Chapter Four

STATUS OF SMALL SCALE INDUSTRIES IN
THENI DISTRICT - 1997

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Chapter Four

STATUS OF SMALL SCALE INDUSTRIES IN THENI DISTRICT - 1997

4.1 Introduction

The physical environment and the demographic set up of a region are the major factors that determine the development of that area. It is primarily dependent upon the various economic activities undertaken there. Basic to these economic activities is the resource base of the region. Already in Chapter 2, the physical and demographic set up of the study area has been discussed elaborately. A brief outline on major land use categories as well as the resource base has also been given there. For the present study, the Small scale industries in Theni district have been considered. It has already been noted that there are nearly 26 million units of small scale industries in 2010-2011 in India. However they produce a large variety of goods. Hence they have to be grouped or classified first before any detailed study is undertaken. It is not out of place to discuss about Industrial classification at this point.

4.2 Classification of Small Scale Industries in India

In India, there is a broad based classification which is applied to various sectors including some types of agriculture, forestry, mining, fishing, manufacturing, construction and other services. Collectively it is given the title ‘National Industrial Classification.’ This classification has been undergoing various changes over a period of time. Therefore it is necessary to understand a brief historical aspect regarding Industrial classification here.

In India, Industrial Classifications have been in use in the field of labour statistics, industrial statistics, national income statistics, in national sample surveys, population censuses, etc. In the field of labour statistics three different types of
Industrial Classifications have been in use, although these are very similar, one for classifying factories, one for industrial injuries and one for employment registers. For surveys of employment and unemployment, the Directorate General of Employment and Training has been using the Standard Industrial Classification evolved by it in 1958. This classification was also used for the 1961 population census. In the Annual Survey of Industries a detailed classification of industries is in use for larger factories covered by their census part, while factories covered in their sample part are classified according to Labour Bureau Industrial Classification of factories. Monthly Statistics of Production of Selected Industries, on which indices of Industrial Production are based, are classified according the Standard Industrial Classification evolved in 1962 by the Central Statistical Organization. The Standard Industrial Classification of the Central Statistical Organization at the third digit level has also been in use in the recent rounds of the National Sample Survey. The Indian Bureau of Mines follows a classification of minerals based on the International Standard Industrial Classification of all Economic Activities 1958. Thus an extremely wide variety of industrial classifications were in use in India earlier and the need to evolve a common industrial classification which can be used by the different agencies has become extremely urgent.

An attempt at evolving a common Industrial Classification for the country, was made when the important users among the central departments met in April, 1964. A draft standard industrial classification was prepared by a technical committee but before it was adopted the Statistical Office of the United Nations intimated that it was attempting a revised International Standard Industrial Classification. It was decided to wait for the revised International Standard Industrial Classification which was received in September 1968. The International Standard Industrial Classification 1968 was circulated by Central Statistical Organization and fresh suggestions were invited from different organizations concerned regarding preparation of a Standard Industrial Classification for India.
Suggestions received were studied in detail and a draft Standard Industrial Classification was prepared. Another draft classification was also prepared by Director General of Employment and Training. Both the drafts were considered in a meeting in the Central Statistical Organization on 18th September 1969.

The Central Statistical Organization (CSO), which is responsible for setting up of statistical standards, took up the task of evolving a national industrial classification in early 1960 and invited suggestions from various concerned agencies of the Government of India such as Registrar General, Economic Advisers to the Ministries of Finance, Food & Agriculture, Commerce and Industry, Indian Bureau of Mines, National Employment Service, Labour Bureau, Planning Commission; National Sample Survey and Indian Statistical Institute, etc. Taking into account the suggestions received and keeping in view the requirements, the CSO drew up a draft National Industrial Classification called Standard Industrial Classification (SIC), which was subsequently finalized and released in 1962. This classification has 4 hierarchical levels given as 4 digit numbers. The first level is called ‘Division.’ This indicates a very broad field. This is subdivided into second level called ‘Major groups.’ At the third level each group is divided as ‘group.’ Finally at the 4th level, these groups are further subdivided as ‘Subgroups.’ The 1962 SIC of Central Statistical Organization had 9 Divisions, 55 Groups, 284 Classes and 753 subclasses. This was almost following the International Classification with some minor changes to suit Indian conditions. Subsequently the CSO revised its classification in 1987.

Though it is called ‘National Industrial Classification-1987,’ it included many activities other than Manufacturing. The classification had the following sections:
Section 0  - Agriculture, Hunting, Forestry and Fishing
Section 1   - Mining and Quarrying
Section 2 & 3  - Manufacturing
Section 4   - Electricity, Gas and Water
Section 5   - Construction
Section 6   - Wholesale Trade and Retail Trade and Restaurants and Hotels
Section 7   - Transport, Storage and Communication
Section 8   - Financing, Insurance, Real Estate and Business Services
Section 9   - Community, Social and Personal Services

In addition a last section named ‘Section X’ has been added as ‘Activities not adequately defined.’

