and Unni, J. (2004), "Unorganised and Organised Manufacturing in India: Potential for Employment Generating Growth", *Economic and Political Weekly*, Vol. 39, No. 41, pp. 4568-80.
- World Bank (1989), *India: Poverty, Employment and Social Service: A World Bank Country Study*, Washington, D.C.