MANAGEMENT OF LABOUR IN INDIAN INDUSTRIES

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Shanlax Publications

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web: www.shanlaxpublications.com

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ISBN :

Publisher

SHANLAX PUBLICATIONS

61, 66 T.P.K. Main Road, Vasantha Nagar

Madurai - 625003

shanlaxpublications@gmail.com

www.shanlaxpublications.com

Printed at

SHANLAX PRESS

61, 66 T.P.K. Main Road, Vasantha Nagar

Madurai - 625 003

Ph. 0452 – 4208765, 9600303383

email: shanlaxpress@gmail.com

web: www.shanlaxpress.com

Preface

Textile industry in India is the oldest one, having existed for more than a century. India had the advantage in natural fibers, a basic raw material which made the Cotton Textile Industry globally known

Wage is an important part of the cost of production. The employer would like to control the wage bill from rising, so that his profit margin would increase. As opposed to this, worker would like an increase in his wages. These conflicting expectations of employers and workers often result in industrial unrest. An ideal wage structure should be such that it creates neither frustration nor discontent among the labor forces.

Declining employment in general in the second period after 1986, and the structural changes and changing labor policy in the cotton textile mills had affected the bargaining power of the workers. Moreover, employing casual labourers at merge wages had altered the trend in money and real wages per worker. Though there are several factors related to the labor performance and remuneration, wage-output ratio alone is found to be controlling the wage cost. Though this favours the employers with more scope for profit, workers are affected by lay-off, power cuts, breakdown of machinery, fall in the demand for finished product and the business cycle that revolves around the cotton Textile Industry.

The age-old cotton textile industry is often affected by the drastic policy changes of the central government such as the export of cotton bales to foreign countries, changes in the procedure for export of cotton yarn and in general tariff. Moreover, with emergence of the new economic policy and globalization, multinational companies make surprise moves that affect the functioning of the Cotton Textile Industry.

With wages emerging as one of the more controversional issues affecting work life in India, the Government has repeatedly announced its intention of having a National Wage Policy. However, this has not led to the formation of any policy to deal with various issues related to wages. Even critical issues, such as compensation for erosion in money earnings, have not been brought within the purview of any statutory enactment. It is time the government came forward to discuss various issues related to wage in the Indian Industries. A multi-disciplinary approach to find a real solution for the problem of wages in the country has become imperative.

Workload revision should be uniformly done at frequent intervals atleast at the District or the State level to enable workers to bargain for wage increase with workload as the base. The revision should be based on time and motion study in the interest of proper distribution of workload. Moreover, labor should be involved in the formulation of productivity plans and their implementation, including decision and technology. Disparate Dearness Allowance systems should be dispensed with, and the wage rate itself should be adjusted against inflation which would protect the workers from the value-erosion of real wages in order to assure them of better standards of living.

Instead of the existing bonus payment system at the mill level, individual worker bonus based on individual performances that too for shorter period, such as a month or a week, will be more productive. Incentive system should be given greater importance to improve productivity and labor should have a say in sharing gains from improvements in productivity with due regard to the repercussion on the workforce, particularly on employment and related aspects.

A stable relationship between labor productivity and wage increase should be established. However, the determination of real wages is governed to a large extent by the general price level. So the Government should take necessary steps to control the general price level.

A successful and socially significant wage policy can be built up only on a strong foundation of correct and meaningful data on various aspects of the problem, such as wage determination, wage levels, wage structure, wage payments in Indian Industries. These are essential as the process of wage determination and wage revision in India is at present decentralized.

Content

CHAPTER 1
INTRODUCTION

Textile industry in India is the oldest one, having existed for more than a century. India had the advantage in natural fibers, a basic raw material which made the Cotton Textile Industry globally known. Moreover, "Indian Textile Industry is the single largest in the world in terms of spinning and weaving capacities"[1] which accounts for 20 percent of the industrial output that provides employment to 17 million people[2]. Fortunately, the new economic policy of India since 1991 has helped the entrepreneurs to import the required machinery and equipment from advanced capitalist countries by breaking the bottlenecks that existed formerly, like licensing and approval from the government. Table 1.1 presents the growth of Indian Textile Mill Industry during 1975-1995.

Table 1.1 Growth of spinning and weaving capacities in the Indian Cotton Mill Sector (1975-1995)

Year	Number of Mills			Installed Spindles (Million)			Number of Rotors (Thousand)
	Spinning	Composite	Total	Spinning	Composite	Total	
1975-76	330	288	618	7.04	12.32	19.36	-
1976-77	338	289	627	7.41	12.48	19.89	-
1977-78	347	290	637	7.40	12.30	19.70	-
1978-79	357	291	648	7.68	12.40	20.08	2.00
1979-80	370	291	661	8.16	12.52	20.68	3.00
1980-81	415	291	693	8.92	12.31	21.23	5.00
1981-82	442	278	723	9.50	12.44	21.94	5.00
1982-83	561	280	841	10.49	12.42	22.91	5.00
1983-84	639	281	920	11.76	12.52	24.28	5.00
1984-85	674	281	955	13.09	12.48	25.57	5.00
1985-86	702	282	984	13.42	12.60	26.02	11.51
1986-87	744	283	1027	13.79	12.33	26.12	19.28

[1] GVSN. Murthy and T.R. Sukmari,: "Demand for Textiles in India", Economic and Political Weekly, May 25, 1991, p.61.

[2] Mahesh C. Purohit: "Tax Reforms for Textile Sector", Economic and political Weekly, April 16-23, 1994, p.993.

1987-88	752	283	1035	14.35	11.90	26.25	19.30
1988-89	769	282	1051	14.84	11.62	26.46	45.00
1989-90	770	281	1051	15.06	11.53	26.59	60.00
1990-91	777	285	1062	15.14	11.53	26.67	66.92
1991-92	846	271	1117	16.68	11.14	27.82	112.99
1992-93	874	268	1142	17.23	10.86	28.09	126.68
1993-94	905	270	1175	17.45	10.86	28.31	133.54
1994-95	1128	267	1395	19.41	10.50	29.91	179.54

Source: Handbook of Statistics on Cotton Textile Industry, 25th Edition, published by Indian Cotton Mill Federation (ICMF), 1995, p.218.

Table 1.1 shows that there has been a steady increase in the number of mills that comprised both spinning and composite. At the same time, the spindle age in spinning mills had increased while the same had declined in the composite mills. However, many advanced countries rely upon India for their yarn and fabric requirements, due to the fact that "our labor costs are one-tenth of those in the advanced countries"[3]. The export of cotton textiles has increased from Rs.835 crores to Rs.18517 crores from 1980-81 to 1994-95[4]. While comparing Indian Industries, "In the cotton Textile industry, wage constitures the most important part of costs and prices nowadays"[5]. The Cotton Textile Industry has its domestic problem of increasing labour costs. But it has also undoubted advantages over advanced western countries because of the high labour content in Indian Textiles.

1.1 Cotton Textile Industry in Tamil Nadu

The Cotton Textile industry consists of mills, handlooms and more recently powerlooms. The spinning mills convert raw cotton into cotton yarn, where as the composite mills convert raw cotton into cotton yarn and cotton yarn into fabrics. The production condition in the Cotton Textile Mill sector varies from one state to another. Among Gujarat, Maharashtra and TamilNadu, the three states mainly engaged in Cotton textiles, "Tamil Nadu is the leading one as it holds the highest share of output and value added and also the percentage share of net value added at the national level which has increased from 22.91 to

3 H.S. Ranka, Indian Express, Monday, October 25, 1993. P.13
4 Handbook of Statistics on Cotton Textile Industry, 25th Edition, published b ICMF 1995, p.2.
5 D.R. Samant, Inflation and Development, Popular Prakashan, Bombay, October, 1974, p.65.

41.78 since 1979-80 to 1987-88"[6]. Table 1.2 presents important details about the Cotton Textile Industry in the state of Tamil Nadu from 1975-76 to 1994-95.

Table 1.2 Cotton Textile Industry in the State of Tamil Nadu (Rs. In Lakhs, except workers)

Years	Fixed Capital	Depreciation	Value added	Output	Wages to Workers	Number of Workers
1975-76	9861	1298	7529	45923	5961	118162
1976-77	10772	1230	9971	57931	6129	121523
1977-78	11579	1322	13546	59245	6268	124279
1978-79	14695	1853	19804	75188	7182	131234
1979-80	15205	1918	20492	77798	7432	135803
1980-81	21171	2698	23808	95790	9287	137195
1981-82	27730	3194	22700	104768	10356	139577
1982-83	34289	3691	21592	113746	11425	141960
1983-84	38771	6282	26292	128236	14153	144309
1984-85	39945	6472	27088	132119	14581	148673
1985-86	43355	7024	29400	143397	15826	149106
1986-87	47596	7469	30078	150904	15454	149675
1987-88	50994	8003	31154	161678	16558	150725
1988-89	52510	10019	39376	221994	19296	149147
1989-90	56751	12327	47618	267537	22527	146215
1990-91	67986	14539	55974	296011	26358	144679
1991-92	68778	16109	60650	330807	26305	143594
1992-93	69489	18231	64027	385201	31402	143513
1993-94	71236	20389	69329	445667	33516	143460
1994-95	73918	22197	71516	506953	34295	143416

Source: Annual Statistical Abstract (Various years) published by the Department of Statistics, TamilNadu Government, Madras.

Table 1.2 shows that selected variables such at fixed capital, ouput and wages have steadily increased, while depreciation and value added show fluctuations. But at the same

[6] Padmini Swaminathan, "where are the Entrepreneurs? What is the Data Reveal for Tamil Nadu?" Economic and Political Weekly, May 28, 1994, p.69.

time, though the number of workers have increased from 1975-76 to 1987-88, it had started declining slowly afterwards. This is a macro tendency where "the workers on roll in the Cotton Textile Industry at the national level has fallen from 1179 thousand in 1980-81 to 1040 thousand in 1994-95"[7]. On the contrary, the wages paid to workers have grown rapidly over the period selected for study. This phenomenon of negative association between wages and level of employment needs to be examined in the Cotton textile Industry.

While the value added has grown at a faster rate that the output, fixed capital has also increased at a gradual rate. The ever-increasing tendency of the fixed capital shows that the Cotton Textile Industry is poised for modernisation with the latest technology-oriented machines, turning the labour intensive industry into a heavy capital-intensive one. Especially, the heavy capital investment made in the Cotton Textile Industry has a long gestation period, "as in the case of all basic industries which have been observed in the Indian context"[8]. This required careful examination from the economic point of view as well as from the welfare point of view of the labourers employed all over the country.

1.2 Cotton Textile industry in Madurai District

Madurai District is famous for the Cotton Textile Industry which is engaged in the production of cotton yarn and it has a potential source for raw-cotton, labour and power supply to meet adequately the increasing number of spinning mills in the district. "Since 1921, mills in Madurai District are being recognized as productive in the southern region in India"[9]. The wage trend and the changes in the wage packet are quantifiable and such analysis becomes empirically valid with the micro level data. "An macro economic theory of money wags must be based on some conception of micro economic wage theory"[10].

As far as the cotton Textile mills in South India are concerned, Madurai District is the base for Trade Unionism and South India Mills' Association (SIMA). Though, the Cotton Textile Mills are owned by different types of management such as private, co-operative and public limited, they mostly abide by the rules and regulations of SIMA. In labour and related matters, these mills strictly follow the directions of SIMA. The wage trend and its relationship with output, value added, capital, employment and technology have been

7 Handbook of Statistics on Cotton Textile Industry, 25th edition published by ICMF, 1995, p.21.
8 ArunKumar, "Unemployment, Technological Dynamism and need for Government Intervention – A closer look at 1989-90 Budget", Economic and Political Weekly, Aug.5, 1989, p.1774.
9 Somale, Madurai District, (Tamil Edition) publication Division, 1985, p.139.
10 J.B. Daniel Mitchell, Unions, Wages and Inflation, American Centre, Nov.19, 1981. P.225

important themes in economic studies. "The industrial wage structure in India consists of various components such as a basic wage, a dearness allowance, an annual statutory bonus and a host of fringe benefits and incentives"[11]. Changes in these components are to be anlayzed in a systematic manner so as to find the direction of wage movement in the Indian Industry.

1.3 Money Wages

Wage is one of the important economic variables especially in the developing economies. Changes that take place in the wage components have an impact for betterment of the economy and vice-versa. Wage increase should have some relevance to labour performance. Pay per unit of labour in output tends to be raised by workplace arrangements beyond the recognized procedure for determining the wage rate. This has become a continuous and common phenomenon in Indian Industries.

There are two wage payment systems existing in the Indian Industries. They are piece-wage and time-wage systems. Piece-wage system is the oldest form of payment based on results whereby a price per unit of output is fixed. Here the relationship is direct and immediate between effort and monetary reward. It is widely believed that "the output for piece rate system is 25-30 percent higher than that when payment is made by time-wage"[12]. Thus piece-wage system helps the efficient workers to enhance their earnings and provides an opportunity to improve other workers who have less skill and efficiency. "Moreover, when the piece-rate system is adopted, the wage bill goes up in direct proportion to the increase in output. The employer therefore does not save on the labor cost. His gain is only in fixed costs which do not vary with output"[13].

1.4 Real Wages

Stagnation in wages has a negative effect on the worker when the workers want their real wages raised. "The wage policy enumerated since the second five year plan aims at a structure with rising real wages"[14]. The money wages of the industrial workers have in general, followed the cost of living indices, thus making wage rise independent of the movement in efficiency. The real wage is a better indicator of the efficiency of the industry

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11 A.M. Sharma, Understanding Wage System, Himalaya publishing House, New Delhi, 1988, p.80.
12 G.K. Suri, Productivity, Wages and Industrial Relations, Affiliated East West press Pvt. Ltd., New Delhi, 1976, p.32.
13 Ibid. p.32
14 V.B. Singh, Wage Patterns, Mobility and Savings of Workers in India, Lalvani Publishing House, Bombay, 1973, p.105.

concerned. Advanced countries have already introduced wage payment system that suits their productivity formulae. But in India, in the absence of a National Wage Policy framework, various factors and processes have influenced, in varying degrees, the process of collective bargaining in wage fixation. However, the Cotton Textile Board declared that "wages are linked closely with production and that a rise in wages would require a rise in productivity"[15]. For a direct and easy ascertainable relationship between productivity and wages, one has to look for instances in changing productivity which is made a basis for a change in wages.

1.5 Productivity

At this juncture, linking wages with productivity is the panacea for combating inflation and inefficiency in Indian Industries. According to Bhisma Narain Singh, "There is an urgent need to prevent the increase in capital output ratio by effectively improving labor productivity and upgrading technology"[16]. The draft outline of the fourth five year plan has laid considerable emphasis on productivity. The plan has suggested linking a part of wages to productivity. Since labor has the motivation to earn more and achieve better results by working hard, it is reasonable to assume that "the productivity increases are as much the result of wage increases as they are the cause thereof"[17]. However, this can not be achieved in all industries except where there is more scope for payment by results.

The wages paid to the labourers should have some relevance with the output. If the output per unit of labor rises, it raises the share of the surplus in the economy and reduces the level of employment at a given period of time. In the cotton Textile Industry with increasing capital intensity, the labor productivity is influenced by the speedier machines with the latest technology. Moreover, there is periodical revision of work load and corresponding basic wages that change the wage trend and its relationships. In fact, "there have not been many studies in India to examine the effectiveness of wages rates to induce workers to raise their productivity"[18].

