CHAPTER - 1

INTRODUCTION
CHAPTER 1 - INTRODUCTION

1.1 Introduction

Textile industry is one of the oldest and largest industry. The Textile industry played a pivotal role in the countries which are highly industrialised. In fact it did not progress at the same rate as other manufacturing industries. It tended to decline once the progress of industrialisation gained sufficient momentum. The decline was more pronounced during the inter-war period.

But when the world manufacturing production doubled there was an increase of less than 40% in world textile production, mainly contributed by non-industrialised countries like India.

The slower growth in the demand for textiles compared with that for other manufactured goods and the increasing self-sufficiency in many developing countries, led to a contraction of the share of textiles and clothing in world trade.

Textile industry which is called as Mother Industry of our country, occupies a unique place in the economy of the country. The industry has witnessed a phenomenal growth during the last decade and a half. Earlier, it was felt that the industry had stagnated and had no scope for growth, but opportunity arose as countries such as Japan, Korea, Germany, Italy and Taiwan opted out of cotton textiles. India has come to fill that vacuum. Further, with the announcement of the liberalised Industrial Policy of the Government in July, 1991 and the issuance of the revised Textiles (Development & Regulation) Order, 1993 the pace of setting up of textile spinning mills has increased. Recent statistics reveal that one new textile spinning mill is being added to Indian industry every alternate day.

However, the composite units stagnated for a number of years and the capacity has declined significantly which was of course compensated by the emergence of decentralised power loom sectors and separate process houses.
The spinning units have mostly been set up in the States of Tamil Nadu, Maharashtra and Andhra Pradesh followed by Punjab and Uttar Pradesh. In Tamil Nadu itself, the spinning capacity has increased by over 89 per cent during the last 15 years. (1)

1.1.1 Historical background of Textile Industry:

It is believed that cotton was first grown and put to use in India before anywhere else in the world. Mohanjo-Daro civilisation also reveals the same. From those ancient days India has been a manufacturing nation and an exporter of fine cotton fabrics to all the nations of the civilised world. From then onwards India's long history of cotton textile industry started.

The organisation of the industry in India before the industrial revolution was different to what it was in Europe. In India it was mainly based on village craftsmen and the organisation was centred around it. India has been an exporter of cotton textiles from periods unknown. After the industrial revolution took place in Europe and its impact was felt in India and machine made goods flooded Indian Markets from England. This almost destroyed traditional Textile industry. India became agricultural after this and had to promote cotton mills on its soil.

The technology of textiles, until recently, was fairly simple and did not require greater skills to operate. It was also a labour intensive industry. In order to solve unemployment problem, like other developing nations, India also started textile mills. (2)
India today has the second largest cotton spinning industry in the world with a spindlecage capacity of about 33 million, it stands next only to China (40 millions) judging from the fact that its spindlecage is increasing at the rate about 1.5 millions almost every year while the Chinese installation indicates a stagnating trend. India is well poised to become the world's top producer of cotton by the 21st century. (5)

1.1.3 Cotton Consumption - Trends :

Between 1950-51 and 88-89 world cotton consumption rose on an average of 1.2 million bales per year; climbing in most years and falling in periods of negative economic growth. From the regression analysis it is understood that the world cotton from the year 50 - 51 to 88 - 89 points to a trend level of consumption in 89-90 of 79.5 million bales.

1.2. Raw Material Cotton

The Indian textile industry is predominantly cotton based. Despite the substantial growth of man-made fibres and filaments in recent years, cotton still rules supreme, with 75 to 80% share in the raw material mix of the industry. The share of cotton in the cost of production is 60-65 percent for yarn and 35-40 percent for cloth. The fortunes of our textile industry, thus, are inextricably linked with stability in supply and prices of cotton.

The production data of cotton for the last 15 years show that cotton production rose from about 78 lakh bales in 80-81 to 135 lakh bales in 92 - 93. However, though India has the largest cotton acreage in the world, due to very poor yield per hectare (about 300 kg), India ranks fourth in the world in terms of cotton production. There is tremendous potential for increasing cotton productivity when compared to that achieved in other countries like Israel (1570 kgs),
Syria (670 kgs), Egypt (800 kgs), China (750 kgs) and Pakistan 482 kgs. The Working Group on Textile Industry for VIII Five Year Plan had considered different scenarios of production of cotton, analysing the trends in production during the last 25 years and anticipated that the production of cotton by the end of the VIII Five Year Plan would be between 148 lakh bales and 166 lakh bales. However, cotton production has still not reached even the lower level of 148 lakh bales. (3)

1.2.1 Cotton Technology Mission:

The country should achieve a dramatic break through in cotton productivity within the next few years. India's cotton yield and the productivity is one of the lowest in the world though it has the maximum acreage and condition to grow cotton, suitable for spinning from 2s to 140s counts. R & D efforts are to be taken up to implement a comprehensive strategy to modernise the ginning, expand the activities on cotton seed and bio-fertiliser production, marketing, transfer of technology, cotton research and extension education to benefit the farmers and industry. Farmers are to be motivated to grow more cotton and cotton cultivation in non-traditional areas, cultivable waste lands etc. to step up production and productivity.

