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The knitwear cluster in Tiruppur: An Indian industrial district in the making?

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Abstract

This study is an attempt to problematize the varied experiences and phases of Tiruppur's transition from an "obscure hamlet" into India's premier cotton knitting manufacturing centre. Tiruppur's phenomenal growth has been achieved through a dense and complex network linking together its "2500 knitting and manufacturing units, 600 processing units, 300 printing units and 100 embroidery units" into an *industrial district*. Though developed conceptually in the context of the more developed countries to capture the characteristics and functioning of particular areas, we find that there are clearly principles of organization characterizing the industrial district model which could very usefully be applied in other contexts and countries. Tiruppur is one such context and area which in our view is amenable for analysis using this framework.

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The figures could not have been better. Knitwear has come to occupy a place of pride in India's burgeoning apparel exports particularly since the last decade. And in this overall gamut the small town of Tiruppur in Tamil Nadu has played a stellar role.[1]

"Upto 1985 the export growth was slow but steady. From a modest beginning of Rs.18.06 crore direct exports from Tiruppur in the year 1985, the direct export in 1993 was Rs.1197.55 crores. Including indirect export from centres like Bombay, Delhi, etc., Tiruppur's contribution to garment export has crossed Rs.2200 crores. In short Tiruppur exports nearly 85 per cent of the total cotton knitwear exported from India."[2]

This study is an attempt to problematize the varied experiences and phases of Tiruppur's transition from an "obscure hamlet" into India's premier cotton knitting manufacturing centre. Tiruppur's phenomenal growth has been achieved through a dense and complex network linking together its "2500 knitting and manufacturing units, 600 processing units, 300 printing units and 100 embroidery units"[3] into an *industrial district*. Though developed conceptually in the context of the more developed countries to capture the characteristics and functioning of particular areas, we find that there are clearly principles of organization characterizing the industrial district model which could very usefully be applied in other contexts and countries. Tiruppur is one such context and area which in our view is amenable for analysis using this framework.[4]

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1. Tiruppur, with 2.35 lakh population (in 1991) is one of the consistently fast growing towns in Tamilnadu with a decadal growth rate of 41.55 percent during 1981-91. The town covers an area of 43.52 sq.kms. and is 53 kms. away from Coimbatore.

2. S.R.Ponnusami, Secretary, Tiruppur Exporters' Association (TEA), note dated February 14, 1994.

3. Ibid

4. At the end of our very first visit to Tiruppur, we concluded that Tiruppur did not fit the received development paradigms. Though not touched upon in this paper, we realize, that an important dimension that needs to be examined is why traditional economic analysis and official policies that often take scales of operation as the major point of reference (simultaneously marginalising the fact of the co-existence of multiple models of industrialization with different points of reference) are not really useful in understanding Tiruppur.

This paper does not trace historically the development of the garment industry at Tiruppur; and yet an evaluation of the present 'success' of Tiruppur needs an examination that dynamically situates and captures the remarkable changes that have taken place in all spheres over time.[5] In this context we find Brusco's analysis of the small firm development in Italy very useful for contextualizing the changes that have taken place in Tiruppur over time.[6] In an overview tracing the genesis of the concept of industrial district, Brusco develops four models to capture the essence of the debate on small firm development that has taken place in Italy over forty years.[7] It not only periodizes the debate but also highlights the background factors studied as also the ideas that underlie those factors.

The first model, that of the *traditional artisan* covers the period of the 1950's and the early 1960's when the South of Italy was fairly underdeveloped and possessed quite a number of small artisan firms producing for the local market. The discussion that took place during this period pitted the large firms of the North against the small firms of the South; the idea that the small firms were inefficient and were unable to pay high wages was also stressed.

The second model, Brusco calls the *dependent subcontractor model*. Following a wave of decentralization that took place in Italy at the end of the 1960s, whole departments of production in large plants were closed down and the activities previously undertaken in-house were handed over to small firms often situated in the vicinity. Two strong views prevailed during this period; one accepted the theory that as the wages were low, efficiency must also be low. That is to say, the level of efficiency was derived from the level of wages instead of looking at wages and efficiency separately. The other view, while agreeing that small firms could be characterized as using low technology and paying low wages nevertheless felt that there were some small firms that had a technology and an efficiency that was comparable to that found in large firms. However, wages were still low even if technology was good. Thus the two crucial points stressed by the second group and relevant for our discussion of Tiruppur were :

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5. Tiruppur's economic performance, outstanding by Indian standards has kindled quite a few research studies, the most notable of those we have come across being that of Pamela Cawthorne. Cawthorne did her field work at Tiruppur in 1986 when Tiruppur had just begun its entry into the export market. In a later piece she attempts to fit her 1986 findings into the 'industrial district' framework.

   (a) Cawthorne, Pamela, "Amoebic capitalism as a form of accumulation:the case of the cotton knitwear industry in a South Indian town", Ph.D. dissertation, Milton Keynes:The Open University, 1990.

   (b) Cawthorne, Pamela, "Of networks and markets:the rise and rise of a South Indian town : the example of Tiruppur's cotton knitwear industry", *World Development* (forthcoming January 1995).

6. What follows has been summarized from Sebastiano Brusco, "The idea of the Industrial District: Its genesis", in F.Pyke, G.Becattini and W.Sengenberger (ed): *Industrial Districts and Inter-Firm Cooperation in Italy*, International Institute for Labour Studies,Geneva, 1990, pp10-19.

7. Our reading of the experiences of similar industrial clusters in other countries, particularly, Bangladesh (Rhee, 1990) and South Korea (Cho, 1994) leads us to agree with the following concluding remarks made by Cho:

   > ... there is no single pathway to a flexible specialisation industrialisation paradigm. In particular, the 'new orthodoxy' based on Piore and Sabel's paradigmatic theorisation of flexibility drawing upon a single type of small-small firm relations leaves many important questions unasked and unanswered.

Rhee, Yung Whee, 'The Catalyst Model of Development: Lessons from Bangladesh's Success with Garment Exports', *World Development*, Vol.18, No.2, 1990.

Cho, Myung-Rae, 'Weaving flexibility: Large-small firm relations, flexibility and regional clusters in South Korea', *in* Pederson *et al.* (ed), *Flexible specialisation: The dynamics of small-scale industries in the South*, Intermediate Technology Publications, London, 1994.