1.6 Declining Employment

The New Economic Policy of India implicity favours capital-intensive technologies. This could have unwelcome implications, since the employment generation from industrial

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15 A.J. Fonseca, Wage Determination and organized labor in India, Oxford University Press, 1964. P.143.
16 Bhisma Narain Singh, Governor of Tamil Nadu, Indian Express, Madurai, Thursday, March 7, 1991, p.13.
17 P.R.N. Sinha, Op.Cit, p.140.
18 G.K. Suri, Wage Incentives: Theory and Practice, Shriram Centre for Industrial Relations and Human Resources, New Delhi, 1974, p.39.

investments may decline rapidly. The level of employment in the piece-rate industries is sensitive to labor and wage policies. "The compound rates of growth of employment in the Cotton textiles and leather Industries are only negative while in all other industries they are positive during 1961-81"[19]. These two industries follow the piece-rate wage system and the Cotton textile has huge capital investment.

In short, the rising capital intensity per unit of output implies that the modern technologies will be introduced only if the highest costs are offset by savings in wages and by lower wastages. This is because the mills have been doing badly since offering higher wages and the over-heads exceed economic benefits. In addition, the problem of surplus labor is also an important cause for industrial disputes in India. The surplus labor not lonely pushes up wages but also pulls down the labor productivity considerably. Thus the cotton Textile Industry once called labor-intensive industry is gradually turning into a Capital-intensive one with the latest technology. Moreover, the wave of subcontracting of labor has reduced the bargaining strength of the workers tremendously. Here, the employers gain in wage cost as the wages at subcontracting level being lower than the rate of permanent labor. In the words of Begaram Tulpule, "Wages paid to contract workers are far lower than those paid to regular employees, the gap being rarely less than 40 per cent and often as high as 70 percent of the regular workers' wages" [20]. Increasingly unions have accepted the logic of industrial restructuring and its negative implication in terms of job cuts. At the same time, employers opine that this kind of exit policy was not a retrenchment policy but the rationalization to the industry to increase productivity.

1.7 New Technology

"Technology up gradation is a vital component of economic reform"[21]. As India is poised for global competitiveness in textiles, the introduction of new technology is unavoidable. But the new technology in Indian Industries does not solve problems; instead it has created more problem in wages of labor. The wage rate schedule should reflect at an time the actual level of technology and organization of the industry. Now-a-days the fight is not between the labourers and employers but with machines. Slow men behind the speed machines make them unworthy and there is no justification on the part of the workers to ask

[19] Arun Ghosh, "Eighth plan: Challenges and Possibilities – III Employment, Core of the plan", Economic and Political Weekly, February 2, 1991, p.199.

[20] Begaram Tulpule, "ILO initiative on Contract Labor", Economic and Political Weekly, August 30, 1997, p.21.

[21] Chandrasekar, "Technology Priorities for India's Development, Need for Restructuring", Economic and Political Weekly October 28, 1995, p.2739.

for more wages. Moreover, an improvement in technology should be such that even unskilled labor forces could be easily trained to perform complex operations. Thus skilled labor at high cost can be replaced with trained, semiskilled labor at low cost. The introduction of new machinery with the latest technology has to be gradually introduced with existing labor. Fortunately, this situation had begun in the middle of 1980s. Hence the present study to examine the wage trend and its relationships with the selected variables in the Cotton Textile Mills in Madurai District during 1975-1997.

1.8 Scheme of Work:

The present study "Management of Labor, wages and Technology in the Cotton Textile Mills in Madurai District" is divided into seven chapters.

Following the introductory chapter, an attempt has been made in the second chapter to review the literature of the present study under three heads such as money and real wages, employment and technology.

Chapter III discusses the research methodology and research design of the which includes choice of the topic and area, date sources, period of study, selection of sample units, tools of analysis, concepts used, objectives, limitations and functioning of various departments in Cotton Textile Mills.

Chapter IV analyses wage trends and differentials in the selected groups of Cotton Textile Mills in Madurai District.

Chapter V examines the employment and wages in the selected groups of Cotton Textile Mills in Madurai District.

Chapter VI analyses wages and New Technology in the selected groups of Cotton Textile Mills in Madurai District.

Chapter VII presents the summary of findings of the present study, conclusions arrived at suggestions in the context of the research findings.

CHAPTER II
REVIEW OF LITERATURE

2.1 Studies related to money and real wages

C. Mani Sastry (1985)1 in another study observed the movement of wages over a period of time (1969-1983) in the Engineering industry. The sample consisted of ten units of the industry (with code numbers F_1 to F_{10}) covering three regions of Telangana, Coastal Andhra and Rayalseema in Andhra Pradesh. Wage in this study comprised the basic pay at the minimum level of the scale and the dearness allowance. The main findings of the study were:

1. Money wages in the Engineering industry in Andhra Pradesh had been increasing over a period of time (1969-1983).
2. Age of the unit and the rate of growth of wages were inversely related.
3. Except for the unskilled, the absolute wage differential between the firms paying the highest wage and one paying the lowest, reduced considerably between 1969 and 1983. In the case of the unskilled category, the magnitude of this reduction was negligible.

Ranjit Sau (1989)2 attempted to find the explanation for the steady trend in the falling share of wages and salar in value added, which was the result of the possible changes, with the government taking away about one-half of the industrial output in the shape of interest and direct and indirect taxes. He anlaysed the financial statistics of a sample of 417 public limited companies listed by the Industrial Credit and Investment Corportation of India (ICICI). The seventeen-year period beginning 1969 witnessed the sprouting of the green revolution, an increase in food grain output and improved industrial growth rate. It was found that over this entire period, the rate of profit after-tax on networth fluctuated around a mildly upward trend. The curve of wages and salary was going down while that of netprofit and interest was rising. It was concluded that the overall index of industrial production in the country decelerated during the seventies, but that was mainly due to the maladies of capital goods industries which belong, in the main, to the public sector industries of durable consumer goods.

T.N. Krishna (1991)3 examined the wage structure and wage movements and their relations to employment and output in an agrarian economy in transistion (1960-1989). He

opined that the effect of a rise in wages on employment and output was mainly determined by the conditions of product demand and the rate of technological change. Moreover, institutional and social factors were more important in the determination of wage rates than the conditions of supply and demand for labor in any market. Wage rates were not solely determined in the same manner as prices or commodities and that social custom might be important in their determination. However, he concluded that the high wage rate in the economy had been an important factor for the poor performance of the agricultural sector in Kerala.

B.K. Madan, (1977)4 derived the trends in money earnings and real earnings of industrial workers, besides wage-productivity nexus in India from 1951 to 1970 with data furnished by the Census of Manufacturing Industres (CMI) and Annual Survey of Industres (ASI). When the consumer prices started rising steeply in the wake of the inflationary trend, the real earning labor lagged, money earnings being unable to keep pace with the fast rising cost of living. He also concluded that there had been probably a certain contribution to productivity through increased effort. The correlation between changes in productivity and real earnings of the industrial labor was graphically illustrated in which every surge in productivity was accompanied by a spurt in real earnings.

2.2 Studies related to employment

Romesh K.Diwan, Damodar and N.Gujarati (1968)5 studied employment and productivity in Indian Industries. They aimed at maximizing long run output, a capital intensive technology, which is considered to be more productive. However to maximize employment in the short run, a labor-intensive technique seemed superior. Data on number of factories, average number of days worked, capital used, employment, workers compensation, value added and gross output were collected from the reliable published sources such as Census of Manufacturing Industries (CMI). It was hypothesized that market imperfection depended upon the wage-rate.

It was concluded that growth in output took place via planning approach and increase in wage rate had the effect of reducing imperfections in the labor market. And it was suggested that the labor employment in Industry was determined by demand and the elasticity of capital labor substitution was quite low. Finally, it was found that the increase in wage-rate seemed to be greater than the increase in marginal production. Moreover, the employment

and output were complementary factors in the sense that more output led to more employment without further investment in capital.

S.C. Srivastava, (1984)6 studied eight industries with regard to employment, wage structure and wage differentials, including the Cotton Textile Industry for the period 1947-1965. He analysed the dearness allowance paid to textile labor in important centres in India. The labor productivity was measured by value added per worker. The analysis of wage bill along with value added was made with correlation and linear regression equation. Moreover, the size of the establishment and the productive capital were also taken into account. It was concluded that the number of workers in the Cotton Textile Industry had remained more or less stationary during the past ten years. Incentive/production bonus schemes were not found to be widely prevalent in this industry. Labor's share of total wage bill of the value added increased from 35 per cent to 47.6 per cent during the period 1950 to 1964. Finally, he concluded that there was a strong correlation between total value added and wages paid to the workers. The total wage bills bore a linear relationship to value added. The multiple correlation co-efficient was highly significant. Hence the consumer price index and value added per person (i.e. productivity) satisfactorily explained the total earnings of the employees of the Cotton Textile Industry. The linear logarithmic equation also supported the fact that productivity bore a positive correlation to the increase in the size of the establishment. Finally, it was said that when compared with other textile producing countries, the productivity of the Indian Cotton Textile Industry was very low which was due to conventional type of machinery and equipment, along with shortage of cotton and foreign exchange.

Bishwanath Goldar (1987)7 studied the employment growth in Indian Industry. He analyzed the factors which influenced the rate of labor absorption in Indian Industry. The trentd in Industrial output and employment were measured for the period 1951-1980 and for three sub-periods 1951-1960, 1960-1970 and 1970-1980 which were based on Index Numbers of Industrial Production (for manufacturing) and factory employment data. Moreover, the effect of the real wage rate on industrial employment was also studied with an employment function for Indian Industry from pooled cross-section and time series data. It was found that a 10 per cent increase in real wage rate would, other things remaining the same, reduce employment b 3.5 percent within one year, and its cumulative effect over a long period would be to reduce employment by about 11 percent. The rate of labor absorption in Indian Industry was quite sensitive to variations in the real wage rate. It was also found that

the short-run elasticity of employment with respect to output was 0.254 and the long-run elasticity was 0.799. Both were less than unity. Finally, it was concluded, the first two decades of planned industrialization in India, that is in the 1950s and the 1960s, the employment growth lagged seriously behind output growth. The growth rate of industrial employment was less than half of the growth rate of industrial output. In the 1970's the growth rate of employment was close to that of output which was associated with a marked increase in employment-output elasticity and a sharp fall in the growth rate of labor productivity. In addition, relatively faster growth in employment and slower growth in labor productivity in the 1970s was attributable mainly to a reduction in the growth rate of real wages.

Jeyem (1992)8 made a study entitled, "Industrial Exit: Red Herrings and Real Options". It was aimed at the drawbacks or the absence of a clearly stated policy on industrial units where motivated closures by industrialists went against the interest of workers who had no mechanism for redressal. However, in the formulation of such a policy, the real alternatives were identified. Most of the World Bank and International Monetary Fund (IMF) economic packages usually involved an industrial exit policy which made it easier to retrench labor with some compensation thus removing various legal barriers to the closure of loss-making enterprises. In such a situation, industrialists started looking for ways to further cut wage costs, typically through retrenchment and other devices. Already in the past decade, wage costs, as a proportion of total costs, had declined significantly.

Precisely the falling proportion of wage costs in total costs indicates increased labor productivity and more efficient use of labor, supported by theoretical literature on implicit contracts as well as the experience of countries like Japan. Faster growth productivities were attributed not to the effects of labor legislation but to liberalization.

2.3 Studies related to Technology

Arun Kumar (1989)9 analysed the technology which was unlikely to 'take off' to raise 'efficiency' or reduce costs, in order to make Indian goods export competitive. Lowering of production costs might be attempted through use of more advanced technology. Indeed, the government used this as the justification for liberalizing imports of technology and inputs. This agreement had come useful to the private sector. Indigenous technology had not developed enough to be able to sustain the drive for new technology and hence the dependence on foreign technology. He opined that the introduction of new technology was

based on a narrow understanding of cost of technical change in recent times which has been accompanied by rising output per unit of labor. Machines can perform tasks respectively much faster and with much greater precision. In sum, the debate on the liberalization of the economy and making it more efficient confined itself to the firm level efficiency defined in terms of input and output. It link with the efficiency at the national level was ignored. Consequently, the conflict between capital and labor was intensified with the inflationary situation which led to inflation. This forced a cut in real incomes of the workers. So workers demanded a higher money wage which upset the calculations of the capitalists. In the process, there emerged a vicious cycle of prices and money wages chasing each other.

It was concluded that the import of technology which today had a high output to labor ratio aggravated the situation further. The role of the state in providing the requisite environment for research and development was needed to be recognized. Moreover, Policy makers in India needed political guidelines to formulate a clear Science and Technology policy.

Sushil Khanna (1989)10 examined the technical change and competitiveness in the Indian Textile Industry. The last three decades has seen a very rapid change in the technology for production of yarn and fabric construction. The study compared the processing features of traditional and modern methods employed in the Indian Textile Industry. It was concluded that given the low wage rates in India (amongst the lowest in the world) the savings from the reduction in work force per unit of output were hardly enough to defray the increased capital cost of introduction of advanced machinery. Moreover, it was pointed out that in under developed countries, with abundant supplies of labor and scarce capital, the scarcity of capital had not led to the development of capital saving techniques. Finally, third world countries supported an efficient capital goods sector where new machines were to be produced to change the techniques of production. But it was difficult to draw economy-wise conclusions on the basis of an industry study.

C.V.S. Rao, (1989)11 analyzed the Cotton Textile Industry which was being subjected to intense market competition. He focused his attention especially on the recent period of technological changes that took place in the 1980s. It was concluded that a large increase of 20-25% in productivity could be brought about by using the available technology in the best possible way and the rationalization of labor by giving 80% work load to all itself would result in about 20% reduction in labor. Moreover, it was inferred that the textile

industry had absorbed modern technology wherever it was economically worthwhile, but the rate of modernization had been slow due to the poor profitability of the industry.

Dipankor Coondoo, Chiranjib Neogi and Buddhadeb Ghosh (1993)12 studied the technology of intensive industrialization in Less Developed Countries (LDCs) using to 1985-1986. This study suggested that the use of modern technology developed in the industrially advanced nations, needed a minute assessment of the performance of individual industries in a country like India, where the role of learning effect was significant to improve the factor productivities.

Bagaram Tulpule and Ramesh C. Datta (1989)13 analysed the latest technology in three companies in the manufacturing sector. They concluded that the high cost machines depended more upon reduction in labor input per unit of production. The cost benefit assessment was greatly influenced by saving in labor costs, reduced scrap, rejection, saving on tools and consumables. The new technology had contributed significantly to expansion of output or higher profitability. But they added that employment had remained stagnant if not actually declined marginally.

Tirthankar Roy (1996)14 focussed on the technical change in the Indian Cotton Textile Industry using the ASI data. He found that the source of machinery, imported or domestic, was important. Especially the installation of open-end spinning system was more appropriate for finer counts yarn. It was concluded that the new technology introduced in this Industry would give better results because of the policy of Industrial liberalization which made investment in capabilities easier.

CHAPTER III
RESEARCH DESIGN

This chapter discusses the methodology of the present study. It includes the choice of topic and area, data source, the selection of time period, selection of sample units, tools of analysis, concepts used and measurement of variables, input identification, objectives and limitations of the study.

3.1 Choice of Topic and Area

Wage is a very important economic variable and it functions as a regard for the production of labor. It plays a crucial role in the modern process of production. So the wage payment has to be rationalized for the benefit of all concerned. Payments made on the basis of performance would help a country to achieve better results.

"Over the last 40 years of industrial development of India, wage earnings of the workers in organized industries have increased"1. Among them, "the share of wages in output and value added us 14.6 per cent and 66.7 per cent in the Cotton Textile Industry during 1982-84 which is the highest"2. Indian Textile Industry is the single largest in the world that provides a big boost to textile exports. Hence, the present study undertakes to analyze the wage trends and their relationships with selected variables in the Cotton Textile Mills.

