CHAPTER VII

THE REAL WAGES OF THE RUBBER PLANTATION WORKERS AND THE GROWTH AND PROSPECTS OF THE RUBBER PLANTATION INDUSTRY

This study of the wage structure of the rubber plantation workers has to be evaluated along with the prospects and problems of the Industry in order to assess the capacity of the industry to pay the existing wage structure and the wage rates it may have to pay in future. Hence, at first, it is necessary to analyse the changes in the real wages over the period of 32 years since minimum wages were fixed to this date along with the growth of the Rubber Plantation Industry for the same period. First is the analysis about the pattern of real wages of the workers.

7.1 The Real Wages of the Workers in the Rubber Plantations in Kanyakumari District

This study tells that the wages for the workers were influenced by three important wage institutions, namely, the minimum wage fixation, the wage board award and collective bargaining. The influence of minimum wage fixation was for nine years (1952-1960), the wage board award was for eight years (1961-1968) and for the next fifteen years (1969-1983) the wage rates were influenced by collective negotiated settlements. In total, the wage rates have undergone important changes over a period of 32 years (1952-1983).

The wage structure of the rubber plantation workers underwent some significant changes over these 32 years. For

example, during minimum wage fixation, basic wage rates and dearness allowance payment were given separately. The wage board award recommended an all inclusive wage structure without separate dearness allowance. But during the remaining period of wage settlements, once again, basic wage rates and dearness allowance payments were calculated separately. A variable dearness allowance formula was also adopted during this period.

During the period the wage rates of all categories of the workers increased both in terms of money and real wages. But the study is relevant only regarding the increase or decrease of the real wage rates in terms of the increase or decrease of the cost of living index. So, before analysing the wage rates of each and every category of the workers, the trend and the growth rate of the cost of living index needs analysis.

Over 32 years, the cost of living index for industrial workers of the local centre - Nagercoil centre - had also increased alarmingly. A close scrutiny of the cost of living index reveals that it had increased from a mere 369 points (1939=100) from 1952 to 3400 points in 1983, which was an increase of about 821 percent.[1] The trend and growth rate estimates show that annually the index had increased at the rate of 81.9 points with a compound growth rate of 7.78, both

[1]Government of Tamilnadu, Commissioner of Statistics, 1984.

were statistically significant. The following Table shows the position.

TABLE 7.1 TREND AND GROWTH RATE OF THE WORKING CLASS COST OF LIVING INDEX FOR NAGERCOIL CENTRE BETWEEN 1952 AND 1983

Model	Value of a	Value of b	R^2	Compound Growth Rate
Trend	- 230.4012	81.9694* (6.7311)	0.8317	
Semilog	5.5325	0.0750* (0.0024)	0.9692	7.7863

*Significant at 1% level Figures in parantheses denote standard error.

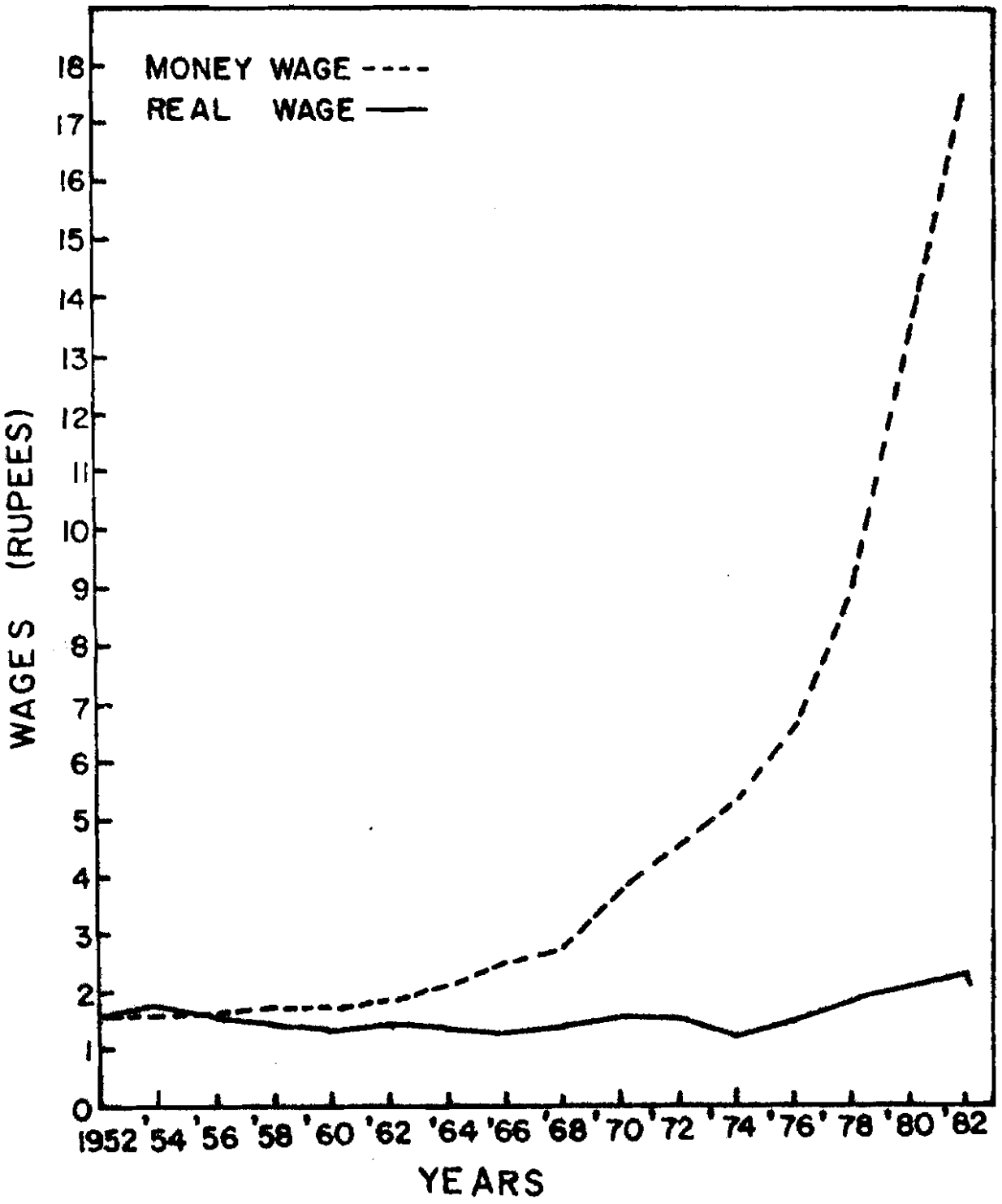
The next is the analysis of the wage rates of the workers by category.