In India the cotton cultivation and use in the period 1950-51 and 1988-89 has also got a positive trend. Cotton ranks third in India, constituting about five percent of the total cropped area. It stands fourth in terms of value of output. Cotton development schemes launched by the Govt. of India in 1950-51 resulted in increased area under cotton. However there existed a gap between the demand and supply, making imports inevitable.

It is estimated that the textile industry in India would require about 180 to 200 lakh bales (each weighing 170 kgs) of raw cotton in the beginning of the next century as compared to the present production of about 145 lakh bales. It would be appropriate that a cotton Technology Mission has to be launched.
by the Government on the lines of the Oil seeds Mission. Such a Mission can evolve an integrated strategy for increasing cotton production. (3) (4)

1.3. **Government Policies**:

Some of the policies of the Government of India, however make it compulsory to import cotton by the mills. For instance is the Government's decision to allow export of cotton yarn of counts 40's and below by Export Oriented Units and Licence holders only against import of cotton.

The fixation of floor and ceiling prices for different varieties of cotton in order to induce farmers to adopt improved cultivation practices and to increase production and productivity of cotton formed the important component of cotton price policy. Agricultural price commission was constituted in 1965 to regulate cotton prices.

Eventhough a steady decline in the per capita consumption of mill cloth has been witnessed over the last two decades, no corresponding change was noticed in the area cultivated. Owing to increase in production and a declining trend of percapita consumption, India achieved a positive per capita export balance.

The textile Industry despite its recent hardships, has a rather bright future ahead of it, for the simple reason that the per capita cloth consumption in the country is amongst the lowest in the world. (1)
Table 1.1. Textile Consumption - changing patterns

(National per capita consumption of textiles in metres)

<table>
<thead>
<tr>
<th>Year</th>
<th>Cotton</th>
<th>Non-cotton</th>
<th>Mixed</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1972</td>
<td>12.50</td>
<td>0.67</td>
<td>0.63</td>
<td>13.80</td>
</tr>
<tr>
<td>1974</td>
<td>11.85</td>
<td>0.77</td>
<td>1.00</td>
<td>13.62</td>
</tr>
<tr>
<td>1976</td>
<td>10.79</td>
<td>0.42</td>
<td>9.76</td>
<td>11.97</td>
</tr>
<tr>
<td>1978</td>
<td>11.60</td>
<td>0.84</td>
<td>1.15</td>
<td>13.59</td>
</tr>
<tr>
<td>1980</td>
<td>10.56</td>
<td>1.21</td>
<td>1.66</td>
<td>13.43</td>
</tr>
<tr>
<td>1982</td>
<td>10.04</td>
<td>1.22</td>
<td>2.26</td>
<td>13.52</td>
</tr>
<tr>
<td>1984</td>
<td>9.94</td>
<td>1.84</td>
<td>2.05</td>
<td>13.83</td>
</tr>
<tr>
<td>1986</td>
<td>10.71</td>
<td>2.36</td>
<td>2.72</td>
<td>15.79</td>
</tr>
<tr>
<td>1987</td>
<td>10.75</td>
<td>2.40</td>
<td>3.20</td>
<td>16.35</td>
</tr>
<tr>
<td>1988</td>
<td>9.17</td>
<td>2.26</td>
<td>3.44</td>
<td>14.87</td>
</tr>
<tr>
<td>1989</td>
<td>8.4</td>
<td>2.82</td>
<td>3.85</td>
<td>15.07</td>
</tr>
<tr>
<td>1990</td>
<td>7.44</td>
<td>2.76</td>
<td>3.83</td>
<td>14.03</td>
</tr>
<tr>
<td>1991</td>
<td>7.52</td>
<td>2.73</td>
<td>4.14</td>
<td>14.39</td>
</tr>
</tbody>
</table>

Source: Compendium of textile statistics, Office of the textile commissioner, Bombay, 1993

Total per capita consumption has risen from 13.80 in 1972 to 14.39 in 1991 even though the consumption of cotton has declined in this period.

The cotton mill sector was in great doldrums a couple of years ago. The continuous and unabated rise in the price of the basic raw material 'Cotton' created a virtual crisis in the industry. The steady increase in yarn prices could not provide the real advantages to the mills because of increase in cotton prices.

In the first eight months of 1989-90 Cotton textiles however showed recovery. Production is up by 1.5 percent over the corresponding period in the previous year. (1)

Textile mills are both in the organised sector and unorganised sector. They are categorically divided on the basis of spindleage.

Norms For Grouping of Mills:

- **Group D**: Above 11000 spindles.
- **C**: 11000 - 6600 spindles.
- **B**: 6600 - 2200 spindles.
- **A**: Below 2200 spindles.
Mills above 6600 spindles come under Southern India Mills Association (SIMA) and below 6600 spindles come under small spinners association.