The cotton Textile in India grew rapidly after independence and spread to Ahmedabad in Gujarat, Bombay in Maharashtra and Coimbatore in Tamil Nadu which are called the ABC of textiles. "The percentage share of these three important states in gross output and value added in Cotton Textile Industry at the national level are 17.0, 16.2, 28.8 and 15.1, 22.9, 28.4 respectively"3. Among the states, Tamil Nadu is dominated by spinning mills which account for 57 per cent of all spinning mills in the country. There are 628 mills (spinning and composite) located in Tamil Nadu. Added to this, 600 small spinning mills are also functioning with limited spindles. Though Coimbatore ahs expanded rapidly in the south as a leading textile centre since 1930[4], "two-thirds of Tamil Nadu's yarn production comes from the mills outside the Coimbatore region, mostly in Madurai and Dindigul and these mills have also been doing well financially5".

Some of the mills in Madurai District, are more than a century old and other mills are recognized internationally due to their export quality. Moreover, the textile unionism has its origin in Madurai District and most of the National Level Trade Union leaders started their careers only here. Also enormous production of cotton which is a basic raw material for spinning yarn in this District, has paved the way for the growth of the Cotton Textile Industry over decades. These are the fundamental reasons for selecting the Madurai District as the area for the present study.

3.2 Data Sources

The present study examines the wage trend and its relationship with Wage Composition, Money Wage and Real Wage, Employment, Capital and New Technology in the Cotton Textile Mills in Madurai District in the State of Tamil Nadu. It uses three types of statistics. The first type relates to the National and State level Statistics published by the Annual Survey of Industries (ASI) from the Central and Tamil Nadu Governments. Most of the related previous studies had examined data on wages on the basis of this first type only. Secondly unit-level data prepared in a standard ASI format for the annual reports of the spinning mills have been used. A few previous studies had made use of this type of data. The third type of data and the information have been collected from the present situation of the sample mills. These details relate to number of workers, basic wages, workload, dearness allowance, bonus, incentive, fringe benefits, unions, capital and the prevailing technology.

Wage payments are made on time-rate or piece-rate basis and sometimes they are a combination of both. Obviously Productive payments are more feasible with piece-rate system of wages. The Cotton Textile Industry has the highest piece-rate system, about 70 per cent. So data on money and real wages have been used to find the wage trend and relationship with selected important variables in the Cotton Textile Mills.

To crosscheck these data, registers of the Assistant Commissioner of Labor, Employer's Association and Trade Unions have been used with their circulars, memoranda and records relating to the period of study.

3.3 Period of Study

The annual figures provided by the Cotton Textile Mills pertain to a period of 12 months from April to March. The present study covers a period of 22 years. The period is looked at as a whole as well as in two parts. The first part covers the period from April 1975

to March 1986. (I Period). The second part covers the period from April 1986 to March 1997 (II Period). The third part covers the over all period from April 1975 to March 1997 (III Period). The year 1986 had been chosen as the year of division because upto March 1986 the basic wage had been treated as a separate component, and after April 1986 basic wage was revised along with a portion of dearness allowance which was merged with the basic wages after a Statewide Settlement. Moreover, a series of new technology, in terms of sophisticated machines for Cotton Textile Mills such as open-end machine, autoconer, cross roll, two-for-one with advanced technology was introduced only in the later part of 1986. This new technology not only speeded up the process of yarn production and also saved a number of processes but sometimes drastically reduced labor complements.

Since the Cotton Textile Mills have uniform pattern of production, the impact of new technology introduced in 1986 on wages, employment, value added, output and capital could be measured empirically. Thus, the wage trend and relationships among the selected variables could be found explicitly. Finally, a comparison between the first and second periods was made to find out the significant changes that had taken place in important variables before and after 1986 in the Cotton Textile Mills of Madurai District.

3.4 Selection of Sample Units

The cotton Textile Mills are traditionally classified according to the number of frames, spindles and the required number of workers as given in Table 3.1.

Table 3.1 Standarised Classification of Frames, Spindles and Workers in the Cotton Textiles Mill Industry.

Category of mills	Frames	Spindles	Workers
A	1-5	2,200	20 & Below
B	6-15	6,600	50-200
C	16-25	11,000	200-500
D	26 & above	Above 11,000	Above 500

Note: Single frame consists of 432 spindles approximately.

Source: South India Mills Association (SIMA), Coimbatore.

In the Madurai District, there are numerous units in the “A” category of which some are registered and some others are functioning as unregistered and unauthorized units. They are carrying not only the spinning process but ginning, waste cotton business, and related

activities in which all sorts of irregularities are being committed. Since the investment, assets, overheads, workers and the infrastructural facilities are limited, these units are not covered by the Indian Industrial Disputes Act of 1948. Moreover, the records regarding the number of workers actually engaged, hours of work, wages and provisions for welfare are not properly maintained in these units. So the "A" category spinning units are omitted from the present study.

Along with the "A" category units, two composite mills in the Madurai District are also not included in the present study for the following reasons.

1. Composite mills also follow the spinning process and continue with weaving, shrinking, sanforising, mercerizing, dyeing, finishing and other diversified activities under one roof.
2. Moreover, the composite mills produce diversified products such as threads, cloth, tarpaulins, rexin and industrial fabrics. So the areas of operation, investment, marketing, technology and labor requirements vary widely.
3. Composite mills have installed highly sophisticated machines with advanced technology that produces super fine quality products as per the market requirements. Moreover in these mills, certain job works are done by other ancillary enterprises which have separate entity.
4. The diversified products are produced at different places using bulk numbers of contract labourers co-ordinated through the head office that maintains a common accounting which includes the accounts of the spinning process under one head.

To avoid these complications, ambiguity and data problems, the two composite mills have been excluded along with the "A" category spinning units, for the present study.

In the Madurai District, the spinning mills which come under the B, C and D categories are 29[6] in number. For the purpose of analysis, 10 out of these 29 mills have been selected by adopting a proportionate probability sampling method. For the convenience of analysis, henceforth B, C and D category mills have been treated as Group I, Group II and Group III mills. The sample units selected from the three groups of Cotton Textile Mills for the present study are shown in Table 3.2.

Table 3.2 Selected number of Sample mills of different groups of cotton Textile mills in Madurai District

Category of Mills	Group	Total Number	Sample of selected mills
B	Group I	8	3
C	Group II	9	3
D	Group III	12	4

Note: Since the present study deals with reliable and confidential data, names of the sample mills are not revealed as requested by the concerned authorities.

Though, all these three groups of mills produce cotton yarn in varying capacities, the objectives of their management differ as the Group I mills are Private, Group II mills are Co-operative and Group III mills are Public Limited. Thus the differences in their characteristic features of management have influence on the internal economic operation of the mills concerned. Inspite of the common economic objectives of these three groups of mills such as creation of employment opportunities, increase in production, productivity, competitive capability and acceleration in the rate of capital formation, Group II mills owned and run under the co-operative system of the State Government suffer from congenital defects.7 Particularly the managerial decisions of these Group II mills are taken by the managing director who is the collector of the district concerned. As and when the tenure of the period of the collector expires, the new incumbent takes charge as the managing director. So, a thorough understanding of the functioning of these mills can not be had by the District collectors. Unlike the Group I and II mills, Group III mills have additional departments such as manpower planning, corporate planning, information technology, Industrial Engineering and Research and Development, for efficient functioning. Moreover, the members of the administrative board of these Group III mills are mostly high quality technocrats who could take appropriate decisions at the right time. Table 3.3 presents the distinguishable characteristic features of the selected three groups of spinning mills in Madurai District.

Table 3.3 Distinguishable characteristic features of the selected three groups of cotton Textile Mills in Madurai District.

	General Conditions	Group I	Group II	Group III
1.	Ownership & Management	Private	Co-operative (State Govt.)	Public Ltd.
2.	Average Spindles / Frames	4320/10	13392/31	41,472/96
3.	Number of shifts (per shifts 8 hours)	Not round the clock	Mostly round the clock	3 shifts round the clock
4.	Wages and overheads	Low	Moderate	High
5.	Volume of Production	Limited	Variable	Highly variable
6.	Labor cost per unit	Low	More	Very high
7.	Basic Wages (fixation)	Employer	Mutual	Bargaining
8.	Dearness allowance (Share in Wage Bill)	Very low percentage	High percentage	Very high percentage
9.	Bonus (Percentage)	Minimum 8.33	Above minimum	Maximum possible
10.	Incentive (Scheme)	Nil	Not effective	Effective
11.	Fringe benefits	Meager	Moderate	Highest
12.	Collective bargaining	Remote	To some extent	Very strong
13.	a) Permanent workers b) Badli c) Trainees	Very low Less High	Moderate Moderate Moderate	High High Less
14.	Absenteeism	10%	17%	23%
15.	New technology a) Machinery b) Rate of capital formation	Limited Not old Possible	Some Partially old Limited scope	Full Modern High scope
16.	Export potentiality	No scope	Limited scope	Wide scope

Source: Compiled from the records of the respective groups of Mills.

3.5 Tools of analysis

Simple percentages and averages are to be worked out for the selected variables such as wages, employment and capital. Correlation co-efficient between employment and wages, fixed capital and plant and machinery, fixed capital and output, fixed capital and

employment, plant and machinery and output are to be worked out for the three groups of mills separately.

Regression

Multiple regression model is to be computed taking the average nominal/real wage as the dependent variable and growth of output, workers, wage-output ratio, output per worker and fixed capital per worker as independent variables separately for the three groups of mills. And simple linear regression model is also to be worked out taking real wages as a dependent variables and employment as the independent variable. In addition, another simple linear regression model with output as the dependent variable and employment and plant and machinery as independent variables are to be estimated.

Trend and Growth Rate:

Trend and annual growth rates are to be found for the average wages, employment, output and fixed capital for the three groups of mills in the three periods selected for the study.

3.6 Concepts Used

1. Raw material: The amount of money spent on the purchase of cotton as the raw material annually is taken as the first component of the input used.
2. Power and fuel: The amount of money spent on power and fuel consumed annually is taken as the second component of the input used.
3. Input: The components of raw materials and power and fuel are added-up to arrive at the annual input.
4. Wages : Money payment made to the workers for their performance, gives the yearly wage bill which is the first component of value added.
5. Interest on borrowed capital: The amount of money as interest paid for the borrowed capital in a year is taken as the second component of value added.
6. Manufacturing and Selling Expenses: The expenses met with regard to the manufacturing and selling of yarn in a year is taken as the third component of value added.
7. Depreciation: The amount of money depreciated at a percentage every year is taken as the fourth component of value added.
8. Value added: The sum of components of wages, interest on borrowed capital, manufacturing and selling expenses and depreciation give the annual value added.

9. Output: This is the sum of the input and value added together in every accounting year.
10. Fixed capital: This includes the annual value of money of land and buildings, plant and machinery, equipment and other forms of fixed capital invested.
11. Plant and Machinery: This covers the annual value of the plant and machines alone.
12. Workers: Number of workers, on the muster roll, are treated as workers. They are permanent, badli and trainees.
13. Profit: It is obtained by noting the difference between the total revenue and total cost in an accounting year.
14. Spindle age: A single frame consists of 432 spindles that spin yarn which is taken as the indicator of its capacity.
15. Capacity utilization: It is the ratio between the standard capacity of spindles and the capacity actually utilized.

3.7 Objectives of the Study:

1. To analyse wage composition and structure of wages before and after the introduction of New Technology in the selected three groups of Cotton Textile Mills in Madurai District.
2. To analyse and compare wage trends and differentials before and after the introduction of New Technology in the selected three groups of Cotton Textile Mills in Madurai District.
3. To identify the factors which influence the nominal and real wages of Textile Mill workers before and after the introduction of New Technology in the selected three groups of Cotton Textile Mills in Madurai District.
4. To analyse output, input and wage share before and after the introduction of New Technology in the selected three groups of Cotton Textile Mills in Madurai District.
5. To study the impact of new technology on wages and employment in the selected three groups of Cotton Textile Mills in Madurai District.

3.8 Limitations of the Study:

1. The present study is confined to the selected three groups of Cotton Textile Mills in the Madurai District in the State of Tamil Nadu only.

2. Wage trend analysis covers only the secondary data given by the mills from their annual records and balance sheets. In cases where only monthly details are available, they are converted through multiplication by twelve to arrive at the annual figures.
3. Wage and non-wage cost of contract workers were not taken into account which were difficult to distinguish from that of regular workers.
4. The wage trend, capital, new technology, productivity and profits are decided by their respective managements such as private, co-operative and public limited. But, the present study does not go deep into the nature, scope and varying capabilities of the managerial structure of three groups of mills selected in the Madurai District.

3.9 Functions of various departments in Cotton Textile Mills

i) Mixing:

Cotton bales are issued on the mixing ratio percentage prescribed by the raw materials' manager for different varieties.

ii) Blow room:

Blow room workers produce blow room lap. While producing lap, the wastes like seeds, leaves, dust, soil and other unusable waste which is around 6 percent of the input are removed from raw cotton.

iii) Carding:

The blowroom lap is converted into silver in the carding department using carding machine. Here the waste is around 5 per cent of the input given.

iv) Drawing:

There are two types of drawings. They are breaker drawing and finisher drawing. Here, eights carding silvers are twisted as single silver for more strength.

v) Combing:

Combing machines are used to remover further waste. Here, fine silvers are formed and post combers twist them again.

vi) Simplex (Roving):

Drawing silvers are formed as roving ends here. They are wound in simplex bobbin and taken for spinning.

vii) Spinning:

Different counts of yarn are spun by changing the wheels, pulleys and parameters. Lower count yarn is coarser and higher count yarn is finer which is wound with bobbins. This

stage among the overall processing is crucial and important because the quality and strength of the yarn are basically decided.

viii) Cone Winding:

Here, yarn is wound on paper cones of five or nine degrees as per market requirement.

ix) Reeling:

The yarn is wound on reels to get hand yarn. This type of yarn is produced for handloom weavers.

x) Doubling:

For extra strength, the single yarn is doubled. Two cones are parallelly wound on single cheese. After this, they are taken back to wind on cones.

xi) Packing:

Cone yarn is packed in bags and cartoon box. Hank yarn is packed in the form of bales through baling machine.

New technology-oriented spinning processes

The Cotton Textile Industry with traditional kind of machinery and equipment cannot afford to pay higher wages and non-wage cost. Hence the sophisticated new technology-oriented machines suitable in the various stages of production were introduced in mid-1986. Some of them are imported and others are indigenously produced.

I. Open-End Machines

Open-End machines are used with new technology for higher speed. However, they can be used for limited counts only. The simplex and spinning processes are saved here. Thus, the labor complements are reduced to a great extent which ultimately reduces labor cost.

II. Auto Coner

Auto coner is based on the labor requirement and it speeds up output. The machine is fully automatic using the latest technology which delivers yarn spun on the cones.

III. Cross Roll

This eliminates the blow room and carding operations. Further, it runs at a higher speed that requires less labor thus reducing labor cost considerably.

IV. TFO (Two for One)

This comes from the latest technology by which the function of doubling machines is done by one and finished doubled yarn is produced her itself which eliminate the final winding section in total.

CHAPTER IV

A STUDY ON WAGE TRENDS AND DIFFERENTIALS IN THE SELECTED GROUPS OF COTTON TEXTILE MILLS IN MADURAI DISTRICT

Wage trends and differentials are necessary concomitants of the wage system in the industrial organizations and have been recognized all over the world. Wage differentials are directly related to the allocation of economic resources of the enterprises concerned. They reflect the size of the organization, capital employed efficiency of the management, trade unionism and the number of workers employed. Moreover, the nature and extent of wage differentials are conditioned by factors such as the conditions prevailing in the factor and product market, the extent of unionization, the relative bargaining power of the employers and workers, the prevailing rates of wages and the general economic, industrial and social conditions in the country. However, no satisfactory explanation has been developed for the continued existence of genuine inter-firm wage differentials. Differences in technological advance, product market, financial capacity, availability of raw materials and power are some of the significant variables that influence the inter-firm wage rates. Hence, the present chapter discusses the wage trends and differentials in the mills of Groups I, II and III before 1975-1986 and after the introduction of new technology in 1986-1997, and during the overall period of 22 years (1975-1997).