(a) efficiency of a small firm could be as great as that of a large one provided the same machines were used;

(b) wages were no longer linked to productivity so that high efficiency and low wages could co-exist.

The third model developed was the *industrial district - Mark I* model differentiated from the fourth model, namely the *Industrial district Mark II* model by the considerable government and non-government intervention that the latter had. The Mark I model grew up in the mid 1970s when a number of industries and towns had become economically successful. Analysts of this phenomenon contended that the unit of analysis had to change; no longer a single firm but a cluster of interconnected firms located in a small area. Schematising the products of firms and the production processes in an industrial district, three categories could be distinguished. First, there are the firms which produce a final product with a direct access to the final market, either national and/or international. At the next level are the *stage-firms* which are involved in one stage of production. The stage firms are not necessarily engaged in less skilled, less capital-intensive, lower technology activities, but may be engaged in any activity from the dirtiest to the most specialized using the highest technology. The third group of firms, statistically speaking, strictly may not belong to the industry that defines the final product but nevertheless fits into the same vertically integrated sector as the final firms. Such firms include those belonging to the service sector, transport etc. Thus the district comprises a cluster of firms producing something which is homogeneous in one way or another, with a peculiar relationship amongst the firms even though they position themselves differently on the market. Another feature stressed was the balance between cooperation and competition. Other factors highlighted include the role of the cultural background against which the district flourished. Analysts critiquing this literature pointed out that very little effort was made to relate all these factors to the main body of economic theory.

The fourth model the industrial district Mark II, speaks of the need for intervention which either did not exist before or was at least less evident. The underlying contention of the argument is that new markets and new technologies have developed since the beginning of the 1980s, posing a problem for both large and small firms but more so in the case of the latter. Production in an industrial district is carried on as a social process by virtue of a social structure that encourages interaction amongst thousands of people. The very fact that the district has neither a head nor a hierarchical structure makes a move towards acquiring specialized services much more difficult. It is here that the need for intervention appears. Some areas in Italy have coped with this problem by giving the firms "real services"[8] rather than financial help. The problem now engaging many in Italy is whether these internal policy measures which are taken at a local level could be used to transform clusters of firms into industrial districts. Could a centre for real services be used to this end or could such a centre even induce the growth of firms where none exist at present?

Situating (very crudely) the experience of Tiruppur against the above discussion we get the following picture: for long, almost upto 1980 the knit wear industry remained a cottage industry even though classified under the Small Scale Industry (SSI) sector with low levels of production and confined to the local market. The industry was managed largely by family members with the help of a few workers. It produced only innerwear - vests, briefs etc. While this seems to fit Brusco's traditional artisan model, it differs from the Italian experience in an important way -the wage levels at Tiruppur even during this phase were on par with that prevailing in the industrial town of Coimbatore.

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8. For a definition and elaboration of what these services are, see Sebastiano Brusco "Small firms and the provision of real services" in F.Pyke and W.Sengenberger (ed.): *Industrial districts and local economic regeneration*, International Institute for Labour Studies, Geneva, 1992, pp 177-196.

Tiruppur started catering to the export market from 1980 onwards and that is also when the industry began to grow. However, much of the exports during the 1980s was indirect exports, in the sense, Tiruppur firms were selling their goods to the international markets through selling agents/export houses situated outside Tiruppur, namely, Bombay and Delhi (the dependent subcontractor model). Upto 1985, the export growth was slow but steady and confined to one outerwear item, namely, T- shirts. From the late eighties the industry diversified very quickly and took up manufacutring as well as *direct* exports of other outer garments (besides T-shirts), namely, cardigans, jerseys, pullovers, ladies' blouses, dresses and skirts, trousers, nightwear, sportswear and industrial wear. This transition (nay, leapfrogging) of Tiruppur from an insignificant exporter of banians to a dominant and multiproduct exporter of cotton knitwear garments while still functioning within the SSI sector framework throws up a number of questions. The most important among these are: (i) how Tiruppur's production system has been able to manage and meet the phenomenal increase in the volume of production. (According to the figures provided by TEA, we note that there has been a more than six fold increase in the number of cotton knitwear pieces that were directly exported from Tiruppur between 1986 and 1993.)[9] (ii) how are the different *stages* of production organized *among* the different firms particularly when the market being served is the international market where Tiruppur has to compete among a whole host of giants as well as meet the increasing challenge from the newly emerging countries of (in terms of garment exports) Bangladesh, China etc.[10] Our visit to Tiruppur in the summer of 1994 convinced us that Brusco's third model of small firm growth, namely, the *Industrial district - Mark I* would be useful in understanding post-1986 Tiruppur.

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9. **COTTON KNITWEAR EXPORTS**

Qty : Million Pieces
Value : Rs. Crores

	ALL INDIA		TIRUPPUR	
YEAR	PIECES	VALUE	PIECES	VALUE
1986	90.00	233.46	28.87	37.48
1987	122.11	362.25	39.17	74.49
1988	132.37	456.32	45.91	104.24
1989	165.60	543.17	61.40	167.39
1990	222.00	851.24	88.80	289.85
1991	243.30	1147.03	90.50	429.48
1992	303.00	1894.69	133.90	774.93
1993			186.20	1197.5

Source : *TEA, note dated 09-02-94.*

10. Tracing the clothing trends country-wise, Spinanger points out that "over the last ten years (i.e. from 1978-88) there has been little change among the top eight with Hong Kong, Italy, the Republic of Korea, Taiwan (China), the Federal Republic of Germany, China, France and the United Kingdom maintaining their rankings. The one exception among these, however, is China which — after opening its economy in 1978 — quickly moved from 11th to 5th place in 1983." The other notable case is that of Bangladesh which with "virtually zero exports in 1980 about US $170 million in 1985 jumped almost 200 per cent by 1988."

Dean Spinanger "The Impact on Employment and Income of Structural and Technological Changes in the Clothing Industry" in Gisbert van Liemt (ed): *Industry on the move*, International Labour Office, 1992, Geneva, pp83-116.

