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GARMENTS INDUSTRY IN INDIA
Lessons from Two Clusters

Satyaki Roy[*]

Abstract: *Garment industry worldwide is undergoing significant restructuring since the final phase-out of the Multi-fibre Arrangement. The changes are taking place in terms of relocating production sites on the one hand and coping with the new competition on the other. In this context the paper tries to look into the status of garment industries in India and see how the assumed release of constraints in demand both through liberalization in domestic trade policies and by phasing out of multi-fibre agreement has impacted upon the growth and size distribution of firms in the sector. The paper focuses on how the responses of individual firms are embedded in the evolving patterns of production organization, labour processes and institutional arrangements related to respective industrial sites.*

1. The Context

There has been a significant relocation of global manufacturing units followed by a restructuring of global trade in the past two decades. It seems that both in terms of quantum as well as in that of mode of participation in the global production process the role of developing countries is undergoing change. And this is happening precisely when the growth of manufacturing value added in developed countries shows a virtual stagnation, i.e., growing at a low 1.1 per cent per annum while that for developing countries it is 7 per cent. The share of developed countries in world manufacturing value added declined from 74.3 per cent in 2000 to 69.4 per cent in 2005 (IDR, 2009). The evolving division of labour either through rigid links of global value chains or by way of specialized trade provides greater scope to developing countries in contributing to the world manufacturing output. New-structuralism explains the stylized fact of U-shaped relation between specialization and per capita income and provides greater insights to

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capture the dynamics of rise in the share of developing countries in global manufacture (Imbs and Wacziarg, 2003). The literature suggests, countries need to change their portfolio of exports as they move up the income ladder and only by such changes fast moving low-income countries are increasing their share in global trade.

Garment is one of the many labour-intensive sectors that provide a gateway for developing countries to the global market. It offers important opportunities to countries to start industrializing their economies and in course of time diversify away from commodity dependence. Forty years ago, the industrialized countries dominated global exports in this area. Today, developing countries produce half of the world's textile exports. Moreover, the economic performance of the apparel and textiles industry in developing countries has large impacts on employment opportunities, especially for women, the development of small- and medium-sized enterprises (SMEs) and spillovers into the informal sector (UNCTAD, 2005). Textile production is more capital-intensive than apparel production and hence developing countries—although account for a smaller share in textile output—account for a larger share in the labour-intensive production of garments.

Outsourcing in the textile and apparel industry began in the late 1950s and 1960s when Western buyers turned to Japan for the procurement of good quality fabric and textiles at low costs (Amsden, 2001). Later, the motivation of outsourcing to developing countries was not driven by cost considerations alone; rather it followed as a response to change in the structure of demand as well. The demand for goods shifted against standardized products more towards customized goods produced in smaller batches and in multiple styles with greater demands for product variety and flexibility and hence giving rise to fragmented markets. With increased volatility in the market, producers in developed countries sought low-skill segments, and, imports of intermediate inputs in the textile and apparel sector increased dramatically between the late 1970s and 1980s (Tewari, 2006; Feenstra, 1998). On the other side, owing to improvement in communication technology and the consequent reduction in transaction costs, possibilities increased to coordinate production across the globe, thereby reducing costs of inventory. The importance of strict delivery time increased in sourcing and that in a way gave rise to 'lean retailing' where retailers minimize the risks of inventory in volatile and uncertain markets by replenishing items on their shelves in very short cycles.

Garment industry worldwide is also undergoing significant restructuring since the final phase-out of the Multi-fibre Arrangement (MFA) on January 1, 2005. The changes are taking place in terms of relocating production sites on the one hand and coping with the new competition on the other. India has only recently emerged as a major exporter of apparel on a global scale although it accounts for very little FDI in the apparel sector

compared to China, Mexico and Bangladesh. India ranks sixth after China, EU, Hong Kong, Turkey and Bangladesh in terms of value of exports. Textile and apparel sector in India accounts for 14 per cent of the total industrial production and employs around 6 million people directly or indirectly. In this context the paper tries to look into the status of garment industries in India and see how the assumed release of constraints in demand both through liberalization in domestic trade policies and by phasing out of multi-fibre agreement has impacted upon the growth and size distribution of firms in the sector.

The study focuses on two field surveys: one in Tirupur, Tamil Nadu and the other in the National Capital Region (NCR) including Delhi, Noida, Gurgaon and Manesar. Besides looking into the secondary data the paper tries to locate the response of small and medium garment firms in a dynamic perspective. The focus would be to see how responses of individual firms are embedded in the evolving patterns of production organization, labour processes and institutional arrangements related to respective industrial sites. The following section describes the broad trends in output, employment and exports of garments in India and aims to situate those in the context of world trade in garments.

2. Garment Sector in India

In 2007 the world apparel market was worth US$345 billion and during the last decade the market grew at an average of 8 per cent per annum. Moreover, according to the Survey of Household Consumption levels in India, the per capita consumption of textiles for the year 2007 was 22.41 meters, a growth of 4.28 per cent and in value terms per capita expenditure on clothing grew by 8.07 per cent and 10.16 per cent in rural and urban areas respectively compared to 2006.

Table-1 shows the distribution of gross value added (GVA) in garments industry by size class of employment in eight major garment producing states as well as in India. The data shows that 80.2 per cent of the GVA in garments industry in India originates in ASI sector and 65.6 per cent from firms employing more than 100 workers.

West Bengal appears to be the significant outlier among the eight states in which 90.2 per cent of the GVA is generated from the DME segment. Table-2 shows the distribution of employment in garment industry by size classes of employment. Three southern states, Andhra Pradesh, Karnataka and Tamil Nadu recorded very high share of employment in the ASI sector while in the case of West Bengal, Maharashtra and Punjab the larger share of employment is recorded in the DME segment of the industry.

Table-1
Distribution of GVA across the Size Class of Employment in Garment Industry (code 18101) for ASI 2004–5 and DME 2005–6

State	1–9	10–49	50–99	100–199	200–499	500–999	1000–above	>100	ASI Total	DME	Grand total
Punjab	0.45	8.22	-	-	-	68.01	-	68.01	76.68	23.32	100.00
Uttar Pradesh	1.57	14.99	22.20	22.53	16.36	10.43	6.36	55.68	94.43	5.57	100.00
West Bengal	0.16	5.33	-	4.29	-	-	-	4.29	9.78	90.22	100.00
Gujarat	0.12	6.54	2.31	5.43	49.35	11.92	-	66.71	75.68	24.32	100.00
Maharashtra	2.86	26.58	8.87	6.35	22.71	-	-	29.06	67.37	32.63	100.00
Andhra Pradesh	(0.01)	2.00	6.46	7.59	39.27	-	44.69	91.55	100.00	-	100.00
Karnataka	0.16	2.32	4.03	4.31	24.64	48.57	15.75	93.28	99.78	0.22	100.00
Tamil Nadu	0.19	20.35	10.90	11.33	31.78	(9.42)	31.81	65.49	96.93	3.07	100.00
Total	0.84	13.04	8.73	8.82	25.96	16.99	14.50	66.27	88.88	11.12	100.00
India	0.40	6.32	7.80	8.34	17.78	18.03	21.51	65.65	80.18	19.82	100.00

Source: NSSO

Table-2
Distribution of Employment across the Size Class of Employment and Relative Product of Workers in Garment Industry (code 18101) for ASI 2004–5 and DME 2005–6

State	Employment by Size Classes									Relative Product	
	(1–9)	(10–49)	(50–99)	(100–199)	(200–499)	(500–999)	(1000–above)	ASI Total	DME	RP ASI	RP DME
Punjab	0.34	4.01	-	-	-	26.87	-	31.23	68.77	2.455	0.339
Uttar Pradesh	0.33	8.58	8.44	13.73	14.48	20.99	9.11	75.67	24.33	1.248	0.229
West Bengal	0.07	1.16	-	0.35	-	-	-	1.57	98.43	6.229	0.917
Gujarat	0.09	5.40	4.60	7.49	17.22	14.48	-	49.29	50.71	1.535	0.480
Maharashtra	0.93	10.93	4.40	3.58	6.32	-	-	26.16	73.84	2.575	0.442
Andhra Pradesh	0.17	7.65	15.50	17.30	27.94	-	31.43	100.00	-	1.000	
Karnataka	0.03	1.91	3.18	5.34	23.79	36.68	28.19	99.11	0.89	1.007	0.247
Tamil Nadu	0.11	3.99	5.25	10.81	24.98	19.02	26.66	90.83	9.17	1.067	0.335
Total	0.23	4.53	4.16	6.86	18.04	20.17	17.82	71.80	28.20	1.238	0.394
India	0.18	3.98	4.81	6.91	15.25	15.81	16.81	63.75	36.25	1.258	0.547

Source: NSSO and Relative Product is computed by using GVA in Table-1 and employment figures in Table-2

In the table the relative product of workers in the two segments of the industry by states is also reported.[1] Relative product of worker implies percentage share in GVA produced by one per cent share in employment and hence a relative measure of labour

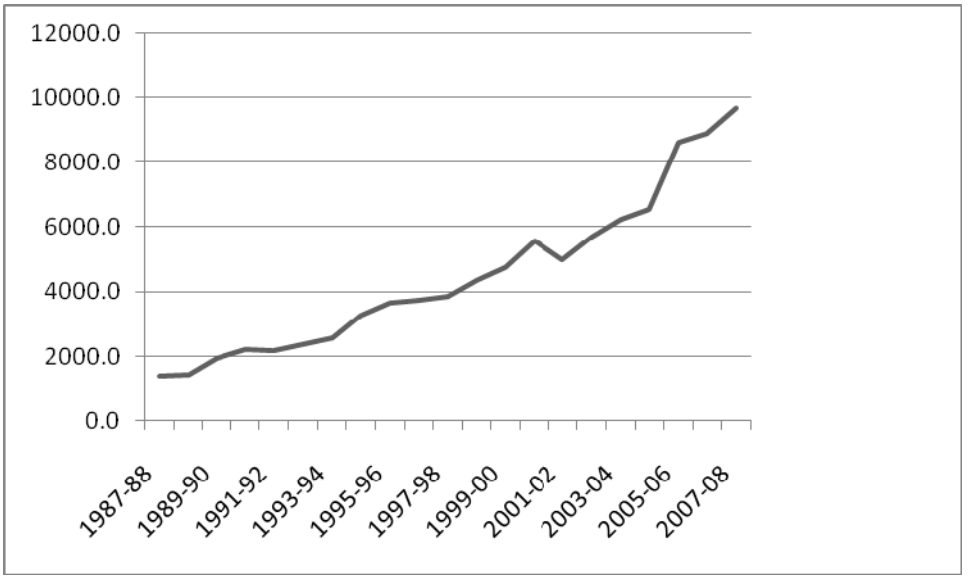
[1] The term was used by Kuznets (1971)

productivity. Data shows that relative product of worker in the ASI segment is highest in West Bengal and lowest in Andhra Pradesh. At the all India level the relative product of worker in the ASI segment is more than twice that in the DME segment which is quite obvious. In the DME segment also relative product of workers in the garment industry is highest in West Bengal among the eight states and lowest in Uttar Pradesh.

India's exports of readymade garments (RMG) accounted for US$ 7853.85 million for the period January–September 2008 with an increase of 10.72 per cent compared to the same period in previous year. During the month of September 2008, RMG exports accounted for US$706.54 million with a slight increase of 0.82 per cent for the same month in the previous year. Figure-1 shows that exports of RMG increased continuously over the years. However, if we consider growth of garments exports it is found that there had been considerable fluctuations both in rupee and dollar terms and growth shows opposite trends in years such as 1991/92 and 2007/08 because of exchange rate fluctuations (Figure-2). In any case the high levels of fluctuations in growth reveal high volatility in the market for garments.