In order to estimate the wage trends and annual growth rate, exponential equation1 of the following form was used.

$$\log y = a + bt$$

Where y = money / real wages

t = time variable in years

a and b are the parameters to be estimated.

The above equation was estimated for Groups I, II and III mills separately among different sub-periods of 1975-1986 and 1986-1997 and the overall period 1975-1997, by the method of least squares.

4.1 Money Wages

Workers as a majority, are interested in the increasing trend for money wages all the time without considering any other factor. Increased money wages are assumed by the workers to enhance their purchasing power and meet their day-to-day necessities. So, workers at both micro and macros levels aim always for wage hikes. Thus, some regions and even some industries become 'wage Islands' in the country. A national perspective on money wages is very important because it has more to do with the economic functioning of the productive sectors. Trade unions try their best to raise the wage level through collective bargaining and threat to strike, and they seek judicial help to attain increase in wages periodically.

After 1975, the money wages have steadily increased in almost all the industries, and the industries in which traditional unions were active had to pay more than other industries where such forces were lacking. As far as the cotton Textile Industry is concerned, its tradition and growth start from the early years of this century. It has a big labor force throughout the country. Moreover, the trade unions belong to different political parties which can influence even parliamentary decisions. Many of the leaders in those unions are members of Parliament Committees and they have a clout with the Centre and State Governments. Thus, the scope for increasing money wages is great inspite of the strong resistance from the Employers' Associations of the Cotton Textile Mills.

A comparison of average money wage paid to the workers, provides the relative wage position. The comparison of average money wages of different groups of Cotton Textile Mills in Madurai District in presented in Table 4.1.

Table 4.1 Comparison of Average money wages in cotton textile mills in Madurai District during 1975-1997

(Rs. In Lakhs)

Years	Group I Average Money Wage	Group II Average Money Wage	Group III Average Money Wage
1975-76	1.01	3.12	271.05
1976-77	1.09	3.20	288.46
1977-78	1.05	6.50	290.45
1978-79	1.11	12.00	300.93
1979-80	1.24	15.00	329.97
1980-81	1.65	19.55	358.92
1981-82	2.08	24.59	377.58
1982-83	3.86	27.83	396.63
1983-84	3.78	32.30	431.81
1984-85	7.10	41.04	436.36
1985-86	8.87	48.65	479.04
1986-87	11.03	62.21	368.85
1987-88	15.26	70.53	420.44
1988-89	30.39	73.04	394.11
1989-90	29.99	77.92	470.13
1990-91	30.72	80.21	475.44
1991-92	32.74	82.76	483.08
1992-93	32.20	85.38	490.52
1993-94	34.39	90.84	501.44
1994-95	36.51	97.27	507.96
1995-96	38.21	107.46	516.73
1996-97	40.16	118.39	526.84

Average	$\bar{x}$	CV%	$\bar{x}$	CV%	$\bar{x}$	CV%
I Period	2.99	86.28	21.25	68.28	360.11	18.54
II Period	30.15	28.68	86.00	18.36	468.69	10.55
III Period	16.56	90.57	53.63	66.66	414.39	19.30

Source: Computed from Annual Records of the respective mills.

$\bar{x}$ *- Mean, CV – Coefficient of Variation in Percentage*

Table 4.1 shows that the average money wage in Group I mills has increased from Rs.1.01 lakhs in 1975-1976 to Rs.40.16 lakhs in 1996-1997 whereas the increase was from Rs. 3.12 lakhs to Rs. 118.39 lakhs for Group II mills. In Group III mills the same had increased from Rs.271.05 lakhs to Rs.526.84 lakhs. The mean value of average money wage in percentage for Group I mills had fallen from 86.28 in the first period to 28.68 in the second

period. The moves and counter moves of the mills management and trade union movements result in the variation of money wages especially in the second period. However, the employers of Group I mills have full control over the work environment unlike the other two groups. In the overall period the value of the co-efficient of variation was 90.57. This may be because of lack of co-ordination among various departments within and among the mills in Group I.

In the Group II mills, the mean value of average money wage increased from Rs.21.25 lakhs to Rs.86 lakhs, from the first to the second period. But the value of the co-efficient of variation in percentage of the average money wage had fallen from 68.28 to 18.36 in the same period. Since the size and capacity of these mills are higher than the Group I mills, the mean of average money wage is higher as the workload revision and strict recruitment policy with proper allocation of work assignment helped these mills to have less variation of money wage especially in the second period. In the overall period, the mean value of money wage and its co-efficient were 53.63 and 66.66 respectively where the former is higher and latter is less compared to Group I mills.

For Group III mills, the mean value of the average money wage was Rs.360.11 lakhs in the first period that increased to Rs.468.69 lakhs in the second period. At the same time, the co-efficient of variation is the lowest of 18.54 that further came down to 10.55. This may be because of the reason that these mills produce high quality yarn for exports with the capacity to pay higher wages and they have better control of variation in money wages by adopting various measures. These mills have computerized programmes of their operation with regard to machine and labor. Inspite of heavy trade union pressure to increase wages, these mills could control the wage increase to a possible extent with frequent revision of workload settlement with increased efficiency and its implication at the departmental level. Moreover, the reduction in workforce is as per the requirements of the level of advanced technology in which speedy machines reduce labor complements. In the overall period, the mean value of money wage and its co-efficient of variation were Rs.414.39 lakhs and 19.30. Since these mills concentrate on exports with the sophisticated production process, in a more scientific manner along with research and development, the employment level is maintained, at a reduced level.

The trend and annual growth rate of average money wage is calculated for each group of mills separately for periods 1975 to 1986 and 1986 to 1997 and the overall period 1975-

1997. Because of the alterations in the wage composition and reductions in the level of employment along with the introduction of new technology in the year 1986, the trend and growth rates before and after 1986 were studied, along with the trend and growth rates for the entire period of time, to facilitate a meaningful study of money wage.

The trend and annual growth rates of average money wages in Cotton Textile Mills in Madurai District are shown in Table 4.2.

Table 4.2 Groupwise trend and annual growth rates of average money wages in Cotton textile mills in Madurai District during 1975-1997

Category	Trend a	Co-efficient b	R^2	Growth Rate %
Group I				
I Period (1975-1986)	-1.2620	0.7079* (5.2157)	0.7514	25.75
II Period (1986-1997)	15.6238	2.4211* (5.7046)	0.7833	10.52
III Period (1975-1997)	-9.2462	2.2447* (13.4479)	0.9004	24.17
Group II				
I Period (1975-1986)	-5.8923	4.5241* (17.3867)	0.9710	32.46
II Period (1986-1997)	56.9652	4.8392* (11.7832)	0.9391	5.73
III Period (1975-1997)	-10.6231	5.5869* (33.9595)	0.9829	17.24
Group III				
I Period (1975-1986)	234.9469	20.8603* (18.9377)	0.9755	5.97
II Period (1986-1997)	381.7203	14.4941* (7.4131)	0.8592	3.26
III Period (1975-1997)	278.5807	11.8101* (11.9522)	0.8771	3.04

Figures in parantheses are the t-values

** indicates that the trend co-efficient are statistically significant at 5% level.*

The trend co-efficients of average annual money wages are found to be positive and significant at 5 per cent level in all the three categories of mills during the sub-periods and the overall period. The annual growth rates are observed to be 25.75 per cent, 32.46 per cent and 5.97 per cent for Group I, II and III mills respectively before the introduction of new

technology. Comparison of the second period indicates that the introduction of the new technology paved the way for pruning of labor which resulted in the reduction of money wages in the period 1986-1997 more in Group II and III over the Group I mills.

Comparing the growth for the overall period for the three categories of mills, the growth rates are found to be high in Group I at 24.17 per cent. In the Group I mills, payment of wages as well as workload revision are not scientifically followed as a result, the number of workers could not be effectively engaged in the production process as in larger mills. Moreover, the monitoring of wages with regard to production and productivity, relating to the technology is relatively difficult. Thus, there is enough scope for money wages to increase. In the Group II mills, the situation is somewhat better. This helps them to have a better check on the increasing tendency of money wages. However, the bilateral settlement on workload and its revision did not happen as it should. The time-gap between the first and the next settlement of work load revision took place after a gap of 7 to 15 years in Group I and 7 to 10 years in Group II mills.

In Group II mills, the annual growth rate of money wages was 32.46 per cent, much higher than for any other group before the introduction of new technology, during 1975-1986. But after that, the growth rate had come down to 5.73 per cent due to various reasons such as reduction of workers and not filling up the permanent vacancy that may arise and encouraging voluntary retirement. Wage hikes and tremendously increasing welfare costs could be significant factors in reducing employment growth.

In Group III mills, the corporate planning and man-power planning are being done properly. While the former is done every 2 to 3 years, the latter is done every year. And these actions are based on scientific lines such as time and motion study by reputed research organizations such as South India Textile Research Association in South India and Ahmadabad Textile Industrial Research Association in North India. In addition, the ratio of wage cost to the total cost is strictly maintained at the minimum in every budget. Thus these Group III mills could maintain the minimum percentage growth of money wages.

4.2 Real Wage

With the help of the consumer price index numbers for industrial workers in Madras, Tamilnadu, with 1975 as base year and taking average wage in textile mills of the three groups, real wages of workers have been estimated. Workers in recent times, had shown interest not only in increased money wages but also in the increase in real wages. The

developing countries like India have to bear the cost of escalation and spiraling prices, which has led to industrial stagnation and falling of real wages in the organized Industrial sector. During the inflationary situations, the real wages are eroded and the standard of living of the workers goes down inspite of their increased money wages. In the developing countries, stagnant and falling real wages are common and there are lots of problems involved in the construction of consumer price index for the industrial workers. The trend and growth of real wages reflect the standard of living of the workers. Real wages show the purchasing power with which the workers are able to buy goods and services.

Table 4.3 presents the average real wages of different groups of Cotton Textile Mills in Madurai District for 22 years during 1975-1997.

Table 4.3 Comparison of Average real wages in cotton textile mills in Madurai District during 1975-1997

(Rs. In Lakhs)

Years	Group I Average Real Wage	Group II Average Real Wage	Group III Average Real Wage
1975-76	0.99	3.06	266.51
1976-77	1.06	3.13	282.38
1977-78	1.01	6.29	281.36
1978-79	1.05	11.43	286.81
1979-80	1.06	12.93	284.48
1980-81	1.23	14.60	268.17
1981-82	1.46	17.29	265.62
1982-83	2.33	16.84	240.04
1983-84	2.16	18.48	247.08
1984-85	3.75	21.68	230.59
1985-86	4.31	23.67	233.07
1986-87	4.87	27.50	163.09
1987-88	6.13	28.36	169.11
1988-89	11.48	27.60	148.99
1989-90	10.54	27.40	165.36
1990-91	9.49	24.80	147.02
1991-92	8.83	22.33	130.40
1992-93	8.04	21.32	122.53
1993-94	7.70	20.34	112.31
1994-95	7.77	20.68	108.04
1995-96	7.47	20.97	100.84
1996-97	7.33	21.62	96.24

Average	$\bar{x}$	CV%	$\bar{x}$	CV%	$\bar{x}$	CV%
I Period	1.85	60.54	13.58	49.33	262.53	7.72
II Period	8.15	21.96	23.90	12.92	133.08	19.30
III Period	5.00	69.60	18.74	39.16	197.80	34.74

Source: Computed from Annual Records of the respective mills.

$\bar{x}$ *- Mean, CV – Coefficient of Variation in Percentage*

Table 4.3 provides a comparison of the real wages of the workers in the three groups of Textile Mills in Madurai District. For Group I mills, the real wage has shown an increase from Rs.0.99 lakhs in 1975-1976 to Rs.11.48 lakhs during 1975-1989. From 1989-1990 real wage declined from Rs.10.54 lakhs to Rs.7.33 lakhs in 1996-1997. For Group II mills, also a similar trend is noticed with real wages showing an increase from Rs.3.06 lakhs to Rs.28.36 lakhs in 1987-1988 and then declining to Rs.21.62 lakhs in 1996-1997. For Group III mills, the real wage declined from Rs.266.51 lakhs in 1975-1976 to Rs.96.24 lakhs in 1996-1997 with slight variations in between the years.

The comparison of real wages of workers in the three groups of mills in Madurai District during the period of study reveals that the real wages of Group I and II have increased upto the late eighties whereas in the nineties, real wages have fallen. This may be due to the wage changes on account of annual increments in the basic wages and index at pre-determined rates of neutralization. “Since the basic wage and dearness allowance constitute a stable proportion of total earnings, the single-most contributing component of dearness allowance”2 almost decides the real wages of the Industrial workers.

But the consumer price index on which the dearness allowance is calculated loses its value and importance, especially in recent years, as the Indian Economy is poised for higher rate of inflation. To quote, “the measurement of inflation in India is a complex task”3 and “the present system of basing the dearness allowance in most cases on a neutralization of less than 100 percent has the cumulative effect of pulling real wages below the chosen level”4.

In Group III mills, the real wages had declined registering fluctuations throughout the period. This may be due to the fact that the annual growth rate of money wages of Group III workers was the lowest at 3.04 per cent while it was 17.24 per cent for Group II and 24.17 per cent for Group I workers (vide Table 4.2). Moreover, the rate of absenteeism was the highest at 23 per cent while the same was 10 per cent and 17 per cent for Groups I and II

mills (vide Table 3.3). The employers save on money wages, as the merger of large and uniform amounts of dearness allowance with the basic wages, curtails the gross earnings of the workers in accordance with their attendance and performance.

While the mean values of real wages of Group I and II mills have increased in the second period over the first period, the same had fallen in the Group III mills. Moreover, the average real wages of the three groups of mills in the overall period were Rs.5.00 lakhs, Rs.18.74 lakhs and Rs.197.80 lakhs respectively.

The values of the co-efficient of variation of real wages were 60.54, 49.33 and 7.72 in the first period which came down to 21.96, 12.92 for Group I and II mills respectively, while it rose up to 19.30 for Group III mills in the second period. However in the overall period, the same were 69.90, 39.16 and 34.74 for the three groups of mills respectively. The variations in the real wages may be due to the changes that occurred in the money wages with regard to factors such as the payment of dearness allowance, permanency of workers, proportion of various categories of employment and the capacity of the mills concerned and the like. Generally, the payment of dearness allowance has been a regular practice for their eligible permanent workers who completed 240 working days in Group II and III mills, as they are bound by the South India Mills Association regulations. In the Group I mills, workers getting employment on permanent basis are a limited percentage and all other workers are not treated alike. Moreover, the employment of casual labor on contract basis facilitates the Group I mills to lay off their workforce without due compensation. This administrative tactics and strategy cannot be adopted by the Group II and III mills because of the strength of the trade unions and government machinery. Besides they come under the statutory orders and other regulations of the Industrial Disputes Act of 1948.

The computed results of trend and the annual growth rates of average real wages during 1975-1986, 1986-1997 and 1975-1997 are given in table 4.4.