THE ORGANIZATION OF THE PRODUCTION PROCESS IN TIRUPPUR

Apart from the knitting/stitching, dyeing/bleaching, printing and embroidery units, there exist in Tiruppur a whole host of other ancillary and supporting industrial units for the manufacture and printing of labels, polythene bags, and other packing materials, tapes etc. providing the necessary forward and backward linkage to the industry. This industry provides direct employment to more than a lakh of skilled, semi-skilled and unskilled workers. If those employed indirectly are included then the industry employs anywhere between 2.5 to 3.0 lakh workers.[11]

The knitwear industry is classified under the SSI sector and hence is technically governed by the rules and regulations of this sector in terms of investment, number of workers, combined with/without power etc. Analytically, the entrepreneurs can be divided into three: exporter - producers, non-exporter producers and merchant exporters. Large integrated units belonging to the non-SSI sector combining all operations from yarn knitting to the finished product exclusively for exports are being contemplated only now. Designation of this sector as SSI masks the common ownership of otherwise spatially separate units of production. This common ownership includes the phenomenon of both horizontal expansion and vertical integration. Hence in our viewpoint it would be more appropriate to talk of large, medium and small entrepreneurs rather than firms.[12] The complexity and density of the horizontal and vertical networking among these different categories of entrepreneurs defies description. However, some patterns can be discerned. Using the analytical categories that we have made, namely exporter-manufacturers, non- exporter manufacturers and merchant exports, we find that:

(a) in each of these categories there are large, medium and small entrepreneurs;

(b) the exporter-manufacturers and the merchant exporters who dominate the scene control (formally and informally) a variety of enterprises spanning both horizontally and vertically;

(c) the non-exporter manufacturer category includes both those producing for exporters (and hence strictly speaking subcontracting units or to use, Brusco's term, *staging firms*) as also those producing exclusively for the domestic market.

The need to stick to delivery schedules and maintain internationally acceptable standards in quality, finish etc, has had its own impact on the manner in which production is organized. It has not led to all operations being brought under one roof. On the contrary, and particularly the large exporter- manufacturers and merchant exporters have each teamed up with several enterprises covering different segments of the production process. The mutual exchange of information and assistance provided (if necessary) between the members of the team (in technology, market on the one hand, and expertise relating to the different processes on the other) has enabled each of the segments to run efficiently and in perfect tandem.

Even those large enterprises who have all operations under their control through the several separate units that they have instituted under the SSI sector need to rely on outside facilities to fulfil their orders on time. Hence the mere fact of vertical integration of the different processes on the part of the large entrepreneurs does not obviate the need to network with others outside their control.

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11. TEA note dated 9.2.1994

12. A Report by Business India is very instructive and worth reproducing: "Yet,though there are so many units in the town, it is unlikely that there are more than 500 families in the business - `sister concerns', usually managed by close family relations are common. This practice received its biggest fillip with the introduction in 1972 of excise duty, which acted as a disincentive to expand production in any one unit beyond a given point. In order to expand production fresh units had to be set up, often in the same premises."

    - *Business India*, "Troubles at Tiruppur : An end to cheap labour", August 27-September 9, 1984, pp80-81.

An aspect that was repeatedly stressed during the course of our interview was the ability of Tiruppur entrepreneurs to handle a *wide range* of *small orders*, even as low as 500 pieces.[13]

The increasing emphasis on production for exports has *simultaneously* intensified the polarization (technologically speaking) between exporting firms and those producing for the domestic market but by the same token has made entry easy for new but financially weak entrepreneurs through the existence of an active market for second hand machines.

"A mechanism that increases capital liquidity in a structure - such as the district - which is characterized by firms with legal forms which may not allow for easy access to the financial market, and which causes the decision to stay in business, is the market for second hand machines. If the small entrepreneur could in no way sell-without heavy losses - a machine that no longer suits him, the effect would be to slow down the acquisition of new machinery - and thus the introduction of technical progress - and, more generally the spirit of enterprise. Within the broad spectrum of production needs and intensities of utilization of machines, which is typical of the district, a machine which is unsuitable for one person may turn out to be profitable for another. When this sort of situation occurs frequently, a local market for second hand machines tends to develop and it allows for a potentially optimal distribution of the existing set of machines (new and old) and promotes an adventurous spirit."[14]

TECHNOLOGICAL CHANGE AT TIRUPPUR

Much has been written about the technological backwardness[15] of the industry at Tiruppur. Seen statically and in isolation this would appear to be a major drawback; but perceived over a longer period it would highlight both the strengths and weaknesses of the functioning of the system in Tiruppur.

By international standards certainly the old Ludhiana-made circular knitting machines used extensively in Tiruppur until just a couple of years back (and still used by those producing exclusively for the lower end of the market and garments for domestic use) are outdated with relatively low productivity levels as compared to imported ones. But this has to be juxtaposed against the fact that exports of garments worth the name really began only after 1980 while direct exports increased substantially only at the end of the decade; this is also the time when the exporters began to 'feel the backwardness' of the machines with which they were working. Several concomitant factors have aided the technological upgradation of the industry since the last couple of years. These include the switch in the international market increasingly towards cotton knitted garments, the import liberalization policies of the government, the income tax changes that have made it possible to accumulate and reinvest — all this coupled with the expertise that Tiruppur entrepreneurs have built up over several years have enabled them to grab substantial export orders and hence invest in new machinery.

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13. For a similar 'multiple-variety, minimum-volume' production system in the South Korean textile industry see Cho (1994:123), 'Weaving flexibility: Large-small firms relations, flexibility and regional clusters in South Korea', *op.cit.*

14. Becattini, Giacomo "The Marshallian industrial district as a socio-economic notion", in F.Pyke, G.Becattini and W.Sengenberger (ed.) : *Industrial Districts and Inter-Firm Cooperation in Italy*, International Institute for Labour Studies, Geneva, 1990, p45.

    The significance of this observation by Becattini really came through in our interviews at Tiruppur when right across the board all categories of entrepreneurs stressed the importance of the market for second-hand machines.