In 1998, a further modification was brought in to the NIC scheme. It had a simplified scheme consisting of only 2 levels. At the first level, broad activities are given indicated by alphabets from ‘A’ to ‘Q’ as shown below:

A - Agriculture, Hunting and Forestry
B - Fishing
C - Mining and Quarrying
D - Manufacturing
E - Electricity, Gas and Water Supply
F - Construction
G - Wholesale and Retail Trade; Repair of Motor vehicles, Motorcycles and Personal and Household goods
H - Hotels and Restaurants
I - Transport, Storage and Communications
J - Financial Intermediation
K - Real estate, Renting and Business activities
L - Public Administration and Defence; Compulsory Social security
M - Education
N - Health and Social work
O - Other Community, Social and Personal service activities
P - Private Households with Employed persons
Q - Extra-Territorial Organizations and Bodies

Each of these is further subdivided into Divisions with a two digit number.

Example:

C - Mining and Quarrying
Division 10 - Mining of Coal and lignite; extraction of Peat

The detailed classification schemes of NIC 1987 and 1998 are given in Annexure.

Recently a new classification scheme has been adopted in 2008. This has 4 level categorization of activities. The first level is called ‘Section’ and the second level is called ‘Division.’ The third level is called ‘Group’ while the fourth level is termed ‘Class.’

There are some major differences between the 1998 and 2008 classification. At the first level there were 17 categories from ‘A’ to ‘Q’ in 1998 but in 2008 classification, there are 21 categories from ‘A’ to ‘U.’ In 1998, Fishing was given
separate category as ‘B’ but in 2008 it is merged with Agriculture and Forestry as ‘A.’ On the other hand, Water Supply which was part of ‘E’ category in 1998 has been separated and considered as a new section. Similarly communication which was part of ‘I’ category in 1998 has been separated and considered as a new section with the title ‘Information and Communication.’

Besides these changes, 3 categories have been newly added in 2008. They are

a. Professional, Scientific and Technical activities
b. Administrative and Support Service activities
c. Arts, Entertainment and Recreation

Thus at present the National Industrial Classification has 21 sections in which ‘Section C’ deals exclusively with Manufacturing. The present investigation of Small Scale Industries comes under this section. Therefore the detailed classification of section C is given below.

**National Industrial Classification -2008**

**Section-C Manufacturing**

<table>
<thead>
<tr>
<th>Division</th>
<th>Groups</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>Manufacture of food products</td>
</tr>
<tr>
<td>12</td>
<td>Manufacture of tobacco products</td>
</tr>
<tr>
<td>11</td>
<td>Manufacture of beverages</td>
</tr>
<tr>
<td>13</td>
<td>Manufacture of textiles</td>
</tr>
<tr>
<td>14</td>
<td>Manufacture of wearing apparel</td>
</tr>
<tr>
<td>15</td>
<td>Manufacture of leather and related products</td>
</tr>
<tr>
<td>16</td>
<td>Manufacture of wood and products of wood and cork, except furniture; Manufacture of articles of straw and plaiting materials</td>
</tr>
</tbody>
</table>
The above classification may be applied to any study on manufacturing activity at the national level. However, all these categories are not present if a meso or a smaller area like a District is taken for analysis. Depending upon the local
resource base, a few industries are dominant while other groups are absent or insignificant. Therefore for any such study of manufacturing at a meso or smaller spatial unit, one has to adopt his / her own classification. The same is true for the current study. The study area, namely Theni district has hilly as well as plain topography. It also has a varied resource base. Considering these activities, the following classification has been adopted for the present study. It has 7 major groups.

Table 4.1

Theni District

Classification of Small Scale Industries

<table>
<thead>
<tr>
<th>SI.No</th>
<th>Major Categories</th>
<th>NIC 2008 Division</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Agro based Industries</td>
<td>10-12</td>
</tr>
<tr>
<td>2.</td>
<td>Forest based Industries</td>
<td>16 -17 &amp; 31</td>
</tr>
<tr>
<td>3.</td>
<td>Textile based Industries</td>
<td>13 -14</td>
</tr>
<tr>
<td>4.</td>
<td>Chemical and Pharmaceutical based Industries</td>
<td>21 -22</td>
</tr>
<tr>
<td>5.</td>
<td>Mineral based Industries</td>
<td>19 &amp; 23 – 24</td>
</tr>
<tr>
<td>6.</td>
<td>Engineering and Allied based Industries</td>
<td>25 -30 &amp; 33</td>
</tr>
<tr>
<td>7.</td>
<td>Miscellaneous Industries</td>
<td>18,32 &amp;15</td>
</tr>
</tbody>
</table>

Compiled by the investigator

Table 4.1 shows these major groups and it also indicates the divisions of NIC 2008 that are included in the category.
4.3 Status of Small Scale Industries in Theni District 1997

Theni District comprises of 8 blocks. There are a variety of small scale industries in the district. They include both Registered units as well as unregistered units. For the present study, only those manufacturing units which are registered with the Department of Industries have been considered. In 1997 there were 1350 registered small scale manufacturing units employing 4062 workers. Their spatial pattern is analyzed here. A brief note on the techniques of analysis is needed here.