Table 4.4 Groupwise trend and annual growth rates of average real wages in Cotton textile mills in Madurai District during 1975-1997

Category	Trend a	Co-efficient b	R^2	Growth Rate %
Group I				
I Period (1975-1986)	0.0134	0.3070* (5.1704)	0.7481	16.29
II Period (1986-1997)	8.1827	-0.0054* (-0.0288)	0.7249	0.79
III Period (1975-1997)	-0.3737	0.4675* (7.2513)	0.7244	13.81
Group II				
I Period (1975-1986)	1.0981	2.0809* (15.3551)	0.9632	22.40
II Period (1986-1997)	29.2101	-0.8847* (-6.3125)	0.8157	-3.59
III Period (1975-1997)	8. 9267	0.8535* (-6.3125)	0.5441	7.41
Group III				
I Period (1975-1986)	295.1409	-5.4359* (-4.7893)	0.7182	-2.09
II Period (1986-1997)	180.0356	-7.8251* (-10.7353)	0.9275	-5.84
III Period (1975-1997)	318.4529	-10.4911* (-17.3462)	0.9376	-5.59

Figures in parantheses are the t-values

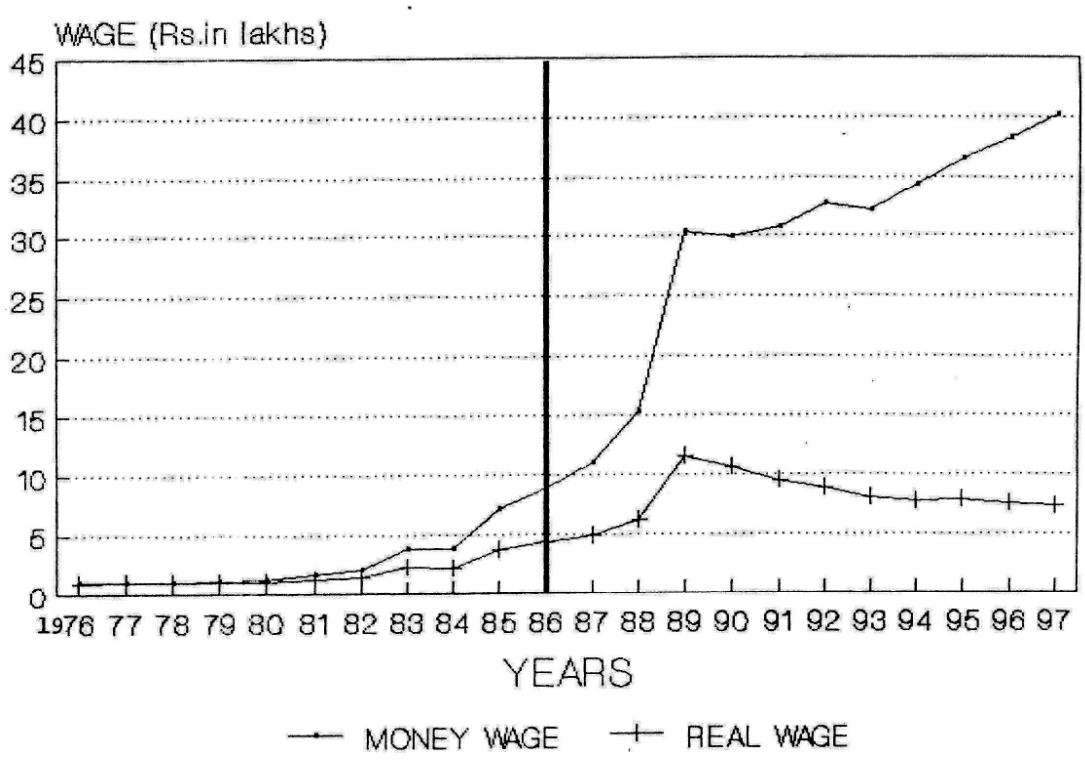
** indicates that the trend co-efficient are statistically significant at 5% level.*

It is observed from Table 4.4 that the co-efficients of real wages in all the three categories in the sub-periods are found to be significant at 5% level except during 1986-1997 in Group I mills. The growth rates of real wages for the first period were found to be 16.29 per cent, 22.40 per cent and -2.09 per cent for Groups I, II and III respectively. After the introduction of New Technology, the growth rates were found to have declined to 0.79 per cent, -3.59 per cent and -5.84 per cent for Groups I, II and III respectively. This may be due to the drastic revision of work-load with reduced employment agreed to by the trade unions.

Moreover, with the merger of Dearness Allowance with basic wages, the bulk of the wage packet has increased in proportion to the attendance of worker and his performance. It is a tragic fact that "the rate of absenteeism in Cotton Textile Industry is much higher than other Industries"5. Thus, the merger of the Dearness Allowance with the basic wages favours the employer by savings in unwanted payment of wages, as before. At the same time, it is

monetarily beneficial for the workers who get full attendance and who give good performance. The trends in money wage and real wage of Group I are depicted in Figure 1.

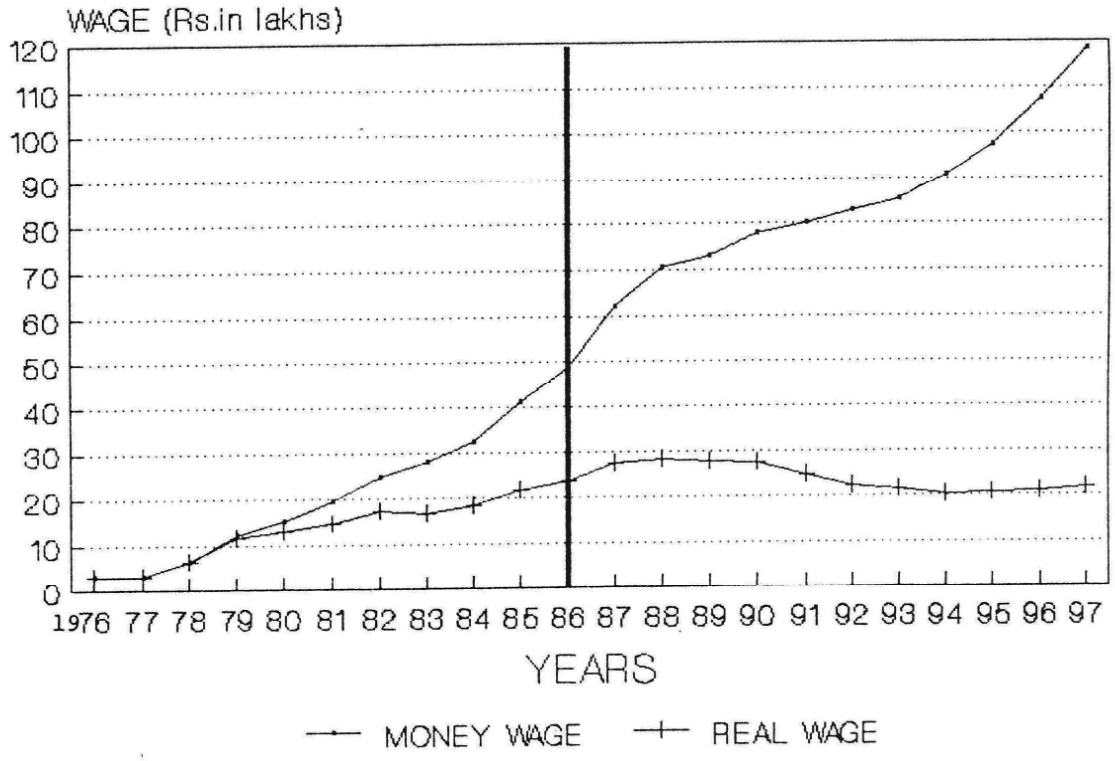
Figure 1: Momey and Real wages Before and after 1986 in the Group I Cotton Textile Mills in Madurai District



According to the graph in Group I mills, (Fig.1) there is no perceptible gap before 1986 between money wage and real wage. After 1986, the gap has been widening with the money wage curve registering a sharp upward trend and it continues to be the same till the end of the period of study. The Group I mils are owned and run by Private Managements which have full control over the functioning. But the workers of these mills belong to the state level trade union organization which fights for uniform wage revision and wage hikes. Moreover, the size and operation of these mills are limited, as a result, the capacity to pay is less. The only option that helps these mills is the employment of different categories of workers invarying proportions which helps to save a little in wage cost. With regard to the real wages, the movement of real wage curve slowly rises after 1986, and then declines slightly.

Figure 2 presents the money wage and real wage curves for Group II mills.

Figure 2: Money and Real Wages before and after 1986 in the Group II Cotton Textile Mills in Madurai District.



As per the graphs for Group II mills, (Fig.2) even before 1986, the gap between money and real wages is seen and it gradually widens. Unlike the Group I mills, both the curves are smooth as these mills are run by the co-operative system of management which has more representative workers in the administrative body. This facilitates the workers of these mills to have favorable and reasonable bargains. However, after 1986, the gap between the money and real wages is seen to be at its widest. This may be because of the ever-increasing wage cost along with the increases in the general price level and the trade unionism favoured by the ruling party at the State government Level. In practice, the real wages of workers are much affected as the real wage curve portrays a gradual reaching of the climax in 1988 and then an gradual marginal decline.

Figure 3 presents the money wage and real wage curves for Group III mills.

Figure 3: Money and real wages before and after 1986 in the Group III cotton textile mills in Madurai District.

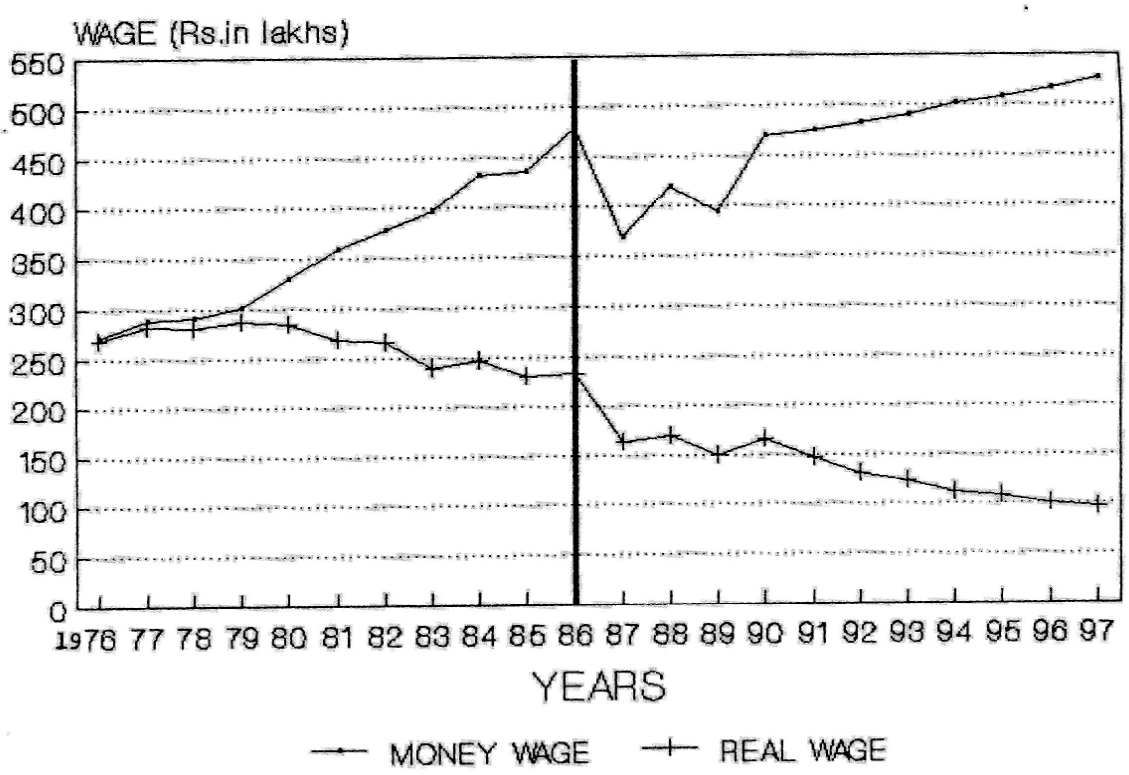


Figure 3 shows that the age-old Group III mills have workers who are virtual wage-makers. There seems to be a perceptible gap well before 1986, between money and real wages and then a gradual raising trend. Moreover, the curves are not smooth, and the employers and trade unions have cut-throat bargaining at every stage of wage and work load revision. In fact, after 1986 with the State level agreement of wage revision, resulting in considerable reduction in workforce due to the introduction of new technology, the money wage curve registers a steep decline followed by an erratic upward movement to ease in the middle of 1990. As these mills with sophisticated technology revise the workload frequently, at the departmental level, it helps the managements of these mills to have full control over the labor force. On the other hand, the workers at their best get the maximum possible money wages within their bargainable limits. However, the real wage of workers in these mills cannot be considered a gain as there is an increase in the general price level bringing about an inflationary trend in the Economy. Thus, the real wage line of these mills, represents a chequered downward trend.

4.3 Factors influencing nominal and real wages:

In order to find the factors influencing money wages and real wages, multiple linear regression analysis is used, with average wage rate per worker as a dependant variable and annual growth of output, employment, wage-output ratio, output per worker and fixed capital per worker as independent variables. The influence of these selected variables are carefully analysed as they are very crucial in deciding upon the money and real wage rats that have a close association with the overall performance of the Cotton Textile Mills in the Madurai District.

In order to identify the factors which influence the nominal and real wages of the textile mill workers, the following form of multiple linear regression model7 was used.

$$Y = a + b_1x_1 + b_2x_2 + \ldots\ldots\ldots + b_5x_5 + u$$

Y = Average nominal / real wage (Rs. In lakhs)

x_1 = Average annual growth of output (Rs. In lakhs)

x_2 = Employment (Number of workers)

x_3 = Wage – output ratio

x_4 = Output per worker (Rs. In lakhs)

x_5 = Fixed capital per worker (Rs. In lakhs)

u = disturbance term

a, b_1, b_2 …… b_5 are the parameters to be estimated. The above model was estimated by the method of least squares for three groups of mills for sub-periods and overall.

Results and Discussion:

The estimated results on the basis of least square method for the period 1975-1986, that is before the introduction of new technology, results after the introduction of the new technology in 1986-1997 and the results for the overall period of 1976-1997 are given in Tables 4.5 and 4.6.

Table 4.5 Estimated multiple regression results of factors influencing the average money wages of workers in cotton Textile mills in Madurai District during 1995-1997

	1975-76 to 1985-86			1985-86 to 1996-97			1975-76 to 1997		
	Group I	**Group II**	**Group III**	**Group I**	**Group II**	**Group III**	**Group I**	**Group II**	**Group III**
Constant	-1.8141	-29.9317	1624.1937	35.4523	18.8337	849.1097	1.8798	94.9969	1371.1468
Average annual Growth of output (x_1)	-0.0386 (-1.1556)	0.1987* (5.6240)	0.3851* (3.1336)	0.0254* (3.7892)	-0.1007 (-0.9058)	0.0475 (2.1847)	0.0047 (0.5028)	0.1786* (2.7775)	0.1883* (18.5084)
Employment (x_2)	0.0256 (1.8952)	0.0130 (0.2956)	-0.3890* (-2.7741)	-0.0348 (-0.6776)	0.2605 (1.2079)	-0.1251* (-2.9711)	0.0472 (1.9234)	-0.1405 (-1.8243)	-0.3123* (-12.5735)
Wage – output ratio (x_3)	-0.1244* (-7.2932)	-0.0802 (-0.2373)	-35.0307* (-2.6400)	-0.4912* (-53.8469)	-9.4235* (-21.4540)	-21.4618* (-13.7824)	-0.2172* (-4.2289)	-2.1380 (-2.0145)	-32.7867* (-10.7266)
Output per worker (x_4)	8.5484 (1.5370)	-60.9474* (-4.1786)	-987.7293* (-2.9530)	-2.5204 (-2.3127)	128.7085 (2.4787)	5.3120 (0.0946)	2.9302 (1.4657)	-19.8321 (-0.6126)	-318.2709* (-12.2095)
Fixed capital per worker (x_5)	19.1148 (1.8265)	66.4581 (2.2900)	232.9232 (1.0405)	14.1677* (9.3057)	-142.7486* (-4.5264)	-52.3547* (-4.0201)	-0.6660 (-0.0596)	-37.4722 (-0.7707)	-26.7436 (-1.2590)
R^2	0.9904	0.9938	0.9977	0.9998	0.9985	0.9990	0.9872	0.9744	0.9928
No. of observation	11	11	11	11	11	11	22	22	22

From Table 4.5, it could be observed that the value indicates that all the explanatory variables account for nearly cent per cent variations on money wage for all the three periods of all the three groups of mills. This shows the model used is appropriate. During the first period, wage-output ratio (x_3) was found to be significant and it has negative relation with money wage for Group I mills. All other independent variables for Group I mills were found to be insignificant in influencing the money wage. For Group II mills, average annual growth of output (x_1) and output per worker (x_4) were statistically significant for influencing money wage. Average annual growth of output is positively related with money wage. It indicates that one unit increase in growth of output will effect 0.1987 unit increase in money wage and one unit increase in output per worker will cause 60.9474 units decline in money wage. In case of Group III mulls, out of five selected variables, three variables namely average annual growth of output (x_1), employment (x_2) and output per worker (x_4) were statistically significant. Among these, average annual growth of output (x_1) has positive relation with money wage and other two variables are negatively related with money wage. It is observed from the analysis that a unit increase in output per worker causes decline in money wage of 60.9474 and 987.7293 units for Group II and III mills respectively. This may be due to the fact that these two groups of mills produce higher count quality yarn which require more usage of machines than labor.