15. See especially Cawthorne, Pamela in footnote (4) above. Also Brian Parker "Tiruppur's knitwear industry : Gearing up to Meet Global Demand", *Clothesline*, Vol.5, No.6, June 1992 and *Business India*, August 27-September 9, 1984

Process-wise, the sewing operations are done with the latest machines with almost 80 per cent of the owners having kept pace with the developments in technology. Yet sewing continues to remain the most labour -intense activity in garment manufacturing all over the world.[16] The designing of clothes can be a very human-capital intensive process and the greater the fashion content, the more complex and varied are the factors involved. Elsewhere, towards the upward range of products the use of CAD systems have greatly increased the productivity of individual designs. A few large entrepreneurs in Tiruppur have ventured into the designing of clothes but Tiruppur itself has a long way to go in this respect. Dyeing is one area which requires massive inputs of technology; it is also the most problematic because of the heavy pollution being caused by the discharge of effluents from the dyeing plants. The heavy demand for water that dyeing requires has to be fetched at exorbitant rates from far-off places, Tiruppur ground water having been rendered completely non-usable for domestic use as well as for industrial purposes. The latest in printing, embroidery technology have been installed but these are not pervasive. An aspect that needs to be borne in mind here is the risk involved for individual entrepreneurs in investing in very sophisticated machinery in dyeing, printing or embroidery. Given the great variety of fashions and designs and given the fact that Tiruppur is heavily dependent on orders from abroad, any set of machines that cannot switch quickly between various designs and fashions will spell disaster for those who have made specific investments. For instance, huge investments in the most sophisticated imported embroidery machines were rendered obsolete with changes in fashion towards printed fabrics.

To us the more important aspects relating to the issue of technology are the following :

(a) the latest machinery in almost all the processes of production are available at Tiruppur itself complete with spare parts and components;

(b) the level of awareness of the existence and availability of such machines is also high among almost all sections of the entrepreneurs coupled with the ability to decide what combination of the machines would enable them to stay competitive at the international level;

(c) those whom we interviewed pointed out, that, while productivity of an imported knitting machine (measured in terms of yarn knitted in 24 hours) was 10 times more than that knitted on a domestic knitting machine worked the same number of hours, the cost of the imported knitting machine was nearly 20 times more. Further the installation of such sophisticated machines brought into sharp focus the inconsistency of related resources, namely, the quality of the yarn, erratic power supply situation, the quality of the thread available locally, the quality of the interlinings, buttons, fabrics etc. which very often defeated the very purpose of acquiring such advanced machines;

(d) those interviewed were unanimous in their opinion as regards the ability of their own workers in repairing and maintaining the machines, both domestic and imported;[17]

(e) as of now, individual exporters (particularly the large entrepreneurs) had benefitted considerably from technology upgradation. There is no doubt that the industry in general has a long way to go. But the sharp polarization that one would have expected between those going in for new imported

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16. Spinanger notes "There is a general consensus that the assembly stage, i.e. sewing accounts for 80 per cent of labour employed."

    Spinanger, Dean "The impact on employment and income of structural and technological changes in the clothing industry", in Gisbert van Liemt (ed.) *Industry on the move*, International Labour Office, Geneva, 1992, p.98

17. The scarcity of spares and components for the imported textile machinery during the Second World War spawned a culture in this region, whereby components were indigenously designed and produced, which enabled uninterrupted production.

machines and those still working in domestic machines has not led to large-scale closure of units on this score. This has a lot to do with the networking aspect unique to Tiruppur since the facilities (even if not owned) are available to all irrespective of size of operation.

A factor which has added to the acute realization of the backwardness of the existing technology in Tiruppur is the upward move being made, particularly by the top exporters, towards higher value products. How much and what kind of the upmarket orders Tiruppur has been able to corner is an open question. Neerja Rajkumar, the director general of the Apparel Export Promotion Council says: "[But] one thing is sure Indian garments are no longer in the basement. They haven't moved to the top floor either but have definitely reached the first floor. — For starters, to beat the quota system, exporters have started moving to items that do not come under MFA restrictions and within the quota categories to the higher end of the market where realizations are better."[18]

Innovation in the strict sense of the advent of new machines from Tiruppur has not taken place but the incremental innovation needed to adapt, assimilate and diffuse technology has been going on successfully in Tiruppur. In this context it needs to be pointed out that development of technology in this field is directly related to the state of knowledge in the country on microelectronics. Very concretely towards the upper range of products the use of CAD systems have greatly increased the productivity of individual designs particularly in the developed countries. It has also simplified enormously the entire time- consuming and human capital-intensive range of activities in the assembly process, namely, pattern making, grading, nesting, marking and cutting. At another level, a CAD system interfaced with a modern telecommunications network has made it possible to separate human capital-intensive activities from the locations where the purely labour intensive activities are taking place without sacrificing necessary information linkages.[19] On both these counts, namely micro-electronics aided applied technology in designing processes and in telecommunications, both Tiruppur and the country have a long way to go.

Two aspects related to technology that has been noted at the global level which we found corroborated at the micro level in Tiruppur are the following:

(a) Notwithstanding the fact that units in Tiruppur have had to artificially peg their operations at a particular scale to beat the legal system, it has been established that increasing the scale of operations in individual plants does not generally seem to be an efficient way of raising current levels of productivity. Besides, given the highly fashion-oriented nature of the business, short production runs are more effective in promoting flexibility than the use of cost reducing specialised production equipment. An added factor that needs to be taken into consideration in Tiruppur is the high cost of imported technology. Therefore, while individual entrepreneurs may go in for separate specialised machinery, the industry as a whole cannot upgrade its technology on a large scale. But the industry has been able to simultaneously negotiate the aspect of production flexibility and the high cost of technology through its networking phenomenon which makes technological services available to all.

(b) There is much apprehension that the production jobs will be significantly diminished with newer and better equipment. However demand increases in recent years have more than compensated for productivity increases.

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18. Quoted in *India Today*, May 15, 1994. (Special Survey on the Garment Industry)

19. Spinanger, Dean, op.cit., p98-100.

"There is little reason to assume that the demand parameters will shift downward in the near future, but they will rather be complemented by the opening up of new markets. On the whole - with the rapid diffusion of technology in the clothing industry- upgrading will transcend economic development from the most industrialized to the least developed countries. As a matter of fact, by the time such technologies are diffused down to the least developed countries, they may well contain primarily features which improve quality and flexibility without necessarily negating comparative advantages in labour intensive production. In doing so, such countries could all the easier meet the ever increasing fashion demands in world markets."[20]

IMPACT ON LABOUR

We have not yet directly explored the impact of the rapidly growing industry on labour. What follows therefore is a summary of the existing material on the conditions of labour in Tiruppur together with our inference of the perceptions of the different employers and officials with whom we had extensive discussions.

Krishnaswamy in his account of the labour process in Tiruppur mentions some of the important changes that have taken place in the organization of work in Tiruppur.[21] According to him in the early 1960s, the production processes were organized mostly under one roof, there being hardly any subcontract systems of production. All the factories employing more than 20 workers had been registered under the Factories Act. The workers according to Krishnaswamy, were paid on time-rate basis and provided with welfare facilities as stipulated in the law.