In the southern region, Tamil Nadu dominates the textile industry. Cotton textile mills in this state are predominantly 'Spinning'. The state accounted for 56 percent of the total number of spinning mills and nearly 28 percent of the spinning capacity in the country in 1987.

### Table 1.2. Capacity and Production in organised and unorganised Textiles

<table>
<thead>
<tr>
<th>State</th>
<th>Mill Sector (100 number)</th>
<th>Powerloom (100 number)</th>
<th>Handloom (100 No.)</th>
<th>Million meters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Andhra Pradesh</td>
<td>12.5</td>
<td>138.2</td>
<td>5290</td>
<td>9.6</td>
</tr>
<tr>
<td>Karnataka</td>
<td>63.2</td>
<td>382.4</td>
<td>1030</td>
<td>92.9</td>
</tr>
<tr>
<td>Kerala</td>
<td>15.0</td>
<td>149.9</td>
<td>950</td>
<td>18.3</td>
</tr>
<tr>
<td>Tamil Nadu</td>
<td>91.2</td>
<td>1730.4</td>
<td>5560</td>
<td>174.4</td>
</tr>
</tbody>
</table>

**Source**: Handbook of statistics on cotton textile industry, New Delhi, 1990.

**1.4. Growth and Prosperity**

Cotton industries first came to Bombay and other nearby places. Even against adverse conditions of famine and natural calamities, slowly the industry spread its wings in other areas also. In the beginning of 19th century (1912 - 13) there were only 236 mills as against a total of 1624 mills during the period 1997 - 98.

There was considerable expansion in weaving apart from spinning. At the commencement of the period 1920-21, the Indian mill production of cloth was only one-sixth of the net imports and about half the production of the handloom industry. The industry mostly adjusted itself to the changing conditions after its reverse in the 1890’s and began to move forward from 1901.
The first world war provided a good stimulation to Indian Textile Industry due to greater prosperity. Then followed second world war affecting greatly British competition in India. After a decline from 1914 to 1919 our Textile industry slowly progressed to its heights. (6)

Table 1.3  Growth Pattern

<table>
<thead>
<tr>
<th></th>
<th>1947-48</th>
<th>MAR 1997</th>
<th>% age increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Mills</td>
<td>370</td>
<td>1624</td>
<td>439</td>
</tr>
<tr>
<td>Spindles - Millions</td>
<td>10</td>
<td>33.63</td>
<td>336</td>
</tr>
<tr>
<td>Rotors - lakhs</td>
<td>--</td>
<td>2.51</td>
<td>--</td>
</tr>
<tr>
<td>Weaving - lakh looms</td>
<td>1.95</td>
<td>1.33</td>
<td>68</td>
</tr>
<tr>
<td>Powerlooms</td>
<td>--</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>Cotton - lakh bales</td>
<td>23</td>
<td>170</td>
<td>739</td>
</tr>
<tr>
<td>Cotton cons. - lakh bales</td>
<td>42</td>
<td>155</td>
<td>369</td>
</tr>
<tr>
<td>Cotton - Kgs/hec</td>
<td>88</td>
<td>321</td>
<td>365</td>
</tr>
<tr>
<td>MMF - million kgs</td>
<td>--</td>
<td>1210</td>
<td>--</td>
</tr>
<tr>
<td>Spun yarn - million kgs</td>
<td>622</td>
<td>2794</td>
<td>449</td>
</tr>
<tr>
<td>Cloth - million sqm</td>
<td>5100</td>
<td>34265</td>
<td>672</td>
</tr>
<tr>
<td>Export - billion US $</td>
<td>&lt; 0.5</td>
<td>10</td>
<td>2000</td>
</tr>
<tr>
<td>Per Capita avail - mtrs</td>
<td>13.8</td>
<td>29.7</td>
<td>215</td>
</tr>
</tbody>
</table>

2. Compendium of textile statistics, Office of the textile commissioner, Bombay, 1993
1.5. **Sickness in Textile Industry**

Some recent research report conducted by some private organisation reveals that there will be on an average 15% growth rate in the new units while 40% exit rate in the existing units. There were 136 textile units lying closed as on 31.3.1996. The latest RBI data reveals that there are about 384 sick textile mills, as on 31.3.1994.

The major causes are

- Competition from decentralised sectors and new units
- excess capacity
- lower labour and machine productivity
- lack of modernisation
- wider technological gap
- increase in cost of inputs particularly raw materials
- lack of adequate working capital

For the past two years, textile mills in India are facing severe crisis mainly due to financial crunch and excess production capacity. Even most of the good mills are making cash loss. If this trend continues for few more years, many more mills may become sick.