7.1.1 Field Workers

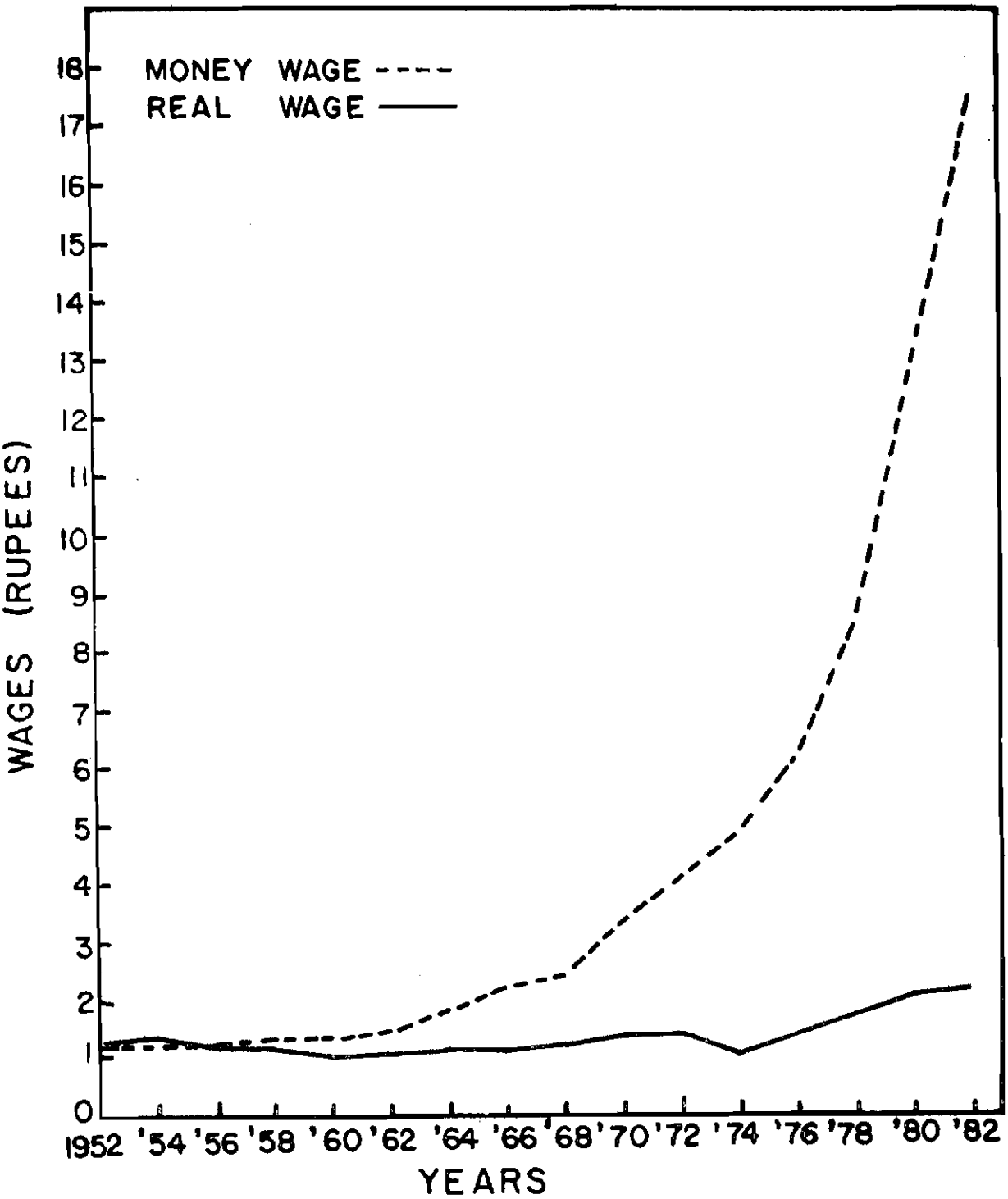
During 1952-1983, the money wage rates of the men field workers have increased from Rs.1.60 to Rs.19.03, showing an increase of 1089% but the real wage increase was only from Rs.1.60 to Rs.2.06, a mere 28.75 percent when compared to the percentage increase of money wage. Figure XVI shows the position.

During the period, the money wage rates of the women field workers increased from Rs.1.20 to Rs.19.03, the increase being 1485 percent. But the increase of real wages was from Rs.1.20 to Rs.2.06, an increase of only 71.6 percent. Figure XVII shows this.

FIELD WORKERS — MEN
WAGE RATES



FIELD WORKERS — WOMEN
WAGE RATES



7.1.2 Factory Workers

The money wage rates of men factory workers had increased from Rs.1.81 in 1952 to Rs.19.68 in 1983, an increase of 987 percent, but the real wage increase was only Rs.2.13 which was only 17.6 percent. Figure XVIII shows the position of the wage rates. The money wage rates of women factory workers had increased from Rs.1.37 to Rs.19.68 for the same period, the increase being 1336 percent, but the real wage increase was only Rs.2.13 the percentage being 55. Figure XIX shows this position.