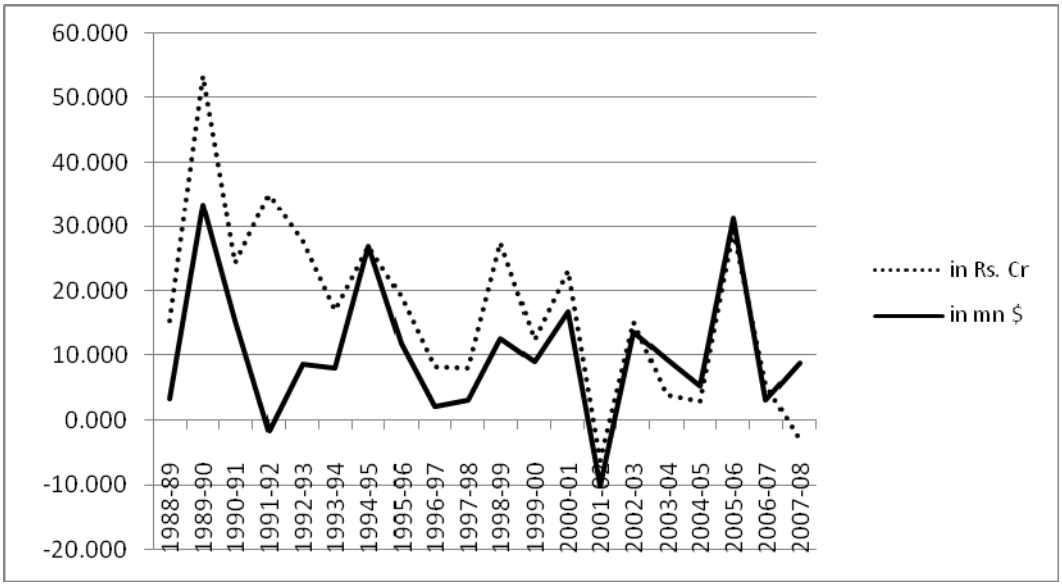
On the other side Figure-3 shows that the share of garments in total exports has declined over the years although the share in that of the textile groups remained more or less same despite significant fall in the year 1998/1999.

Figure-1
Exports of Readymade Garments in million US$



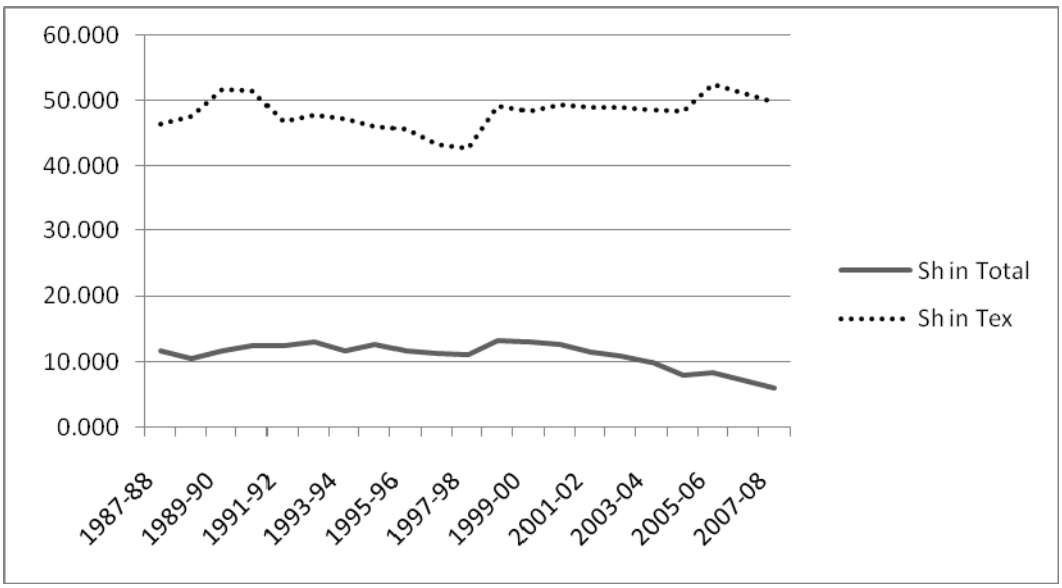
Source: Computed from RBI Handbook

Figure-2
Growth of Exports of Readymade Garments in Rs. Cr and in million US$



Source: Same as Figure-1

Figure-3
Share of Garments in Total Exports and in Exports of Textile group



Source: Same as Figure-1

What seems to be important is perhaps the export basket in India is undergoing a structural change. The share of many of the labour-intensive goods *viz*. leather, garments

and textile has shown a decline in the year 2007/08. However, whether this change is driven by temporary shocks because of the financial crisis or driven by long-term changes in the structure of exports is too early to comment upon. In the case of garments the share in total exports declined from 11.6 per cent in 1987/88 to 5.9 in 2007/08. Moreover, at least in the case of garments the fall in the share had been quite consistent since 2000/01 (Figure-3).

There had been a decline in the production of garments in developed countries primarily because of the relocation of production sites to low wage countries. As a result, world import of garments is mostly concentrated in developed countries as shown in Table-3. The US alone accounts for 27.2 per cent of the world imports of readymade garments in the year 2007 followed by Germany, UK, Japan, France, Hong Kong, Italy and Belgium together accounting for more than 75 per cent of imports .

As regards exports from India, USA accounts for 30.54 per cent of the total garments and separately in exports of knitwear and woven garments the share of USA is 29.84 and 31.07 respectively (Table-4). In the case of India the other major destination of exports are UK, Germany, France, UAE, Italy, Netherlands, Spain, Canada, Saudi Arabia, Denmark, Belgium and Japan. During the period 2007 to 2008 USA, UK, Germany, France and UAE were the top five destination countries accounting for more than 65 per cent share of India's garments exports. For the same period, exports to UAE increased by 50.32 per cent while exports to USA declined by 3.27 per cent.

Table-3
World Imports of RMG and Percentage Share of Top Ten Countries in World Imports
(value in million US$)

	2003	2004	2005	2006	2007	Share in World Imports 2007	Growth 2006/2005	Growth 2007/2006
World	228.46	254.91	271.99	293.04	277.6	100	7.74	-5.27
USA	65.73	69.96	74.15	76.88	75.56	27.22	3.68	-1.71
Germany	20.96	22.82	23.81	25.75	28	10.09	8.15	8.76
UK	16.5	19.03	20.08	21.23	23.72	8.54	5.74	11.7
Japan	18.38	20.46	21.17	22.43	22.6	8.14	5.96	0.75
France	14	15.91	16.72	17.58	19.86	7.16	5.14	12.99
Hong Kong	14.96	15.97	17.25	17.73	18.14	6.53	2.75	2.29
Italy	8.79	10.68	11.6	13.28	14.88	5.36	14.46	12.1
Belgium	5.96	6.67	7.35	7.75	8.6	3.1	5.43	10.98
The Netherlands	5.42	5.97	5.89	6.71	7.07	2.55	13.84	5.29
Canada	4.02	4.68	5.37	6.15	6.9	2.49	14.39	12.22

Source: AEPC.

Table-4
Trends and Composition of India's Export of RMG in 2007 and 2008

	% Share in Different Types of RMG Exports in 2007			RMG Exports		Knit-apparel Exports		Woven-apprel Exports	
	All	Knit apparel	Woven Apparel	Sept 2007	Sept 2008	Sept 2007	Sept 2008	Sept 2007	Exports Sept 2008
-- World --	100	100	100	700.83	706.54	319.46	315.52	381.37	391.03
USA	30.54	29.84	31.07	207.52	197.68	101.78	97.16	105.74	100.52
UK	12	10.78	12.95	97.82	77.64	48.3	32.67	49.52	44.97
Germany	8.31	11.05	6.22	56.88	51.01	36.62	29.78	20.26	21.22
France	7.26	8.27	6.48	29.22	32.91	16.07	17.34	13.15	15.57
UAE	6.79	5.69	7.63	62.05	82.98	19.21	30.49	42.84	52.49
Italy	4.59	6.06	3.46	20.07	19.64	11.53	13.04	8.53	6.6
The Netherlands	3.67	3.6	3.72	20.63	28.11	7.68	12.01	12.95	16.1
Spain	3.62	3.45	3.75	20.83	23.19	10.23	9.69	10.6	13.5
Canada	2.74	3.57	2.11	18.49	18.43	12.04	11.14	6.45	7.28
SaudArabia	2.27	1.32	2.99	27.35	22	5.45	6.16	21.91	15.84
Denmark	2.15	2.07	2.21	14.35	13.7	6.27	4.68	8.08	9.02
Belgium	1.91	1.7	2.08	8.02	10.7	3.2	5.32	4.82	5.38
Japan	1.1	0.25	1.75	6.89	6.68	0.36	0.46	6.54	6.22
Sweden	0.83	0.78	0.86	5.53	6.27	2.38	2.14	3.15	4.12
Russia	0.73	1.45	0.18	3.24	1.98	2.84	1.81	0.4	0.16
Mexico	0.72	0.79	0.68	3.58	3.79	2.01	1.67	1.57	2.12
SouthAfrica	0.66	0.74	0.59	7.75	9.36	3.33	5.26	4.41	4.1
Ireland	0.61	0.98	0.33	5.24	2.35	4.48	1.81	0.76	0.54
Singapore	0.57	0.48	0.64	3.76	4.75	1.23	2.15	2.53	2.6
Switzerland	0.55	0.99	0.22	2.83	2.5	2.28	2.1	0.55	0.40

Source: AEPC

Sweden and Spain seem to be emerging as new markets for Indian exporters. Exports to Sweden and Spain grew by 37.8 per cent and 36.5 per cent respectively during the same reference period. Table-5 shows the share of thirty selected countries in US imports of garments. China records the highest share of 32.03 per cent followed by Vietnam, Indonesia, Mexico and Bangladesh. India accounts for 4.3 per cent of USA's total imports. During the period 2007/08 and 2008/09 there had been a decline in USA's imports of apparel showing a percentage change of (-) 6.97 and (-) 3.18 respectively. Despite the global recession, during this period, China, Vietnam and Bangladesh registered a positive growth in their exports of garments to USA, while India, Mexico and Indonesia recorded a decline.

According to International Trade Administration, Department of Commerce, USA out of the 25 categories of cotton garments sourced from India by the USA, 14 show a positive

growth during the period 2008 and 2009 while import of the rest of the 11 categories declined during the same period. The largest decline being in the case of Cotton Sweater (345) and the highest increase in imports happened to be in the case of Cotton Skirts (342). As shown in the figure of year ending 7/2009 the following items record a larger share: Cotton Dresses (336); W/G N-Knit Blouse (341); Cotton Skirts (342); Pillowcase (360); Cotton Sheets (361); Pile Towels (363) and Other Cotton Manufactures (369). A comparison of the present product coverage of India and China in one of the biggest global markets, the USA, shows that of the 104 apparel items imported by USA, China has presence in 102 items, i.e. 98 per cent of the import basket of USA, while India supplies around 66 items, i.e. 63 per cent of the market.

Table-5
Import of Apparel by USA from Ten Selected Countries (Value in million US$)

	2007	2008	% Share in US Import '08	Year ending 2008	Year Ending 2009	% Change in 2007/08	% Change in 2008/09
World	73922.59	71568.37	100	72533.66	67479.77	-6.97	-3.18
China	22745.02	22922.61	32.029	22161.37	23274.58	5.02	0.78
Vietnam	4358.52	5223.49	7.299	4830.59	5221.58	8.09	19.85
Indonesia	3981.07	4028.42	5.629	3996.99	3954.89	-1.05	1.19
Mexico	4523.37	4014.50	5.609	4262.29	3635.85	-14.70	- 11.25
Bangladesh	3103.35	3441.64	4.809	3205.68	3559.34	11.03	10.90
India	3169.93	3073.34	4.294	3133.60	2922.90	-6.72	-3.05
Honduras	2511.01	2604.03	3.639	2546.86	2340.29	-8.11	3.70
Thailand	1766.31	1667.81	2.330	1751.32	1446.91	-17.38	-5.58
Pakistan	1498.58	1489.56	2.081	1496.53	1399.04	-6.51	-0.60
El Salvador	1486.10	1533.58	2.143	1542.07	1395.68	-9.49	3.19

Source: International Trade Administration, Department of Commerce, USA

Table-6 shows the trends in imports of readymade garments from EU. During the year 2008, EU's import of RMG accounted for 109.82 billion Euros with an increase of 1.26 per cent from the previous year. In 2008 China, Bangladesh, India, Indonesia and Sri Lanka were the top five apparel supplier countries to the EU. However, the share varied to a large extent viz. China accounting for the largest share of 22.97 per cent followed by India with a share of 3.55 per cent. During the period 2008/09 in EU's import of garments China, Bangladesh and Mexico recorded high growth rate of 36.33, 8.74 and 9.39 per cent respectively. On the other side, India and Indonesia saw a decline of 0.49 per cent and 4.06 per cent respectively. In 2008, India's share in EU's import of woven apparel accounted for 3.46 per cent while China still records the highest share of 24.72 per cent.