It was not until fifties that attention was focussed on aspects like employment, technology, capital labour coefficient. The export pessimism of the fifties and sixties led to studies on export trends in cotton textiles. A number of hypothesis were examined to explain the trend in terms of world demand, widening cost differentials due to increasing domestic raw cotton prices and wage rates, domestic demand pressure and changes in labour productivity.
1.6. **Trends in Capacity Utilisation**

Capacity utilisation rates have been estimated for spinning and weaving separately on the basis of physical output and installed capacity. The trends in capacity utilisation in spinning increased up to 1964 and declined thereafter. The level of capacity utilisation has been higher in weaving as compared to spinning.

1.6.1. **Inventories**

Capacity utilisation which reflect efficiency in the use of resources, men, materials and machines is influenced by demand and supply factors. On the demand side, inventories of mill cloth as a percentage of mill cloth output declined. Similarly raw material cotton and other consumables inventories also increased because of influencing market forces.

1.6.2. **Productivity Trends**:

Indices of productivity show that both labour and machine productivity increased. However the fifties witnessed the highest growth of 2.3 percent per year in output per loom and seventies recorded the highest rate of 2.3% per annum in output per spindle.

Textile Industry is a highly labour intensive industry. Hence, the trade unions have become strong. This has made the textile mills to pay one of the highest wages in Indian industries. Tamil Nadu is paying the highest wages in India. Today, a permanent worker in Tamil Nadu on an average gets around Rs.200 per day including other benefits. However, Tamil Nadu is having the maximum number of Textile mills in India mainly because of a vast pool of skilled workers, better work culture, organised trade unions, technicians and managerial personnel.
The acute shortage for suitable workers and the demand for consistent quality should develop collective bargaining and negotiation skills to interact with trade unions and also workers on a day to day basis for changing the work norms as per the latest settlements.

1.6.3. **Price Trends**:

The wholesale price index numbers of cotton textiles, cotton mill cloth, synthetics, yarn and raw cotton were analysed and found that cotton textile prices and cotton mill cloth prices increased at the rate of 5% per annum.

1.7. **Human Resources Development**

Textile mills today particularly in Tamil Nadu, are facing labour shortage problem. Most of the mills (except southern districts) in Tamil Nadu are getting less than 90% machine utilisation due to labour shortage. The new mills are facing high labour turnover and absenteeism problems. Recent statistics reveal that the new mills have to recruit workers many fold (more than 1000 workers in many cases for a recruitment of 300 to 400). About few years back, textile mills were making lot of efforts to reduce the women workers mainly to save the maternity and other statutory welfare facilities to be provided to the women workers. But today a stage has come, many mills opt for women workers not only for day shift but also in 2nd shift (by availing special permission from concerned Government Authorities). This has become essential because of shortage of workers, better finger dexterity, lesser IR problems, more sincerity, more regularity etc. Consequent to this, the number of women technicians are also increasing in textile mills.
1.8. **Global Situation**

Data on changes in textile technology of different countries lead to interesting observations:

* Even the erstwhile communist countries like China have predominantly absorbed labour saving latest technologies.
* The developed countries have reduced their capacities.
* The newly industrialised Asian countries have filled in the gap created by the developed countries.
* Newly emerging Asian textile countries like Malaysia, Indonesia, Thailand have relatively larger proportion of latest technology.
* In the global context, absorption of latest technology in India is very slow.

By 2005, the mills which fail to modernise and have the state-of-the-art-of the machine, will be isolated and automatically become sick. They may be able to sell their products only to very limited which may be totally uneconomical.

In 21st Century,

- The Modernisation Funds Assistance will be phased out by 2005.
- World trade in textiles will be dominated by counties achieving cost reduction and quality upgradation in a substantial measure.
- Adherence to ISO 9000 will play a meaningful role.

For all this, technology upgradation will be sine-qua-non. In the next few years a radical change will come in the technology level in India. (5)

1.9. **Modernisation**

The Government of India introduced Soft Loan Scheme for modernisation of the textile industry in November 1976 with an interest rate of 7.5 per cent. When the liberalisation policy was introduced during 1991, the subsidy on interest rate was withdrawn and today the interest rate for term loan varies from 17.5 to 23% and many mills are forced to go to private finance companies due to the
credit crunch. The interest rate in private finance goes upto 36%. Whereas, the interest rates in developed countries and majority of the competing countries ranges from 4% to 10%. Today, the industry is facing severe financial crunch and most of the textile mills are not able to fulfil the commitments on modernisation mainly because of the low margin and high interest burden. This has become the major problem for new mills and mills which have gone for substantial modernisation in the last few years. (5)

1.10. Imperative Strategy for India

- Pace of technology upgradation will have to be quickened.
- All constraints on mill modernisation and industries of latest technology will have to be removed.
- Cost of modernisation and technology up-gradation will have to be drastically reduced.
- Import Duty on sophisticated items need to be abolished.
- Rate of interest on term finance will have to be radically scaled down to bring it on par with those in competing countries. (5)

1.10.1. Energy

The Textile Industry is a major consumer of energy in the form of electricity, coal and oil. It is estimated that the actual consumption is of the order of 10,000 million units of electricity, 600 million litres of furnace oil, 200 million litres of high speed diesel oil, 18 million litres of lubricants besides substantial quantities of kerosene and paraffin wax.