During the second period, out of the five independent variables, average annual growth of output (x_1) and employment (x_2) are statistically significant for Group I and Group III mills respectively. With regard to wage-output ratio (x_3) and fixed capital per worker (x_5) these are also statistically significant for all three groups of mills. Particularly, the wage-output ratio was found to be negatively related with money wages. This confirms that he employers of these mills are keen to reduce wage-output ratio (x_3) in order to control money wages of workers. Moreover, the fixed capital per worker (x_5) with the introduction of new technology in Group II and Group III mills helps to reduce the cost of production, particularly wage.

In the overall period, average annual growth of output (x_1) was found to be significant and positively related with money wages for Group II and Group III mills. The variable wage-output ratio (x_3) was found negatively related with money wages for all the three groups of mills but it is statistically significant for Group I and Group III mills only. Moreover, employment (x2) and output per worker (x4) were statistically significant and

negatively related with money wage for Group III mills. This shows that a unit increase in x_2 and x_4 variables effect 0.3123 and 318.27 units decline in money wage respectively.

It may be thus concluded from the above results, that the overall growth of output has a positive significance on money wage while all the other independent variables are negatively related to money wage. This shows that money wage increases with the growth of output in an inflationary situation that increases the cost incurred by these mills.

The following table 4.6 presents the estimated multiple regression results of factors influencing real wages of workers in the Cotton Textile Mills in Madurai District.

Table 4.5 Estimated multiple regression results of factors influencing the average real wages of workers in cotton Textile mills in Madurai District during 1995-1997

	1975-76 to 1985-86			1985-86 to 1996-97			1975-76 to 1997		
	Group I	**Group II**	**Group III**	**Group I**	**Group II**	**Group III**	**Group I**	**Group II**	**Group III**
Constant	-2.8374	52.2417	-555.9056	45.8704	-6.1628	264.6354	0.0164	41.9822	-344.6141
Average annual Growth of output (x_1)	-0.0772* (-3.6791)	0.1656* (4.0780)	-0.1691 (-0.8063)	0.0683* (5.4029)	-0.0315 (-0.2126)	0.1032 (0.4508)	-0.0084 (-2.2307)	0.0940 (1.7341)	-0.1720* (-6.5401)
Employment (x_2)	0.0363* (6.5774)	0.0772 (-2.4925)	0.2516 (1.2949)	-0.2323* (-4.8342)	0.0789 (0.6016)	-0.0538 (-0.2351)	0.0288* (4.1003)	-0.0409 (-0.7341)	0.2150* (3.2862)
Wage – output ratio (x_3)	-0.0770* (-8.3653)	-0.4075* (-3.6240)	-23.6541* (-6.1539)	-0.1399* (-39.2975)	-1.5803* (-22.0866)	-2.3179 (-1.8318)	-0.1045* (-9.7453)	-0.8802* (-4.2137)	-1.6929 (-1.8756)
Output per worker (x_4)	15.3345* (4.5676)	-33.0489 (2.1477)	850.9403 (1.2389)	-8.8652* (-4.3483)	42.9692 (0.6169)	-226.2346 (-0.3663)	4.4171* (6.2790)	-17.0624 (-0.7369)	500.8274* (-6.4965)
Fixed capital per worker (x_5)	1.5177 (0.4899)	-49.0447* (-2.8585)	-26.8824 (-0.0871)	12.3043* (4.2326)	-17.8400 (-0.8571)	30.6862 (0.1064)	2.5012 (0.3092)	-25.7893 (-0.7675)	-179.1799 (-2.2304)
R^2	0.9903	0.9923	0.9822	0.9989	0.9956	0.9655	0.9839	0.9472	0.9889
No. of observation	11	11	11	11	11	11	22	22	22

The R2 value from the table 4.6 indicates that all the explanatory variables for all the three groups and also the three periods explain nearly cent per cent variation in real wage of workers of these mills. During the first period for Group I mills, all the independent variables except fixed capital per worker (x_5) were found to be significant. Among these variables, average annual growth of output (x_1) and wage-output ratio (x_3) have negative relation with real wage whereas employment (x_2) and output per worker (x_4) were found to be positively related to real wage. The positive relation of the employment (x_2) and output per worker (x4) with real wage may be due to the fact that the production of lower counts yarn in Group I mills gives more importance to labor than capital. In the case of wage-output ratio (x_3) which was found to be significant and negatively related with real wage for all the three groups of mills, this variable assumes importance. Fixed capital per worker was found to be significant and negatively related with real wage for Group II mills alone. It is observed that Group II mills having old and partly traditional machinery in use, may account for such a relationship.

During the second period, all the independent variables for Group I mills were found to be significant. Among these, except the average annual growth of output (x_1), fixed capital per worker (x_5), three variables namely employment (x_2), wage-output ratio (x_3) and output per worker (x_4) have negative relation with real wage.

In the case of Group II mills, for the second period, wage-output ratio (x_3) alone was found to be significant and negatively related with real wage whereas in the case of Group III mills, none of the independent variables were found to be significantly related.

In the overall period, three variables for Group I mills were found to have significant relation with real wage. Among them, wage-output ratio (x_3) was found to be negatively related with real wage. In the case of Group II mills, wage-output ratio alone was statistically significant and negatively related to real wage. Out of five variables, three namely average annual growth of output (x_1), employment (x_2) and output per worker (x_4) in Group III mills were found to be significant. While the average annual growth of output has negative relation, the other two variables were found to be positively related to real wage. This is in confirmation with the regression results of money wage that the production of higher counts yarn rely more on machines than labor.

Thus, it may be concluded from the above analysis that money and real wages in general depend on the average annual growth of output and thus the employers are keen in keeping low wage-output ratio during all the periods in all the three groups of mills.

CHAPTER V

A STUDY ON EMPLOYMENT AND WAGES IN THE SELECTED GROUPS OF COTTON TEXTILE MILLS IN MADURAI DISTRICT

In this section, an attempt is made to examine the relationship between wages and employment. In the industrial sector, particularly in the Cotton Textile Industry, the current defensive strategy of preserving and providing benefits to existing workers has raised the labor costs and worsened the overall environment to employment growth. The restriction imposed against retrenchment of labor and closure of mills have raised the long term cost to mills through the hiring of additional labor, resulting in the slow and sometimes negative employment growth. In addition, fast growth in money wages slowed down employment growth when employers started economizing on labor to reduce costs. Keeping this in view, the present study tries to compare the growth of employment and wages in the three groups of Cotton Textile Mills in Madurai District.

Table 5.1 provides the annual growth rates of employment for the three group of mills during the first and second periods and the overall period of study.

Table 5.1 Annual growth rates in employment (Number of workers) in the selected three groups of cotton textile mills in Madurai District during 1975-1997

Years	Group I	Group II	Group III
1975-76	78	289	3269
1976-77	80	306	3261
1977-78	87	321	3254
1978-79	96	364	3210
1979-80	105	392	3282
1980-81	114	483	3223
1981-82	122	482	3208
1982-83	131	315	3170
1983-84	157	474	3207
1984-85	139	468	3198
1985-86	151	467	3112
1986-87	146	478	2935
1987-88	150	483	2780
1988-89	159	465	2689

1989-90	174	466	2602
1990-91	179	380	2596
1991-92	180	465	2591
1992-93	180	464	2587
1993-94	181	461	2584
1994-95	181	459	2584
1995-96	180	456	2581
1996-97	179	451	2579
Annual Growth Rate in Percentage			
I period	7.59	4.82	-0.37
II period	2.03	-0.34	-0.97
III period	4.18	1.64	-1.49
$\bar{x}*$	143.14	426.77	2931.90
C.V.*	24.72	15.12	10.15

** Overall period. Source : Computed data from the annual records of the respective mills.*

Employment is one of the important economic variables affected by the recent decades of changes that are taking place in the Indian Industries. A developing country like India cannot afford industrial inefficiency and at the same time soaring unemployment. A labor-adundant country should make use of the available labor force instead of spending huge amounts of capital on the substitutes to labor. However, this has happened in the Cotton Textile Industry in India. During the first period, the annual growth rates of employment are 7.59, 4.82 and -0.37 in groups I, II and III mills respectively while he same was 2.03, -0.34 and -0.97 in the second period. This confirms that labor reduction is one of the policies of the employees who go for automation at the expense of labor. The group III mills with sophisticated process of production not only reduce the existing labor force but prevent future recruitment and labor training.

In the overall period 1975 to 1997, the annual growth rates in employment for Groups I, II and III are 4.18, 1.64 and -1.49 per cent respectively. The mean value of employment for those categories are 143.1 4, 426.77and 2931.90 and the co-efficients of variation are 24.72, 15.12 and 10.15 respectively. Among the groups, the Group III mills have the highest number of workers with the lowest variation and negative growth rate. This result supports the findings of Arun Ghosh, who stated that “the growth rate of employment for cotton textile mills at the All-India level was also found to be negative during 1961-1981”1. Likewise, there was a general decline in the Cotton Textile Industry in the study area especially with the introduction of New Technology after 1986. Regarding the stability of employment over the

periods, as estimated values of co-efficient of variation show, Group III has steady and stable employment position with modernization and man-power planning over the periods compared to Groups I and II mills.

Table 5.2 gives the employment of different kinds of workers for the first, second and overall period of study.

Table 5.2 Percentage share of different kinds of workers in employment in the selected three groups of cotton textile mills in Madurai district during 1975-1997

Years	Group I			Group II			Group III		
	PER	BAD	TRA	PER	BAD	TRA	PER	BAD	TRA
1975-76	6.26	49.51	44.23	66.58	5.93	27.49	63.21	26.96	6.83
1976-77	6.19	48.02	45.79	68.37	5.15	26.48	66.96	26.47	6.57
1977-78	6.23	46.21	47.56	69.89	4.97	25.14	67.65	26.11	6.24
1978-79	6.54	45.54	47.92	70.24	4.81	24.95	68.29	25.92	5.79
1979-80	5.35	48.41	46.24	70.69	4.62	24.69	69.12	25.61	5.27
1980-81	5.27	49.60	45.13	73.08	3.93	22.99	69.03	25.79	5.18
1981-82	5.46	51.20	43.34	73.11	4.05	22.84	69.05	25.78	5.17
1982-83	5.71	54.70	39.59	72.56	4.27	23.17	69.14	25.72	5.14
1983-84	5.92	56.20	37.88	74.20	4.12	21.68	69.24	25.75	5.01
1984-85	6.17	61.70	32.13	75.43	4.11	20.46	69.41	25.64	4.95
1985-86	6.24	64.50	29.26	75.36	4.26	20.38	69.36	25.73	4.91
1986-87	6.58	68.90	24.52	74.92	3.25	21.83	69.32	25.89	4.79
1987-88	6.73	69.20	24.07	75.39	3.14	21.47	69.30	25.90	4.80
1988-89	6.41	71.60	21.99	74.61	3.03	22.36	69.30	25.89	4.81
1989-90	6.27	75.40	18.33	80.16	3.55	16.29	69.28	25.91	4.81
1990-91	6.11	74.30	19.59	73.44	3.30	23.26	69.13	26.05	4.82
1991-92	6.03	73.60	20.37	70.54	3.06	26.04	69.36	25.85	4.79
1992-93	5.91	72.50	21.59	69.66	4.19	26.15	69.41	25.80	4.79
1993-94	5.78	71.20	23.02	75.29	9.05	15.66	69.39	25.81	4.80
1994-95	5.49	70.90	23.61	73.51	10.08	16.41	69.32	25.89	4.79
1995-96	5.21	70.26	24.53	72.40	11.26	16.34	68.21	25.31	6.48
1996-97	5.17	70.02	24.81	70.22	12.48	17.30	67.20	25.09	7.71
Annual Growth Rate in Percentage									
I period	-0.39	3.07	-4.10	1.18	-3.12	-2.86	0.63	-0.37	-3.30
II period	-2.59	-0.02	0.82	-0.64	17.29	-2.81	-0.19	-0.24	3.28
III period	-0.34	2.59	-4.51	0.24	2.41	-1.84	0.13	-0.12	-0.48
$\bar{X}_*$	5.95	61.97	32.06	72.71	5.30	21.97	68.62	25.86	5.38
C.V.*	7.56	17.13	33.25	4.04	50.94	16.15	2.01	1.35	15.24

** Overall Period. PER – Permanent BAD – Badli TRA – Trainee*

Source: Computed data from the annual records of the respective mills.

The welfare of the workers lies in the job security and monetary rewards which are often hiked in the cotton textile Industry. Here, the employers play their trump card by varing

the share of different kinds of workers in employment to attain their goal of wage-cost reduction. This is obviously seen in all the groups of mills. In the first period, the Group I mills have the annual growth rates of employment of -0.39, 3.07 and -4.10 per cent for different categories of workers. While the same values change into -2.59, -0.02 and 0.82 in the second period, which shows the employers' attitude towards reducing employment. In the Group II mills, the annual growth rates for permanent, badly and Trainee are 1.18, -3.12 and -2.86 in the first period and the same values are changed to -0.64, 17.29 and -2.18 in the second period. This shows that more of badly workers are employed, whose work assignment is similar to that of a permanent worker but they are paid a portion of his earnings as wages. However, the annual growth rates for permanent, badly and trainees are 0.63, -0.37 and -3.30 during the first period, -0.19, -0.24 and 3.28 during the second period for Group III mills. If a worker continues to work in these mills, for 3 years, he becomes legally permanent and is eligible to claim all benefits as per statutory regulations. Thus, the employers of these mills are particular in not allowing many to become permanent. They employ traninees who can not claim permanency. This directly reduces their wage costs also.

In the overall period, the annual growth rates for permanent workers were -0.34, 0.24 and 0.13 per cent for the Group I, II and III mills. Since Group I mills employ more of badly workers the growth rate was 2.59 per cent which is positively the highest. It may be due to the reason that badly workers have the same work load of a permanent worker with wages many times lower than those of the permanent worker. This is possible with Group I mills as their trade union is weak. Group II and III mills have 2.41 and -0.12 the Group I has the highest negative growth rate of -4.51, Group II -1.84 and Group III 0.48. It is inferred that the employment growth is very low and mostly negative in the cotton Textile Mills in the study area. Moreover, the mean values of employments for permanent workers are 5.95, 72.71 and 68.62, the same for badlies are 61.97, 5.30 and 25.86, and for trainees they are 32.06, 21.97 and 5.38 for the three groups of mills respectively.