From 1962 onwards there ensued a prolonged period of strike and unrest culminating ultimately in a change of ownership[22] from Chettiars to Gounders. This change in ownership was accompanied by organizational changes such as in the scale of operation from factories to non-factory units of production as well as by the institution of sub-contract units. By the end of the decade of the 1960s the new owners, through their association, the South Indian Hosiery Manufacturers Association, (SIHMA), were able to bring in a piece-rate system of payment of wages. The expansion of subcontracting and the inflow of capital from agriculture helped the industry to grow rapidly. The availability of work on subcontract basis encouraged many people who had only capital to become entrepreneurs. The pace of employment of women and children quickened after the industry started exporting its goods. Krishnaswamy's conclusion is that the employer's attempt to organize the labour process in a particular manner "over and above what was technically needed" was done for nothing else but "to attain control over the labour process and to maximize the surplus value extraction",[23] and, further, "since expenses on machinery, raw materials etc., cannot be reduced much, the employers try to reduce the expenses on labour by way of subcontracting, employing women and children, splitting up of units which would help to avoid legal regulations etc."[24]

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20. Ibid, p.104

21. This and the next paragraph has been summarized from the paper by C.Krishnaswami "Dynamics of Capitalist Labour Process: Knitting Industry in Tamil Nadu", *Economic and Political Weekly*, June 17, 1989, pp 1353-1359.

22. There is need to explore this phenomenon of *change* in the caste composition of the entrepreneurial group in Tiruppur as recorded by Krishnasamy here. We heard a different version which stressed only a relative decline of the Chettiars and the rise of the Gounders to a dominant position in the industry.

23. Ibid., p 1359

24. Ibid., p1359

A Business India report on Tiruppur argues that "it is above all the passivity of the labour force that holds the key to Tiruppur's success. In the industry's eagerness to hold down costs, scant respect has been shown to labour laws or even to elementary human concerns like health."[25] The Report also notes the absurdly low wages paid to women and children as compared to males, which is justified by the employers on the classic argument of the men attending to *skilled* jobs and the women the *unskilled* ones. Two further points made by the Report will be taken up for discussion later, namely,

(a) "It is notable that labour-saving modernization has been accompanied by an increased demand for labour and has thus minimized trade union resistance to modernization."[26]

(b) "Children, especially males, pick up relevant skills and in a matter of three or four years are ready for higher responsibilities. This completely obviates the need for special technical training facilities."[27]

Cawthorne's study to some extent does problematize the impact of the Tiruppur cluster on labour.[28] She acknowledges that the process of expansion of the Tiruppur knitwear industry can "also be seen as a generalized process of skill acquisition. Workers have tended to acquire a range of different skills in different workshops accentuated by the demand for labour." Further because of concentration of units in a cluster "an island of labour shortage (amidst labour surplus) is created." This coupled with the fact that "knowledge and information (as well as the work itself) are easily acquired in an area where nearly everyone is working in similar kinds of jobs — is in part responsible for the very large number of small one - man firms that get set up by workers who have become highly skilled in the course of working in a number of different jobs."

However segmentation of the work by gender and age according to Cawthorne reveals that both women and children earn much less compared to men because they are concentrated in jobs considered less skilled. For all categories of workers across gender and age, hours worked were frequently on average, 12 hours a day, six days a week, and often even longer when a particular order had to be completed. Therefore, pitching her argument on the relative 'cheapness' of labour for employers, and, comparing the level of wages to that of the regulated mill sector, Cawthorne concludes thus:

> "....the situation in Tiruppur is about the `classic sweating of labour - long working hours, the intensification of work through the use of piece rate payments and the use of children who are paid a (relative) pittance (although one owner mentioned a kind of productivity trade off in employing children). Both long working hours and the work practices which allow the intensification of the amount of work performed in a given time, means that the labour force is compensating in labour time for the need to improve productivity - the only other route to which is higher productivity machines."[29]

The issue of the 'impact on labour' as we see it does need to be problematized at various levels: the impact on employment in general, also segmented by age and gender; the intensification of work through long hours; mode and pattern of payment of wages and other benefits if any; acquisition of skill through experience and training if any; and, opportunities, if any, to move up in one's career, etc.

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25. *Business India*, "Troubles at Tiruppur:an end to cheap labour" August 29-September 9, 1984, p82.

26. Ibid., p82.

27. Ibid., p82.

28. The quotes in this paragraph are from Pamela Cawthorne "Of networks and markets: the rise and rise of a South Indian town: the example of Tiruppur's cotton knitwear industry", *World Development*, forthcoming.

29. Ibid

From the above accounts particularly that contained in Business India and Cawthorne, we find that labour has gained in some aspects but not in others. Krishnaswamy's account of the change in the mode of control of the labour process is not unique to Tiruppur, neither can it be pinned down solely to "attain control over the labour process and to maximize the surplus value extraction". Capitalist production process, all over the world, by its very definition, needs to control the labour process for maximizing surplus value; however capitalist production process is not a static concept. It is not within the scope of this paper to discuss the ongoing debate on the `New Competition' in the capitalist world.[30] Suffice it to state here that the essence of the debate has to do with freeing the old capitalist production system from inflexible production processes and rigid trade union controlled labour organizations. Another variant of this debate relevant to our discussion here is the need to make production processes as flexible as possible in specialized units working in close collaboration.[31] The key to this system of flexible specialization is labour whose professional skill increases with experience and which allows them to become small independent entrepreneurs in course of time. The ideal flexible specialization model allows the possibility of social mobility among the working class.

A phenomenon unique to this region including Tiruppur is the institution of *Kashtakkoottu*. *Kashtakkoottu* is an arrangement where a skilled labour is taken in as a partner in a joint venture in which all other partners are not skilled but who pool their financial resources for a specific business venture. In return, the skilled partner is entitled to a share in the profit that ranges from 10 to 25 percent. The profit sharing arrangement enables accumulation. This (inherently) dynamic institution, has over a period of time, enabled the simultaneous growth in entrepreneurship and in the mobility of labour. Neither the lack of skill nor lack of resources has been major constraining factors for industrial investments in the region.[32]

An important constraining factor on the degree to which production can be flexibly organized is the nature of the product. A continuous production process, whose products cannot be transported and stored and/or organized into flexibly specialized units will not be suitable. Precisely because the production processes involved in the making of garments is amenable to temporal and spatial separability, the Gounder capitalists

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30. We can provide only a couple of references here:

    (i) Best, Michael H., *The New Competition: Institutions of Industrial Restructuring*, Polity Press, U.K. 1990.