A typical textile mill spends about Rs.150 lakhs per annum on power and fuel alone. Thus textile industry is spending nearly Rs.1000 crores annually. This formed about 10% of the total cost of textile mills production. By launching a drive for conservation of energy, it would be possible to save at least Rs. 100 crores. Energy management through the latest technology and energy saving equipments becomes imperative.
1.11. Marketing

The sudden growth in the production capacity after delicensing, has outstripped the demand. A stage has, therefore, come now to think about marketing the yarn. Marketing would also mean improving the quality of the product and pricing it at a competitive level. Integrating world trade in textiles and clothing into GATT in a phased manner and operating under the New Trade Organisation regime are going to pose new challenges as well as opportunities to our textile industry. However, India should take advantage of its skilled labour to match the high standards and changes demanded by consumers.

With the continually rising standard of living, consumers will not only ask for textiles that are keeping in with the latest fashion, but they will also ask for the best quality.

Textile industry will remain firmly rooted in practically every country of the world, because it caters to a basic need of mankind and is, therefore, like agriculture, an essential part of any national economy. To secure the future of the textile industries, however, much more progress will have to be made in textile technology and marketing.

1.11.1 Global Market:

The Textile industries all over the world have a common interest in bringing textile prices into a normal relationship to costs. In achieving this, the following factors should be taken into account:

- Knowledge of available markets, both at home and abroad;
- adjustment of production in both volume and range, to actual demand;
- diversification and specialisation in the line of products offered;
- control over sales and direct marketing.
1.11.2 Textile Exports:

India's export performance in the textiles sector in recent years has been remarkable. Textile exports have now emerged as the largest foreign exchange earner for the country, contributing between 27 to 30 percent of India's total export earnings. Starting from a modest figure of Rs.1336 crore in the beginning of 80s, the exports have been increasing steadily over the years and grew to Rs.34,871 crore by 1996-97.

1.11.3 Share in World Market:

With the signing of the GATT and setting up of the WTO, India stands to gain a lot by way of increased exports. The Indian textile industry is placed in a position of strong competitive advantage and will occupy a position of prominence in the world textile industry by the turn of the century. However, today India's share in the world textile trade continues to be one of the lowest i.e., below 3%. This can certainly go up to 10%.

The global export of cotton yarn is estimated at 1834 million kgs during 1994. India's share in the world export is 33%. There is, therefore tremendous potential for increasing our cotton yarn exports. It is estimated that Indian textile mills could aim at exporting about 400 million kgs of yarn by year 2000AD.

1.11.4 Government Policy:

Exports of cotton yarn from the country, however, are at present subjected to quantitative restrictions by way of annual ceiling. Once the quantity earmarked is exhausted, cotton yarn exports come to a standstill. Cotton yarn exports are also frequently stopped whenever there is a rise in yarn prices. There is thus no consistency in our policy on cotton yarn exports. This affects the credibility of Indian textile mills as reliable suppliers of yarn to the world market.
1.11.5. **Future Exports**

The industry will face tough competition in the world textile and clothing market with emphasis on quality, cost-effectiveness and Eco-friendly products/processes playing an important role. With this end in view, the Indian Textile Industry has to launch into massive phase of restructuring and modernising its industry. It is hoped that with the steady increase in our exports as also satisfactory conclusion drawn on the two Agreements stated above, the country's plan for reaching an export level of Rs. 50,000 crore by the end of the century, appears achievable.(7).

1.12. **Textile Industry In Tamil Nadu**

There are about 628 Textile Mills in Tamil Nadu against 1569 in India. (December '97) Out of this 271 are member mills of SIMA. There are about 108 Textile Mills in Coimbatore itself who have an average spindlcage of above 6600. Other than this under the small spinners association there are about 500 small units in Coimbatore.

There are a number of heterogeneous factors such as commercial efficiency, product mix and technical efficiency influencing the profits of a textile mill. Productivity is the key determinant factor in the production economics of a mill. Analysis of profit and loss figures of over hundred spinning mills in India showed a very high correlation between labour and machine productivity as well as profits. About 80% of variation in profits between mills in India is due to variation in productivity. Textile industry statistics show that only 25% percent of the mills earn very good profits even during acute recessionary conditions.

In Tamil Nadu there is an impressive growth of spinning productivity over the past four decades as revealed by productivity surveys conducted by research organisation (SITRA).
Both labour productivity and machine productivity improved in the period between 1992-1996. Inter-mill variation in labour productivity continued to be very high of the order of 400% to 600%. Large sized mills of 45000 spindles and above recorded lower production per spindle and spindle utilisation. Only mills of 30,000 spindles have registered higher production per spindle.