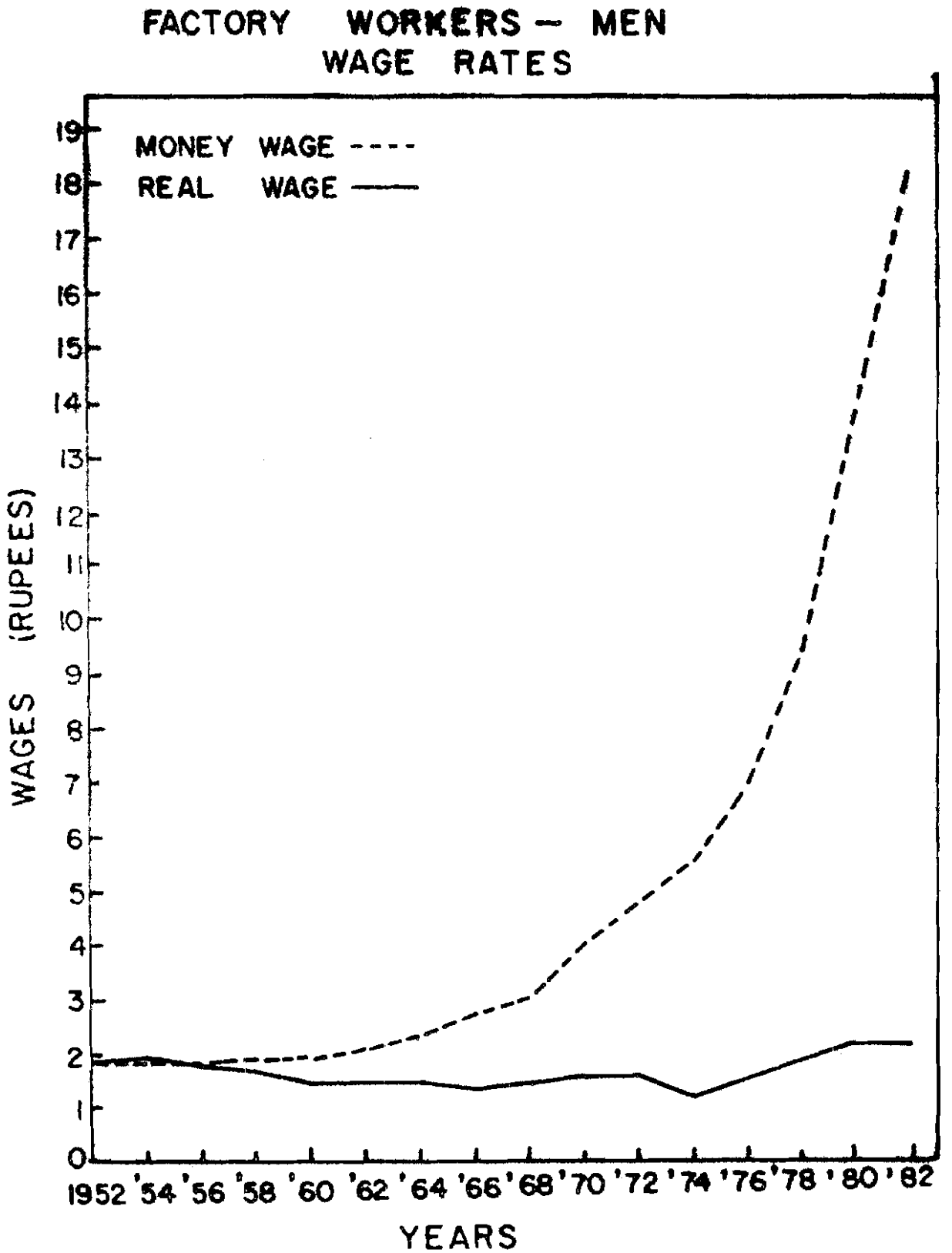
7.1.3 Tappers

The minimum piece rate wages for the tappers had increased from Rs.1.64 in 1952 to Rs.19.23, the increase was 1072 percent, but the increase in real terms was only Rs.1.97, which was 20 percent. Figure XX shows this position. The guaranteed minimum rates for the tappers increased from Rs.0.80 to Rs.5.65, only 606 percent, but in real terms the rate declined to Rs.0.61, the decline being 23.75 percent. Figure XXI shows the changes in the guaranteed time rates.

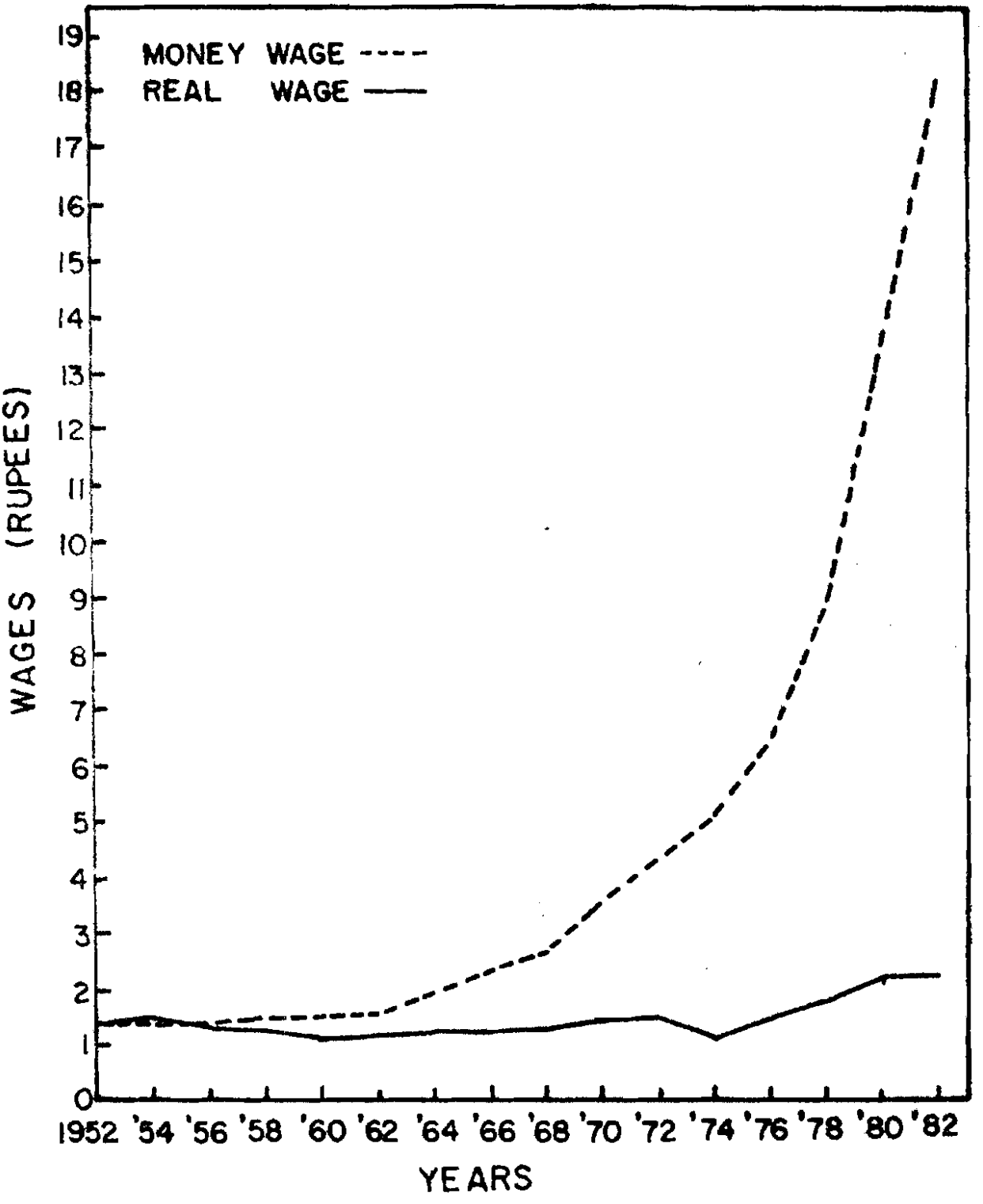
7.1.4 Wage Rate for the Standard Output for the Tappers