In this book on ‘Economic Geography,’ Alexander (1963) tries to explain the need for quantitative analysis for knowing about ‘What’ and ‘Where’ of manufacturing activity in any area (Alexander, 1963, p.590). He also explains that for measuring manufacturing activity in an area, one can consider a number of variables such as

a. Number of units
b. Number of employees
c. Wages of Employee
d. Number of Production workers
e. Number of Production man-hours
f. Value added in money terms

Taking 2146 areas of concentration of manufacturing activities in the USA, Alexander and Lindberg (1961) tried to measure the statistical relationship among all the variables indicated above. Alexander indicates that there was a very high level of positive correlation among the variables with a Coefficient value of + 0.99 (Alexander, 1963 p. 290). He concludes that for measuring manufacturing activity in an area, one can take any one of the above listed variables. Based on this assumption, the present study has taken the number of workers in each group of small scale industries for its analysis. To understand the intricate nature of these
industries, the following techniques suggested by Alexander (1963, p. 407 and 592) are considered.

a. General distribution maps
b. Ratio map
c. Location Quotient
d. Coefficient of Geographic Association
e. Index of industrial diversification

4.3.1 Distribution of Small Scale Industries

The total number of small scale industrial workers is unevenly distributed in the study area. The study area is Theni district which comprises of 8 blocks. In 1997, 1350 registered small scale industries were found in the study area. About 4062 workers were engaged in these small scale industries. However, the concentration of workers varies from one block to the other. It is quite natural to expect a comparatively higher concentration of workers in Theni block because of its status as the headquarters of the District. Table 4.2 shows that Theni block alone has more than one-third of the total workers in small scale industries. At the other extreme, Kadamalaikundu – Myladumparai block the lowest number of workers. Bodinayakanur, Periyakulam and Andipatti blocks also have a sizable concentration of these workers (Fig. 4.1). In general the concentration of small scale industries workers is comparatively higher in the northern part of the study area and low is the southeastern parts.

As noted earlier, 7 major groups of small scale industries have been identified for the present study. The total number of workers is unevenly distributed among them (Table 4.3). Textile based small scale industries form the largest group with a share of nearly 43% of the total workers. This is followed by Agro based industrial group in which about one-fifth of the total workers get employment.
DISTRIBUTION OF SMALL SCALE INDUSTRIAL WORKERS (1997)

Legend
- < 5
- 5 - 15
- 15 - 25
- > 25

Scale
0 10 20 Kilometers

Fig: 4.1
About 15.5% of the total workers are engaged in Engineering and Allied based industrial group which ranks third. Even though the region has a sizable area under Dense Forests, Forest based industries are very limited and they employed only 3.2% of the total workers.

**Table – 4.2**

**Theni district**

**Distribution of Small Scale Industrial Workers -1997**

<table>
<thead>
<tr>
<th>Sl.No</th>
<th>Block Name</th>
<th>No. of units</th>
<th>No. of workers</th>
<th>No. of Workers in %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Periyakulam</td>
<td>372</td>
<td>647</td>
<td>15.94</td>
</tr>
<tr>
<td>2.</td>
<td>Theni</td>
<td>348</td>
<td>1491</td>
<td>36.70</td>
</tr>
<tr>
<td>3.</td>
<td>Andipatti</td>
<td>204</td>
<td>539</td>
<td>13.26</td>
</tr>
<tr>
<td>4.</td>
<td>Kadamalaikundu - Myladumparai</td>
<td>5</td>
<td>9</td>
<td>0.22</td>
</tr>
<tr>
<td>5.</td>
<td>Bodinayakanur</td>
<td>206</td>
<td>777</td>
<td>19.13</td>
</tr>
<tr>
<td>6.</td>
<td>Cumbum</td>
<td>82</td>
<td>253</td>
<td>6.24</td>
</tr>
<tr>
<td>7.</td>
<td>Chinnamanur</td>
<td>50</td>
<td>101</td>
<td>2.48</td>
</tr>
<tr>
<td>8.</td>
<td>Uthamapalayam</td>
<td>83</td>
<td>245</td>
<td>6.03</td>
</tr>
<tr>
<td></td>
<td>District</td>
<td>1350</td>
<td>4062</td>
<td>100</td>
</tr>
</tbody>
</table>