Table-6

Import of RMG from European Union during the Period 2007 to 2009 (value in Euro millions)

Partner/Period	Total Imports 2007	Total Imports 2008	% age Share Year 2008	% Change in Imports 2008/2007	Jan 2008	Jan 2009	% Change Jan 2009/ Jan 2008
EU Total	108452.39	109819.69	100	1.26	9768.88	10127.05	3.67
EU27 Extra	58035.93	59320.98	54.02	2.21	5487.07	5890.94	7.36
EU27 Intra	50416.46	50498.71	45.98	0.16	4281.81	4236.11	-1.07
Bangladesh	4404.46	4728.53	4.31	7.36	408.99	444.75	8.74
Canada	67.49	58.21	0.05	-13.76	4.83	3.79	-21.53
China	21859.96	25226.6	22.97	15.4	2131.95	2906.46	36.33
Egypt	417.91	476.42	0.43	14	43.93	45.77	4.19
Hong Kong	1684.44	853.74	0.78	-49.32	173.25	60.48	-65.09
Indonesia	1195.55	1122.31	1.02	-6.13	108.27	103.87	-4.06
India	3833.11	3895.22	3.55	1.62	375.67	373.84	-0.49
South Korea	257.98	142.23	0.13	-44.87	24.57	9.73	-60.40
Sri Lanka	1042.32	1123.93	1.02	7.83	96.7	98.23	1.58
Mexico	57.73	58.73	0.05	1.74	5.11	5.59	9.39
Malaysia	235.11	197.03	0.18	-16.2	22.54	16.12	-28.48
New Zealand	3.51	2.53	0	-27.86	0.07	0.16	128.57
The Philippines	190.64	144.67	0.13	-24.11	17.27	12.51	-27.56
Pakistan	908.52	879.84	0.8	-3.16	76.89	79.19	2.99
Singapore	18.72	10.95	0.01	-41.48	0.97	0.85	-12.37
Thailand	798.71	787.73	0.72	-1.37	74.88	70.97	-5.22
United States	362.21	376	0.34	3.81	29.9	29.13	-2.58

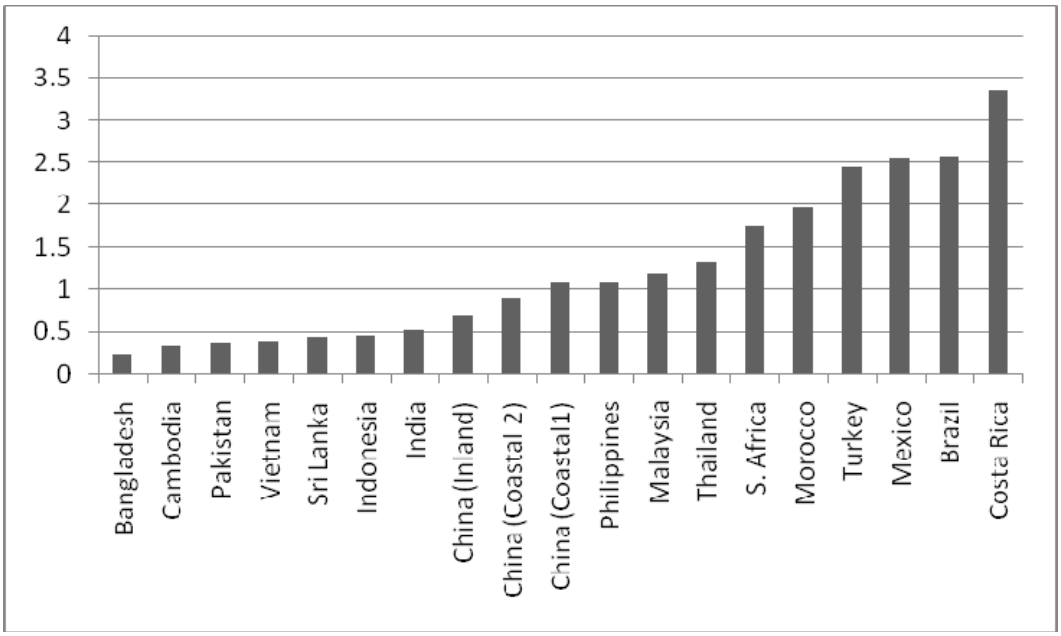
Source: AEPC

The share of China in world RMG markets increased over the years and this is sometimes explained by the low relative wage in China. But this argument is only partial and ignores the fact that besides low wages China has increased its capacity over the years by huge investments in technology; it has not only increased the scale of operation, but also the scale increased along with increased flexibility in production organization. This perhaps explains the fact that despite the wages in garments sector in China being almost 3 to 4 times higher than that in Bangladesh, nonetheless China emerges as the major exporter among the developing countries group (Figure-4). Hence it would be too simplistic to argue that the only source of comparative advantage that China derives over other exporting countries flows from the low wages. Rather for all developing countries what could be a sustainable strategy to remain buoyant in the world market is to increase the portfolio of export goods and move up the value chain such that production does not remain confined to the low-wage-low-skill segment.

In the context of this larger canvass of garments industry in India we introduce two clusters of small and medium enterprises engaged in the production and exports of

garments in the following section. The sections that follow discuss the issues of production organization and labour processes in the two clusters, namely Tirupur and NCR. Issues related to size distribution are, in a way, subsumed in the nature of the production relations and labour processes that evolve in the clusters. Possibilities of subcontracting and reliability in terms of quality largely define the way firms would respond to changing demands. In the final section we draw some implications in regard to policies analyzing the trends in a comparative framework.

Figure-4
Wages in Apparel Manufacturing in 2008 in selected countries (US$/ Hr)



Source: Computed from http:// www. emergingtextiles.com

3.1 Introducing Tirupur Knitwear Cluster

Tirupur emerged as a small industrial town in erstwhile Coimbatore district in Tamil Nadu producing knitwear garments and a vibrant centre of activities related to knitwear. The town is 50 kms east of Coimbatore and located in the middle of the cotton belt in Tamil Nadu. As a result, the region historically had high concentration of ginning, weaving and spinning mills and had long been a thriving centre of sale and processing of raw cotton (Sreenivasan, 1984). The price of seed cotton for the state is fixed at Tirupur exchange only. The first knitwear unit in the town came up in the year 1925 and growth was incremental till 1930s. Strikes in knitting factories located in neighbouring towns of Salem and Madurai resulted in relocating firms at Tirupur. However, all these firms were composite mills, very different from what we find at present—a web of subcontracting

relations between large, medium and small firms. The evolving of Tirupur as the 'T-shirt' town in India, high growth in output and employment, investments in technology and so on was never a result of a smooth continuous process rather there has been sharp rise in the growth of the cluster once it had been linked to the global market. The cluster was primarily confined to the domestic market producing simple white inner garments till the late 1970s. Export started in 1978, when Verona a garment importer from Italy came through dealers operating in Bombay to Tirupur in order to source white T-shirts. Gradually, importers from Europe recognized the potential of Tirupur and there was a surge in exports. The growth of the cluster was very much influenced by government's intervention in promoting exports during the quota regime. Providing cheap credits from public sector banks for technology and infrastructural development helped small firms to grow and produce according to international demand.

The sociology of knitwear entrepreneurs in Tirupur has attracted academic interest by several researchers. This is primarily because the rise of Tirupur cluster has been somehow correlated to the rise of the *gounder* caste in the region, although later on people from other castes also entered into the business. The *gounders* are basically agriculturalists of the south who are known for their progressive approach towards agriculture, their affinity to improved technology, changing crop pattern according to market demand and those who take pride in toiling in the field along with hired labourers with whom they maintain some familial relation. These peasants with their flexible mind set learned early on to tap the opportunities that emerge out of government policies (Churi, 2000). While doing agriculture these were the people who used facilities given by the state in accessing chemical fertilizers, water pumps and cooperative societies for ginning long-staple Cambodia cotton and these are also the people who later on engaged in the production of knitwear, used credits provided by nationalised banks to improve technology and infrastructure.

The number of units located in Tirupur involved in garment related activities is not easy to assess. The government agencies, DIC and Inspector of factories grossly underestimate the number of units in Tirupur. However, associations such as Tirupur Export Association (TEA) and the South India Hosiery Manufacturers' Association (SIHMA) those dealing with exporters and producers for the domestic market respectively help us to arrive at a reasonable assessment of the number of units.

According to TEA there are 1500 knitting units; 700 units are related to dyeing and bleaching; 500 units are involved in fabric printing; 300 units are involved in compacting and calendaring; 2500 units assemble the final product and these are the exporters; around 250 units are linked to embroidery activities and another 500 units deal in other accessories (Table-7). It is estimated that these units in all employ around three lakh

people who come from 18 southern districts of Tamil Nadu and Kerela. The cluster produces gents T-shirts, sweatshirts, track suits, sportswear, ladies and children wear, undergarments, embellishments and embroidery items. There are very little number of units in Tirupur employing less than 50 workers and the median size in terms of employment are those employing 50 to 100 workers. In the aggregate 30 to 35 per cent of the produce of Tirupur are fashion garments and the rest can be considered as basic garments. Although the dynamics of Tirupur is centered on firms that are 100 per cent export oriented units, there are firms producing for the domestic market and goods are sold at urban centres of Karnataka, Kerala, Andhra Pradesh, West Bengal and Delhi.

Table-7
Spread of Units in the Textile Value Chain in Tirupur Cluster

Value Chain Activities	Number of units
Garment Making	2500
Knitting Units	1500
Dyeing and Bleaching	700
Fabric Printing	500
Other Ancillary Units	500
Compacting and Calendaring	300
Embroidery	250
Total	**6250**

Source: Tirupur Exporter Association (TEA)

Table-8 shows the growth of output in Tirupur since mid-1990s to 2004, a smooth upward trend in export share over the years. According to Multi-fibre Agreement, import quotas were removed from 1st January 2005 and firms in Tirupur no longer have the advantage of reserved market since then. What is interesting is that knitwear exporters in Tirupur by that time had gained capabilities in competing in the global market and despite withdrawal of quotas, Tirupur exported garments worth Rs. 11,000 crore in 2006–07; the figure was only Rs. 10 crore in 1984.

The study on Tirupur knitwear cluster is based on case study approach along with samples chosen for detailed interview on the basis of stratified sampling. We visited 32 firms operating at different levels of the value chain viz. 10 exporters, 8 knitting units, 6 dyeing and bleaching units, 4 printing units, 4 compacting and calendaring units as well as 4 buying agents. The survey was complemented by interviews of key persons in trade associations such as Tirupur Exporters' Association (TEA), South India Hosiery Manufacturers' Association (SIHMA), Tirupur Exporters Knitwear Manufacturers' Association (TEKMA), Tirupur Industry Federation (TIF) as well as those of officials in major trade unions such as Centre of Indian Trade Unions (CITU) and All India Trade Union Congress (AITUC) operating in the industrial town.