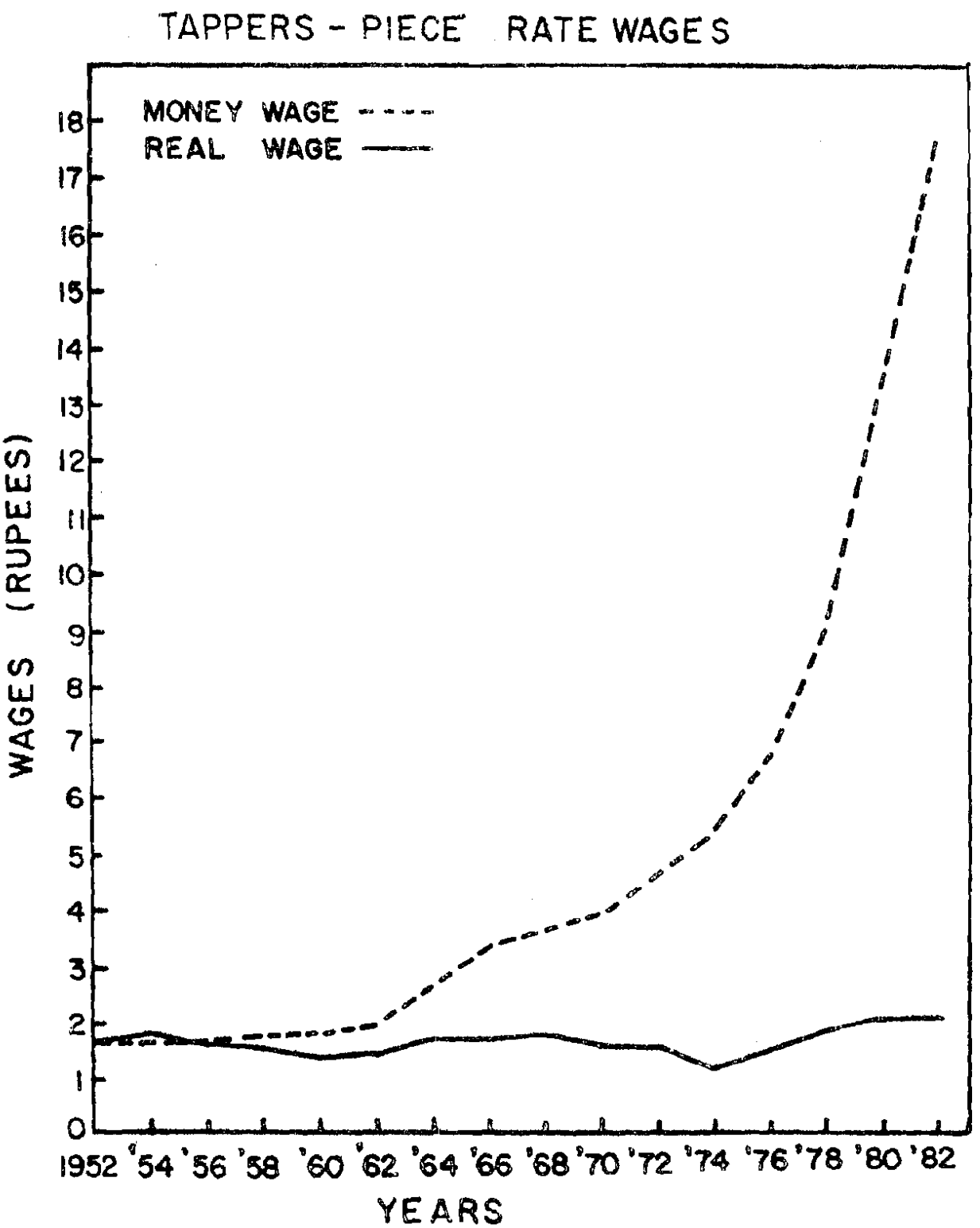
The wage rate given for the tappers for bringing the standard output of 1.5 kilogram of latex from the four classes of rubber estates also had increased over a period of 32 years. The rate in 1952 for the standard output was Rs.0.73 for Class I estate, Rs.0.87 for Class II, Rs.0.85 for Class III

(FIGURE - XVIII)



FACTORY WORKERS — WOMEN
WAGE RATES




TAPPERS - PIECE RATE WAGES
MONEY WAGE
REAL WAGE
WAGES (RUPEES)
0
1
2
3
4
5
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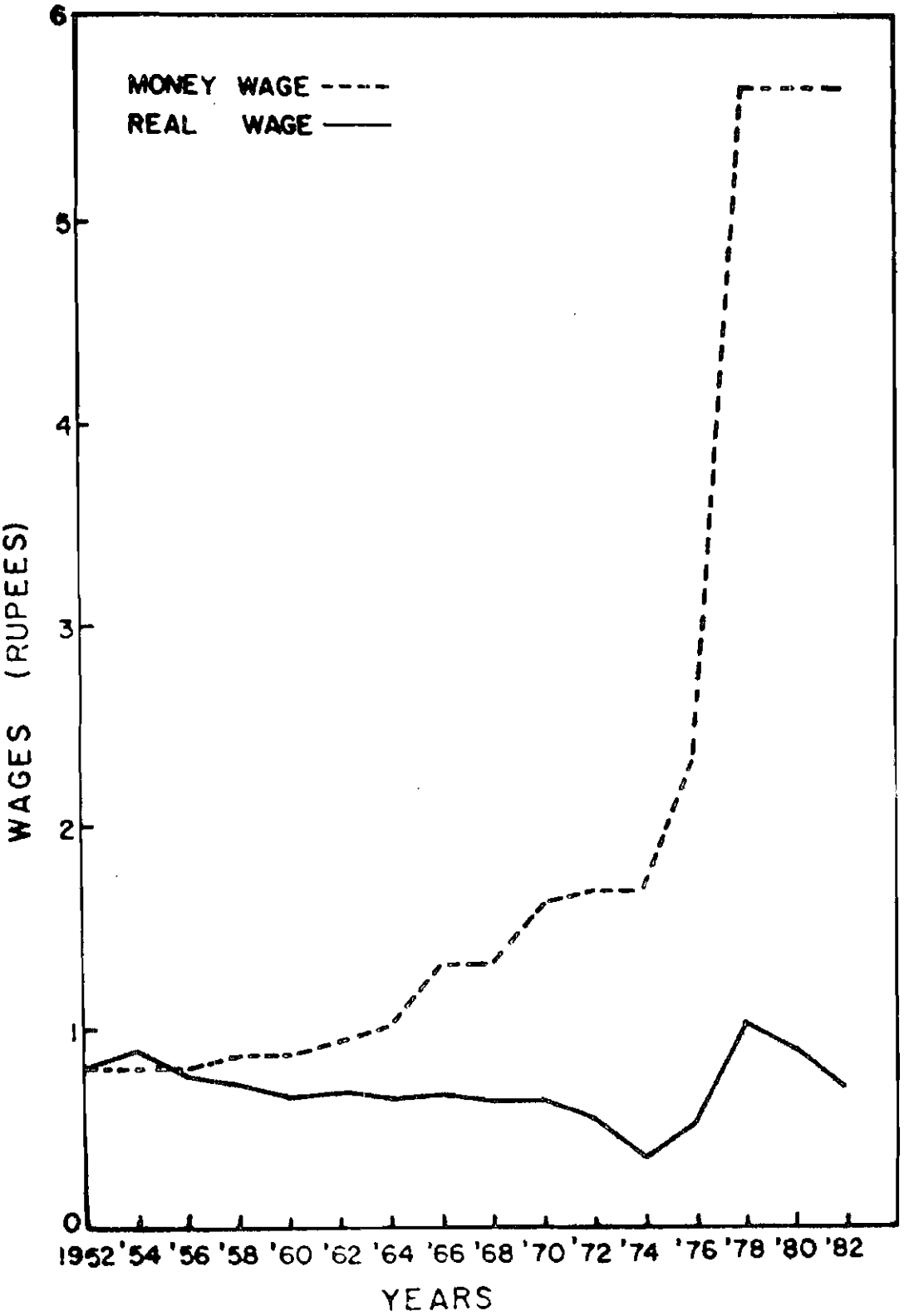
7
8
9
10
11
12
13
14
15
16
17
18
1952 '54 '56 '58 '60 '62 '64 '66 '68 '70 '72 '74 '76 '78 '80 '82
YEARS

TAPPERS- FALL BACK WAGE RATES



and Rs.0.84 for class IV estate. These differential rates between the four classes of estates were abolished by the Settlement of 1979. So in the year 1983, the rate was Rs.3.51 irrespective of the class of rubber estate. But the real wages have declined considerably. Against the uniform increase of Rs.3.51 in all classes of estates, real wages have declined to Rs.0.38 in all classes of estates. Table 7.2 shows all these details.