*Source: Theni District Industrial Center.*

It is also to be noted that there are spatial variations in the concentration of these industrial workers. Usually two methods bring out the relative significance of spatial concentration within the study area. They are

1. Ratio Map and
2. Location Quotient
In the case of Ratio Map, the regional average is considered as the median value and the subunits are divided first into two groups, namely above average and below average. In the next step, the above average is divided as Very High and High taking upper quartile value. Similarly lower quartile is used to divide ‘below average’ group into two as Low and Very Low. Thus the Ratio map has 4 levels Very High, High, Low, Very Low. The difference between normal choropleth map and Ratio map is that there is no specific interval between groups. Ratio map gives a broad idea about the spatial concentration of a particular group of industry/activity over an area compared to the status for the region as a whole.

Location quotient is a slightly better measurement of spatial concentration of an industry. It is calculated using the formula

\[
\text{Location Quotient} = \frac{\text{Number of industry workers in block}}{\text{Total industry workers in block}} \times \frac{\text{Number of industry workers in Taluk}}{\text{Total industry workers in Taluk}} \times 100
\]

A value of 1 indicates that the subunit has the same level of share of a particular activity like that of the region as a whole. Any value higher than 1 indicates a greater concentration of that activity in the subunit and a value of less than 1 indicates a lesser concentration.

Both Ratio map and Location quotient are applied to individual subgroups. Hence they are discussed separately.
4.3.2 Agro Based Industries

The agro based industry is regarded as an extended arm of agriculture. The development of the agro based industry can help to stabilize and make agriculture more lucrative and create employment opportunities both at the production and marketing stages. Agro based industries are those industries which have either direct or indirect links with agriculture. Further, these industries help diversification and commercialization of agriculture, and through these they will thus enhance the income of farmers and created food surplus.

Under the agro based industries the Food processing industries thrive well due to the availability of raw materials. The most important industries are Maida, Sooji, Attah hulling of Paddy, Edible oil, Caster oil, Flour mills, Rice and Dhal mills, Breads and Biscuits, Confectionery, Appalam and Chips, Cattle and Poultry feeds, Rice starch powder, Vermicelli, Pickles and Turmeric powder etc.

In 1997, the total number of registered units were 191 which employed 827 persons. This group is present in all blocks. About one – fifth of all small scale workers belong to this group (Table 4.3). Theni (29.10%) and Bodinayakanur (19.30%) have the highest number of workers in this group. This area is important for rice mills, soda, ice and flour mills. Periyakulam block has a share of 6.1% of the workers in this group.

Ratio map for this group shows a comparatively higher share than the regional average in the central, southeastern and south western parts, particularly in Theni, Cumbum and Kadamalaikundu- Myladumparai blocks (Fig. 4.2). However, the locational quotient indicates a greater concentration of agro based industries in the Cumbum Valley and adjacent blocks, located primarily in the southern parts (Fig 4.3). Periyakulam (0.3%) and Andipatti (0.6%) record a lower level of concentration.
### Table – 4.3