Table-8
Share of Tirupur in Total Output of Garments in Quantity and Value

Year	Total Garment Produced Qty. India (In lakh pcs)	Total Knit-Garment Produced Qty. India (In lakh pcs)	Total Garment Produced Qty. Tirupur (In Rs. crore)	Total Knit-Garment Produced Qty. Tirupur (In Rs. crore)	Share of Tirupur in Knit-garments (output)	Share of Tirupur in knit-garment (value)
1996	11847	5377	2574	2574	47.87	38.16
1997	13014	6324	2983	2943	46.54	37.81
1998	13377	6820	3461	3385	49.63	37.79
1999	14044	7584	3764	3680	48.52	48.49
2000	15048	8227	4243	4104	49.88	37.30
2001	12643	7186	3831	3724	51.82	40.30
2002	12316	8527	3555	3448	40.44	41.78
2003	12425	8787	3804	3704	42.15	43.61
2004	12814	7376	4098	4004	54.28	45.79

Source: AEPC, Tirupur

The measure of output in terms of physical unit varies across firms according to their produce. In the case of garment exporters, printers and accessory producers such as collars and buttons it is measured in terms of pieces per day and those involved in conversion jobs such as knitting, dyeing and bleaching, compacting and calendaring measure their output in terms of tones per day. Hence it is very difficult to categorize units according to their scale of operation and relatively suitable measure for comparability would be employment size. Most of the units, that is, around 54.7 per cent of those surveyed in Tirupur reported employment size of more than 100 workers and 43.2 per cent of the firms employ more than 500 workers. However, these figures do not in any case reflect the size composition of Tirupur cluster because for our survey we followed purposive sampling to understand the production organization and the firms chosen are biased towards bigger firms. In regard to size composition of the cluster, it is safe to conclude that Tirupur cluster has larger share of firms employing more than fifty workers, that is, it is not overwhelmed by tiny and small enterprises.

3.2 Production Organization: A Typical Cluster

Tirupur can be easily classified as an industrial cluster that typifies an organic relationship between firms, both horizontally and vertically. This is because of the dense network of production organization that exists within the region. The production of garments in the cluster is segmented into separate modules and firms participate in different portions of the value chain. Everywhere in the small town one can easily notice how activities revolve around the production and sale of knitwear garments. There are a large number of suppliers selling different grades of yarn and these yarns are procured by producers to initiate the production process. Most of the garment producers or

exporters generally confine to stages such as cutting, stitching and finishing activities and get the prior stages done by specialized firms. The first stage can be termed as fabrication or knitting. The kind of knitting required depends on the design of the garment, which also determines the appropriate machine to be used. Summer garments are usually fabricated by single jersey machines and winter garments by double jersey knitting machines. Then depending on the length of the fabric required and yarn counts applied, machines of different diameters and gauges are used. Hence, what is important is that a large variety of machines with various specifications should be available to produce various types of knitwear garments. This requirement itself creates the possibility of a large array of subcontracting relationship between firms where garment producers outsource the knitting activity to different knitting units in order to get the fabric done according to the specific requirement. Also, the knitting units procure machines according to the demand of garment and cater to a one or two specific knitting job. One can easily find how firms in Tirupur are keen to acquire modern machines mostly imported from Japan (Shima, Seiki), Taiwan (Fukama, Smart, Pilon) Germany (Mayer and Cie, Terrot) U.K., Italy and Singapore. There are specialized jacquard machines for multicoloured embroidery and also for making specific designs for collars. The fabricators value their jobs according to conversion rates ranging from Rs. 8 to 12 per kg. for a basic knitting job which might be Rs. 50 per kg. depending on the specificity of the job. Normally in a basic job 3000 kgs of yarn can be knitted into fabric per day but specific jobs can take longer conversion time and can produce 150 kgs in a day. If embroidery is required it is done by separate embroidery units that work with sophisticated automatic machines with computerized programmes and also stitch labels, if ordered.

The knitted fabric is then sent to processing units which include operations such as mercerization, dyeing and compacting. Dyeing can be of two types, yarn dyeing and fabric dyeing and the number of firms involved in the first kind is less than those in the latter. Dyeing is the most energy intensive segment in the production process that requires large amount of water as well as coal or fire wood. Some of the dye stuffs are imported but most of them are available to local traders who procure them from Mumbai. The dyeing units in Tirupur mostly use soft-flow machines and rolex dye and those require larger orders to meet the break-even point in terms of capacity utilization. The dyeing units are facing problems at the moment in implementing pollution control norms. Only 19 firms have appropriate pollution control devices and they are allowed to operate six days in a week. Dyeing units are more capital-intensive and among the several stages of jobs, dyeing generally attracts the highest conversion rate that goes close to Rs. 70 per kg. A related processing activity is compacting that includes drying or dehydrating, raising, stone washing, and calendaring. These processes are related to curing the fabric in a way such that shrinking can be kept to a tolerable limit. Machines

used in these units are also imported either from UK or USA and can do the process in a highly technical way. The charges for compacting is generally Rs. 7 per kg, and those for drying, raising and stone washing are Rs. 5 to 10 and Rs. 25 to 30 per kg respectively.

Printing is the next stage in the production process. This is done after the garments are cut according to specific designs by the exporting firm. In most of the cases printing job is outsourced but in some cases the exporting units do the printing job in-house. Usually designs along with the artwork and colour codes are sent to the exporting unit by the importing firm through e-mail. These designs are copied by the printer and samples are made and sent to the exporter. Once approved, orders are placed to the printing unit. The printing job in Tirupur mostly depends on manually operated or in some cases semi-automatic machines. Compared to other segments of operation, printing operation is less developed. However, in some exporting firms we also came across automatic printing machines imported from Germany that can lay down impressions of ten different colours at one go. Normally charges for printing ranges from Rs. 3 per piece to Rs. 15 per piece depending on the use of colours.

The exporting unit is the parent firm that organizes the whole production process besides being involved in the final stage activities comprising cutting, stitching, finishing and packaging. The participation of the exporting firm in the production process is not in any case fixed. There are large exporting units having their own knitting and processing units but such integrated units are few in number. Otherwise the final stages are managed and closely monitored in a well structured assembly line in an exporting unit. Checking is done in each of the stages such as knitting, printing and so on but these are done by the units involved in the respective conversion job. In the final stage the exporter ensures that the quality of the product, its look and cleanliness is maintained according to the specification of the buyer and finally delivered within the stipulated time. Everyone who is involved in some production activity related to garment manufacturing in Tirupur aspires to be an exporter. This role does not require greater skill as such but it requires large investment greater capacity to take risks and some managerial acumen that evolves from experience in garment related jobs.

The production organization in Tirupur includes a wide variety of subcontracting or outsourcing relationships between firms. However, it is quite different from the standard asymmetric relations assumed in parent-subcontracting relations or in putting out systems. True indeed, that the exporters are dominant actors in the production process but the nature of interdependence is a kind of mutual relation rather than acute dependence. The job-working, as it is often referred to, might be of three different types:

a. The production process is segmented in several parts such as knitting, dyeing, processing, printing and so on and then outsourced to units that specialize in such activities. This may be termed as outsourcing or out-contracting in which case the exporter who coordinates the production process assigns specific jobs to relatively smaller specialized units.
b. The second version can be termed as 'in-contracting,' which is separating parts of the production process—those performed by separate and dedicated sections of the same unit but run semi-autonomously by respective managers. This happens in larger units where there is a fairly high level of integration. This is possibly another way of maneuvering books of accounts in such a way as to show the sections of the same unit as independent SSI units and thus avail advantages there from.
c. In some cases the bigger firms integrate the production process for the sake of their control over the production. But in such situations the capacities created in different sections, especially knitting and processing may not be exhausted by the production of the firm alone. Hence the exporting firm besides doing jobs for their own garments, work for others as job-work in order to utilize the skills to their full potential.

The various mixtures of the above-mentioned arrangements provide a large amount of flexibility to both large and small firms. These arrangements work on the basis of mutual benefits between large and small firms and help develop an organic relation within the firms in the cluster.

First, the large firms can avoid large investments for integrated arrangements. In order to attain control over the production in view of maintaining the strict time frames as well as stipulated quality standards it is not always necessary to depend on vertically integrated firms. Out-contracting has evolved in such a way in Tirupur that it can easily deliver the advantages of integrated units. In most of the cases the owners of job-working units and those of the exporting firms belong to the same caste and kinship, which helps in building mutual trust. In addition, it is very difficult to build up capacities for different types of garments. This is only because the knitting section requires a large variety of machines to cater to different types of fabrics and as a result, a significant possibility of unutilized capacity remains. In any case, in garments, ideal capacity utilization is around 75 per cent and in case of a fully integrated unit it is very difficult to attain such capacity utilization in all operations in a uniform manner.

Second, for the smaller firms the cost of entry to the industry declines because of the availability of subcontracting jobs. In many of the printing units and in some knitting units we found that the owners themselves or their parents were employed in garment

units. An owner starts with job-work and progresses to the level of a successful exporter in many of the cases. On the other side, job-workers are not linked to a single parent firm rather they work for a number of exporters and dependency is not much exploitative as it generally happens to be when there are few buyers and large number of sellers.

Finally, these relationships provide ample scope for flexibility in the production process and the cluster does not have to depend on rigid standardized production lines which are well-suited for mass production. At the same time it helps in managing a large number of workers in a decentralized manner and gets rid of the liabilities and responsibilities attached to large employment. Hence, in some sense, it also helps in reducing the costs of production through outsourcing—a mode widely practiced in other industries as well.

3.3 Labour Process: Flexibility and Fluctuations

Tirupur garments cluster employs large number of migrant workers from 18 southern districts of Tamil Nadu and Kerala. In the recent past, workers from other parts of India viz. U.P. Bihar, Orissa, Manipur, Nagaland and also from Nepal used to come and work in Tirupur. Women workers are employed in large numbers in exporting units in stitching, folding, checking and packaging jobs. In the knitting and embroidery workshops the share of female workers is less but in a large number of firms they do the checking job. The turnover of labour is high in Tirupur and there is no permanent worker. In most of the cases workers come from villages in neighbouring districts, get recruited as unskilled workers in any of the workshops and gradually increase their skill endowments through on-the-job training. They generally possess or have some ties to agricultural land in their native places and go to work in the field during sowing and harvesting seasons.

Payment of wages is generally on a weekly basis and in most of the units, as stated by owners' representatives, it is paid on the basis of minimum wages as declared by the government of Tamil Nadu. However, this is only partially true because there used to be a complex procedure of maintaining records of wages and benefits received by the workers and in most of the cases it is doctored according to the legal liabilities binding upon. Regarding exporting units there is a convention of periodic wage agreement between trade unions and the exporters association in the presence of Joint Labour Commissioner, Coimbatore and the last signed agreement decides wages of various grades of workers for the period 1st January 2007 to 31st December 2010. There use to be four basic occupational grades in every unit in Tirupur viz. helper, machine operator, supervisor and foreman. Vertical mobility is higher in knitting units, but workers also choose to shift from working in knitting to dyeing and printing units because knitting job

requires relatively hard work. Right to association and other trade union rights, though legally exist, but at the enterprise level there is no trade union in Tirupur. However, at the district level, at least at the wage negotiation process, trade unions play a significant role. In regard to benefits ESI facilities and Provident Fund are provided to a core segment of workers and these facilities are available to not more than 20 per cent of the total workforce. In some cases such provisions are made for a small section of the workers in a unit because it becomes binding in other issues related to expansion of capacity, new connection of electricity and other facilities stipulated for SSI units. On record, a shift comprises eight hours of work, but in actual terms it is twelve hours, that is, one-and-a-half shift and beyond; although overtime is paid, but it is not double wages as stipulated by labour laws.