Notes and References:
5. The Indian Cotton Mills' Federation, "Textile Industry Challenges Ahead."
   ICMF, New Delhi, 1994
6. V.B.Kulkarni "History of the Indian Cotton Textile Industry" - 1979, Page 60,
1.2. Problem Definition

In Tamil Nadu, the wage dispute is pending before the industrial tribunal. One of the management's demand which has been referred for adjudication by the Tribunal is linking wages to productivity. Hence, it has became a must for each mill to prepare themselves to formulate a system which can facilitate to maximise the productivity and make the mills to compete in acute market conditions and survive in the long run.

There are a number of heterogeneous factors such as the commercial efficiency, product mix and technical efficiency influencing the profits of a textile mill. Productivity is the by element in the production economics to a mill. An analysis of profit and loss figures of over 100 spinning mills showed a very high positive correlation between labour and machine productivity on the one hand and profitability on the other, the multiple correlation coefficient being to the order of 0.9. More than 80% of the variation in profits between mills is due to variation in productivity alone.

Even though periodic booms and recession affect greatly the textile industry, about 25% of the mills earn very good profits. The common feature of all these mills is found to be the very high levels of labour and machine productivity. In the long run what decides the profitability of a unit is the ability of the management to bring down the cost of production. This can be realised only by obtaining a high level of labour and machine productivity. (1)

1.2.1. Wages and productivity

Textile industry is a highly labour intensive industry. Since trade unions in this sector have become strong and also lead the textile mills to pay one of the highest wages amongst other industries. Now, it is observed that Tamil Nadu is paying the highest wage in India.
Elements of labour cost in the organised mill sector comprises of basic salary, Dearness Allowance, House rent allowance, Provident fund contribution, Employees State Insurance, Bonus and gratuity. Many mills are also paying incentives for attendance, conveyance and travelling allowance and providing subsidised food, dormitory accommodation facilities etc.,

The salaries and wages cost in spinning mills is about 9% of the sales revenue for cotton yarns. The cost differs abnormally between mills from 6% to 25% to the sales revenue. A major cause for this variation is due to the inter-mill variation in labour productivity. (1)

The wages cost for a mill maintaining standard level of productivity is given below:

Table 1.2.1 Wage Cost for a Mill Achieving Standard (HOK) Productivity

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>20s</td>
<td>16.7</td>
<td>7.00</td>
<td>15.27</td>
<td>3.75</td>
<td>1.57</td>
<td>3.43</td>
</tr>
<tr>
<td>30s</td>
<td>19.8</td>
<td>9.34</td>
<td>22.70</td>
<td>4.23</td>
<td>1.99</td>
<td>4.85</td>
</tr>
<tr>
<td>40s</td>
<td>24.0</td>
<td>9.67</td>
<td>29.22</td>
<td>5.03</td>
<td>2.03</td>
<td>6.12</td>
</tr>
<tr>
<td>60s</td>
<td>31.3</td>
<td>10.80</td>
<td>40.84</td>
<td>5.30</td>
<td>1.83</td>
<td>6.91</td>
</tr>
<tr>
<td>80s</td>
<td>38.9</td>
<td>13.64</td>
<td>52.63</td>
<td>5.52</td>
<td>1.94</td>
<td>7.47</td>
</tr>
<tr>
<td>100s</td>
<td>50.5</td>
<td>16.59</td>
<td>63.65</td>
<td>5.85</td>
<td>1.92</td>
<td>7.37</td>
</tr>
</tbody>
</table>

(Source: "Productivity in spinning", SITRA, October 1996.)

* Including Packing
For this table the wage per operative is assumed as Rs. 22/- per hour and yarn selling prices taken are as shown in table below:

### Table 1.2.2

**Yarn Selling Price (Rs. per Kg.)**

<table>
<thead>
<tr>
<th>Count</th>
<th>Rs./Kg.</th>
</tr>
</thead>
<tbody>
<tr>
<td>20s</td>
<td>101.8</td>
</tr>
<tr>
<td>30s</td>
<td>103.3</td>
</tr>
<tr>
<td>40s</td>
<td>111.5</td>
</tr>
<tr>
<td>60s</td>
<td>130.2</td>
</tr>
<tr>
<td>80s</td>
<td>155</td>
</tr>
<tr>
<td>100s</td>
<td>190</td>
</tr>
</tbody>
</table>

(Source: “Handbook of statistics on cotton textile industry”, ICMF, New Delhi, 1995)

1.2.1.1. **Labour Cost**:

In the present situation optimising the productivity, controlling the labour cost with consistent quality is the only way for the managements to survive in the long run.