**Theni District – Group wise Small Scale Industrial Workers - 1997**

<table>
<thead>
<tr>
<th>Sl.No</th>
<th>Block Name</th>
<th>Agro Based</th>
<th>%</th>
<th>Forest Based</th>
<th>%</th>
<th>Textile Based</th>
<th>%</th>
<th>Engg &amp; Allied Based</th>
<th>%</th>
<th>Chemical &amp; Pharmaceutical Based</th>
<th>%</th>
<th>Mineral Based</th>
<th>%</th>
<th>Miscellaneous</th>
<th>%</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Periyakulam</td>
<td>40</td>
<td>6.18</td>
<td>3</td>
<td>0.46</td>
<td>362</td>
<td>55.95</td>
<td>135</td>
<td>20.87</td>
<td>65</td>
<td>10.05</td>
<td>21</td>
<td>3.25</td>
<td>21</td>
<td>3.25</td>
<td>647</td>
</tr>
<tr>
<td>2</td>
<td>Theni</td>
<td>434</td>
<td>29.11</td>
<td>12</td>
<td>0.80</td>
<td>569</td>
<td>38.16</td>
<td>211</td>
<td>14.15</td>
<td>112</td>
<td>7.51</td>
<td>83</td>
<td>5.57</td>
<td>70</td>
<td>4.69</td>
<td>1491</td>
</tr>
<tr>
<td>3</td>
<td>Andipaty</td>
<td>67</td>
<td>12.43</td>
<td>0</td>
<td>0.00</td>
<td>367</td>
<td>68.09</td>
<td>47</td>
<td>8.72</td>
<td>27</td>
<td>5.01</td>
<td>6</td>
<td>1.11</td>
<td>25</td>
<td>4.64</td>
<td>539</td>
</tr>
<tr>
<td>4</td>
<td>Kadamalaikundu-.Myladumparai</td>
<td>2</td>
<td>22.22</td>
<td>0</td>
<td>0.00</td>
<td>3</td>
<td>33.33</td>
<td>0</td>
<td>0.00</td>
<td>0</td>
<td>0.00</td>
<td>4</td>
<td>44.44</td>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Bodinayakanur</td>
<td>150</td>
<td>19.31</td>
<td>84</td>
<td>10.81</td>
<td>270</td>
<td>34.75</td>
<td>114</td>
<td>14.67</td>
<td>59</td>
<td>7.59</td>
<td>65</td>
<td>8.37</td>
<td>35</td>
<td>4.50</td>
<td>777</td>
</tr>
<tr>
<td>6</td>
<td>Cumbum</td>
<td>62</td>
<td>24.51</td>
<td>6</td>
<td>2.37</td>
<td>56</td>
<td>22.13</td>
<td>64</td>
<td>25.30</td>
<td>23</td>
<td>9.09</td>
<td>13</td>
<td>5.14</td>
<td>29</td>
<td>11.46</td>
<td>253</td>
</tr>
<tr>
<td>7</td>
<td>Chinnamanur</td>
<td>26</td>
<td>25.74</td>
<td>12</td>
<td>11.88</td>
<td>23</td>
<td>22.77</td>
<td>10</td>
<td>9.90</td>
<td>8</td>
<td>7.92</td>
<td>11</td>
<td>10.89</td>
<td>11</td>
<td>10.89</td>
<td>101</td>
</tr>
<tr>
<td>8</td>
<td>Uthamapalayam</td>
<td>46</td>
<td>18.78</td>
<td>11</td>
<td>4.49</td>
<td>88</td>
<td>35.92</td>
<td>47</td>
<td>19.18</td>
<td>14</td>
<td>5.71</td>
<td>23</td>
<td>9.39</td>
<td>16</td>
<td>6.53</td>
<td>245</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>827</strong></td>
<td>20.36</td>
<td><strong>128</strong></td>
<td>3.15</td>
<td><strong>1738</strong></td>
<td><strong>42.79</strong></td>
<td><strong>628</strong></td>
<td><strong>15.46</strong></td>
<td><strong>308</strong></td>
<td><strong>7.58</strong></td>
<td><strong>222</strong></td>
<td><strong>5.47</strong></td>
<td><strong>211</strong></td>
<td><strong>5.19</strong></td>
<td><strong>4062</strong></td>
</tr>
</tbody>
</table>

Compiled by the investigator
**4.3.3 Forest Based Industries**

Forest based industries utilize forest produce as raw materials. The industries associated with forests are pulp and paper, pharmaceuticals and furniture. Since Forest-based industries use large quantities of wood, its availability at a competitive price is key to their performance. Wood constitutes the highest cost of raw material for many of these industries. In paper-making, more than 30% of the total costs are for wood; in the sawmill industry this runs up to 65 - 70%.

The items under this group include Wooden furniture, Wooden packing, Packaging paper, Paper board and straw board, Paper bags, Corrugated fiber board containers, Wall paper, Carbon paper and Stationary items, News papers, Paper cups, Plywood and veneer sheets, Jacquard looms and Wooden handloom spare parts, etc.

In 1997, 38 units have been registered under this group with a total of 128 persons engaged in it. Andipatti and Kadamalaikundu – Myladumparai do not have this category of industry. The major share of the workers are in the western side of the district particularly in Chinnamanur (11.8 %) and Bodinayakanur (10.84%). Theni and Periyakulam block have less than 1% of their total small scale industrial workers in this group. (Table 4.3).

Ratio map for this group shows that the industry is less concentrated in the eastern parts (Fig 4.4). When Location Quotient is considered, Chinnamanur and Bodinayakanur, show a heavy concentration with a value of more than 3. (Fig. 4.5). The important products in blocks are wooden furniture, paper files, Basket, Carpentry goods.
### Table – 4. 4