The labour market is flexible in the sense that there is no serious obstacle to hire and fire. Moreover, according to Labour Disputes Act, a worker should be made permanent if s/he works for 240 days in an uninterrupted manner—but every worker is fired for some or other reason or reemployed in a way such that the legal binding of making the worker permanent might be avoided. On the other side, most of the employers reported a shortage of labour perceived in recent times and this seems to be true because even in periods of recession one can find advertisements of vacancies in local newspapers and billboards, in lamp-posts, in and around Tirupur. The possible reasons of such shortage of labour may be the following: *(a)* After the implementation of NREGA and provisioning of rice at Rs. 2 per kg (a special programme run by the Tamil Nadu government) the opportunity cost of working as a migrant worker in garment units has increased and this may have impacted upon the supply of workers. *(b)* There are seasonal factors that influence the employment pattern in Tirupur. Every year during the harvesting season there happens to be a shortage of labour in garment units because most of the workers go back to their villages to work for their family owned firms. *(c)* Because of appreciation in rupee the export units are hardly hit and also because of the financial crisis in US and Europe, both owners and workers expected a decline in orders in the near future. This prompted a section of the workers not to return from their villages apprehending decline in job opportunities. As a result, although there is decline in employment because of the recession that hit the domestic market, but the apprehension of job loss might be higher than the actual level. *(d)* Finally, over the years there has been a surge of investment in technology in Tirupur. Most of the firms in different segments of the production process installed new machines and this has gradually de-skilled the labour process. In order to run those machines a little bit of training is enough to make an unskilled person suitable for work. Thus, owners are interested in investing in machines while employing labour at a low wage and that seems to be compatible with the deskilling process. However, because of increased opportunities of work even for the unskilled workers, the claim of wages to which they

can agree upon to work has increased and there seems to be a shortage of labour in the going wage rate. On top of that, in Tirupur, the rents are on the rise and that obviously pushes the wage claims of workers.

There is at present much talk on social auditing in Tirupur exporting firms. Since the opening of the market in the 1980s and the phasing out of the Multi-Fibre Arrangement (MFA) between 1995 and 2005, there has been a surge of subcontracting relation in textile and garment industries that has radically drawn in severe price competition across the globe. On the other side, there has been increasing concern on labour standards in source countries, especially from the global buyers and international retail chains. As a result, in addition to company codes of conduct, several international voluntary labour standards have made inroads into Tirupur, of which the Social Accountability 8000 Standard (SA 8000) and the Worldwide Responsible Apparel Production (WRAP) Certification are most prevalent. These are generic standards conceived in tune with the core International Labour Organization (ILO) labour standards to arrive upon a uniform labour standard across the globe. These standards include compliance with local labour laws, prohibition of child and forced labour, regulation of contract labour and working hours, non-discrimination as well as ensuring minimum wages, living wages, benefits and so on. SA 8000 was developed by Social Accountability International (SAI) and is primarily used by Europe-based chain stores and buyers. WRAP is an independent non-profit organization based in the USA, whose certification is mainly used by the USA-based companies. Compliance with certified standards is checked through a "third-party" auditing process that is assumed to be neutral in the process of evaluation and increases the authenticity of the certification itself. In Tirupur, one can find a pretty good number of such agencies including branch of the Swiss international certification company Société Générale de Surveillance (SGS). There is no doubt that because of this external pressure use of child labour has been totally stopped in exporting units if not in subcontracting workshops. However, this process of social auditing in any case has raised the entry barrier in export activities in the cluster. One, this is precisely because compliance of generic codes involves investments in additional physical infrastructures such as canteen, hostels, crèche and so on as well as in detailed documentation and administrative costs. Two, these issues become more important in the negotiation with the buyer even after the required level of quality has been achieved, that is, in a sense these provide additional leverage to external buyers in negotiation. Moreover, none of these costs are borne by the buyer hence in a way the exporters are facing a market that demands low supply price but higher compliance to labour standards. The outcome, however, is something different. Notwithstanding the fact that the use of child labour has declined if not completely stopped in the cluster because of the fear of third party auditing, and at least in the very few big exporting units depending on the perception of

the owner the labour norms are more or less maintained, compliance of these standards has a little impact upon the overall labour market of the cluster.

Most of the subcontracting workshops are actually out of the ambit of social auditing and hence flouting labour laws has nothing to do with getting orders from the parent firm. Also because for most of the exporters the initial phases of knitting, dyeing, compacting as well as printing are outsourced, these laws hardly affects the majority of the labour force. On the contrary, in order to accommodate the additional margin of cost on social auditing and given the fact that the seller is virtually operating in a buyers' market, there is always a tendency to reduce labour cost, even though the share of which has declined in the total cost of production gradually over the years. In this view and also because of the paucity of land there are two kinds of responses on the side of the big exporters. Some are now situating their new plants in places far away from the town where they get easy access to workers from nearby villages while others provide hostels for workers who are long-distance migrants and women workers. This provisioning of accommodation is also done in dyeing and processing units because the process of production is a continuous one and once the boiler is heated to produce steam, several operations need to be done in one go and that requires an uninterrupted supply of labour. Hence what is implicit in these facts and what one can easily guess visiting the units is that regulating working hours, scheduling staff overtime and so on, although maintained in books, have little relevance to the real life of the worker in Tirupur.

3.4 Export Market and Impact of Recession

The market for garments is increasingly becoming fashion intensive, more too in the European Union and USA, who account for the largest share of consignment from Tirupur. According to TEA, 55 per cent of the exports from Tirupur go to the EU, 35 per cent to USA and the rest 10 per cent to the Middle East, South America and Australia. Most of the leading international brands such as Nike, Cutter & Buck, Adidas, GAP, Tommy Hilfiger, Katzenberg, Van Heusen, Fila, Arrow and leading retail chain stores such as C&A, Wal-Mart, Target, Mother's Care, H&M source garments regularly from Tirupur. Tirupur also supplied jerseys to players in last FIFA World Cup Football tournament. The share of fashion garments in the aggregate sale is gradually on the rise although basic garments accounted for a larger share in Tirupur with an average realisation price ranging between $1.75 to $4 per garment and a fashion garment being sold at a price ranging from $15 to $30 per garment depending on the work involved. Besides the quality of the fabric, value addition largely depends on the embroidery work involved in the garment. The fashion watchers of Europe forecast designs, which are picked up by buyers and orders are placed accordingly. Besides buyer driven innovations, many owners or their representatives from Tirupur visit fairs held in Italy,

Germany and Turkey and study the emerging trends in the markets for garments in the European market. Fashions and colours change in Europe in every three months. The European market is more inclined towards smaller batches, greater variation and fashion intensity while the market in USA is for larger volumes and relatively less fashion intensity.

The future course of growth of Tirupur depends on how the cluster responds to changing demands in various segments of the export market vis-à-vis its competitors. Our survey tried to capture these aspects by interviewing relatively large exporters as well as a number of buying agents who operate in Tirupur. The issues were discussed in the context of the ongoing recession and the extent to which exports are affected in the cluster. The exporters' association also drew attention to some of the infrastructural constraints and policy disadvantages that dampen the competitiveness of the cluster. On the basis of these inputs the following observations may be drawn:

First, despite the fact that the share of fashion garments in the total turnover of sales from Tirupur is gradually increasing, nevertheless, most of the exporters survive on the basis of their sales in the basic segment. Export performance primarily depends upon cost quality and strict compliance to delivery time. In the case of mass market it is more of costs and delivery time that matter, assuming that a reasonable level of quality is maintained. In such a scenario economies of scale become important because higher scale of operation provides the opportunity to reduce per unit costs. In this regard China and Bangladesh are far ahead of India. In Bangladesh the minimum scale of a garment unit involves 450 machines while in Tirupur an average garment unit works with only 25 to 30 machines. And this is possibly the reason that Tirupur bags only 2 per cent of the garments exported to USA.

Second, Tirupur cannot entirely be dedicated to fashion garments because that involves higher risk and uncertainty and at the same time it is very difficult to go ahead of European firms in designs and fashions because of obvious reasons. Besides getting appropriate inputs such as fabric and colours and higher investments for more sophisticated machines and training workers it is the Western taste that largely conditions the market. So in terms of innovative fashion we can only replicate them to the best of our ability; hence the lag remains. What seems to be plausible in such a scenario is to carve out a medium stratum which would be more fashion-intensive and customized than the mass market and not so high-end such that volumes need not be sacrificed too much. This is the segment for which Tirupur can strive for in its future trajectory of growth depending on its ability to produce in smaller batches and with higher variation in designs and fashions. The flexibility of the cluster attained through a

dense network of vertical as well as horizontal subcontracting is the key strength for such a growth path.

Third, in relatively more value-added segments the competitive advantage based on low labour cost gradually declines. Rather labour needs to be viewed as human capital in which investments need to be made, both in terms of enhancing their technical capacities through training and also by materially enriching them through fair wage. This in any case requires an altogether different approach to the production process in general and to labour in specific. We may consider wages in the garment sector in different countries and see that reducing labour costs by reducing wages and depriving them of the legal benefits could not be a long-term sustainable strategy to grow. In China, average wages in the garment sector is 72 cents per hour, in India it is 51 cents per hour and in Bangladesh average wage comes to 36 cents per hour. However, China is no longer a competitor of India in the knitwear garment segment. Despite higher wages they could capture not only a larger segment of the mass market but at the same time could gradually shift their focus to much higher value added segments than to what Indian manufacturers target. India's competitors are mainly Bangladesh, Vietnam, Combodia, Indonesia and so on and the biggest plank of competitiveness remained to be price.

Fourth, in special reference to Tirupur it has been pointed out by many exporters and buying agents that the greatest weakness in the production process lies in the processing and printing segments. There also seems to be a disproportionate development in technology in various parts of the production chain where dyeing, compacting and printing related works lag behind the rest of the operations. And because of these weaknesses garment producers from countries such as Pakistan, Honduras, Guatemala, Jordon and Mexico are moving forward much faster than those in India.

Fifth, there are also important infrastructural hindrances such as acute shortage in power supply in Tamil Nadu. The production cost increases because use of generators raises the power cost per unit from Rs. 4.70 per unit to Rs. 11.50 per unit and the difference is obviously influenced by the rise in diesel price. Besides the simple escalation in energy costs, power cuts interrupt the production process and affect the delivery schedules. Since in exports there use to be strict delivery schedules, it needs to be met sometimes by sending goods by air that involves huge transport cost. It is also reported that, in India, the effective rate of interest that needs to be paid against loans from both public sector and private sector banks is around 1.5 point higher that what it is in China.

In this context it is also important to discuss how the exporting units in Tirupur faced the ongoing recession and how they responded. Since it is difficult and also would be too ambitious to draw some concrete conclusions on the basis of a survey of a limited scope

but in any case some primary observations may be made, which need to be tested by further research. In Tirupur, almost all of the exporters surveyed reported that they were hardly hit by rupee appreciation in 2008 and many firms claimed that as a result a large number of importers shifted to Bangladesh permanently. However, in the context of recession the effect is felt in a more roundabout way. Many firms claimed that there is no significant decline in orders and that is because Tirupur basically produces T-shirts for the low segment of the global garment market and hence this segment of 'near necessaries' has not yet felt the heat of demand deficiency in that way. But the effect can be felt in some other ways as follows: a. jobs related to high valued garments involving embroidery or calendaring is heavily affected; b. in some cases purchases were finally less than the orders given initially, that is, a drastic decline in orders after goods being made; c. there is delayed payment which increases the cost of capital; d. in view of reducing inventory the importers are putting pressure to reduce lead time from 100 days to 45 days; e. drying out of credit in most of the importing countries have hardly left some buyers who could do business without depending on bank credits and as a result orders declined for Tirupur not primarily because of a fall in demand for garments but because of credit crunch created in the course of the financial crisis.

3.5 Institutions and Collective Action

Studies on industrial clusters since Marshall (1948) have always referred to the gains that emerge because of the existence of external economics in such clusters. However, usual notions of economic theory suggest that external economies can never be a deliberate creation of an individual firm. It is always incidental and involuntary, because in these situations economic agents cannot capture in the price of their product, all the benefits of their investment. Schmitz (1999) goes beyond the conventional perception of external economies and recognises an element of consciously pursued joint action as the sufficient condition for a growing cluster. The study of the dynamic relationships among interlinked enterprises recognises the fact that clustering enterprises are both recipients and providers of external economies and underinvestment ceases to be the necessary or dominant outcome. Hence collective efficiency, that characterises successful clusters, is the outcome of both the incidental external effects of individual action and consciously pursued joint action.