    (ii) Zysman, John and Tyson, Laura (ed.) *American Industry in International Competition*, Cornell University Press, Ithaca and London, 1983.

    (iii) Nelson, Richard R and Gavin Wright, "The Rise and Fall of American Technological Leadership : The Postwar Era in Historical Perspective", *Journal of American Literature*, December 1992, volume XXX.

31. Our approach to Tiruppur has been greatly influenced by the literature on flexible specialization that we have come across thus far. However, we are in no position to embark on a full blown discussion and/or contribute much to the debate at this stage. We would however refer to the following references that we found particularly useful for our understanding.

    (i) Paul Hirst and Zonathan Zeitlin "Flexible Specialization versus post Fordism : theory, evidence and policy implications", *Economy and Society*, Vol.20, No.1, February 1991.

    (ii) Hubert Schmitz "Small firms and flexible specialization in developing countries", *Labour and Society*, Vol.15, No.3, 1990.

    (iii) IDS Bulletin, *Flexible Specialization : A New View on Small Industry?* Vol.23, No.3, July 1992.

    (iv) Khalid Nadvi and Hubert Schmitz "Industrial Clusters in Less Developed Countries : Review of Experiences and Research Agenda", *Discussion Paper* No.339, IDS, Sussex, January 1994.

32. *Kashatakkoottu* characterises the success of the transport fleet and rig service enterprises which are the other major activities of this region.

were able to form a local network of specialised transactions. From this perspective the Gounders were only behaving as 'rational' capitalists. The more important question in our view is: has this reorganization of the production process been completely detrimental to labour?

We realize from our own discussions and also from the studies we have reported above, that the answer to this question cannot be a categorical yes or no. By all accounts the expansion of the industry including its progressive and rapid mechanization has not led to a decrease in job expansion; in fact Tiruppur has been facing and periodically does face a shortage of labour. Money wages have risen particularly over the decade of the 1980s though the proportion of increase and its linkage with productivity increases are difficult to assess in the absence of hard data.

The issue of gender discrimination practised by the industry at various levels needs a separate and indepth study. We are in no position to comment on the same at this juncture but to accept what the above studies have stated on the issue.

In our opinion the blanket indictment of the garment industry in Tiruppur as a whole on the issue of child labour would be grossly unjust. Looking at the issue dynamically and over a period of time, we found that children (whose average age seemed around ten) picked up relevant skills and within a space of four or five years were given higher responsibilities. We came across quite a few supervisors who admitted to having started in the industry as child labourers. The institution of *Kashatakkoottu* coupled with the market for second hand machines provides the scope for these eventual skilled workers to become entrepreneurs in their own right.[33]

Three issues that need to be explored in this context are:-

(a) how many of the child labourers have managed to grow with the industry and been absorbed into it; in which case, the industry, while gaining monetarily from the employment and consequent low wages paid to child labour would be considered as providing the necessary apprenticeship training not provided in the formal educational institutions;

(b) a related aspect is the magnitude of turnover of children in the industry at any point of time.

(c) the incompatibility of the incidence of child labour and the relatively higher wages paid to labour in the industry.

On all these counts, neither the above studies nor we, have any substantive information.

Aspects of labour stressed during our interview included the remarkable capability of the labour force in Tiruppur to produce complicated garments with relatively simpler equipment, 'otherwise difficult to produce anywhere in the world'. Again, almost all the workers in Tiruppur go through the several stages of production of the garment. Hence at any point of time when a particular worker is absent, his/her work would be done by others not necessarily belonging to the same department.[34]

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33. See in this context the study of gem cutting industry in Tamilnadu wherein Kapadia found child-labour as an integral part facilitating the long period of training necessary for the industry.

Kapadia, K. 'The Profitability of Bonded Labour: The Gem Cutting Industry in Rural South India', *Bulletin, Madras Development Seminar Series*, Vol.24 No.9. p.375, 1994.

34. This particular fact was stressed by owners who had units in Dubai employing Sri Lankan workers. The latter practised an extreme form of specialization so much so that, when a worker failed to turn up his/her work would remain untouched for want of another worker specialized in that segment of work.

An important factor not stressed in studies done under the genre of the classical Marxist 'Capital and Labour Conflict' is what we would refer to as 'owner as worker' and/or 'worker as owner' phenomenon. Almost all the big names in Tiruppur today have had very humble beginnings, having been workers themselves before branching off on their own. The second or third generation of the owners whom we interviewed admitted to having gone through all the stages of production as workers before setting up 'sister' concerns under their control. What is still discernible in Tiruppur is the constant presence of the owners on the premises along with the workers to see through the work.

It would be appropriate at this juncture to contrast the work organization in Tiruppur with the Taylorist principles of organization characterizing much of the Indian corporate sector. The latter's hierarchical structure is clearly inimical to labour in the following sense: while labour in the corporate sector may be paid higher wages and be covered by welfare legislation, the rigidity of the structure rarely permits a worker to transcend and join the managerial rank. The story of Tiruppur to a large extent is the story of those who have been able to make this transition. This physical transition has a lot to do with the acquisition of multiple skills and eventually the knowledge of the entire production process (unlike in Taylorist organizations). This coupled with the fact that the nature of production requires relatively lower levels of investment enables workers to become small entrepreneurs. In the event of an unforseen failure of a venture the entrepreneur is not blacklisted precisely because the *kashtakkoottu* arrangement emphasizes both the integrity and capability of a person.

In more senses than one we find the comparison of Tiruppur with the organized sector not tenable. However, what needs to be problematized using Tiruppur as an example is the following. For historical reasons, formal exposition to textual knowledge through institutes of learning has wrongly come to be equated with acquisition of skill. This in turn has become the basis for fixation of pay scales etc. Much of the recruitment of labour that takes place in the organized sector is based primarily on 'degrees' acquired in formal institutes of learning (more often than not) without much of practical training in the field. Given the abysmally low level of formal education in the country, particularly among vast sections of those employed in the informal sector such as in Tiruppur, enforcement of formal sector rules and conditions of employment will, to say the least, spell disaster more for labour than for employers. On the contrary, much of the informal sector labour learns the trade and acquires skills on the job, over a period of time. Hence the argument for better pay for labour in areas such as Tiruppur has to be premised on a system that values on the job training rather than juxtaposing it against the organized sector where pay is generally linked to formal degrees.