The money wage increase in respect of Class I estate was 380 percent, of Class II estate 303 percent of Class III 313 percent and of Class IV estate it was 317 percent. But the real wage rates declined to the level of 48 percent in Class I estate, 56 percent for Class II, 55 percent for Class III and 55 percent for class IV estates.

TABLE 7.2 MONEY AND REAL WAGE CHANGES IN THE WAGE RATES OF THE WORKERS IN THE RUBBER PLANTATIONS IN KANYAKUMARI DISTRICT BETWEEN 1952 AND 1983

Categories of Workers	Money Wage		Percentage change	Real Wage		Percentage change
	1952 Rs.P.	1983 Rs.P.		1952 Rs.P.	1983 Rs.P.	
Field Workers						
Men	1.60	19.03	1089	1.60	2.06	28.75
Women	1.20	19.03	1485	1.20	2.06	71.6
Factory Workers						
Men	1.81	19.68	987	1.81	2.13	17.6
Women	1.37	19.68	1336	1.37	2.13	55
TAPPERS						
Piece Rate	1.64	19.23	1072	1.64	1.97	20
Guaranteed Time Rate	0.80	5.65	606	0.80	0.61	- 23.75
Rate for the Standard Output						
Class I Estate	0.73	3.51	380	0.73	0.38	- 48
Class II Estate	0.87	3.51	303	0.87	0.38	- 56.4
Class III - Estate	0.65	3.51	313	0.85	0.38	- 55.3
Class IV Estate	0.84	3.51	317	0.84	0.38	- 54.8

7.1.5 Overkilo Rates

The overkilo rates for 23 years (1961-1983) shows that even the money wage rates had not increased significantly. The increase in money wage in Class I and II estates was from

Rs.0.14 to Rs.0.65, an increase of 364 percent and in Class III and IV estates was from 0.16 to Rs.0.65, the increase being 306 percent. But the real wages had declined. The decline in Class I and II estates was 36 percent and in Class III and IV estates was 44 percent, since the real wage in all classes of estates had declined to Rs.0.09. The following Table shows the details.

TABLE 7.3 MONEY AND REAL WAGE CHANGES IN THE RATE FOR OVERKILO OF RUBBER PAID TO THE WORKERS IN THE RUBBER PLANTATIONS IN KANYAKUMARI DISTRICT BETWEEN 1961 AND 1983

Classes of Estates	Money Wage		Percentage change	Real Wage		Percenta increas
	1961 Rs.P.	1983 Rs.P.		1961 Rs.P.	1983 Rs.P.	
Class I and II	0.14	0.65	364	0.14	0.09	-36
Class III and IV	0.16	0.65	306	0.16	0.09	-44

7.1.6 Rate for Scrap Rubber

Similarly, the money wage rates for bringing scrap rubber had also not increased significantly for a period of 11 years from 1973-1983. The money wage rates had increased from Rs.0.25 in Class I and II estates to Rs.0.30(20%), and from Rs.0.27 in Class III and IV estates to Rs.0.30(11%) for the same period.

But the real wage rates had declined from Rs.0.25 to Rs.0.09 (64%) in Class I and II estates and from Rs.0.27 to Re.0.09(67%) in Class III and IV estates. The following Table shows the details.

TABLE 7.4 MONEY AND REAL WAGE CHANGES IN THE PAYMENT OF SCRAP RUBBER IN THE RUBBER PLANTATIONS IN KANYAKUMARI DISTRICT BETWEEN 1973 AND 1983

Classes of Estates	Money Wage 1973 Rs.P.	Money Wage 1983 Rs.P.	Percentage increase	Real Wage 1973 Rs.P.	Real Wage 1983 Rs.P.	Percentage increase
Class I and II Estates	0.25	0.30	20	0.25	0.09	-64
Class III and IV estates	0.27	0.30	11	0.27	0.09	-67

7.2 Trend and Growth Rate Estimates

The trend and compound growth rate estimates of the real wages of the workers reveal the following:

(a) The real wages for men field workers increased at an annual rate of 1 paise with a growth rate of 0.78 and for the women field workers, the annual increase was 3 paise with a growth rate of 2.08. The trend of the wage rates for men and the trend and growth rate of the wages for women workers are statistically significant and more significant for women workers.

(b) Real wage increase for men factory workers was at a rate of less than 1 paisa with a growth rate of 0.48, which are not significant. But real wage increase for women factory workers was annually at the rate of 2 paise with a growth rate of 1.56, which are significant.

(c) The real wages of the piece rate for the tappers had increased at a rate of 1 paisa per year with a growth rate of 0.64. But the guaranteed time rate of the tappers had declined annually at a rate less than 1 paisa with a growth rate of -0.52 but the decline was not significant.

(d) The rate for standard output of rubber also declined in real terms for all classes of estates. The decline was more than half a paisa for Class I estate with a growth rate of -1.17. Real wage decline for Class II estate was annually at a rate of 1 paisa with a growth rate of -2.2. For Class III estates the decline was annually at 1 paisa with a growth rate of -2.17 and the decline for Class IV estates was 1 paisa per year with a growth rate of -2.15.

(e) The decline of real wages in the case of the rate for overkilo of rubber for all classes of estates was negligible that they were less than a paisa annually.

(f) But the annual decline of real wages in the case of the rate for scrap rubber and the growth rates were significant.

The following Table gives all these details.