It is perhaps not easy to define a large variety of institutions in a precise and encompassing manner. However, there are two different perspectives by which the fundamental notion of relationship among economic agents are analyzed. First, there is the behavioural approach where institutions denote a complex of norms which, through accepted modes of sanctions, govern individual actions for collectively valued purposes. The other one is the perspective on rules, where institutions are rules of a society or

organization that facilitate coordination among people and increase predictability in economic interactions. The difference between the two paradigms is primarily due to the focus on the nature of relationships that are considered relevant to economic analysis. However, the study on institutions, which is confined to only those transactions which take place across a 'technologically separable interface,' usually ignore social institutions as reference of analysis and heavily depends on the rational delibration of the economic agent (Williamson 2000, 2002) . The other school, which includes cultural, social and cognitive processes in the analysis of institutions, proposes temporal equivalence or precedence of 'settled habits' over rational action.

Nalbi and Nugent (1989) have elaborately discussed the concepts, controversies and the themes of institutions. Institutions define some rules and constraints that are accepted as common perceptions and help to govern relations among individuals. It also generates predictability, thereby reducing uncertainties, which is the goal of the real world. The study on both institutions and organizations is built on the analysis of perpetual cooperation. When sustained cooperation among interacting groups gives rise to behavioural regularities such as norms, conventions, customs, etc., it conditions the cooperative conduct of individuals. Here, the question arises: Why does joint action succeed in some cases while in others it fails? This question draws our attention to another theme of institutional economics which is related to collective action. Sengupta (2001) proposes a model of adaptive learning, that is, cooperation is self-organizing when the proportion of cooperators in a population reaches a threshold limit, while below that defection is cumulative. However, this threshold limit can be lowered by a facilitating agent. This facilitator pursues a policy of monitoring or exclusions and creates an environment conducive to collective action. Sustained cooperation gives rise to social regularities like norms, conventions or customs, which are gradually turned into institutional regularity. These institutions define role structures and the individual is more a role player than a 'rational' individual in the usual sense.

Hence the performance and dynamic adaptability of a cluster largely depends on how firms engage in collective action and create a dense network of institutional norms which, increase the predictability of future transactions. In Tirupur one can easily find the culture of such associational voice across different levels of the production process. There are about 22 associations involved in Tirupur that represent producers and traders at varying degrees. Besides associations of exporters such as TEA, there are associations representing knitting units, printers and dyers, compacting and calendaring units as well as yarn merchants, collar stitching units, kaza button owners and so on. There are around six trade unions active in the town viz. CITU, AITUC, INTUC, MLF, LPF and ATP.

The associations participate in a number of negotiating activities. These include settlement of wages and bonus, labour dispute conciliation, organizing training programmes for workers and merchandise personnel and also running arbitration councils to resolve all kinds of trade related disputes. However, Tirupur Exporters Association is far ahead of other associations in terms of initiating join action and influencing government policies related to knitwear garments. TEA is the key actor in negotiating with the government to start new industrial sites such as Tirupur Export Knitwear Complex and Netaji Apparel Park in New Tirupur, Inland Container Depot, a dry port and a Trade Fair Complex about 12 kms away from the town. TEA has also started a fashion designing course in collaboration with National Institute of Fashion Technology. There are also customized courses run by SIHMA and Tirupur Industry Federation. Textiles Committee is the other important government organization that plays a nodal role in promoting smaller firms. They organize training programmes related to designing, production technologies, resource management and marketing. They also host a job portal providing information about vacancies in and around Tirupur. One of the innovative plans of Textile Committee in collaboration with Tirupur Industry Federation is to start a portal for subcontracting exchange through virtual integration that would provide updated information about the kinds of jobs and how many of them are to be outsourced and subcontracting units may bid prices accordingly to receive the orders. Hence, this would be an open kind of platform where exporters and subcontracting firms would negotiate and decide about sharing jobs with their respective capacities.

There is another dimension to the institutional dynamics within the cluster. Besides associations, trade unions and public agencies that facilitate contract enforcement, there is a thick network of owners' dependant on familial and caste ties. New units are often financially and technically supported by owners of older firms who are somehow related to the new entrepreneur. And in many cases exporters encourage persons in their family to start a firm that could cater to the outsourced jobs of the parent unit. Hence trust in transactions is largely drawn from family relations, which facilitates predictability and reliability of transactions. However, these caste and familial relations were also used to control the labour force but these moments of control are gradually dying out since the sociological composition of the labour force has undergone a change over the years. In any case, in Tirupur, the competitive considerations and professional norms of business were never overwhelmed by these relations rather it helped in reducing transaction costs and contractual arrangements.

4.1 National Capital Region: Woven Garments Cluster

Since mid-eighties National Capital Region that includes Delhi, Noida and Gurgaon has emerged as the major site for production and exports of readymade garments. Production for the domestic market dates back to the time when Delhi housed a number of large textile mills. Earlier most of the garment units were concentrated in and around Okhla, Karol Bagh and Gandhinagar but gradually because of civic regulations industrial units were not allowed to do business within residential areas. As a result, garment units along with other industrial activities moved away from Delhi to newer industrial sites of Noida and Gurgaon. Besides regulatory reasons there had been a major change in the scale and structure of garments industry, primarily because of phasing out of the quota system supported by the Multi-fibre Arrangement.

Indian garment manufacturers had to face stiff competition in order to survive in the global market. Undoubtedly there had been a shift in the geography of production of garments in favour of the developing countries. The shift occurred primarily because of dramatic reduction in transport and communication costs over the past three decades that made developing world a more advantageous location for labour-intensive industries. The large gap in unit costs mainly because of the huge gap in wage costs made countries such as China, India, Bangladesh, Vietnam, Indonesia, Combodia and so on preferred sites compared to Italy, Spain or the USA where wages used to be much higher than the developing countries. The other issue related to increase in the share of exports of readymade garments from the developing countries is because of increased possibility of splitting the whole production process into smaller parts, simultaneously producing them in different parts of the world. A complementary trend was a gradual shift from mass production to producing in smaller batches with multiple styles. These changes, in a way, worked in favour of developing countries where there used to be relative abundance of cheap labour and production of garments moved to developing countries in a big way in the past three decades. As a result, competition within developing countries increased and with an assured market through quota, firms had to acquire greater capabilities to remain competitive in the global market.

The global outcome is explained by notions of new international division of labour where network coordination facilitated and monitored by TNCs defines the new contours of economic geography. Developing countries participate in global value chains where values are added in the production and sale of commodities in different phases and in different places thousands of miles apart. The relative importance of stakeholders in the value chain characterizes the nature of the value chain. The apparel industry is essentially a buyer-driven value chain. In this kind of arrangement large retailers, brand-name marketers, and trading companies play the key role in setting up decentralized

production networks in a variety of exporting countries, typically located in the third world. The firms located in developing countries where the average wage level is relatively low are those who perform the major share in the production process. The brand-name company or the large retailers, who design and order the goods, give specifications for the required products. In buyer-driven companies the main leverage is exercised by retailers and brand-name merchandisers at the marketing and retailing end of the chain. The essence of buyer-driven-chains is the separation of physical production activity from the design and marketing stages. The companies constituting the buyer driven chains are "manufacturers without factories."

The governments in developing countries also framed policies that were conducive to effective participation in the global value chains. In India, besides Cash Compensatory Support and Duty drawback the incentive to exporting garments amounted to more than 40 per cent. There was a surge in setting up garment units during the mid-eighties because of the high rate of profit that an entrepreneur could earn in exporting garments. Investments and finances poured in and many new garment producing units as well as extensions of earlier firms came up in Noida and Gurgaon areas along with those units which were relocated from Delhi. Large amount of money earned from other sources, both accounted and unaccounted, was invested in the garments industry, although, the investors might not have been involved in the production of garments in the past. This also resulted in the decline of dominance of fabricators in the garment industry while new entrepreneurs who were traditionally not into this business gained prominence in the export activities.

The garment units in NCR are largely concentrated in Noida Sectors 6, 10, 57, 58, 59 and Hosiery Complex in Noida Phase–II; Udyog Vihar Phase I to VI in Gurgaon and Manesar. In these areas samples of 26 units are chosen representing variations in the type of garment that is knitted or woven. In NCR, there is not much variation in size categories in garment units and this is primarily because firms were set up at plots having stipulated size defined by the respective state governments.

4.2 Production Organization

Production of garments in NCR includes a process of arranging raw materials and intermediate products from different parts of the country and rendering the core activities such as cutting, stitching and finishing in-house. The knit fabric used by firms in NCR comes from Ludhiana, yarn-dyed fabrics are sourced from Chennai while cotton cloth is produced in Delhi. Dyeing and printing jobs are largely done by firms located at Sahibabad and Faridabad and sometimes firms get polyester printing done from specialized units located at Ahmedabad and Surat. Printing of tags, stickers and barcodes

required for garments are also produced in the same cluster and there are some specialized embroidery units doing job work for the garments unit located nearby. Firms in Delhi, Noida and Gurgaon mostly produce ladies' and kids' woven garments. However, production of knitwear garments is on the rise because of the general trend throughout the world. The use of knitwears increased, firstly, because of changes in climate and extended summer due to global warming and, secondly, because of cultural change that allows a shift towards casual wears. On the other side, one may find in Noida and Gurgaon a few firms specializing in the production of home furnishing, the demand for which has increased in European countries over the years.

Firms in NCR are largely exporting units that came up during the period 2000–2003. These are firms either relocated from Delhi, new start-ups or extended and multiple plant of an existing unit. In NCR one can easily find several cases where the single owner owns 3 to 8 similar sized firms located in the same area as separate legal entities. This is perhaps also the reason why the firms did not grow in terms of employment and output over the years. Because of legal restrictions the expansion of firms got manifested in horizontal expansion through multiple firms rather than vertical integration reflected through expansion in size. Firms reported employment of 250 to 450 workers on an average although there are firms of larger size employing 1500 to 6000 workers considering all their subsidiaries. There are a few firms engaged in both export and producing or doing job work for the domestic market.

Production of garments is organized in the following phases: First, samples are produced by firms and the approved designs are set for production. Patterns of those designs are made by computerized machines and then layers of fabric are made and cut according to the design. Tailors with imported sewing machines do the required tailoring job thereafter and this phase may involve a number of sub-phases. There is a lot of supervision involved in this phase where the master tailors look after the sewing job. Then there is a phase of thread cutting and trimming which makes the garment smooth and reduces extra threads. The produced garments are then compacted through ironing and undergo checking and alteration, if required. The final product is then packed and made ready for delivery.

In most of the exporting units the production process is organized in an assembly line, that is, the production of the whole garment is broken up into a number of phases and detailed sub-phases in which several categories of labour are employed. The length of the assembly line in terms of activities involved is somehow directly related to the number of machines involved as well as the complexity of the garment produced. The length of the production chain varies from those involving 12 to 13 people to around 100 to 140 people, especially in large factories in the case of making trousers. The increased

division of labour although increases the productivity of labour but this also depends on the size of orders of specific designs. If the orders of specific designs are small, relative to the production chain or the length of the assembly line, optimal productivity of the labour would not be reached. This is because productivity through division of labour increases primarily due to increased specialization of work that follows from use of repetitive work. However, if the sizes of orders are small there is little scope for repetition and hence the labour productivity will not reach the optimum possible level that it would have if the orders were large. This possibly explains the fact why labour productivity in firms producing for the domestic market is relatively low compared to those in exporting units. The size of orders for a specific design to be produced for the domestic market is generally less than those for exports. In a number of firms time-motion study is done for a single production cycle and production is monitored in reference to the benchmarks set for each step. One can easily notice that many of the retired defense personnel are appointed in garment firms in order to imbue strict monitoring in the production process.

4.3 Product Market and Footloose Firms

In NCR garments produced for both domestic and export markets are of low and high fashion intensities. The cost of production of an average garment to be sold in the domestic market turns out to be around Rs. 550 per unit including labour cost of Rs. 135 to Rs. 160 and the average realization price of that garment would be in the range of Rs. 895 to Rs. 1,495. The average realization price of a garment to be exported is of the range $5 to $15 per unit. These estimates are, of course, crude averages and do not capture the variations in fashion intensity in the cluster. High fashioned garments usually fetch high economic rents and many of the firms try to create a niche in fashion designing. Exporters purchase goods through their buying agents located in source country and these agents work to strike out a low supply price. For average products even exporters are quite aware of the cost of production of a standardized good but for high fashioned goods it is not easy to guess the actual cost of production. This helps producers to earn windfall gains in specialized products.