While the co-efficient of variation was the highest for trainees in Group I, for badly in Group II, and for permanent workers in Group III, it was the lowest for permanent workers in Groups I and II. But Groups III has the lowest variation in badly category. Thus the employment position of different kinds of workers generally shows a falling trend in all the three groups of Cotton Textile Mills especially in the second period.

5.1 Relationship between Money wages and Employment

The relationship between money wages and employment is direct and obvious. The changes that takes place in the work environment affect the level of employment and thus the money wages. In the traditional methods of production, the existing relationship between employment and money wage is mostly positive. But with the emergence of technological changes and the innovative practices that are adopted in the Industries, the above said relationship may be inverse. This results in either favouring the workers or the employers depending upon the nature of the production process. Thus the association between money wages and employment is very important. Details are shown in Table 5.3 for the three groups of mills.

Table 5.3 Correlation between employment and money wages in the selected three groups of cotton textile mills in Madurai District during 1975-1997

(Wages – Rs. In lakhs)

Years	Group I		Group II		Group III	
	Employment	Wages	Employment	Wages	Employment	Wages
1975-76	78	1.01	289	3.12	3269	271.05
1976-77	80	1.09	306	3.20	3261	288.46
1977-78	87	1.05	321	6.50	3254	290.45
1978-79	96	1.11	364	12.00	3210	300.93
1979-80	105	1.24	392	15.00	3282	329.97
1980-81	114	1.65	483	19.55	3223	358.92
1981-82	122	2.08	482	24.59	3208	377.58
1982-83	131	3.86	315	27.83	3170	396.63
1983-84	157	3.78	474	32.30	3207	431.81
1984-85	139	7.10	468	41.04	3198	436.36
1985-86	151	8.87	467	48.65	3112	479.04
1986-87	146	11.03	478	62.21	2935	368.85
1987-88	150	15.26	483	70.53	2780	420.44
1988-89	159	30.39	465	73.04	2689	394.11
1989-90	174	29.99	466	77.92	2602	470.13
1990-91	179	30.72	380	80.21	2596	475.44
1991-92	180	32.74	465	82.76	2591	483.08
1992-93	180	32.20	464	85.38	2587	490.52
1993-94	181	34.39	461	90.84	2584	501.44
1994-95	181	36.51	459	97.27	2584	507.96
1995-96	180	38.27	456	107.46	2581	516.73
1996-97	179	40.16	451	118.39	2579	526.84
Co-efficient of Correlation						
I period	r = 0.793		r = 0.724		r = -0.827	
II period	r = 0.901		r = -0.186		r = -0.885	
III period	r = 0.876		r = 0.582		r = -0.805	

Source: Computed data from the annual records of the respective mills.

Table 5.3 presents the value of correlation co-efficient between employment and money wages for the selected three groups of mills in the first, second and the overall period. As far as Group I mills are concerned, the correlation bears a higher positive relation in the second period. This means that both employment and money wages are positively associated. As these mills rely more upon labor force than upon machines, this kind of relationship is obvious.

In Group II mills, the value of correlation co-efficient goes negative in the second period, compared to the high positive value in the first period. This kind of relationship exhibits that there exists inverse relationship between employment and wages in the second period. The negative growth rate of employment in the second period (vide growth rate – Table 5.1) leads to an inverse relationship between employment and money wages.

However, in the Group III mills with new technology and sophisticated machinery in the second period, the already existing negative relationship in the first period is further intensified. Thus there is negative relationship always as these mills depend more on machinery than on labor to produce high quality yarn for exports.

It is seen in the overall period that he correlation between employment and wages for Group I mills is highly positive and it is 0.876. This indicates that money wages and employment move together upward. In group II, there is a moderate positive correlation with 0.582, whereas in Group III there is a high negative relationship between employment and money wages with the correlation co-efficient at -0.805. In Group III, wage increase resulted in reduction of employment. As shown in Table 5.3, in Group III, the magnitude of money wages have increased during the period, from 1980 to 1986. The employment has declined from 3223 to 3112 in the same period. After that period though slight fluctuations are found in increasing wages for Group III from 1986 to 1997 the employment has also declined during that period.

In order to find the cause and effect relationship between employment and real wage, the following form of simple linear regression model was estimated.

$Y = a + bx$

Where Y is Real Wage (Rs.in lakhs)

X is Employment (in Number of workers)

The above model was estimated by the method of least square and the results are presented in Table 5.4.

Table 5.4 Estimated regression results for real wage and employment in the selected three groups of cotton Textile mills in Madurai District during 1975-1997

Category	REGRESSION	CO-EFFICIENTS	R^2
	a	b	
PERIOD I (1975 to 1986)			
Group I	-1.5101	0.0288* (3.0138)	0.5023
Group II	-14.319	0.0704* (4.0135)	0.6415
Group III	-811.1245	0.3337* (3.6186)	0.5926
PERIOD II (1986 to 1997)			
Group I	-0.17561	0.0484 (1.0999)	0.1184
Group II	14.6699	0.0284 (0.5133)	0.0284
Group III	-276.8279	0.1549* (2.6152)	0.4317
PERIOD III (1975 to 1997)			
Group I	-7.0314	0.0833* (6.7294)	0.6936
Group II	-18.971	0.0837* (5.5180)	0.6035
Group III	-456.1236	0.2303*(16.7807)	0.9336

Figures in parentheses are the t-values.

** indicates that the co-efficients are statistically significant at 5% level.*

From Table 5.4 it is observed that during the first period, co-efficient of employment was statistically significant and positively related to the real wage for all the three groups of mills. It indicates that a unit increase in employment causes 0.0288, 0.0704 and 0.0337 unit increase in real wages for Groups I, II and III respectively. Upto the late 1970s, the recruitment policy, the level of employment and wage cost were not serious problems as the prices of raw materials, overheads and other costs were relatively low. Especially, the consumer price index and the general price level on which the Dearness Allowance is calculated, was also not high. Thus there was more influence of the employment on money and real wages of the workers. The R^2 value indicates that the explanatory variable employment, accounts for 50.23 per cent, 64.15 per cent and 59.26 per cent variations on real wages for Groups I, II and III mills respectively.

During the second period, the co-efficient of employment was found to be significant only for Group III mills. The change in employment has no effect on real wages for the Groups I and II mills. Particularly, a unit change in employment in Group III mills effects 0.1549 units' increase in real wages. After the introduction of New Technology recruitment

policy and the level of employment were taken much care as every additional employment increases not only the wage cost but non wage cost also. Moreover, Trade Union bargain with the managements for any issue, relating to inducting new entrants as it strengthens their power. Thus, controlling and pruning the level of employment is the prime concern of the managements which require high command. The R^2 value for Group III mills shows that employment account for 43.17 per cent variation in real wages, whereas in the case of Groups I and II mills, R^2 values were found to be very low.

In the overall period, the R^2 value indicates that the explanatory variable has explained 69.36 per cent, 60.35% and 93.36% variations in real wages for Groups I, II and III mills respectively. The co-efficients of employment were statistically significant and positively related to real wage for all the three groups of mills. It shows that a unit increase in employment in these groups of mills, effects 0.0834, 0.837, 0.2303 units' increase in real wage respectively.

CHAPTER VI

A STUDY ON WAGES AND NEW TECHNOLOGY IN THE SELECTED GROUPS OF COTTON TEXTILE MILLS IN MADURAI DISTRICT

This section attempts to analyse the impact of new technology on the money wages in cotton Textile Mills in Madurai District. In the study area, new technology introduced in cotton Textile Mills is classified under four heads namely (i) Open-end machines (ii) Autocorner (iiii) Cross roll and (iv) Two for one (TFO). Major benefits provided by the new processing technology result out of the import of machinery from advanced countries as well as some of the indigenous production of machines produced by inland innovation,

(i) Open – End machines

a) Simplex and spinning process saved
b) One Open-end machines is equal to two ring frames
c) 1/3 of total cost of labor is saved
d) 1/3 of total cost of power is saved

(ii) Autoconer

a) Autoconer production is equal to 1.4 ordinary winding machine production.
b) 2/3 of total cost of labor is saved
c) Additional sales realization for superfine quality is the benefit
d) Fastest production

(iii) Cross Roll

a) Cross Roll eliminates the blowroom and carding operations
b) It runs at a higher speed that reduces operational timings
c) Cross roll requires less labor but renders quality processing

(iv) TFO Yarn

a) One department namely Final cone winding department it eliminated
b) Fine twisted quality of yarn obtained
c) Additional sales realization for TFO yarn
d) 1/3 of total cost of labor is saved as it has high speed operation.

Apart from the expected benefits, the new technology has also given an opportunity for the mill management to make use of an average worker who had limited skills previously, to become familiar with new technology as the computer-controlled systems are user-friendly. Further, the traditional kind of labor involvement and interaction in the work spot have been treated as one of the major variables to be eliminated form the mills to reduce labor costs, increase productivity and thus profitability. Introduction of new technology in Cotton Textile Mills thus raises issues related to changes in the job content and responsibility, job displacement, redundancy and redeployment, retraining, union co-operation and mutual agreement which are extremely important in realizing the benefits from the new technology. So it is crucial to examine the economic context in which new technology is brought into the Cotton Textile Industry. As the new technology is mostly meant for the varying counts of yarn resulting from the speedy production process, this requires huge initial capital for which the gestation period is also long. Thus mills which could afford huge capital involvement only could make use of the new technology. However, Groups III mills with high profitability and dynamic management fully opted for the new technology mainly for the purpose of exports. But this decision of Group III mills forced other mills using lower or intermediate technology to change the structure of labor and output accordingly. This section attempts to study the impact of new technology on wage levels in the selected groups of Cotton Textile Mills in Madurai District.

In the present section, gross fixed assets and the value of plant and machinery in money terms have been taken as the yardstick to measure the impact of the latest technology. Table 6.1 gives the aggregate value of gross fixed assets, value of plant and machinery, output, wages and employment for Group I mills for the period 1975-1976 to 1996-1997.

Table 6.1 Capital intensity for technology, output, wages and employment in group I cotton textile mills in Madurai District during 1975-1997.

(Rs.in lakhs)

Years	Fixed capital	Plant and Machinery	Output	Wages	Employment	P & M / EMP
1975-76	6.79	4.07	18.70	1.01	78	0.052
1976-77	7.53	5.01	21.76	1.09	80	0.063
1977-78	10.96	8.91	25.11	1.05	87	0.102
1978-79	13.22	10.21	36.14	1.11	96	0.106
1979-80	17.66	11.26	52.64	1.34	105	0.107
1980-81	20.83	14.15	70.26	1.65	114	0.124
1981-82	21.92	14.84	102.64	2.08	122	0.121
1982-83	24.18	16.13	117.97	3.86	131	0.123
1983-84	24.12	23.05	81.07	3.28	157	0.146
1984-85	30.12	25.87	154.00	7.10	139	0.186
1985-86	42.13	28.15	182.46	8.87	151	0.186
1986-87	49.42	40.25	193.93	11.03	146	0.275
1987-88	51.60	41.76	206.90	15.26	150	0.278
1988-89	55.17	43.12	230.91	30.39	159	0.271
1989-90	64.68	46.11	241.70	29.99	174	0.265
1990-91	70.72	49.27	267.30	30.72	179	0.275
1991-92	75.43	51.70	277.03	32.74	180	0.287
1992-93	79.19	54.75	283.20	32.20	180	0.304
1993-94	82.75	57.60	289.54	34.39	181	0.318
1994-95	87.06	59.53	291.62	36.51	181	0.328
1995-96	91.76	63.27	297.83	38.27	180	0.351
1996-97	95.63	67.19	326.19	40.16	179	0.375

Correlation	FC and PM	FC and OUT	FC and EMP	P&M and OUT
Coefficient	r = 0.992	r = 0.982	r = 0.921	r = 0.983

FC – Fixed Capital P&M – Plant and Machinery OUT – Output EMP – Employment

Source: Computed data from the annual records of the respective mills.

It could be seen from Table 6.1 that there has been impressive increases in fixed assets, value of plant and machinery and employment for Group I mills. Output and wages have slight fluctuations from 1980-1981 to 1985-1986 and they have grown steadily after 1985-1986. It could also be observed that after the introduction of the new technology in the cotton textile mills after 1986, the annual investment in new plant and machinery had been rising from year to year. Thereby, fixed assets have risen since 1986-1987. It is also found that the output has also increased during that period for Group I mills. The calculated

correlation co-efficients between fixed capital and plant and machinery, and the value of output are 0.992 and 0.982 respectively. It shows that the introduction of new technology for higher counts yarn does not affect the employment in group I mills. They are related positively and both move in the same direction. The correlation co-efficient are 0.921 between Fixed Capital and employment and 0.983 between the value of plant and machinery and output. The estimated values of correlation between fixed capital and output and the value of plant and machinery and output show increased performance.

Details of fixed assets, the value of plant and machinery, wages and employment for Group II cotton textile mills are presented in Table 6.2.

Table 6.1 Capital intensity for technology, output, wages and employment in group II cotton textile mills in Madurai District during 1975-1997.

(Rs.in lakhs)

Years	Fixed capital	Plant and Machinery	Output	Wages	Employment	P & M / EMP
1975-76	135.76	69.71	64.19	3.12	289	0.241
1976-77	140.26	107.90	71.29	3.20	306	0.353
1977-78	160.11	120.16	84.66	6.50	321	0.374
1978-79	181.78	147.61	191.21	12.00	364	0.406
1979-80	193.17	161.01	207.25	15.00	392	0.411
1980-81	208.26	213.53	220.23	19.55	483	0.415
1981-82	213.28	215.30	241.51	24.59	482	0.425
1982-83	249.01	217.50	289.99	27.83	315	0.690
1983-84	259.90	220.71	322.42	32.30	474	0.465
1984-85	273.03	235.80	368.95	41.04	468	0.503
1985-86	308.09	252.66	431.69	48.65	467	0.541
1986-87	315.26	259.51	751.15	62.21	478	0.542
1987-88	322.45	261.51	659.44	70.53	483	0.541
1988-89	322.19	263.35	656.89	73.04	465	0.566
1989-90	322.30	267.02	677.31	77.92	466	0.573
1990-91	329.80	274.10	716.02	80.21	380	0.721
1991-92	336.45	279.18	739.66	82.76	465	0.600
1992-93	339.73	281.59	768.54	85.38	464	0.606
1993-94	352.10	288.05	804.35	90.84	461	0.624
1994-95	351.68	393.56	831.38	97.27	459	0.639
1995-96	354.16	297.24	861.47	107.46	456	0.651
1996-97	356.39	310.48	896.31	118.39	451	0.688

Correlation	FC and PM	FC and OUT	FC & EMP	P&M and OUT
Coefficient	r=0.970	r=0.922	r=0.690	r=0.860

FC – Fixed Capital P&M – Plant and Machinery OUT – Output EMP – Employment

Source: Computed data from the annual records of the respective mills.

From table 6.2 it can be seen that there is a steady and constant increase in fixed capital, and in the value of plant and machinery in the case of Group II mills over a period from 1975-1976 to 1996-1997. Fluctuation in employment is to be found during that period. The relationship between fixed capital and the value of plant and machinery are positive and the estimated results of correlation co-efficient is 0.970.