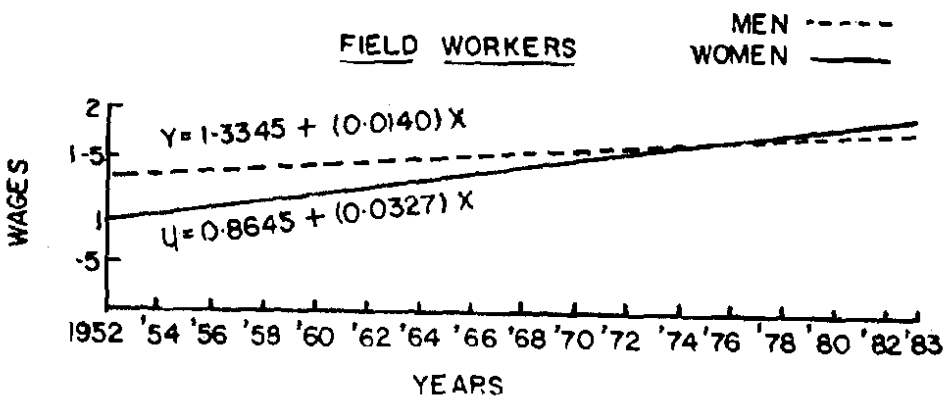
TABLE 7.8 TREND AND COMPOUND GROWTH RATE ESTIMATES OF THE REAL WAGES OF THE WORKERS IN THE RUBBER PLANTATIONS IN KANYAKUMARI DISTRICT BETWEEN 1952 AND 1983

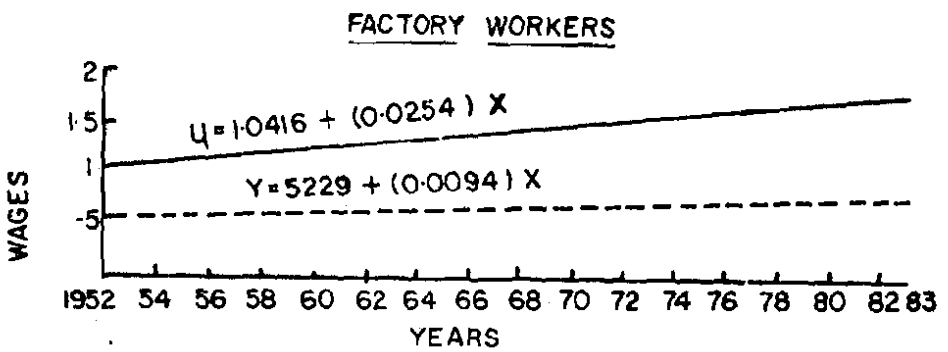
Categories of Workers	Model	Value of a	Value of b	R^2	Compound Growth Rate
Field Workers					
Men	Trend	1.3345	0.0140* (0.0049)	0.2126	
	Semilog	0.3044	0.0078 (0.0031)	0.1761	0.7884
Women	Trend	0.8645	0.0327* (0.0058)	0.5112	
	Semilog	- 0.0388	0.0206* (0.0038)	0.5289	2.0871
Factory Workers					
Men	Trend	1.5229	0.0094 (0.0053)	0.0929	
	Semilog	0.4242	0.0048 (0.0032)	0.0714	0.4816
Women	Trend	1.0416	0.0264* (0.0051)	0.4559	
	Semilog	0.0978	0.0155* (0.0033)	0.4292	1.5628
Tappers					
Piece Rate	Trend	1.4626	0.0116* (0.0042)	0.2026	
	Semilog	0.3883	0.0064 (0.0026)	0.1761	0.6392
Guranteed Time Rate	Trend	0.7384	- 0.0026 (0.0029)	0.0255	
	Semilog	- 0.3007	- 0.0082 (0.0043)	0.0459	- 0.8891
Rate for Standard Quality of Rubber					
Class I Estate	Trend	0.6989	- 0.0069* (0.0019)	0.3059	
	Semilog	- 0.3601	- 0.0119* (0.0034)	0.2847	- 1.1799
Class II Estate	Trend	0.9157	- 0.0145* (0.0017)	0.7138	
	Semilog	- 0.0638	- 0.0223* (0.0028)	0.6830	- 2.2023
Class III Estate	Trend	0.9173	- 0.0143* (0.0019)	0.6452	
	Semilog	- 0.0522	- 0.0219* (0.0030)	0.6358	- 2.1712
Class IV Estate	Trend	0.9157	- 0.0141* (0.0020)	0.6180	
	Semilog	- 0.0549	- 0.0218* (0.0031)	0.6151	- 2.1531
Rate for Grade III of Rubber (1981-1983) Class I and II Estates	Trend	0.1135	- 0.0001 (0.0007)	0.0011	
	Semilog	- 2.1921	- 0.0012 (0.0064)	0.0017	- 0.1208
Class III and IV Estates	Trend	0.1435	- 0.0014 (0.0006)	0.1958	
	Semilog	- 1.9422	- 0.0116 (0.0051)	0.1971	- 1.1564
Rate for Sheet Rubber (1973-1983) Class I and II Estates	Trend	0.1998	- 0.0089* (0.0023)	0.6212	
	Semilog	- 1.5699	- 0.0637* (0.0157)	0.6479	- 6.1750
Class III and IV Estates	Trend	0.2167	- 0.0103* (0.0023)	0.7166	
	Semilog	- 1.4770	- 0.0741* (0.0148)	0.7548	- 7.1423

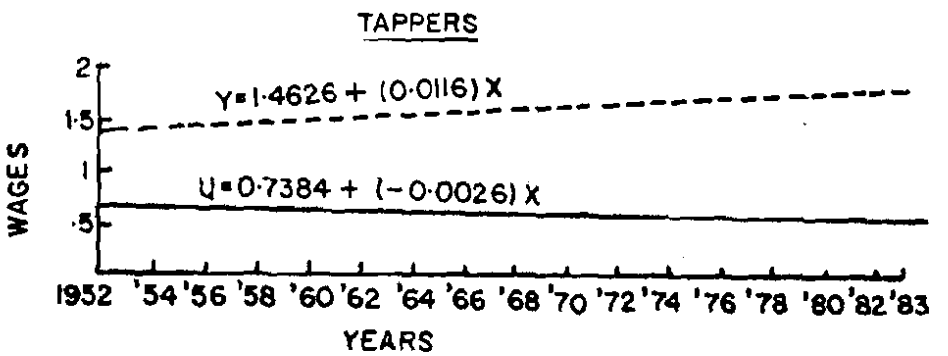
*Significant at 1% level Figures in Parantheses denote standard error

Figure XXII gives the details about the trend of real wages of the Workers.

TREND OF REAL WAGES







An analysis of the real wages of the workers in the rubber plantations in Kanyakumari District showed the following.

There were significant increases in the real wage rates of men and women field workers, women factory workers and the piece rate wages for the tappers. The wage rate increase for the men factory workers was not significant. The wage rate increase for the women workers was more significant than men workers in general. But the increase was less significant for the women factory workers than the women field workers. In short, women in unskilled work - field work - benefited more in terms of the real wage increase.

Regarding the incentive wage rates, a declining tendency was noticed in terms of the trend and growth rates. The rate for bringing standard output of rubber declined significantly. The decline of the rates was more significant in Class II, III and IV estates than in Class I estates. The rates for overkilo of rubber also declined though not significantly. The rate for scrap rubber declined significantly.

V.3.1 The Growth of the Rubber Plantation Industry in Kanyakumari District

If an analysis of the various growth aspects of the rubber plantations in Kanyakumari District is made, then the natural conclusion is that the Planters can afford to pay increased wage rates and other amenities to the workers. The area under rubber, tappable area, production of rubber and yield per hectare have all showed significant progress.