In this industry, labour constitutes the major cost factor which varies sharply due to indifferent employment practices and norms. Wage patterns and work assignments widely vary in this industry despite of various settlements and awards arrived between the mills and Trade unions from the year 1956 onwards. The wage structures have become dysfunctional and distorted as a result of adhoc wage increases. Wage increases along with the rising costs of other inputs and low productivity are eroding the capacity of the industry to compete in the world market and generate adequate surpluses.
In the present time rate wage system there is no distinction amongst workmen on the basis of performance. Hence the workers are not committed to promote productivity under the existing wage system. Moreover there is no accountability for the workmen under the existing system. The categories of workmen is also another variable factor. These categories are mainly varying in the textile industry. The work assignments to these categories are still fixed by conventional methods. Collective bargaining methods followed over at periods of time suggest the need and measures to link productivity and wages. The wage can be linked by taking care of various factors like production, waste, subsequent department productivity level, idle spindle etc., by giving suitable weightage to each other factor. In the existing piece rate system, increase in basic wage is given in direct proposition for higher production while only 50% is cut for the lower production.

It can be seen that wages upto spinning is just 4 to 6% of the yarn sales value. The post spinning operations like cone winding and reeling are around 2% and 5 to 7% respectively.

In order to maintain the wages around 10% of yarn sales value the productivity should be around 80% of the yarn. It is interesting to note that the wage bill varies with different levels of labour productivity. (2)

Table 1.2.3 .Wage Bill for Different Levels of Labour Productivity

<table>
<thead>
<tr>
<th>Productivity Index</th>
<th>Wages as % of Sales</th>
<th>Cone Yarns</th>
<th>Reeling</th>
</tr>
</thead>
<tbody>
<tr>
<td>110</td>
<td>6.21</td>
<td>9.97</td>
<td></td>
</tr>
<tr>
<td>100</td>
<td>6.83</td>
<td>10.97</td>
<td></td>
</tr>
<tr>
<td>50</td>
<td>8.54</td>
<td>13.71</td>
<td></td>
</tr>
<tr>
<td>60</td>
<td>11.38</td>
<td>18.28</td>
<td></td>
</tr>
<tr>
<td>50</td>
<td>13.66</td>
<td>21.94</td>
<td></td>
</tr>
</tbody>
</table>

(Source: "Productivity in spinning" SITRA, 1996)
All the above discussions suggest the need for:

1. Improving labour and machine productivity.
2. Analysing the labour cost variations and methods to reduce it.
3. Methods of arriving at measures of linking wages and productivity.
4. Introducing motivation and collective bargaining work culture.

This study aims at revealing the productivity, wage differences prevailing in the textile industry and expects the possible factors of relationship and attempts to link productivity and wages.

The basic features of the problem selected for the study, highlights the productivity norms, influencing factors and its variance. The study also focuses on the problems of existing wage structure, work assignment, work load settlement and awards in order to make it efficient and effective.

Without scientific assessment, productivity indices cannot be measured and without which wages cannot be linked to productivity. Hence, the current study becomes important to streamline the existing wage systems in the industry and introduce modern scientific practices. It may be possible to arrive at work standardisation in this process and ultimately increased productivity leading to higher profits and long-term prosperity of the firm.

**Notes and References.**


1.3. **Objectives of the study**

The main objectives of this study are mentioned as follows:

1. To study the various productivity norms and their influencing factors in Textile mills of Tamil Nadu and Coimbatore region.

2. To study the wage structures, work assignments and occupational categories.

3. To study external equity between mills on wages and steps to link productivity with wages.

4. To study work assignment patterns and arrive at work standardisation, job assignments based on scientific studies for higher productivity.

5. To study the interfirm comparison of costs and profits.

6. To suggest productivity index linking work assignments, modernisation and performance indices based on scientific assessments.

7. To study the views of workers, trade unionists, mill executives, experts and consultants in textile field on productivity linked wage concepts.

1.4. **Scope of the study**

The scope of the study is vast in the present day context. As textile industry is facing serious difficulties in streamlining jobs, work assignments, this study may provide necessary guidelines for this issue. In the present day competitive business environment need for productivity and its improvement is imperative and the same is highlighted in this study as it directly relates to profitability of the firm. Moreover this study is significantly important as it aims to streamline the wage differences prevailing in the industry. This, in a way, may help to motivate the workers, if it is possible to link productivity with wages. In the long run the mills survival and growth mainly depend upon this objective and the present study highlights well about this.

Eventhough the present study was restricted to mills of Coimbatore, Tamil Nadu region valid conclusions and suggestions drawn here may be extended to mills in other regions. The concept of linking productivity and wages with the hypothetical model may be further extended to other categories of industries after suitable modifications.
1.5. Methodology

1.5.1. Data Collection - Sources and methods

In this study data were collected from secondary sources. The secondary data were collected from various reports, journals and publications of several professional associations and member mills. An exclusive field study was more instrumental and useful in collecting specific details such as wages, productivity standards, job classifications, profit nature etc.,

1.5.2. Sampling design

Primary data was collected using a sampling design. For this purpose a convenience sampling method was followed. On a random basis mills samples were selected from private and public sector mills. In private textile mills 120 workers and in Public sector NTC mills 40 workers were covered. (Appendix 4)

1.5.3. Methods of data collection

A questionnaire method was most useful in primary data collection. The questionnaire items were mainly covering aspects like wage patterns, differential components, influencing factors, work practices, motivation levels etc., A sample of 160 was taken up for the study from the groups mentioned above.