WHAT MAKES TIRUPPUR AN INDUSTRIAL DISTRICT

It would be pertinent at this juncture to abstract out the defining characteristics of an industrial district and also simultaneously discuss the relevance of the same to Tiruppur.

Following (and relying heavily on) Becattini's pioneering work in this area,[35] we define the industrial district as a "socio-territorial entity which is characterized by the active presence of both a community of people and a population of firms in one naturally and historically bounded area."[36] By its very definition the dominant activity in the district is an industrial one necessitating solving the problem of final demand. This therefore requires the development of a permanent network of links between the district and its suppliers and clients.

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35. Becattini, Giacomo "The Marshallian industrial district as a socio-economic notion" in F.Pyke, G.Becattini and W.Sengenberger (ed.) : *Industrial Districts and Inter-firm Cooperation in Italy*, International Institute for Labour Studies, Geneva, 1990, pp37-51.

36. Ibid., p38.

THE LOCAL COMMUNITY

"The most important trait of the local community is its relatively homogenous system of values and views, which is an expression of an ethic of work and activity, of the family, of reciprocity and of change. To some extent all the main aspects of life are affected by this. The system of values which prevails in the district develops more or less quickly through time, in ways which are still to be explored; it constitutes one of the preliminary requirements for the development of a district and one of the essential conditions for its reproduction."[37]

Tiruppur presents a very interesting case. As of now, the industry is dominated by two major communities - the *Sengunthe Mudaliars* and the *Kudiyanava Gounders* who have come into the industry through entirely different routes.[38] A particular sect of the Mudaliar (the ones in Tiruppur) has traditionally been craftsmen specializing in weaving; the Gounders have come over from agriculture. But the two share common traits and values, namely, an extraordinary capacity to work to succeed under inhospitable conditions, a work ethic that is shared and imbibed by all members of the family including women. While in our discussions we could discern the underlying tension between the two communities particularly in the matter of control of formal institutions, in the approach to be adopted towards political parties/leaders in representing local grievances etc., this antagonism was not carried over into the work atmosphere.

Another interesting aspect about Tiruppur is the manner in which quite a few non-local entrepreneurs, particularly north Indians have not only settled down but have got absorbed into the Tiruppur *ethos*. The Tiruppur community in this sense is not a 'closed one'; on the contrary there is a continuous movement of population into the district. This does bring about its own problems of social integration which are, as Becattini points out, *ceteris paribus*, "an increasing function of the cultural distance between the alien and the native, and of the power of assimilation of the district."[39] At a more concrete level, the locals whom we spoke to were quite apprehensive of the ethos of the district being disrupted by vigorous buying of real estate on the part of some north Indians. The locals did not resent, on the contrary they welcomed doing business with the north Indians, but were very emphatic that losing control over land was tantamount to losing grip over the industry.

THE POPULATION OF FIRMS

Becattini qualifies the term 'population of firms' thus:

"... this is not an accidental multiplicity of firms. Each of the many firms which constitute the population tend to specialize in just one phase, or a few phases, of the production processes typical of the district. In short the district is an instance of a localized realization of a division of labour, which is neither diluted in the general market, nor concentrated in one firm or in just a few firms."[40]

We have already referred to the complex and dense networking among the various categories of entrepreneurs in Tiruppur. From our study we further realize (and agree with Becattini) that:

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37. Ibid., p39.

38. We had referred earlier to the increasing dominance of the industry in Tiruppur by the Gounders from the 1960s. At what juncture the Mudaliars stepped in and/or became prominent on the scene is as yet a grey area and needs to be explored.

39. Becattini, G. op.cit., p40.

40. Ibid., p40.

(a) given the nature of networking in Tiruppur mere construction of firm histories will not suffice: "...any single unit of production which operates within a district is to be considered at one and the same time both as an entity possessing its own-history —— a history as autonomous as the network of interdependencies allows - which, in principle, is disconnected from its territorial origin, and as a specific cog in a specific district."[41]

(b) if the above statement is valid then it follows that it is wrong statiscally and otherwise, to group together firms belonging to clusters such as Tiruppur and those functioning in other environments.

THE MARKET

"If we consider the industrial district as a special term and not as a mere indicator of geographical origin, there must not then only be a specialized and well-established network of economic agents who deal with supplying the inputs and placing the products of the district on their final markets, but also an `image' of the district which is separated both from that of the single firms in it, and from that of the other districts."[42]

Becattini could as well have been describing Tiruppur above, with this small rider, namely, that Tiruppur's 'image' has graduated from a single product 'banian' to encompass 'cotton knitted garments' in general. This identity of Tiruppur (and its expansion over time) has a lot to do with the dynamic interaction between the different actors on the scene (owners, workers, agents, buyers, suppliers etc.) a broadening of the markets for its products as also the forging of a direct link between the district and its external markets.

COMPETITION AND COOPERATION

Much as we tried we could not get the entrepreneurs we interviewed to talk on the nature of competition in Tiruppur. At a general level we realized that there was considerable horizontal competition in the sense enterprises in the same process of production competed intensely for orders. At another level, the large entrepreneurs particularly, were constantly on the move, exploring markets, establishing contacts, setting up units both outside Tiruppur and outside the country in a bid to beat the quota restrictions etc. These entrepreneurs admitted to sharing some information but not all; for example, the installation of a new machinery or an improved version of an existing one was generally thrown open for visits to other entrepreneurs, but adaptations made, extra attachments acquired and more important designs developed were not disclosed. Thus the willingness to share information had subtle elements of competition built into it.

Cooperation in Tiruppur is pervasive and works at various levels. At the outset it was admitted by all that there were enough orders for garments to keep everyone at every level busy. Hence while there was intense rivalry to bag orders, it did not lead to uncontrollable resentment on the part of those who failed to get what they had bid for. A prime reason for this was also the fact that the successful completion of an order required the services of even those who had not got any of their own; this in turn meant that failure to get orders did not automatically lead to closure of units.

Over the years and particularly since the time direct exports from Tiruppur began expanding substantially the need for common action on a wide variety of fronts have brought into existence and/ or activated existing institutions particularly industrtial associations in Tiruppur. The most important and aggressive among these happens to be the Tiruppur Exporters' Association (TEA) set up in 1990.