The area under rubber increased from 3773 hectares in 1955-'56 to 11768 hectares in 1980-'81 (212%), whereas in Kerala the area increased only by 180 percent for the same period (from 78457 hectares to 219866 hectares).[2] Tappable area in Kanyakumari District increased from 2921 hectares in 1953-'54 to 9912 hectares in 1981-'82 (239%), where as for Kerala the increase was only 194 percent for the same period (from 61570 hectares to 181168 hectares).[3] Production of rubber in Kanyakumari District increased from 1380 tonnes in 1953-'54 to 10510 tonnes in 1981-'82 (661%).[4] The yield per hectare of rubber in the District increased from 472 kilograms in 1953-'54 to 1078 kilograms in 1982-'83 (128%), where as for Kerala the yield per hectare for 1982-'83 was only 830 kilograms.[5]

7.3.2 Trend and Growth Rate Estimates

The estimates of the trend and growth rates also showed the same tendency. The area under rubber in Kanyakumari District increased at the rate of 387 hectares per year with a growth rate of 6.11, but with an annual increase of 5546 hectares in Kerala the growth rate was only 3.76. The compound growth rate for Kanyakumari District was more than that for Kerala.

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[2]The Rubber Board, Indian Rubber Statistics, 1983-84, p.8.

[3]Ibid

[4]Ibid, pp.18-19.

[5]Ibid

Tappable area in the District increased at the rate of 270 hectares per year with a growth rate of 4.97, but for Kerala the annual increase in the tappable area was 5226 hectares with a growth rate of 4.83. Here also the growth rate was more significant than in Kerala.

The yield per hectare of rubber in Kanyakumari District increased annually at the rate of 21 kilograms with a growth rate of 2.94 and the annual increase in Kerala was 20 kilograms with a growth rate of 4.05. Here the annual rate of increase was more for the Kanyakumari District than for Kerala. Production of rubber in the District increased annually at the rate of 346 tonnes with a growth rate of 8.56 which were also statistically significant.

The following Table shows the position of the trend and growth rate estimates of the area, tappable area, yield and production of rubber in Kanyakumari District.

TABLE 7.6 TREND AND GROWTH RATE ESTIMATES OF THE AREA, TAPPABLE AREA, YIELD AND PRODUCTION OF RUBBER IN THE RUBBER PLANTATIONS IN KANYAKUMARI DISTRICT DURING 1952-1983

Particulars	Model	Value of a	Value of b	R^2	Compound Growth Rate
Area in hectares (1950-56 to 1980-81)	Trend	3129.0861	387.4950* (31.2076)	0.8653	
	Semilog	8.0991	0.0595* (0.0127)	0.4780	6.1149
Tappable Area in hectares (1953-'54 to 1981-'82)	Trend	1954.8281	270.6093* (13.7637)	0.9347	
	Semilog	7.8274	0.0485* (0.0016)	0.9717	4.9708
Yield Per hectare of rubber (1953-'54 to 1983-'84)	Trend	453.7034	21.7611* (0.7516)	0.9677	
	Semilog	6.1918	0.0290* (0.0013)	0.9422	2.9430
Production of Rubber (1953-'54 to 1981-'82)	Trend	408.9409	346.9374* (17.7157)	0.9342	
	Semilog	7.0125	0.0822* (0.0048)	0.9145	8.5650

*Significant at 1% level Figures in parantheses denote standard error

7.3.3 Price of Rubber, Cost of Production and Income to the Planter

During the period of 32 years (1952 to 1983), consumption of rubber was always higher than total production of rubber

in the country resulting in the continued increase in the price of rubber.

While production of rubber increased from 20496 tonnes in 1952 to 175000 tonnes in 1983 (753%), consumption of rubber increased from 20344 tonnes to 198000 tonnes (873%) for the same period.[6] So the notified price of rubber per quintal also increased from Rs.281.14 to Rs.825.00 (193%).[7] Cost of production per quintal during these 32 years had increased from Rs.188.19 to Rs.437.00 (132%).[8] Cost of production as a percentage of the notified price decreased from 66.9 in 1952 to 52.96 in 1983. Because of these developments, the income to the Planter increased from Rs.92.95 to Rs.388.00 per quintal.[9]

The trend and growth rate estimates show that the notified price of rubber increased at an annual rate of Rs.11.99 with a growth rate of 2.65 per quintal. Cost of production increased at the rate of Rs.7.78 per quintal with a growth rate of 2.92. Income to the Planter increased at the rate of Rs.4.37 per year with a growth rate of 2.13. The trends and growth rates of all these aspects are significant. The following Table reveals all these details.

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[6] ibid, p.36.

[7] ibid, pp.45-51.

[8] ibid, p.51.

[9] ibid, p.55.

TABLE 7.7 TREND AND GROWTH RATE ESTIMATES OF THE NOTIFIED PRICE OF RUBBER, COST OF PRODUCTION AND INCOME TO THE PLANTER IN THE RUBBER PLANTATIONS BETWEEN 1962 AND 1983

Particulars	Model	Value of a	Value of b	R^2	Compound Growth Rate
Notified Price	Trend	216.4944	11.9948* (1.5214)	0.6745	
	Semilog	5.5533	0.0262* (0.0025)	0.7929	2.6521
Cost of Production	Trend	135.2237	7.7843* (0.6157)	0.8836	
	Semilog	5.0610	0.0287* (0.0015)	0.9218	2.9160
Income to the Planter	Trend	79.8594	4.3718* (1.1758)	0.3154	
	Semilog	4.5974	0.0211* (0.0061)	0.2812	2.1308

*Significant at 1% level Figures in parantheses denote standard error

7.3.4 Market Price of Rubber

As the demand for rubber has always been higher, rubber is not available for the notified price. Rubber is always sold at higher market price. The figures available reveal the fact that while the notified price of rubber was Rs.415.50 per quintal in 1968, the market price was Rs.485.81 per quintal.[10] When

[10] Ibid, p.52.

the notified price increased from Rs.415.50 to Rs.825.00 in 1983 (98.7%), the market price, for the same period, increased from Rs.465.81 to Rs.1537.30 (230%).[11]

Another factor is that the market price of rubber in India has been the highest compared to London price, New York price and Malaysian price of rubber. When the Indian price of rubber increased from Rs.465.81 to Rs.1537.30 per quintal, London Price increased from Rs.310.00 to Rs.1171.15, New York Price increased from Rs.328.00 to Rs.1171.00 and the Malaysian Price increased from Rs.287.00 to Rs.1057.91 from 1968 to 1983.[12]

The trend and growth rate estimates point out that the market price of rubber in India increased annually at the rate of Rs.77.68 per quintal with a growth rate of 9.56 which are statistically significant. Market price in London annually increased by Rs.44.42 with a growth rate of 1.65, in New York the increase was annually at the rate of 68.18 with a growth rate of 10.65 and in Malaysia the increase was at a rate of Rs.58.59 per year with a growth rate of 10.56. The following Table gives the details.

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[11] ibid

[12] ibid, p.104.