**Theni District**

**Location Quotient of Small Scale Industrial Groups - 1997**

<table>
<thead>
<tr>
<th>Sl.No</th>
<th>Block Name</th>
<th>Agro Based Industries</th>
<th>Forest Based Industries</th>
<th>Textile Based Industries</th>
<th>Engg &amp; Allied Based Industries</th>
<th>Chemical &amp; Pharmacetical Based Industries</th>
<th>Mineral Based Industries</th>
<th>Miscellaneous Industries</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Periyakulam</td>
<td>0.3</td>
<td>0.14</td>
<td>1.30</td>
<td>1.33</td>
<td>1.42</td>
<td>0.6</td>
<td>0.6</td>
</tr>
<tr>
<td>2</td>
<td>Theni</td>
<td>1.45</td>
<td>0.26</td>
<td>0.90</td>
<td>0.93</td>
<td>1.00</td>
<td>1.00</td>
<td>0.8</td>
</tr>
<tr>
<td>3</td>
<td>Andipatti</td>
<td>0.6</td>
<td>-</td>
<td>1.61</td>
<td>0.53</td>
<td>0.71</td>
<td>0.2</td>
<td>0.8</td>
</tr>
<tr>
<td>4</td>
<td>Kadamalaikundu - Myladumparai</td>
<td>1.1</td>
<td>-</td>
<td>0.78</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>8.8</td>
</tr>
<tr>
<td>5</td>
<td>Bodinayakanur</td>
<td>0.95</td>
<td>3.33</td>
<td>0.80</td>
<td>0.93</td>
<td>1.00</td>
<td>1.6</td>
<td>0.8</td>
</tr>
<tr>
<td>6</td>
<td>Cumbum</td>
<td>1.2</td>
<td>0.66</td>
<td>0.52</td>
<td>1.66</td>
<td>1.28</td>
<td>1.00</td>
<td>2.2</td>
</tr>
<tr>
<td>7</td>
<td>Chinnamanur</td>
<td>1.25</td>
<td>3.66</td>
<td>0.52</td>
<td>0.6</td>
<td>1.00</td>
<td>2.00</td>
<td>2.0</td>
</tr>
<tr>
<td>8</td>
<td>Uthamapalayam</td>
<td>0.9</td>
<td>1.33</td>
<td>0.83</td>
<td>1.26</td>
<td>0.71</td>
<td>1.8</td>
<td>1.2</td>
</tr>
</tbody>
</table>

Compiled by the investigator

### 4.3.4 Textile Based Industries

The Textile Sector in India ranks next to Agriculture. Textile is one of India’s oldest industries and has a formidable presence in the national economy in as much as it contributes to about 14 per cent of manufacturing value-addition, accounts for around one-third of our gross export earnings and provides gainful employment to millions of people. Textile manufacturing based in the conversion of fibre into yarn, fabric and garments. Cotton remains the most important natural fibre. There are many variable processes available at the spinning and fabric-forming stages coupled with the complexities of the finishing and colouration processes to the production of a wide ranges of products.
This sector includes Cotton textiles products, Silk textiles, Wool textiles, preparation and Spinning of man – made fibre, Cotton ginning, Power loom cloth, Gada cloth, Dying, Wax printing of yarns, Sungadi sarees, Printed sarees, Turkey and Terry towels, Hosieries and Readymade garments, Tailoring job work, etc.

This group of industries are notable in the northeastern part of the district in 1997. The total number of units were 683 with employees numbering 1738. This sector marks its presence in all blocks. Andipatti is the most significant block and it has more than two- thirds of its total small scale industrial workers in this group. Periyakulam ranks second and has 55% of its workers in this group (Table 4.3). Chinnamanur and Cumbum have only one fifth of their total small scale industrial workers in this group.

Both ratio map (Fig. 4.6) and Location Quotient map (Fig. 4.7) bring out the dominance of this group is the northeastern part of the study area. Andipatti (1.6) has the highest Location Quotient value while Cumbum and Chinnamanur have the lowest (Table 4.4). Theni, Bodinayakanur and Kadamalaikundu – Myladumparai blocks have a moderate concentration of textile group of industries.

4.3.5 Engineering and Allied Based Industries

The Engineering sector is one of the largest in the overall industrial sectors in India. It is a diverse industry with a number of segments, and can be broadly categorised into two segments, namely, heavy engineering and light engineering. The engineering sector is relatively less fragmented at the top, as the competencies required are high, while it is highly fragmented at the lower end (e.g. unbranded transformers for the retail segment) and is dominated by smaller players.

The engineering industry in India manufactures a wide range of products, with heavy engineering goods accounting for bulk of the production. Most of the leading players are engaged in the production of heavy engineering goods and mainly produce high-value products using high-end technology. Requirement of
high level of capital investment poses as a major entry barrier. Consequently, the small and unorganised firms have a small market presence.

The light engineering goods segment, on the other hand, uses medium to low-end technology. Entry barrier is low on account of the comparatively lower requirement of capital and technology. This segment is characterised by the dominance of small and unorganised players which manufacture low-value added products. However, there are few medium and large scale firms which manufacture high-value added products. This segment is also characterised by small capacities and high level of competition among the players.

This sector includes textile machinery, Auto spares, Lathe turning, manufacture of rough casting, Roasting machine, Printing machine, Tube light frame, Fuse carriers, eliminator, Pump set, Electrical rewinding, Servicing of electrical appliances like transistor, Tape recorder, Refrigerator, Television sets, Fan, Manufacturing of Stabilizer, Cycle spares, Two wheeler Servicing, Fabrication of automobile conditioning, Body building and assembling of radiators.