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41. Ibid., p40.

42. Ibid., p44.

We dwell at length on TEA for two reasons:

(a) within a very short period TEA has made an impact both on the national and international scene;

(b) while it is too early to evaluate the performance of TEA in terms of fulfillment of objectives, the kind of activities undertaken by TEA coupled with the approach it has adopted, indicates the commitment of its members to sustain the industry, improve the *collective efficiency* of the district, and carry forward the district as a whole.[43] This does not preclude the underlying caste and community tension in the composition of members controlling TEA to which we have already alluded. However, thus far this fact has not surfaced to undermine the functioning of TEA.

TEA was established in July 1990 as an association exclusively for exporters of knitwear who have production facilities in Tiruppur. As on date TEA has a membership of 248 regular members and 134 associate members. Within a span of four years TEA has been able to plan and execute the following:[44]

(a) an exclusive export knitwear industrial complex at Mudalipalayam, 9 Km. from Tiruppur, at a cost of Rs.14 crores. Built in a record time of 10 months the complex houses 157 units each with 4000 sq. feet space. The complex has been self financed by the exporters;

(b) at the invitation of the Kerala government, TEA is promoting a knitwear industrial complex in Kanjikode near Palakkad, Kerala State. This complex consists of 50 production units and a modern captive processing unit with facilities for effluent treatment and disposal. This project is in an advanced stage of implementation and expected to be commissioned by the end of 1994;

(c) a modern processing complex in Sirukkinar village near Dharapuram, about 35 Kms. from Tiruppur has been planned for which 450 acres of land have already been acquired. Out of this the association expects to develop 150 acres of land into a model agricultural farm using treated effluent water. The project is awaiting clearance from the various departments of the Tamil Nadu Government;

(d) a project by way of backward integration is the proposed mini spinning mills each having 300 spindles for captive consumption of the knitwear exporters.

Apart from the above, a detailed action plan has been drawn up for providing infrastructural facilities in Tiruppur at a cost of Rs.222 crores. Most infrastructure is under state authority; but because it gets little revenue from Tiruppur's tax-free export earnings, the Tamil Nadu Government spends little on the town. The TEA has proposed setting up its own facilities including an inland container terminal, a sewage plant and a 400 line private telephone exchange but has received no reply from authorities.

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43. We have borrowed this term from Schmitz who introduces it to denote and capture the gains from a particular form of industrial organization; one in which small firms cluster around a set of related activities. For details see Hubert Schmitz "Small firms and flexible specialization in developing countries", *Labour and Society*, Vol.15, No.3, 1990.

44. Information provided by TEA.

It needs to be emphasized here that in *all* the above projects being actively promoted by TEA, all the big names among the exporters have invested in units and hence have a personal stake in seeing through the project apart from promoting the knitwear industry as a whole.

Another important institutional development in Tiruppur that is slowly making an impact is the collaboration between the Apparel Export Promotion Council (AEPC) and the South India Textile Research Association (SITRA) in establishing a Research and Development cum Testing Lab and a Training Institute. The testing services are particularly useful for the small unit owners who (on their own), can neither set up the facility nor employ the technicians needed to do the job. However, those whom we interviewed pointed out that these facilities though welcome, were nowhere near the levels and numbers required by the rapidly growing industry.

Certain aspects of the collaborative functioning (through institutions such as TEA) among Tiruppur's entrepreneurs that stand out starkly as compared to other similar industry organizations elsewhere, include the following:

(a) having proved themselves at the international level and armed with considerable knowledge of the global scenario (for example, quite a few entrepreneurs had already started working on how to tap the South African market given the changed political situation there) with respect to export garments, they were clearly able to identify their strengths and weaknesses and come out with concrete operationally feasible solutions;

(b) unlike the all-India corporate sector industrial organizations (FICCI, ASSOCHAM) which more often than not only *react* to policies enacted or announced, TEA has shown remarkable leadership qualities combined with a sense of purpose and direction, which does give the feeling that members are not solely acting out of self-interest.

Our limited interaction with Tiruppur has brought in its wake several areas of research that we think can be fruitfully pursued.

Though we have not touched upon the aspect of the growth and development of small firms and/or small industries in the country, the relatively small-scales of operation of the units in Tiruppur have thrown up several questions for research. Important among these from the angle of policy include the need to rethink on the whole question of promotion of industrial estates all over the country in the name of facilitating the growth of small industry. If networking, process specialization and mutual interdependence developed over a period of time among firms constitute the essence of success for small enterprises then the mere clustering of disjointed and unrelated units of production in artificially set up industrial estates cannot by definition succeed.

A related aspect has to do with the technical details of defining small-scale industry. When export promotion, upgradation of technology through imports is the order of the day, then the rationale for specifying a ceiling on investment for small-scale industry is counterproductive. In Tiruppur we realized that a single imported machine for embroidery, for example, cost around Rs.40 lakhs. A unit going in for even two such machines would automatically transgress the ceiling (which is Rs.75 lakhs at present) and get entangled in a whole host of legal complications. So the easiest method adopted was to multiply the number of units.

A second broad area of exploration would be a study of other clusters in Tamil Nadu (for example, the match unit clusters of Sivakasi - Sattur, the leather tanning units of Dindigul etc.) This would not only be a study in contrast and build up our knowledge base on the subject of when clusters become industrial districts but more important would also be a useful input for government policies.

A study of other garment unit clusters in the country would be worth examining. Ghayur Alam's study of the garment industry in Okhla, Delhi, provides an interesting contrast to our findings at Tiruppur.[45] Alam did not find any evidence of horizontal linkages among the exporters. He also found that the firms in Okhla showed a general lack of innovative activity and relied on cheap labour for their competitive strength.

The final question that we would like to ponder over is : is Tiruppur replicable? The answer at this juncture is No and Yes. No, because, we strongly believe that an artificially created cluster cannot by definition succeed. Individual units may prosper but not the cluster as a whole. Yes, because, once a cluster has developed on its own through private initiative, there exists the potential and the possibility through appropriate institutions to make the cluster dynamic. Even then, intervention by and through an outside agency can succeed only if it has the active and continued support of the community of people making up the cluster.

45. Alam, Ghayur "Industrial Districts and Technological Change: A Study of the Garment Industry in Delhi", Centre for Technology Studies, New Delhi, November 1992, (mimeo)

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