Garments produced in NCR are sold to brands such as Stopper, Pantaloons, Rituwear, Lifestyle, Shapes, H&M, TNG, GAP, Diesel, Adidas and so on. Firms are competing with producers located in low wage countries such as Bangladesh, Combodia, Vietnam, Sri Lanka, Pakistan and Indonesia. Most of the firms sell their products either to USA or to the European countries. In the case of orders from USA there would generally be bulk orders of more standardized designs, while European purchasers usually give orders in relatively smaller batches and with varying designs. The reasons behind why most of the large and medium scale firms are engaged in exports and not so much inclined to

produce for the domestic market are manifold. First, in case of exports the producer does not have to set up its own marketing arrangement to sell the products and can realize the value of products by the single act of delivery to the exporting agent. Second, the circulation time in export market is relatively less than that in the domestic market. Third, the payment is relatively more secured in exports than that from multiple buyers in the domestic market. Hence the peculiar absence of large producers of garments in NCR selling for the domestic market is more a result of an institutional failure than that of market. On the other side, large global retailers such as Wallmart work on large volumes and low margins. And for that production on a large scale is more suitable than medium-sized units that could not reap the benefits of scale. In this context, China and even Bangladesh are far ahead of India because the average size of firms in these countries is much higher than those in India.

In the recent past China has come up in a big way in the export of garments. Although in the last year orders moved away from China to other producing countries such as India and Bangladesh because of the appreciation of Chinese currency with respect to dollars, however, in the current year China has bagged a greater share of the garments export through quoting relatively lower prices. Exporters in NCR reported a decline in orders so far primarily because of decline in demand due to global recession and also because of the fact that China could succeed in increasing their share in global orders for Spring-Summer seasons. However exporters in Noida and Gurgaon are expecting a better business for the ensuing autumn season. But in any case firms are booking orders even by compromising their margin and this is only to keep the unit running so that firms can retain their skilled personnel in good times expected in future. A system of forward contracting has also evolved in global trade that actually insulates realization of price from volatilities in exchange rates. Producers in NCR are inclined to engage in such contracts that would at least result in an assured return.

The labour intensity of garment production being high, the share of wages in total cost of production has been the major consideration if not the defining factor in choosing the place of production. This has led to the global phenomenon of changing sites of production in search of low labour costs. But the mobility of labour, on the other side, has also increased over the years, thereby declining the wage differences across space. At least wage difference between Delhi Gurgaon and Noida and places in neighbouring states does not make much difference. But the price of land is increasing much faster, pushing up the rents for factory spaces in places in NCR that possibly tend to eat out the little margin attained in periods of recession. The other issue that becomes important is specific tax and other reliefs provided by respective state governments in order to attract new industries. In response to those policies garment units are relocated to spaces where cost of infrastructure turns out to be low giving rise to net benefits in business. On the

other side, in the case of garment production, commissioning of a new unit takes relatively less time—often even less than a month to shift from one place to another given the fact that factory sites are occupied on rent. As a result, a different kind of dynamics evolves, basically to reduce the cost of production and in a way garment units emerge as footloose industries. The shifting of spaces of garment production becomes a real hindrance to long-term inter-linkages between firms. Earlier garment units were relocated from Delhi to Gurgaon and Noida primarily because of civic regulations but later on there has been a growing trend to set up industries in Manesar, Sonepat, Panipat, Jaipur, Bhiwandi and even in Bangladesh. These shifts are mainly driven by the purpose of reducing labour cost and the costs related to infrastructure. Besides these factors many of the producers having units in Dehli and Gurgaon purchased factories in Manesar that they got at a very low price and intended to extend their production capacity in booming times during 2000 to 2003. The excess capacity created can only be properly utilized when there would be a large demand for exports. Otherwise even the full capacity is not utilized; the owners do not really bother since they treat it as an investment in assets that are expected to give high returns in near future. Indeed the impact of global recession had hardly hit the garments industry but the effects are interestingly unevenly distributed. Since firms in Manesar are mostly extensions of firms in Gurgaon and Delhi and the site basically hosts the second or third unit of the core firm, these are the very firms which had to bear the effect of declining demand in the first instance. This precisely explains the fact that the effect of recession is much more intensive and visible in Manesar compared to Delhi, Noida or Gurgaon. One can see the dismal picture in and around Manesar where factories, one after another, have been shut down and the large numbers of fabricating units related to such parent firms have also been closed.

4.4 Labour Process

The region is endowed with a regular flow of a large number of migrant labourers who come from neighbouring districts of UP, Bihar and also from Orissa and West Bengal. As reported by a labour contractor in Gurgaon, the owners do not prefer to employ local residents in their units. This is primarily because local residents might have some connection with the legal or illegal power entities of the locality and that might add to their bargaining strength vis-à-vis the owner. In this context owners prefer migrant labourers because they are more vulnerable and hence more docile. Since there is no trade union, labour rights can be easily ignored if the share of migrant labourer increases in the workforce. On the other side, migrant workers are less concerned about their rights and welfare; rather they are inclined to earn more even if it involves higher exploitation and coercion. Most of the workers of garment units in Noida and Gurgaon stay at adjacent villages or commute from places where they could stay at low rents. However, during harvesting and sowing seasons most of the workers go back to their

villages to work in their own fields—whatever little they have—or to earn an extra income as agricultural labourers during peak seasons. And this does not cause much problem in the supply of labour because incidence of fluctuations in supply is low compared to the total supply of labour and also peak seasons in agriculture and exports in garments do not overlap.

In the case of Manesar it is reported that availability of labour for the garment factories becomes a problem and that is because of the underdeveloped civic amenities in the emerging industrial centre. People moved away from Delhi and Gurgaon and set up new factories in Manesar because of the low price of land and infrastructure; but people who work in these factories do not have proper low cost places to stay. In some of the factories, there are dedicated buses to carry workers from places such as Gurgaon but this involves higher transportation costs on the one hand and on the other reduces flexibility in the production because workers have to stop work in order to avail the scheduled bus service. If firms require longer hours of work either to meet the strict delivery schedule or due to pressure of larger orders firms make their workers stay at the shop-floor against a little amount of extra allowance through the night and make them work for longer hours.

The labour process in a garment unit includes a set of workers who are assigned in more or less fixed ratios. Normally in an assembly line for each of the 25 or 30 workers there would be one supervisor, two checkers and two helpers. This labour-set is multiplied according to the scale of operation. Employment of female labourers in these factories is not more than 10 to 15 per cent of the total and this is primarily because of two reasons. First, migrant workers from different parts of the country usually do not come along with their families and hence the pool of female labourers itself becomes low. Second, in northern part of India unlike the south there is a cultural taboo against females going to work in factories along with men. The gender imbalance would probably ease out if owners set up separate assembly lines comprising only women but that becomes uneconomic in most of the cases.

Wages paid to the workers vary according to their occupational grades. However, according to stipulated minimum wages of respective state governments three categories of workers are mentioned in reference to garment industry. The helper is considered an unskilled worker and in UP the stipulated minimum wage from 1st April 2009 is Rs. 3,372 per month; those workers involved in making layers of fabrics and cutting are considered semi-skilled and their minimum wages should be Rs. 3,844 per month; the skilled workers are primarily checkers and supervisors to be paid minimum wages of Rs. 4,267 per month. All the employers who responded claimed that they pay at least minimum wages as per schedule and this is also because payment of minimum wages is

binding for exporters who have to undergo social auditing by internationally recognized auditors. On the one hand it is true that in most of the factories wages are paid according to minimum wages but on the other the truth is that a working day in reference to which wages are defined in most of the cases does not comprise just eight hours of work rather a one and a half shift is generally considered a day's work. Hence efficiency wages are less than the stipulated minimum wages for various categories of workers. Indeed the procedure of social auditing has resulted in some pressure on the unwilling exporters to pay their workers according to some norm but it has become more an issue of documentation rather than actual compliance with existing norms. Many of the owners argue that some of the health related and space related norms laid down in the Factories Act in the context of labour welfare are simply unrealistic and need immediate revision. Given the fact that firms in the global market have to compete with other countries in selling garments at relatively lower costs, compliance with norms require a better designing of welfare norms that matches with the peculiar character of export industries. The limit of working hours need to be made flexible so that workers could be made to work for longer hours as and when required and would not be considered as forced work as it used to be in the existing act. However, one can revisit the Factories Act in order to evolve a more realistic interpretation in the context of specific industries but in some way or the other the owners are primarily looking for a revision that legalizes their existing practice of flouting the labour laws.

Labour is recruited in the garment units in NCR through advertisements often pasted on the factory gate. The worker who wants to join would be asked to do some job which the company requires and if the worker is capable to perform it reasonably well he or she will be employed. Most of the workers are employed on contract and a small core, basically those who are experienced skilled workers, are kept in company's payroll. Some of the skilled workers, especially checkers, cutting masters and supervisors receive wages much higher than the stipulated minimum wages for skilled workers. The master cutter receives wages on an average Rs. 11,000 to Rs. 12,000 per month and supervisors receive monthly wages in the range of Rs. 8,000 to Rs. 12,000 on an average. Hence in the case of skilled workers owners pay efficiency wages in order to retain those skilled workers in their factories. There is high demand for skilled workers and a master tailor can easily get a job. However, because of increased competition firms are more inclined to produce garments at a lower cost and hence of less value addition. This trend resulted in a decline in the relative premium of skilled workers who are capable of making intricate designs.

The impact of recession on the labour market also varies by degrees. In some of the firms there has been a decline in employment as a result of declining orders. In some, firms refuse to pay double wages for overtime that they were paying earlier and also account

for 2 to 3 hours of overtime work even though workers are made to work for much longer hours. Firms that are exporting garments to USA are relatively hardly hit compared to those exporting to European countries for quite obvious reasons. But during our survey we didn't find any garment unit entirely closed in Noida or Gurgaon because of the recession. On the contrary a large number of factories of some of the reputed brands such as Koutons, Vishal Garments, Jyoti Apparel, Modelema Exports have closed their units located at Manesar. As discussed in the previous section since these units are extended subsidiaries of some parent firms located in Delhi and Gurgaon, as a result, they are the very firms that closed as a response to recession in the first place. A large number of fabricators linked to these garment units have closed subsequently and this has created large-scale unemployment.

4.5 Industrial Estate or Cluster?

The concentration of garment units, especially export units in places such as Noida, Gurgaon and Manesar is a development that took place over the past two decades. As mentioned earlier, most of the units are relocated from Delhi or are new units which primarily came up as subsidiaries of a parent firm located in Delhi and later on in some cases gradually turned into independent firms. The agglomeration although appears somewhat like an industrial cluster in the conventional sense of the term but actually it has little resemblance to what an industrial cluster really means. Indeed the geographical concentration helps sharing the physical infrastructure that had been created in a planned manner in these places but that is true also for other firms involved in producing engineering goods, ceramics, computer software or hardware and located in these areas. The industrial site was developed keeping in mind the notion of industrial estate which accommodates firms of various sectors in one place providing adequate physical infrastructures such as roads, power and water supply. Although firms located in both Noida and Gurgaon reported frequent interruptions in power supply for which they have to arrange permanent power back-ups which in any case increases the cost of production, nonetheless firms in these industrial sites enjoy common facilities that reduce transaction costs to a large extent. However, the dynamics of industrial cluster is rooted in collective efficiency which presumes a dense network of production organization within firms. In this connection one can easily find that in case of NCR of the production linkages firms are more or less similar to stand-alone firms that basically share some common facilities created for the industrial estate. Most of the garment units perform the cutting, stitching and finishing jobs in-house. The backward and forward linkages are thin in the sense that fabrics are bought from other states, most of the dyeing and printing jobs are also done outside the cluster, sometimes fabrication jobs are subcontracted to smaller firms located at Sahibabad and Faridabad and the rest of the jobs are done in-house. Moreover for the exporting units, maintaining quality and also to

have greater control over the production process the portion of work subcontracted gradually declines which in a sense further reduces the possibilities of extending production networks within firms.