TABLE 7.8 TREND AND GROWTH RATE ESTIMATES OF THE MARKET PRICE OF RUBBER AT INDIA, LONDON, NEW YORK AND MALAYSIA BETWEEN 1968 AND 1983

Place	Model	Value of a	Value of b	R^2	Compound Growth Rate
India	Trend	174.0880	77.6839* (9.2926)	0.8331	
	Semilog	5.8455	0.0913* (0.0096)	0.8645	9.56
London	Trend	262.45	44.4176 (15.7182)	0.3632	
	Semilog	6.0166	0.0183 (0.0597)	0.0067	1.8479
New York	Trend	166.1750	68.1779* (6.6428)	0.8827	
	Semilog	5.6366	0.1012* (0.0111)	0.8555	10.6532
Malaysia	Trend	150.1802	58.5925* (6.9040)	0.8372	
	Semilog	5.5008	0.1004* (0.0125)	0.8214	10.5576

*Significant at 1% level Figures in parantheses denote standard error

7.4 Governmental Assistance to the Rubber Plantations

From 1961 onwards the Government of India has been assisting the Planters by giving replanting subsidy if the old

and low yielding trees are removed and high yielding trees are planted. This subsidy has increased from Rs.2.63 million in 1961-'62 to Rs.12.909 million in 1981-'82, an increase of 390.8%.[13]

On a representation from the Planters, the excise duty collected from them had been reduced considerably and in turn it was increased for the manufacturers of the rubber products. The excise duty collected from the Planters was reduced from Rs.0.1534 million in 1961-'62 to a mere Rs.1000 in 1981-'82 for the whole country, whereas the duty was raised from Rs.1.832 million to Rs.60.285 million to the manufacturers of the rubber products the increase being 3190 percent.[14] So the entire burden of the excise duty is now being borne by the manufacturers of rubber products.

The estimates of the trend and growth rates showed that the replanting subsidy had increased at the rate of Rs.483112 per year with a growth rate of 6.42. The excise duty from the Planters was reduced at the rate of Rs.24640 per year with a growth rate of - 26.20 where as the same was increased to the manufacturers of rubber products at the rate of Rs.3149501 with a growth rate of 14.94. All these figures are statistically significant. The following Table shows the position.

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[13] *ibid*, p.75.

[14] *ibid*

TABLE 7.9 TREND AND COMPOUND GROWTH ESTIMATES OF THE REPLANTING SUBSIDY AND THE EXCISE DUTY COLLECTED FROM THE RUBBER INDUSTRY BETWEEN 1961 AND 1982

Particulars	Model	Value of a	Value of b	R^2	Compound Growth Rate
Replanting Subsidy (1961-'62 to 1981-'82)	Trend	1922376.2080	483112.9661* (90744.0275)	0.5987	
	Semilog	14.9864	0.0622* (0.0119)	0.5889	6.4168
Excise duty collected from Producers (1961-'62 to 1981-'82)	Trend	404157.1429	- 24640.2597* (5970.9382)	0.4726	
	Semilog	13.4414	- 0.3039* (0.0337)	0.8102	- 26.2060
Excise duty from Manufacturers (1961-'62 to 1981-'82)	Trend	- 4052561.9394	3149501.3037* (138005.7941)	0.9648	
	Semilog	15.4022	0.1392* (0.0129)	0.8590	14.9367

*Significant at 1% level Figures in parentheses denote standard error

7.5. Indices of Wholesale Prices, Agricultural Production, Industrial Production and Productivity

The index number of wholesale prices of rubber (Base: 1970-'71=100) increased from 100 in 1970-'71 to 301-2 in 1981-'82.[15] The index number of agricultural production (Base: Triennium ending 1969-'70=100) increased from 127.1 in 1970-'71 to 217-9 in 1981-'82.[16] The index number of industrial production (Base: 1970=100) increased from 100 in 1970-'71 to 152.8 in 1981-'82.[17] The index number of productivity (Base: Triennium ending 1969-'70=100) increased from 112.5 in 1970-'71 to 138.7 in 1981-'82.[18]

The trend and growth rate calculations of the above show that the index of wholesale prices of rubber increased annually by 16 points with a compound growth rate of 10.1201. The index of agricultural production increased annually at the rate of 7 points with a compound growth rate of 4.43. The index of industrial production increased annually at the rate of 4 points with a compound growth rate of 3.74. The index of productivity increased at the rate of 1 point per year with a growth rate of 1.37.

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[15] *Ibid*, p.90.

[16] *Ibid*, p.87.

[17] *Ibid*, p.90.

[18] *Ibid*, p.88.

The trends and compound growth rates of all these were statistically significant. The following Table shows the position.

TABLE 7.10 TRENDS AND GROWTH RATES OF THE INDICES OF WHOLESALE PRICES, AGRICULTURAL PRODUCTION, INDUSTRIAL PRODUCTION AND PRODUCTIVITY BETWEEN 1970-71 AND 1981-82

Indices	Model	Value of a	Value of b	R^2	Compound Growth Rat
Wholesale Prices of Rubber	Trend	57.1379	16.3954* (2.5902)	0.9003	
	Semilog	4.4030	0.0964* (0.0132)	0.8412	10.1201
Agricultural Production of Rubber	Trend	134.0106	7.5189* (0.9675)	0.8580	
	Semilog	4.9128	0.0436* (0.0062)	0.8313	4.4511
Industrial Production of Rubber	Trend	96.2727	4.6426* (0.3234)	0.9537	
	Semilog	4.5928	0.0367* (0.0024)	0.9591	3.7399
Productivity of Rubber	Trend	118.0303	1.7248* (0.4928)	0.5505	
	Semilog	4.7708	0.0137* (0.0039)	0.5475	1.3767

*Significant at 1% level

Figures in parantheses denote standard error

and thereby tried to minimise labour costs. This is natural of any industry. But this only gives more support to the argument that with the tremendous growth, governmental assistance and the effort to reduce prime costs on labour recruitment, the Planters can afford to pay more wage rates to the workers and there is no reason for their unwillingness except to maximise their profits.

7.6 Average Daily Employment in the Rubber Plantations

Inspite of this impressive growth of the Rubber Plantation Industry, being labour intensive, the average daily employment of workers in the rubber plantations did not increase significantly. For the period from 1961 to 1981, the employment of workers in the rubber plantations increased from 101776 to 195000, showing an increase of only 91.6 percent for 21 years.[21] The trend and growth rate figures show that the daily employment in the rubber plantations increased annually at the rate of 80 persons, with a compound growth rate of 2.33, which are not significant. The following table shows the position.

TABLE 7.11 AVERAGE DAILY EMPLOYMENT OF WORKERS IN THE RUBBER PLANTATIONS DURING 1961-1981

Model	Value of a	Value of b	R^2	Compound Growth Rate
Trend	19978.7204	80.0103 (1351.1152)	0.0003	
Semilog	9.4336	0.0231 (0.0190)	0.0717	2.3347

Figures in parantheses denote standard error.

This is yet another proof of the fact that the rubber plantations were only employing the optimum number of workers

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[19] Ibid, p.74