As a case study two mills with average and standard productivity levels were taken up for study on work assignment and wage pattern to make a comparison of proportionate revisions. Similarly a model mill with higher productivity (above standard total HOK) was also taken up for comparison.

An exclusive interview was conducted with experts in this field like prominent industrialists who lead this industry in the past few decades, trade unionists who were involved in the collective bargaining process, professional of several bodies who were associated in the development of wage structure and establishing productivity norms.
In case of secondary data the productivity details of member mills was collected from published reports for the period between 1956 and 1996 (Appendix I). Similarly the wage structure details, awards and settlement particulars were collected from professional associations reports covering the corresponding period of 1956 to 1996. As majority of the mills in this region were members of this professional bodies, published reports were more reliable and authentic. Most of the textile industry particulars were also extracted from the Indian Cotton Mill’s Federation journals.

1.5.4 Research Design

The research design formulated was exploratory and descriptive in nature and style. Several factors concerning the problem like variations in work methods, job assignment and evaluation methods, etc., have been explored in depth. Similarly the basic characteristic features like labour productivity, wages, machine utilisation, resource utilisation, modernisation, Profitability etc., were also studied on a descriptive scale.

Hypothetical models were constituted to study the productivity variables and their impact. Useful correlation and regression analysis attempts were made to show the nature and extent of variations and their impact.

A comparative study and analysis about wage structures, differential components was conducted to show the basic features of wages and the extent of variation.
1.5.5 **Statistical Tools employed**

For the present study, the entire population data of each year were taken into account. In order to assess the variability in the data, a Quartile Deviation (QD) was found for each of the variable - Total HOK, Production per spindle (P), operative hours per 1000 spindle (OHSAM) and spindle hours (SH).

A Quartile Deviation was attempted on the middle 50% of the data as majority of the data are centered around this. In addition, the coefficient of Quartile deviation was also calculated.

In order to find the variability in the entire data, a standard deviation calculation was used for each of the variable. Coefficient of variance as a measure of dispersion was also calculated. (Table 3.1, 3.2, 3.3)

Further to assess the relationship between the main variables, Total HOK (40s count) production per spindle (40s count), operative hours per 1000 spindle (OHSAM) and spindle utilisation (SH) - a simple correlation and Regression between the variables was calculated and shown (Table 3.4, 3.5).

From the following variables, Total HOK (X1), production per spindle (P), operatives for 1000 spindles (OHSAM), a multiple regression equation was worked out. Here the total HOK (X1) was the main dependent variable which depends on the other two variables production per spindle (P) as X2 and operative hours per 1000 spindles (OHSAM) as X3. A regression equation of X1 on X2 and X3 was found to be more relevant.

Other than this, using the method of least squares, a simple trend analysis was worked out on all the variables to predict about the future course of their improvement and significance.

Simple percentage variations were used in the analysis of wage system, work assignments, cost structure, profit analysis etc. Comparative tables were constructed and trend projections were also made.
Minimum, maximum average table was constructed and compared with standards in productivity, wages, work assignment norms etc.,

1.6. **Limitations of the study**

This study projects mainly the details on productivity norms, standards achieved by Textile Spinning Mills in Coimbatore and Tamil Nadu region alone. Moreover in this study focus was given on the existing wage patterns, work load settlements and awards of the mills of this region.

**Hence the limitations of this study may be mentioned as:**

1. This study was restricted to mills in Coimbatore and Tamil Nadu region alone. So area wise factors like social, cultural, political etc., may have their impact and influence on the patterns, work assignments, work load settlements and awards of the mills of this region.

2. The study was conducted in the period between 1956 to 1996 as far as wage settlements and productivity details were concerned. The data of 1958, 1966, 1994 were not available as far as productivity studies were concerned.

3. The industries norms taken up for comparisons were based mainly on the data projected by professional associations in this field.

4. Scientific methods of evaluations followed may have their own limitations as the work methods and practices vary widely in the textile sector. Enough precautions were taken to standardise productivity and wage details for a reasonable comparison.
Chapter scheme

The thesis is organised into five chapters.

The first chapter is the introductory chapter which gives an idea about textile industry, its growth, prosperity and problems apart from productivity trends.

A brief definition of the problem followed by a discussion of objectives, scope of the study and the methodology are also covered. This chapter further discusses the data sources, sampling and research design, tools employed and limitations of the study.

The second chapter provides the review of literature and conceptual framework of the study.

Chapter three presents the analysis which is divided into sections as

1. Productivity measurements and analysis
2. Occupational categories and wages
3. Productivity linked wages
4. Work assignment and variations
5. Comparison of costs and profits
6. Productivity indices
7. Views and ideas of workers, trade unionists and mill executives.

Chapter four outlines the summary of findings of the study followed by recommendations and projects the scope for further research.

Major conclusions of the study are presented in chapter five.