The notion of collective efficiency does not preclude competition within firms. However, it signifies a dynamic trajectory where firms collaborate to derive some public good or capabilities that in a way help individual competitiveness of the firms as well. In NCR this kind of endeavour is largely absent except that some owners in the recent past came together to form a cluster development programme. These forums have little faith in government officials who are assigned the job of such cluster development from the Ministry of Small and Medium Enterprises because they find that such officials do not have any long-term commitments and imagination to initiate such complex dynamics. This is primarily because the officials take little interest in going deep into the problems and possibilities of a specific industry in order to find appropriate modes of intervention. On the other side, the cluster being so diverse in terms of activities and dispersed at the same time, most of the government departments find it difficult to comprehend an effective way of combining the large number of stakeholders in a single place. There is no doubt that development of a cluster cannot be permanently a 'top-down' process where exogenous initiatives would drive up the firms to some collective endeavour on a permanent basis. Initially this kind of intervention might be required but this cannot go on forever. And the success of the intervention can be best defined by the extent to which this cooperative competition becomes an autonomous process. In that case intervention in so many words means playing the role of a facilitator that actually helps building up a core with a critical number of firms that propagate a self-regulating process.

The other interesting fact one should notice is the lack of social embeddedness of the cluster. A natural cluster that evolved historically overtime has a deep rooted link with the socio-cultural process of the region, that is, the dynamics of the social life complements the dynamic growth of the cluster. In the case of NCR this is not the case and quite obviously this is not also expected since it is an industrial cluster that has emerged because of some government planning that is exogenous to the growth of the cluster. The social embeddedness provides source of social capital, reduces transaction costs by means of trust between economic agents earned through repeated transactions and also helps in resolving labour disputes in a more inclusive way. However, these are mediated through institutions that have evolved over time and cannot be easily put in place easily by some external agency. Since due to so many reasons discussed in earlier sections the garment units in the region are in a state of flux moving from one place to another, assuming the character of 'footloose enterprise' there is less motivation to collaborate with other firms in order to achieve long-term goals. As a result, there is a clear disincentive unlike industrial clusters undergoing some deliberate activity that

creates positive externalities sine it cannot be captured in the price of the product at least in the short-run.

The vulnerability of the cluster as well as the labour force in the face of external shocks increases when the cluster cannot provide adequate cushions to absorb such shocks. Industries are not just buildings and machines. One of the most vital components is a labour force endowed with requisite amount of skill. The extreme volatility in the labour market specifically of skilled labour in Gurgaon and Manesar is primarily because of a myopic view of urbanization that ignores issues related to the livelihood of the labour. In the garment industry analogous to any other industry there are two kinds of competition: one is the race to the bottom where firms basically compete solely on the basis of minimizing costs even if that involves compromise in quality; the other way is to move towards upper end of the market dealing with fashion garments. But in any case moving towards the latter involves investments in human capital and in such a scenario industries should look at labour in a different way altogether. Pushing down the wages either by relying more on contract labour and also by increasing the working hours would provide a little leverage in the longer run.

5. Future Challenges and Implications on Size Distribution

In this section we discuss how the dynamics of relations within the garments producing units affect the size distribution in the respective clusters. The future course of growth of garment industry depends on how the clusters respond to changing demands in various segments of the export market *vis-à-vis* its competitors. Export performance primarily depends on costs, quality and strict compliance to delivery time. In the case of mass market it is more of costs and delivery time that matter assuming that a reasonable level of quality is maintained. In such a scenario economies of scale becomes important because higher scale of operation provides the opportunity to reduce per unit costs. In this regard, China and Bangladesh are far ahead of India. On the other side, producers of Tirupur or NCR cannot entirely be dedicated to fashion garments because that involves higher risk and uncertainty and at the same time it is very difficult to go ahead of European firms in trend-setting designs and fashions because the latter would obviously have a greater grip on culture and likings of their native people. Moreover, in relatively more value-added segments the competitive advantage based on low labour cost gradually declines. Rather labour needs to be viewed as human capital in which investments need to be made, both in terms of enhancing their technical capacities through training and also by materially enriching them through fair wage. This in any case requires an altogether different approach to the production process in general and to labour in specific. As a result, the optimal strategy of firms could be moving towards a proper mix of targeting both mass and niche markets. This perhaps could be the long-

term perspective of looking into the structural changes required to meet the challenges in demand in the garment industry.

In our survey although we find some trends towards some degree of vertical integration both in Tirupur and NCR, but in no case does this seem to be the dominant trend. Also, this is happening in the two clusters in two separate ways. Most of the garment units in NCR perform the cutting, stitching and finishing jobs in-house. The backward and forward linkages are thin in the sense that fabrics are bought from other states. Moreover, for the exporting units maintaining quality and also to have greater control over the production process, the portion of work subcontracted gradually declines. In the case of Tirupur vertical integration goes with a simultaneous process of in-contracting, hence making the structure more resilient to changes in demand. But at the same time the extent of graduating of firms in terms of size depends on the nature of product. Since most of the exporters deal with a large variety of garments having separate specifications of fabric that could only be produced by separate machines it is always gainful to rely upon dedicated suppliers than internalizing every phase of production under one roof.

One can also argue that the decline of Fordist structures, primarily because of the shrinking of the stable, standardized mass market and emergence of fragmented and customized demand has its obvious implications in the lower-end of the market as well. Even in the low-value added segments there has been a relative decline in product life-cycles and frequency of offering new styles and shapes has increased considerably. This change in demand pattern requires greater flexibility in the production structure and that could not be taken care of by the one dimensional concern of reducing costs that scale economies could offer. The rise in consumption in recent past that has accompanied if not resulted in higher growth in India is essentially driven by the expansion of the middle class market that happens to be less sensitive to price compared to styles and look. On the other side, there has been a considerable shrinkage in real consumption in the lower segment of the income class in our country, which constitutes the mass market. The dualism in the production structure with a very high degree of polarization between very large enterprises and home based units, captured in the notion of 'missing middle'[2] in India's manufacturing has direct correspondence to the pattern of demand that emerges from a very skewed distribution of income. In the case of garments in India although differences in costs between exported and those produced for the domestic markets do not always match with differences in technology and skill of workers between the two segments, nevertheless large gaps exist in the quality of the fabric, designs and colours, processes like dyeing, printing, compacting and so on that involves

[2] See Mazumdar and Sarkar (2007)

higher costs. It seems that the demand for garments of standards such as basic T-shirts produced for exports is not large enough in the domestic market which could induce larger investments or new start ups at the higher scale.

The issue of size distribution and linkages between large and small enterprises is sometimes contextualized in the scheme of late industrialization. In most of the late industrializing countries new industries normally came up in large industrial enclaves and that happened primarily because scale and scope economies were already large to start with. Once these enclaves get deep rooted and produce for the domestic market, opportunities for participation in forward and backward linkages opens up for smaller firms, especially in the consumer goods sector in which the economies of coordination plateaus down quickly. As a result, the average size of industries would decline in late industrializing countries, contrary to that in advanced ones where more and more artisan units are drawn into large vertically integrated structures. Hence the rise of the small enterprises in developing countries is sometimes viewed as de-integration of established large structures giving rise to ancillaries or a variety of subcontracting relationships. However, in the garments industry in India the trajectory is possibly the opposite. Most of the big exporting firms grew up from smaller specialized subcontracting units but what is quite obvious is that the number of firms graduating is always less than the number of new start ups as subcontractors. Hence the trends of vertical integration are little compared to diffusion of production. As a result, we do not envisage any such clear trajectories rather large exporting firms and smaller subcontracting units simultaneously exist, each complementing the other and there seems to be little signs of overall consolidation in the garments industry.

There are issues related to institutional failures as well. Because of regulatory limits in regard to area allotted to each owner in Noida we find large number of owners having multiple firms at separate sites basically reflecting horizontal expansion. Most of these firms are specializing in one or more of the specific tasks of a job and linked through a network of common management by way of having same or separated legal existence. Hence in essence these firms are vertically integrated and employ much more than thousand workers in total but when considered as separate legal entities they might not come under the middle category in terms of separate enrolment of employment. On the other side, one of the remarkable features in garment industry as well in others such as leather is that the exporting firms go for higher scales while even though large domestic markets exist we find relatively fewer numbers of large firms producing for the domestic market. This is precisely because the domestic demand is less standardized, batches of orders are less and moreover the owner has to have his own marketing network to sell his products, a responsibility which in the case of exports the owner might not have to undertake. For any given level of technology, in order to produce at the lowest cost, that

is, producing at the minimum of the long-run average cost curve, a minimum volume of order is required and there seems to be a lot of uncertainties in the domestic market. In that way emergence of organized retail networks might provide a more stable demand to those producing for the domestic markets.

Needless to say that clinging to the lower end of the value chain in garments by competing on low labour costs could never be a sustainable strategy. A low wage strategy lasts only as long as the next low wage site comes along. It also discourages long-term investments because there always remains the possibility of choosing a new site before the return of such investments have been realized and as a result, it acts as a disincentive to upgrade their capacities, products and production processes (Berger, 2006). There seems to exist a strong argument in favour of labour market flexibility that primarily says that firms do not increase their scale of operation in order to avoid strict labour regulations. One would hardly subscribe to any such proposition, especially in the context of garment industry. There hardly exists any serious concern about labour rights in any of the firms in NCR. In Tirupur there is a strong presence of trade unions at the district level that might help in protecting at least the claims of workers once he or she is thrown out of the job but in NCR owners prefer to employ migrant workers instead of local residents finding the former to be more docile. Perhaps the argument of labour market flexibility and its impact on scale should go the other way round and seems to be more plausible. This may be because the presence of large labour surplus together with absence of any substantive presence of labour institutions firms are less inclined to move up the value chain as they are left with the option of competing on the basis of low labour costs and finally driving competition to a 'race to the bottom'.

Broadly, there can be two kinds of choices left to the firm: one, given there is no constraint in demand a firm would like to bear the costs of regulations including those related to labour only when such costs are outweighed by the gains they make through scale economies and related economies of coordination. Two, a strategy quite suitable in the face of demand uncertainties as well as that of fragmented markets and that is to limit the scale of operations to a smaller establishment that might be operating within a larger network of subcontracting unit and compete on the basis of low labour costs by taking advantage of the unregulated labour market. Both these strategies would not be sustainable for two separate reasons: first, the former strategy of large-scale employment based industries would gradually drive up the wages, as it happened in the case of China, wiping out the comparative advantages derived from margins on wage cost. Second, the strategy of remaining small and catering to relatively customized markets but at the same time deriving advantages from avoiding labour laws would not work for long. This is simply because catering to customized markets would increasingly demand more skills and that would obviously entail higher costs: either in the way of training

workers or by employing skilled workers who would ask for higher premium. Hence it is always better to plan for a longer time horizon, create proper infrastructure and skills and move up the value chain such that value realized could be much greater than the cost borne. This is precisely suggesting a gradual transformation to a 'high road strategy' competing on the basis of quality and flexibility from the 'low-road' where competition is primarily based on reducing labour costs.

Finally, a word on an appropriate policy mix that might influence the growth of firms in labour-intensive sectors such as garments that we could conceive at least tentatively. There has to be some tightening of the labour market either by execution of the existing labour laws or by means of active intervention in the labour market through schemes such as NREGA. In response to higher labour costs, firms might opt for higher capital intensity in order to replace labour if capital is relatively cheaper. However, this change in capital intensity might not always lead to a change in the composition of products in favour of high value added goods. This is precisely because higher capital intensity does not necessarily imply use of higher technology producing high valued goods rather it might be simply reflecting increased use of labour displacing technology accompanied by increased use of deskilled labour. However, in sectors of design or fashion intensive consumer goods this might not be the desired strategy towards high road. What is required is a comprehensive sector specific policy to upgrade the capabilities of firms in producing goods with higher skill and design intensity that, of course, could be meaningful only when located amidst an overall strategy of wage-led growth that would ensure greater demand for high value-added goods in the domestic market as well.

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