The values of correlation between fixed assets and output and employment are 0.922 and 0.690 respectively. It shows that the introduction of the new technology for higher count yarn in other mills resulted in boosting the demand for yarn from Group II mills. Moreover, the value of correlation co-efficient obtained between plant and machinery and output is 0.860. Thus it could be inferred from the results that Group II cotton textile mills enjoy the benefits gained by the introduction of new technology in the largest mills in the study area.

The time series data regarding fixed assets, the value of plant and machinery, output, wages and employment for Group III cotton textile mills are furnished in Table 6.3.

Table 6.1 Capital intensity for technology, output, wages and employment in group III cotton textile mills in Madurai District during 1975-1997.

(Rs.in lakhs)

Years	Fixed capital	Plant and Machinery	Output	Wages	Employment	P & M / EMP
1975-76	397.86	340.61	2262.85	271.05	3269	0.104
1976-77	410.72	344.99	2492.53	288.46	3261	0.106
1977-78	435.78	349.70	2592.94	290.45	3254	0.107
1978-79	464.15	378.56	2683.82	300.93	3210	0.118
1979-80	627.16	427.14	2851.78	329.97	3282	0.130
1980-81	707.52	497.34	3539.23	358.92	3223	0.154
1981-82	821.14	611.84	4054.79	377.58	3208	0.190
1982-83	912.06	757.71	4018.62	396.63	3170	0.239
1983-84	1038.26	891.20	4632.89	431.81	3207	0.277
1984-85	1128.71	750.67	5472.65	436.36	3198	0.234
1985-86	1261.41	680.79	5570.88	479.04	3112	0.218
1986-87	3437.02	1641.60	5877.64	368.85	2935	0.559
1987-88	3596.62	1705.84	8539.21	420.44	2780	0.613
1988-89	3996.26	1822.62	8108.43	394.11	2689	0.677
1989-90	4511.08	1894.38	9965.22	470.13	2602	0.728
1990-91	4878.82	1906.88	10856.55	475.44	2596	0.734
1991-92	5336.53	1994.85	12360.29	483.08	2591	0.769

1992-93	5596.27	2046.84	13568.99	490.52	2587	0.791
1993-94	6222.02	2057.08	14433.01	501.44	2584	0.796
1994-95	6531.23	1846.87	15593.27	507.96	2584	0.714
1995-96	6871.16	1927.31	16278.23	516.73	2581	0.746
1996-97	7531.11	2065.49	17316.54	526.84	2579	0.800

Correlation	FC and PM	FC and OUT	FC & EMP	P&M and OUT
Coefficient	r = 0.950	r = 0.971	r = 0.966	r = 0.883

FC – Fixed Capital P&M – Plant and Machinery OUT – Output EMP – Employment

Source: Computed data from the annual records of the respective mills.

It is found from Table 6.3 that the fixed capital and the value of plant and machinery had tremendously increased after the introduction of the new technology in 1986. During 1986-1997 the employment had declined form 3112 to 2579. The correlation between fixed capital and the value of plant and machinery was 0.950. These results are consistent with the labor saving characteristics of the latest technology introduced in Group III mills. It could also be observed that the new technologies have achieved higher rates of growth of output in the study area. The estimated values of correlation co-efficients are 0.971 between fixed assets and output and -0.966 between fixed capital and employment. The correlation between the value of plant and machinery and output for Group III cotton textile mills is 0.883. Due to the introduction of new technology for higher count yarn, the group III mills upgraded and introduced new plant and machinery for exporting their products that benefited the Cotton Textile Industry as a whole, by allowing Group I mills to survive with lower counts yarn and Group II mills with higher counts yarn for the local market.

As far as the cotton textile mills are concerned, the size of the mills is decided by the spindle capacity and the value of plant and machinery installed. Moreover, quality of output and the product mix depend on the infrastructural facilities that are available along with the existing technology. The combination of the plant and machinery and the level of employment deliver the output depending upon the capacity of the mills concerned. The selected three groups of cotton textile mills differ in their level of employment, and in plant and machinery, along with the adoption of changing technology thus varying output in volume and quality.

In order to find the influence of employment, plant and machinery as a indicator of capital intensity on output, the following form a simple linear regression model was estimated.

$Y = a + b_1x_1 + b_2x_2$

Where Y is Output (Rs.in lakhs)

x_1 is employment (in number of worker)

x_2 is plant and machinery (Rs. In lakhs)

The above model was estimated by the method of least squares and the results are presented in Table 6.4.

Table 6.4 Estimated regression results using employment and capital intensity on output in the selected three groups of cotton Textile mills in Madurai District during 1975-1997

Category	CONSTANT	REGRESSION	CO-EFFICIENTS	R^2
		X_1 (EMP)	X_2 (P & M)	
PERIOD I (1975 to 1986)				
Group I	112.4656	-2.5608 (-1.0712)	18.8819* (2.2835)	0.6957
Group II	-81.6088	-0.1473 (-0.4620)	2.0560* (4.8436)	0.8812
Group III	33808.0230	-9.9807* (-2.2169)	3.5723* (3.2089)	0.8504
PERIOD II (1986 to 1997)				
Group I	-2162.6265	12.9486* (6.3824)	15.6263* (8.8266)	0.9848
Group II	-674.0717	0.3017 (0.7472)	4.6365* (6.9769)	0.8596
Group III	38918.3029	-16.5086 (1.2748)	8.8633 (0.8398)	0.6613
OVERALL (1975 to 1997)				
Group I	-5.4632	-1.2989 (-0.7739)	19.5633* (12.8619)	0.9748
Group II	-150.2723	-1.0456 (-1.7948)	4.7601* (8.3306)	0.8656
Group III	61627.0551	-17.9060* (-2.7638)	-1.0301 (-0.3715)	0.8700

Figures in parentheses are the t-values.

** indicates that the co-efficients are statistically significant at 5% level.*

It is observed from Table 6.4 that R^2 values indicate, 69.57%, 88.12% and 85.04% variations as seen in the independent variables, employment and plant and machinery and they were found to be statistically significant at 5% level and positively related to output. It is

observed that the variable, 'employment', had no significant influence on output for Groups I and II respectively. In the case of Group III mills both employment and plant and machinery were found to be significant. It indicates that a unit increase in these variable effects 3.5723 and 9.9807 unit increase and decline in output respectively.

During the second period, both employment and plant and machinery were found to be significant and positively related to output for Group I mills. The R^2 value indicates 98.48% variation, which was explained by these variables on output. Further, it indicates that a unit increase in these variables, caused 12.9486 units and 15.6263 units of increase in output respectively. For Group II mills, out of the two independent variables, plant and machinery only was found to be statistically significant at 5% level and positively related to output, whereas in the case of Group III mills none of the variables had influence on output. The R^2 values for Group II and III mills show that the explanatory variable accounts for 85.96 percent and 66.13 percent variations on output respectively.

In the overall period, the value of R^2 indicates that all the explanatory variables jointly account for 97.48%, 86.56% and 87.00% variations on output for Groups I, II and III respectively. Out of the two independent variables, one namely plant and machinery, was found to be statistically significant at 5% level and positively related to output for Groups I and II mills. It indicates that a unit change in this variable, effects increases of 19.5633 units and 4.7601 units in output. In the case of Group III mills, employment alone was found to be significant and it is negatively related with output. This shows that a unit increase in employment reduces output by 17.9060 units. As the cotton textile industry in India is poised for modernization to meet the global demand for higher quality yarn, the installation of open-end spinning is more appropriate which would give better results because of the policy of industrial liberalization that had made investment in capabilities easier, as rightly observed by Tirthankar Roy (1996).

CHAPTER VII

SUMMARY OF FINDINGS, CONCLUSIONS AND SUGGESTIONS

FINDINGS

Wage is an important part of the cost of production. The employer would like to control the wage bill from rising, so that his profit margin would increase. As opposed to this, worker would like an increase in his wages. These conflicting expectations of employers and workers often result in industrial unrest. An ideal wage structure should be such that it creates neither frustration nor discontent among the labor forces.

For the successful monitoring of economic progress, whether at the macro or the micro level, the relationship between wages and productivity has been an important theme. There have been a number of studies relating wages of productivity. There are varying approaches towards positive relationships between wages, production, employment, capital, value added and productivity. The present study, examines these aspects in relation to the Cotton Textile Mills in Madurai District.

The annual growth rates of money wages in all the three groups of mills are lower in the second period than in the first. It is because of the introduction of new technology along with revision of enhanced workload settlement. These have reduced permanent employment considerably. The use of more casual workers on a temporary basis has reduced money wages in all the three groups of mills. However, in the overall period growth rates of money wage are the highest in Group I mills with Group II and Group III mills taking the second and the third places respectively. In general, the larger size mills have better control on the trend in money wages of the workers.

The annual growth rates of real wages in all the three groups of mills have drastically fallen in the second period when compared with the first and it is negative for Groups II and III mills. It is because the growth rates of money wages in Group II and III mills had also fallen in the second period. But in the overall period, the growth rate of real wages shows a positive growth which is the highest in Group I mills, followed by Groups II and III mills which show a negative value. In general, even increases in money wages have not been associated with real wages as rightly observed by the National Commission of Labor (As

quoted in A.M. Sarma, Understanding Wage System, Himalaya Publishing House, New Delhi, 1988, p.24).

The consumer price index against which the major portion of dearness allowance in wage is adjusted, has shown slightly higher growth in the second period compared to that in the first. This is due to the hike in the general price level, as the Indian Economy is poised for an inflationary trend in the recent decade. Moreover, the present system of dearness allowance in most cases does not neutralize the impact of inflation fully and hence it has the cumulative effect of pulling down real wages below the chosen level. As a result, improvement in the standard of living of industrial workers remains not fully realized.

The annual growth rates of money and real wages per worker in the first period are the highest in Group II mills, followed by Groups I and III mills. However, the situation changes in the second period, with Group I being the highest, followed by Groups II and III, in terms of growth rate of money wage per worker. In the growth rate for real wage per worker, all the three groups show negative values. In the overall period, regarding the growth rates for money and real wages per worker Groups I, II and III mills occupy first, second and third places respectively. Particularly changes in the second period were due to the introduction of new technology after 1986. Labor requirement in the Cotton Textile Mill Industry as a result, experienced considerable reduction due to the elimination of several processes and departments as a whole. This paved the way for a drastic reduction in the work force and in the money as well as real wages per worker in all the three groups.

The fitted multiple regression results relating to factors influencing money and real wages show that from among the selected independent variables such as average annual growth of output, employment, wage-output ratio, output per worker, and fixed capital per worker, only one variable namely, wage-output ratio had greater influence on money and real wages in all the three groups of mills.

Though the annual growth rate of employment in Group I mills is positive with a fall in the second period, the same value is negative for permanent workers throughout. In Group II mills, the growth rate of employment has become negative in the second period along with the growth rate of permanent workers. In Group III mills after the introduction of new technology, the growth rate for employment was low and negative throughout, but for the permanent workers it was negative in the second period alone. This shows that in the recent

decades, the fight is not between the employers and workers but with machines and for permanency.

The degree of relationship between employment and money wages in Group I mills is strengthened in the second period when compared with the first, as these mills rely upon labor more. For Group II mills, the same relationship is positive in the first period but gets reversed with changing technology and labor policy. But in Group III mills, the above said relationship is always inverse which reveals that these mills function with more automation and sophisticated machineries. In the earlier period, it was found that wage bill rose relative to the employment in Indian Industry during 1950-61, as revealed by C.K. Johri and N.C. Agarwal (1966).

The fitted simple linear regression results for examining the relationship between employment and real wage show that positive and significant relationship exists between employment and real wage in all the three groups of mills during the first and overall period. In the case of the second period employment has no effect on real wages for all the three groups of mills. As the cotton textile industry is poised for automation, there is reduced employment with falling trend in the growth rate of money wages especially after 1986, the real wages being consequently affected.

Over decades, capital intensity for Technology has its impact on labor and output. In Group I mills there exists a high degree of positive correlation between the fixed capital and employment and it is only moderate in Group II mills. But the same relationship is highly negative in Group III mills. The introduction of automatic and sophisticated machines had resulted in drastic reduction in the labor – machine ratio. As a result, the gap between them had widened. Moreover, the dependence on plant and machinery made the cotton textile industry a capital intensive one. This is true especially in the case of Group III mills which function with sophisticated machinery to minimize wage cost. However, the rate of return on capital can be realized only after a long gestation period.

The influence of the introduction of new technology in the cotton textile mills helped the industry to have sophistication at the expense of workers in these mills. The very objective of these mills to reduce the cost of production especially wage cost, is fulfilled with reduction in employment. This finding is confirmed by Bagarum Tulpule and Ramesh C.Datta (1989).

CONCLUSION

Declining employment in general in the second period after 1986, and the structural changes and changing labor policy in the cotton textile mills had affected the bargaining power of the workers. Moreover, employing casual labourers at merge wages had altered the trend in money and real wages per worker.

Though there are several factors related to the labor performance and remuneration, wage-output ratio alone is found to be controlling the wage cost. Though this favours the employers with more scope for profit, workers are affected by lay-off, power cuts, breakdown of machinery, fall in the demand for finished product and the business cycle that revolves around the cotton Textile Industry.

The age-old cotton textile industry is often affected by the drastic policy changes of the central government such as the export of cotton bales to foreign countries, changes in the procedure for export of cotton yarn and in general tariff. Moreover, with emergence of the new economic policy and globalization, multinational companies make surprise moves that affect the functioning of the Cotton Textile Industry.

With wages emerging as one of the more controversional issues affecting work life in India, the Government has repeatedly announced its intention of having a National Wage Policy. However, this has not led to the formation of any policy to deal with various issues related to wages. Even critical issues, such as compensation for erosion in money earnings, have not been brought within the purview of any statutory enactment.

It is time the government came forward to discuss various issues related to wage in the Indian Industries. A multi-disciplinary approach to find a real solution for the problem of wages in the country has become imperative.

SUGGESTIONS

Workload revision should be uniformly done at frequent intervals atleast at the District or the State level to enable workers to bargain for wage increase with workload as the base. The revision should be based on time and motion study in the interest of proper distribution of workload. Moreover, labor should be involved in the formulation of productivity plans and their implementation, including decision and technology.

Disparate Dearness Allowance systems should be dispensed with, and the wage rate itself should be adjusted against inflation which would protect the workers from the value-erosion of real wages in order to assure them of better standards of living.

Instead of the existing bonus payment system at the mill level, individual worker bonus based on individual performances that too for shorter period, such as a month or a week, will be more productive.

Incentive system should be given greater importance to improve productivity and labor should have a say in sharing gains from improvements in productivity with due regard to the repercussion on the workforce, particularly on employment and related aspects.

A stable relationship between labor productivity and wage increase should be established. However, the determination of real wages is governed to a large extent by the general price level. So the Government should take necessary steps to control the general price level.

The bulk of payment of wages must be linked to the outcome of work and this implies the notion of the right payment for standard performance. This will call for an appropriate work culture, work attitude, commitment and behavior.

Wage awards have followed Trade Union pressures resulting in the haphazard growth of the wage structure. Especially wages should not go up to the extent of compelling employers to replace labor by capital machinery, as India is labor-abundant and suffers from unemployment and under-employment.

In the existing situation of labor unrest in the states, the militancy of labor is found to be a specific feature of Trade Unionism which has resulted in pushing up wages and wage shares unrelated to productivity. This tendency is to be changed by imparting work culture, appropriate training for skill development to improve productivity.

Research Institutions in India conduct several research studies on Technology, Employment, Cost effectiveness and Productivity in the cotton textile industry. But the results of such studies have not been discussed in the employers forum of the cotton textile mills for effective implementation.

A successful and socially significant wage policy can be built up only on a strong foundation of correct and meaningful data on various aspects of the problem, such as wage determination, wage levels, wage structure, wage payments in Indian Industries. These are essential as the process of wage determination and wage revision in India is at present decentralized.

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