Totally 272 units are registered in this sector and the number of workers are 628. This type of activity is absent in Kadamalaikundu – Myladumparai block. Cumbum is the most important block and has about 25% of its total small scale industrial workers in this group. Periyakulam and Uthamapalayam rank next (Table 4.3). It may be noted that the southwestern and northeastern parts have a higher concentration of this group of industry (Fig. 4.8)

The location quotient map (Fig 4.9) exhibits that Cumbum, Periyakulam and Uthamapalayam (1) blocks have a higher level of concentration than the district as a whole.
4.3.6 Chemical and Pharmaceutical Based Industries

Chemicals are divided into two main categories from value addition point of view. Those produced in large and bulk quantities but with lower value addition are called Commodity Chemicals. Examples are fertilizers and soda ash, etc. Specialty Chemicals are those produced in smaller quantities with higher value addition. Examples are dyes & pigments, pharmaceuticals and enzymes, etc. Chemical sector plays a vital role in the economic development of any country.

These chemicals are manufactured and developed from raw materials like air, water and minerals. There are various types of chemicals which are produced by industries for various purposes. Today with the growth of industrialisation, there has been a substantial growth in the demand for industrial chemicals for various applications. Chemicals are used in various forms including detergents, polish, cleaning agents, varnishes, adhesives, solvents, dyes used for photocopying and so forth.

Therefore, this group includes detergents, Auxiliary washing preparation, Cleaning preparations, Tooth pastes, Tooth powders, and anti respirants beauty or make –up preparations and hair oil, Shampoo, Hair dye, Agarbatti, Manufacture of Matches, Paint, Varnish, Ink, Soap, Polythene bags, PVC Chappals, Rexine bags and products like Sodium silicate, Nitric acid, Sodium sulphide, Vitamin syrup, Vitamin tablets, Siddha medicines, etc.

There were 51 registered units with a total of 308 persons engaged in it. Kadamalaikundu – Myladumparai block does not have this category of industry. This industry also exhibits an almost similar pattern like that of the engineering group. Periyakulam and Cumbum blocks are most significant here also. However the share of workers in this group is not more than 10% in most of the blocks (Table 4.3).
This group of industrial workers has a higher spatial concentration in the north and southwestern part of the region while Low concentration is noted in the eastern parts (Fig. 4.10 and 4.11). Location quotient value also brings out the significance of Periyakulam for this industry (Table 4.4).

4.3.7 Mineral Based Industries

Minerals are vital raw materials for many basic industries and are major inputs in industrial development.

Mineral based industries are primary industries that use mineral ores as their raw materials. The products of these industries feed other industries. Iron made from iron ore is the product of mineral based industry.

The items under this group include manufacturing of Copper, Aluminum, Manufacturing of basic precious metals (Gold, Silver, Metals of Platinum group) Marble stone, Chamber bricks, Cement flooring tiles, Mosaic slabs, Pipes and Asbestos cement, Wires, Sheets, etc. In 1997, the study area had 34 registered units in this group engaging 222 workers. The industrial group is distributed in all blocks excepted Kadamalaikundu – Myladumparai.

Here also, most of the blocks have only less than 10% share for this group of workers (Table 4.3). The spatial pattern shows a higher concentration in the central and northeastern parts of the study area (Fig. 4.12). Chinnamanur has the highest location quotient value of 2 (Table 4.4). Uthmapalayam and Bodinayakanur blocks have a notable concentration (Fig. 4.13). Brick kiln is the most important industry in this group in all these three blocks.
Theni District
RATIO MAP
MINERAL BASED INDUSTRIAL WORKERS - 1997

Legend
( In Percentage)
- Very High
- High
- 5.47% District Average
- Low
- Very Low
- N.P

Scale
0  10  20  30
Kilometers

Fig: 4.12
4.3.8 Miscellaneous Group of Industries

For the present study, this ‘Miscellaneous group’ includes those industries which come under group 15, 18 and 32 of NIC 2008. Leather and Leather products and printing come under 15 and 18 categories. All other manufacturing items not included in the earlier groups are considered under 32.

The major categories, therefore, include leather, printing, jewellery, sports goods, toys stationery items, book binding, screen printing, leather shoes and leather chappal manufacturing, etc.

In 1997 the total number of units in this group was 81 employing about 211 laborers. This group is distributed in all blocks of the district. The southern parts of the study area show a higher concentration than the northern parts (Fig. 4.14). Kadamalaikundu – Myladumparai block is most notable with nearly 45% of its total workers coming under this industrial group (Table 4.3). Location quotient also is the highest in Kadamalaikundu – Myladumparai (8.8) followed by Cumbum and Chinnamanur (Fig. 4.15). Periyakulam has the lowest location quotient value of 0.6 (Table 4.3).

4.3.9 Co-efficient of Geographic Association

The analysis done so far has brought out the complexities of spatial pattern and relative concentration of different groups of industries. Development planning always aim at growth of any sector. Similarly growth of manufacturing activity as well as small scale industries is also considered for economic development of a region. Alexander (1963) tries to estimate the relationship between overall manufacturing and a particular group of industry by calculating the Coefficient of Geographic Association which is attempted for the present investigation also.
The method of calculation involves two variables. They are

1. Percentage share of total small scale industries workers in a block

2. Percentage share of particular group of small scale industries – example Agro based industry in the block

The difference between the two is taken. This is applied to all blocks and the difference in each block is added. The derived value is subtracted from ‘1.’ This gives as the Coefficient of Geographic Association. Table 4.5 gives this Coefficient values for all the groups.

Table -4.5
Theni District
Co-Efficient of Geographic Association - 1997

<table>
<thead>
<tr>
<th>Sl.No</th>
<th>Types of Industries</th>
<th>Co-Efficient of Geographic Association</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Agro based industries</td>
<td>0.83</td>
</tr>
<tr>
<td>2</td>
<td>Forest based industries</td>
<td>0.45</td>
</tr>
<tr>
<td>3</td>
<td>Textile based industries</td>
<td>0.88</td>
</tr>
<tr>
<td>4</td>
<td>Chemical and pharmaceutical based industries</td>
<td>0.94</td>
</tr>
<tr>
<td>5</td>
<td>Mineral based industries</td>
<td>0.83</td>
</tr>
<tr>
<td>6</td>
<td>Engineering and Allied based industries</td>
<td>0.90</td>
</tr>
<tr>
<td>7</td>
<td>Miscellaneous Group of Industries</td>
<td>0.87</td>
</tr>
</tbody>
</table>

Compiled by the investigator

It is clear that in general there is a good association between the spatial pattern of overall manufacturing and the particular industrial group for all seven categories considered except that of Forest group. Of the seven groups Chemical based industries had the highest conformity followed by Engineering and Allied group. The analysis indicates that increase in the overall manufacturing will help all types of industries in the study area except Forest based industry.
Another dimension that assesses the stability of industrial sector is the calculation of the Index of Industrial Diversification which is also applied for the study area.

**4.3.10 Index of Industrial Diversification**

The index of diversification (Alexander 1963, p 597) indicates the level of opportunities available for different groups of industries. The index values are generally positive but sometimes may even be negative. Usually values ranges, from 0 to 1. Any value nearing 1 indicates a lower level of diversification. On the other hand a value of 0 or any value nearer to 0 indicates a higher level of diversification. Minus value indicates the highest diversification, which is greater than that of the region as a whole.

The index of industrial diversification formula is as follows

\[
\text{Diversification of index} = \frac{\text{CDI of Micro region} - \text{CDI of Macro region}}{\text{Maximum CDI} - \text{CDI of Macro region}}
\]

CDI - means Crude diversification Index

1. Crude diversification of index is the sum of progressive totals.

2. Maximum crude diversification of index of the region is the number of industrial group × 100, which is 100 percent of manufacturing employment of a region in one industry.

Table 4.6 and Fig 4.16 show the distribution of Index of Industrial Diversification in the study area in 1997.
The index shows a very high degree of diversification in the western blocks of Chinnamanur, Bodinayakanur, Cumbum and Uthamapalayam. All these blocks have a higher level of diversification than the District as a whole. Hence the stability is better in these blocks. At the other end, Andipatti has the lowest level of industrial diversification.

Table-4.6
Theni District – Index of Diversification - 1997

<table>
<thead>
<tr>
<th>Sl.No</th>
<th>Block Name</th>
<th>Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Periyakulam</td>
<td>0.35</td>
</tr>
<tr>
<td>2</td>
<td>Theni</td>
<td>0.07</td>
</tr>
<tr>
<td>3</td>
<td>Andipatti</td>
<td>0.50</td>
</tr>
<tr>
<td>4</td>
<td>Kadamalaikundu - Myladumparai</td>
<td>0.44</td>
</tr>
<tr>
<td>5</td>
<td>Bodinayakanur</td>
<td>-0.27</td>
</tr>
<tr>
<td>6</td>
<td>Cumbum</td>
<td>-0.27</td>
</tr>
<tr>
<td>7</td>
<td>Chinnamanur</td>
<td>-0.56</td>
</tr>
<tr>
<td>8</td>
<td>Uthamapalayam</td>
<td>-0.18</td>
</tr>
</tbody>
</table>

Compiled by the investigator

The discussion in this chapter has brought out the salient features of small scale industries in Theni district for the first chosen time point of 1997. In the next chapter a similar analysis is a carried out for the second time point, namely 2007. Further, the changes during study period have also been elaborated.